**Utah Lake Drainage Basin**
**Water Delivery System**
**Bonneville Unit, Central Utah Project**
Final Environmental Impact Statement

# Surface Water Quality Technical Report

September 2004

UTAH RECLAMATION
MITIGATION
AND CONSERVATION
COMMISSION

# Utah Lake Drainage Basin Water Delivery System
# Environmental Impact Statement

## Surface Water Quality Technical Report

**September 2004**

**Prepared by**
**Central Utah Water Conservancy District**

**THIS PAGE INTENTIONALLY LEFT BLANK**

# Surface Water Quality Technical Report
# Contents


Page

**Chapter 1 Introduction** ..... 1

1.1 Purpose and Organization ..... 1
1.2 Description of Proposed Action and Other Alternatives ..... 1
1.2.1 Spanish Fork Canyon–Provo Reservoir Canal Alternative (Proposed Action) ..... 1
1.2.2 Bonneville Unit Water Alternative ..... 4
1.2.3 No Action Alternative ..... 5
1.3 Scoping Issues ..... 6
1.3.1 Issues Raised in Scoping Meetings ..... 6
1.3.2 Scoping Issues Eliminated From Further Consideration ..... 7
1.3.3 Scoping Issues Addressed in the Technical Report ..... 8
1.4 Impact Topics ..... 8

**Chapter 2 Methodology** ..... 9

2.1 Assumptions ..... 9
2.1.1 General ..... 9
2.1.1.1 Data Quality ..... 9
2.1.1.2 Treatment of Non-Detect Values ..... 9
2.1.2 Mass Balance Model ..... 10
2.2 Impact Analysis Methodology ..... 10
2.2.1 LKSIM2000 TDS Model ..... 11
2.2.2 Mass Balance Model ..... 11
2.2.3 Verification and Calibration ..... 13
2.2.3.1 LKSIM2000 TDS Model ..... 13
2.2.4 Localized Impacts on Utah Lake ..... 13
2.2.4.1 Total Phosphorus Concentration ..... 13
2.2.4.2 Total Dissolved Solids Concentration ..... 14

**Chapter 3 Affected Environment (Baseline Conditions)** ..... 15

3.1 Impact Area of Influence ..... 15
3.1.1 Spanish Fork-Provo Reservoir Canal and Bonneville Unit Water Alternative ..... 15
3.1.2 No Action Alternative ..... 15
3.2 Lake and Reservoir Water Quality ..... 15
3.2.1 Utah Lake ..... 15
3.2.1.1 Total Phosphorus ..... 19
3.2.1.1.1 Localized TP Concentrations ..... 19
3.2.1.1.2 Estimated TP Load ..... 20
3.2.1.2 Total Dissolved Solids ..... 23
3.2.1.2.1 TDS Concentrations ..... 23
3.2.1.2.2 Estimated TDS Load ..... 30
3.3 Stream and River Water Quality ..... 31
3.3.1 Provo River From Murdock Diversion to Utah Lake ..... 31
3.3.1.1 Dissolved Oxygen ..... 31
3.3.1.2 Water Temperature ..... 32
3.3.1.3 Total Phosphorus ..... 32

**Page**

3.3.1.4 Total Dissolved Solids ..... 33
3.3.1.5 pH ..... 34
3.3.1.6 Nitrate Plus Nitrite as Nitrogen ..... 35
3.3.1.7 Total Ammonia as Nitrogen ..... 36
3.3.1.8 Selenium ..... 37
3.3.1.9 Summary of Historic Baseline Conditions ..... 38
3.3.2 Hobble Creek From Mapleton Lateral to Utah Lake ..... 38
3.3.2.1 Dissolved Oxygen ..... 39
3.3.2.2 Water Temperature ..... 40
3.3.2.3 Total Phosphorus ..... 40
3.3.2.4 Total Dissolved Solids ..... 41
3.3.2.5 pH ..... 42
3.3.2.6 Nitrate Plus Nitrite as Nitrogen ..... 43
3.3.2.7 Total Ammonia as Nitrogen ..... 44
3.3.2.8 Selenium ..... 44
3.3.2.9 Summary of Historic Baseline and Simulated Baseline Conditions ..... 45
3.3.3 Spanish Fork River From Diamond Fork Creek to Utah Lake ..... 46
3.3.3.1 Dissolved Oxygen ..... 46
3.3.3.2 Water Temperature ..... 47
3.3.3.3 Total Phosphorus ..... 47
3.3.3.4 Total Dissolved Solids ..... 49
3.3.3.5 pH ..... 50
3.3.3.6 Nitrate Plus Nitrite as Nitrogen ..... 51
3.3.3.7 Total Ammonia as Nitrogen ..... 52
3.3.3.8 Selenium ..... 52
3.3.3.9 Summary of Historic and Simulated Baseline Conditions ..... 53
3.3.4 Jordan River ..... 55

**Chapter 4 Environmental Consequences (Impacts)** ..... 57

4.1 Significance Criteria ..... 57
4.2 Potential Impacts Eliminated From Further Analysis ..... 61
4.3 Spanish Fork Canyon-Provo Reservoir Canal Alternative (Proposed Action) ..... 61
4.3.1 Lake and Reservoir Water Quality ..... 61
4.3.1.1 Utah Lake ..... 61
4.3.1.1.1 Total Phosphorus ..... 61
4.3.1.1.1.1 Localized TP Concentrations ..... 62
4.3.1.1.1.2 Estimated TP Load ..... 65
4.3.1.1.2 Total Dissolved Solids ..... 66
4.3.1.1.2.1 TDS Cumulative Concentrations ..... 66
4.3.1.1.2.2 Estimated TDS Load ..... 68
4.3.2 Stream and River Water Quality ..... 69
4.3.2.1 Provo River From Murdock Diversion to Utah Lake ..... 69
4.3.2.1.1 Dissolved Oxygen ..... 69
4.3.2.1.2 Water Temperature ..... 71
4.3.2.1.3 Total Phosphorus ..... 72
4.3.2.1.4 Total Dissolved Solids ..... 73
4.3.2.1.5 pH ..... 74

**Page**

4.3.2.1.6 Nitrate Plus Nitrite as Nitrogen ..... 75
4.3.2.1.7 Ammonia as Nitrogen ..... 76
4.3.2.1.8 Selenium ..... 77
4.3.2.1.9 Summary of Impacts on Lower Provo River Water Quality ..... 78
4.3.2.2 Hobble Creek Between Utah Lake and Mapleton Lateral ..... 78
4.3.2.2.1 Dissolved Oxygen ..... 78
4.3.2.2.2 Water Temperature ..... 80
4.3.2.2.3 Total Phosphorus ..... 81
4.3.2.2.4 Total Dissolved Solids ..... 82
4.3.2.2.5 pH ..... 83
4.3.2.2.6 Nitrate Plus Nitrite as Nitrogen ..... 84
4.3.2.2.7 Ammonia as Nitrogen ..... 85
4.3.2.2.8 Selenium ..... 86
4.3.2.2.9 Summary of Impacts on Hobble Creek Water Quality ..... 86
4.3.2.3 Spanish Fork River From Diamond Fork Creek to Utah Lake ..... 87
4.3.2.3.1 Dissolved Oxygen ..... 88
4.3.2.3.2 Water Temperature ..... 92
4.3.2.3.3 Total Phosphorus ..... 96
4.3.2.3.4 Total Dissolved Solids ..... 100
4.3.2.3.5 pH ..... 104
4.3.2.3.6 Nitrate Plus Nitrite as Nitrogen ..... 108
4.3.2.3.7 Ammonia as Nitrogen ..... 112
4.3.2.3.8 Selenium ..... 116
4.3.2.3.9 Summary of Impacts on Spanish Fork River Water Quality ..... 120
4.3.3 Summary of Proposed Action Impacts ..... 123
4.4 Bonneville Unit Water Alternative ..... 124
4.4.1 Lake and Reservoir Water Quality ..... 124
4.4.1.1 Utah Lake ..... 124
4.4.1.1.1 Total Phosphorus ..... 124
4.4.1.1.1.1 Localized TP Concentrations ..... 124
4.4.1.1.1.2 Estimated TP Load ..... 123
4.4.1.1.2 Total Dissolved Solids ..... 128
4.4.1.1.2.1 TDS Cumulative Concentrations ..... 128
4.4.1.1.2.2 Estimated TDS Load ..... 129
4.4.2 Stream and River Water Quality ..... 131
4.4.2.1 Hobble Creek Between Utah Lake and Mapleton Lateral ..... 131
4.4.2.1.1 Dissolved Oxygen ..... 131
4.4.2.1.2 Water Temperature ..... 133
4.4.2.1.3 Total Phosphorus ..... 134
4.4.2.1.4 Total Dissolved Solids ..... 135
4.4.2.1.5 pH ..... 136
4.4.2.1.6 Nitrate Plus Nitrite as Nitrogen ..... 137
4.4.2.1.7 Ammonia as Nitrogen ..... 138
4.4.2.1.8 Selenium ..... 139
4.4.2.1.9 Summary of Impacts on Hobble Creek Water Quality ..... 139
4.4.2.2 Spanish Fork River From Diamond Fork Creek to Utah Lake ..... 140
4.4.2.2.1 Dissolved Oxygen ..... 141
4.4.2.2.2 Water Temperature ..... 145

**Page**

4.4.2.2.3 Total Phosphorus ..... 149
4.4.2.2.4 Total Dissolved Solids ..... 153
4.4.2.2.5 pH ..... 157
4.4.2.2.6 Nitrate Plus Nitrite as Nitrogen ..... 161
4.4.2.2.7 Ammonia as Nitrogen ..... 165
4.4.2.2.8 Selenium ..... 169
4.4.2.2.9 Summary of Impacts on Spanish Fork Water Quality ..... 172
4.4.3 Summary of Bonneville Unit Water Alternative Impacts ..... 174
4.5 No Action Alternative ..... 175
4.5.1 Lake and Reservoir Water Quality ..... 175
4.5.1.1 Utah Lake ..... 175
4.5.1.1.1 Total Phosphorus ..... 175
4.5.1.1.1.1 Localized TP Concentrations ..... 175
4.5.1.1.1.2 Estimated TP Load ..... 176
4.5.1.1.2 Total Dissolved Solids ..... 176
4.5.1.1.2.1 TDS Cumulative Concentrations ..... 176
4.5.1.1.2.2 Estimated TDS Load ..... 180
4.5.2 Stream and River Water Quality ..... 180
4.5.2.1 Spanish Fork River From Diamond Fork Creek to Utah Lake ..... 180
4.5.2.1.1 Dissolved Oxygen ..... 181
4.5.2.1.2 Water Temperature ..... 183
4.5.2.1.3 Total Phosphorus ..... 185
4.5.2.1.4 Total Dissolved Solids ..... 187
4.5.2.1.5 pH ..... 189
4.5.2.1.6 Nitrate Plus Nitrite as Nitrogen ..... 191
4.5.2.1.7 Ammonia as Nitrogen ..... 193
4.5.2.1.8 Selenium ..... 195
4.5.2.1.9 Summary of Impacts on Spanish Fork Water Quality ..... 196
4.5.3 Summary of No Action Alternative Impacts ..... 198

**Chapter 5 Mitigation and Monitoring** ..... 199

5.1 Spanish Fork Canyon-Provo Reservoir Canal Alternative ..... 199
5.1.1 Mitigation and Monitoring ..... 199
5.2 Bonneville Unit Water Alternative ..... 199
5.2.1 Mitigation and Monitoring ..... 199
5.3 No Action Alternative ..... 199
5.3.1 Mitigation and Monitoring ..... 199

**Chapter 6 Unavoidable Adverse Impacts** ..... 201

6.1 Spanish Fork Canyon-Provo Reservoir Canal Alternative (Proposed Action) ..... 201
6.2 Bonneville Unit Water Alternative ..... 201
6.3 No Action Alternative ..... 201

**Chapter 7 Cumulative Impacts** ..... 203

7.1 Spanish Fork Canyon-Provo Reservoir Canal Alternative (proposed Action) ..... 203

Page

7.1.1 Lower Provo River Diversion Dam Modifications ..... 203
7.1.2 State Engineer Operation of Utah Lake ..... 203
7.1.3 Wastewater Treatment Plant Discharges to Utah Lake ..... 203
7.2 Bonneville Unit Water Alternative ..... 204
7.2.1 Lower Provo River Diversion Dam Modifications ..... 204
7.2.2 State Engineer Operation of Utah Lake ..... 204
7.2.3 Wastewater Treatment Plant Discharges to Utah Lake ..... 204
7.3 No Action Alternative ..... 204
7.3.1 Lower Provo River Diversion Dam Modifications ..... 204
7.3.2 State Engineer Operation of Utah Lake ..... 204
7.3.3 Wastewater Treatment Plant Discharges to Utah Lake ..... 205

**References Cited** ..... R-1
**Glossary** ..... G-1
**Abbreviations and Acronyms** ..... A&A-1

**Appendix A – Surface Water Quality Data**

**Page**

## Tables

| Table Number | Table Title | Page |
|---|---|---|
| Table 1-1 | Construction Features of Utah lake Drainage Basin Water Delivery System Alternatives | 2 |
| Table 3-1 | Utah Lake Surface Total Phosphorus Concentration sat Selected STORET Stations, 1990 to 1999 | 19 |
| Table 3-2 | Estimated Historic Utah Lake Phosphorus Load | 20 |
| Table 3-3 | Estimated Simulated Baseline Utah Lake Phosphorus Load | 23 |
| Table 3-4 | Utah Lake Historical Total Dissolved Solids Concentrations | 23 |
| Table 3-5 | Historic Utah Lake TDS Concentrations and Lake Volume | 29 |
| Table 3-6 | Estimated Historic Baseline Utah Lake Total Dissolved Solids Load | 30 |
| Table 3-7 | Estimated Simulated Baseline Utah Lake Total Dissolved Solids Load | 30 |
| Table 3-8 | Average Monthly Historic Baseline Dissolved Oxygen Concentrations in the Lower Provo River | 31 |
| Table 3-9 | Average Monthly Historic Baseline Water Temperature in the Lower Provo River | 32 |
| Table 3-10 | Average Monthly Historic Baseline Total Phosphorus Concentrations in the Lower Provo River | 33 |
| Table 3-11 | Average Monthly Historic Baseline Total Dissolved Solids Concentrations in the Lower Provo River | 33 |
| Table 3-12 | Average Monthly Historic Baseline pH in the Lower Provo River | 34 |
| Table 3-13 | Average Monthly Historic Baseline Nitrate + Nitrite Concentrations in the Lower Provo River | 35 |
| Table 3-14 | Average Monthly Historic Baseline Total Ammonia Concentrations in the Lower Provo River | 36 |
| Table 3-15 | Average Monthly Historic Baseline Selenium Concentrations in the Lower Provo River | 37 |
| Table 3-16 | Summary of Historic Baseline Water Quality Conditions in the Lower Provo River | 38 |
| Table 3-17 | Average Monthly Historic Baseline Dissolved Oxygen Concentrations in Hobble Creek | 39 |
| Table 3-18 | Average Monthly Historic Baseline Water Temperature in Hobble Creek | 40 |
| Table 3-19 | Average Monthly Historic Baseline Total Phosphorus Concentrations in Hobble Creek | 41 |
| Table 3-20 | Average Monthly Historic Baseline Total Dissolved Solids Concentrations in Hobble Creek | 41 |
| Table 3-21 | Average Monthly Historic Baseline pH in Hobble Creek | 42 |
| Table 3-22 | Average Monthly Historic Baseline Nitrate + Nitrite Concentrations in Hobble Creek | 43 |
| Table 3-23 | Average Monthly Historic Baseline Total Ammonia Concentrations in Hobble Creek | 44 |
| Table 3-24 | Average Monthly Historic Baseline Selenium Concentrations in Hobble Creek | 45 |
| Table 3-25 | Summary of Historic Baseline Water Quality Conditions in Hobble Creek | 45 |
| Table 3-26 | Average Monthly Historic Baseline and Simulated Baseline Dissolved Oxygen Concentrations in Spanish Fork River (mg/L) | 46 |
| Table 3-27 | Average Monthly Historic Baseline and Simulated Baseline Water Temperatures in Spanish Fork River (°C) | 47 |
| Table 3-28 | Average Monthly Historic Baseline and Simulated Baseline Total Phosphorus as P Concentrations in Spanish Fork River (mg/L) | 48 |
| Table 3-29 | Average Monthly Historic Baseline and Simulated Baseline Total Dissolved Solids Concentrations in Spanish Fork River (mg/L) | 49 |
| Table 3-30 | Average Monthly Historic Baseline and Simulated Baseline pH in Spanish Fork River (units) | 50 |
| Table 3-31 | Average Monthly Historic Baseline and Simulated Baseline Nitrate Plus Nitrite as N Concentrations in Spanish Fork River (mg/L) | 51 |
| Table 3-32 | Average Monthly Historic Baseline and Simulated Baseline Ammonia as N Concentrations in Spanish Fork River (mg/L) | 52 |

**Page**

Table 3-33 Average Monthly Historic Baseline and Simulated Baseline Selenium Concentrations in Spanish Fork River (µg/L) ..... 53
Table 3-34 Summary of Historic Baseline Water Quality Conditions in the Spanish Fork River ..... 54
Table 3-35 Summary of Simulated Baseline Water Quality Conditions in the Spanish Fork River ..... 54
Table 3-36 Summary of Average and Maximum Baseline Water Quality Conditions in Jordan River From Utah lake Outlet to Jordan Narrows ..... 55
Table 4-1 State of Utah Water Quality Standards and Pollution Indicators by Key Parameters and Water Use Classification ..... 58
Table 4-2 State of Utah Water Use Classification of Hydrologic Features in the Impact Area of Influence .. 60
Table 4-3 Estimated Utah Lake Phosphorus Load Under the Proposed Action and Change From Historic Baseline Total Phosphorus Load ..... 65
Table 4-4 Estimated Utah Lake Phosphorus Load Under the Proposed Action and Change From Simulated Baseline Total Phosphorus Load ..... 66
Table 4-5 Utah Lake Total Dissolved Solids Concentrations Under the Proposed Action and Compared to Historical and Simulated Baseline Conditions ..... 67
Table 4-6 Estimated Utah Lake TDS Load Under the Proposed Action and Change From Historic Baseline ..... 68
Table 4-7 Estimated Utah Lake TDS Load Under the Proposed Action and Change From Simulated Baseline ..... 69
Table 4-8 Average Monthly Dissolved Oxygen Concentrations in the Lower Provo River Under the Proposed Action (mg/L) ..... 70
Table 4-9 Average Monthly Water Temperatures in the Lower Provo River Under the Proposed Action (°C) ..... 71
Table 4-10 Average Monthly Total Phosphorus Concentrations in the Lower Provo River Under the Proposed Action (mg/L) ..... 72
Table 4-11 Average Monthly Total Dissolved Solids Concentrations in the Lower Provo River Under the Proposed Action (mg/L) ..... 73
Table 4-12 Average Monthly pH in the Lower Provo River Under the Proposed Action (units) ..... 74
Table 4-13 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Provo River Under the Proposed Action (mg/L) ..... 75
Table 4-14 Average Monthly Ammonia as Nitrogen Concentrations in the Lower Provo River Under the Proposed Action (mg/L) ..... 76
Table 4-15 Average Monthly Selenium Concentrations in the Lower Provo River Under the Proposed Action (µg/L) ..... 77
Table 4-16 Provo River Annual Average Water Quality Under the Proposed Action and Change From Historic Baseline Conditions ..... 78
Table 4-17 Average Monthly Dissolved Oxygen Concentrations in the Hobble Creek Under the Proposed Action (mg/L) ..... 79
Table 4-18 Average Monthly Water Temperatures in the Hobble Creek Under the Proposed Action (°C) ..... 80
Table 4-19 Average Monthly Total Phosphorus Concentrations in the Hobble Creek Under the Proposed Action (mg/L) ..... 81
Table 4-20 Average Monthly Total Dissolved Solids Concentrations in the Hobble Creek Under the Proposed Action (mg/L) ..... 82
Table 4-21 Average Monthly pH in the Hobble Creek Under the Proposed Action (units) ..... 83
Table 4-22 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Hobble Creek Under the Proposed Action (mg/L) ..... 84

**Page**

Table 4-23 Average Monthly Ammonia as Nitrogen Concentrations in the Hobble Creek Under the Proposed Action (mg/L) ..... 85
Table 4-24 Average Monthly Selenium Concentrations in the Hobble Creek Under the Proposed Action (μg/L) ..... 86
Table 4-25 Hobble Creek Annual Average Water Quality Under the Proposed Action and Change From Historic Baseline Conditions ..... 87
Table 4-26 Average Monthly Dissolved Oxygen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 88
Table 4-27 Average Monthly Dissolved Oxygen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 89
Table 4-28 Average Monthly Dissolved Oxygen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 90
Table 4-29 Average Monthly Dissolved Oxygen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 91
Table 4-30 Average Monthly Water Temperatures in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (°C) ..... 92
Table 4-31 Average Monthly Water Temperatures in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (°C) ..... 93
Table 4-32 Average Monthly Water Temperatures in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (°C) ..... 94
Table 4-33 Average Monthly Water Temperatures in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (°C) ..... 95
Table 4-34 Average Monthly Total Phosphorus Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 96
Table 4-35 Average Monthly Total Phosphorus Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 97
Table 4-36 Average Monthly Total Phosphorus Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 98
Table 4-37 Average Monthly Total Phosphorus Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 99
Table 4-38 Average Monthly Total Dissolved Solids Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 100
Table 4-39 Average Monthly Total Dissolved Solids Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 101
Table 4-40 Average Monthly Total Dissolved Solids Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 102
Table 4-41 Average Monthly Total Dissolved Solids Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 103
Table 4-42 Average Monthly pH in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (units) ..... 104
Table 4-43 Average Monthly pH in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (units) ..... 105
Table 4-44 Average Monthly pH in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (units) ..... 106
Table 4-45 Average Monthly pH in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (units) ..... 107

**Page**

Table 4-46 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 108
Table 4-47 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 109
Table 4-48 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 110
Table 4-49 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 111
Table 4-50 Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 112
Table 4-51 Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L) ..... 113
Table 4-52 Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 114
Table 4-53 Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L) ..... 115
Table 4-54 Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (µg/L) ..... 116
Table 4-55 Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (µg/L) ..... 117
Table 4-56 Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (µg/L) ..... 118
Table 4-57 Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (µg/L) ..... 119
Table 4-58 Upper Spanish Fork River Annual Average Water Quality Under the Proposed Action and Change From Historic Baseline Conditions ..... 120
Table 4-59 Lower Spanish Fork River Annual Average Water Quality Under the Proposed Action and Change From Historic Baseline Conditions ..... 121
Table 4-60 Upper Spanish Fork River Annual Average Water Quality Under the Proposed Action and Change From Simulated Baseline Conditions ..... 122
Table 4-61 Lower Spanish Fork River Annual Average Water Quality Under the Proposed Action and Change From Simulated Baseline Conditions ..... 123
Table 4-62 Estimated Utah Lake Total Phosphorus Load Under the Bonneville Unit Water Alternative and Change From Historic Baseline ..... 127
Table 4-63 Estimated Utah Lake Phosphorus Load Under the Bonneville Unit Water Alternative and Change From Simulated Baseline ..... 127
Table 4-64 Utah Lake Total Dissolved Solids Cumulative Concentrations Under the Bonneville Unit Water Alternative Compared to Historical and Simulated Baseline Conditions ..... 128
Table 4-65 Average Monthly Total Dissolved Solids Load Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions ..... 130
Table 4-66 Estimated Utah Lake TDS Load Under the Bonneville Unit Water Alternative and Change From Simulated Baseline ..... 130
Table 4-67 Average Monthly Dissolved Oxygen Concentrations in the Hobble Creek Under the Bonneville Unit Water Alternative (mg/L) ..... 132

**Page**

Table 4-68 Average Monthly Water Temperatures in Hobble Creek Under the Bonneville Unit Water Alternative (°C) ..... 133
Table 4-69 Average Monthly Total Phosphorus Concentrations in Hobble Creek Under the Bonneville Unit Water Alternative (mg/L) ..... 134
Table 4-70 Average Monthly Total Dissolved Solids Concentrations in Hobble Creek Under the Bonneville Unit Water Alternative (mg/L) ..... 135
Table 4-71 Average Monthly pH in the Hobble Creek Under the Bonneville Unit Water Alternative (units) ..... 136
Table 4-72 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Hobble Creek Under the Bonneville Unit Water Alternative (mg/L) ..... 137
Table 4-73 Average Monthly Ammonia as Nitrogen Concentrations in the Hobble Creek Under the Bonneville Unit Water Alternative (mg/L) ..... 138
Table 4-74 Average Monthly Selenium Concentrations in the Hobble Creek Under the Bonneville Unit Water Alternative (µg/L) ..... 139
Table 4-75 Hobble Creek Annual Average Water Quality Under the Bonneville Unit Water Alternative and Compared to Historic Baseline ..... 140
Table 4-76 Average Monthly Dissolved Oxygen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 141
Table 4-77 Average Monthly Dissolved Oxygen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 142
Table 4-78 Average Monthly Dissolved Oxygen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 143
Table 4-79 Average Monthly Dissolved Oxygen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 144
Table 4-80 Average Monthly Water Temperatures in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (°C) ..... 145
Table 4-81 Average Monthly Water Temperatures in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (°C) ..... 146
Table 4-82 Average Monthly Water Temperatures in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (°C) ..... 147
Table 4-83 Average Monthly Water Temperatures in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (°C) ..... 148
Table 4-84 Average Monthly Total Phosphorus Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 149
Table 4-85 Average Monthly Total Phosphorus Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 150

**Page**

Table 4-86 Average Monthly Total Phosphorus Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 151
Table 4-87 Average Monthly Total Phosphorus Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 152
Table 4-88 Average Monthly Total Dissolved Solids Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 153
Table 4-89 Average Monthly Total Dissolved Solids Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 154
Table 4-90 Average Monthly Total Dissolved Solids Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 155
Table 4-91 Average Monthly Total Dissolved Solids Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 156
Table 4-92 Average Monthly pH in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (units) ..... 157
Table 4-93 Average Monthly pH in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (units) ..... 158
Table 4-94 Average Monthly pH in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (units) ..... 159
Table 4-95 Average Monthly pH in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (units) ..... 160
Table 4-96 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 161
Table 4-97 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 162
Table 4-98 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 163
Table 4-99 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 164
Table 4-100 Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 165
Table 4-101 Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L) ..... 166
Table 4-102 Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 167

**Page**

Table 4-103 Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L) ..... 168
Table 4-104 Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (µg/L) ..... 169
Table 4-105 Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (µg/L) ..... 170
Table 4-106 Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (µg/L) ..... 171
Table 4-107 Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (µg/L) ..... 172
Table 4-108 Spanish Fork River Water Quality From Diamond Fork Creek to Utah Lake Under the Bonneville Unit Water Alternative Compared to Historical Baseline ..... 173
Table 4-109 Spanish Fork River Water Quality From Diamond Fork Creek to Utah Lake Under the Bonneville Unit Water Alternative Compared to Simulated Baseline ..... 174
Table 4-110 Estimated Utah Lake Phosphorus Load Under the No Action Alternative and Change From Historic Baseline ..... 176
Table 4-111 Utah Lake Total Dissolved Solids Concentrations Under the No Action Alternative and Compared to Historic Baseline Conditions ..... 179
Table 4-112 Estimated Utah Lake TDS Load Under the No Action Alternative and Change From Historic Baseline ..... 180
Table 4-113 Average Monthly Dissolved Oxygen Concentrations in Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 181
Table 4-114 Average Monthly Dissolved Oxygen Concentrations in Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 182
Table 4-115 Average Monthly Water Temperatures in Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (°C) ..... 183
Table 4-116 Average Monthly Water Temperature in Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (°C) ..... 184
Table 4-117 Average Monthly Total Phosphorus Concentrations in Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 185
Table 4-118 Average Monthly Total Phosphorus Concentrations in Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 186
Table 4-119 Average Monthly Total Dissolved Solids Concentrations in Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 187
Table 4-120 Average Monthly Total Dissolved Solids Concentrations in the Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 188
Table 4-121 Average Monthly pH in the Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (units) ..... 189
Table 4-122 Average Monthly pH in the Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (units) ..... 190
Table 4-123 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 191

Page

Table 4-124 Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 192
Table 4-125 Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 193
Table 4-126 Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L) ..... 194
Table 4-127 Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (µg/L) ..... 195
Table 4-128 Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (µg/L) ..... 196
Table 4-129 Spanish Fork River Water Quality From Diamond Fork Creek to Utah Lake Under the No Action Alternative Compared to Historic Baseline ..... 197

## Figures

| Figure Number | Figure Title | Page |
|---|---|---|
| Figure 3-1 | Utah Lake TDS Concentration vs Lake Volume | 29 |

## Maps

| Map Number | Map Title | Page |
|---|---|---|
| Map 3-1 | Surface Water Quality Impact Area of Influence | 17 |
| Map 3-2 | Utah Lake Historic Surface Total Phosphorus Concentrations | 21 |
| Map 3-3 | Utah Lake Total Dissolved Solids Concentration – 14 August 1990 | 25 |
| Map 3-4 | Utah Lake Total Dissolved Solids Concentration – 06 July 1999 | 27 |
| Map 4-1 | Utah Lake Surface Phosphorus Concentrations During Seasonal Project Water Delivery – Proposed Action | 63 |
| Map 4-2 | Utah Lake Surface Total Phosphorus Concentrations during Seasonal Project Water Delivery – Bonneville Unit Alternative | 125 |
| Map 4-3 | Utah Lake Surface Total Phosphorus Concentrations During Seasonal Project Water Delivery – No Action Alternative | 177 |

**THIS PAGE INTENTIONALLY LEFT BLANK**

# Chapter 1
# Introduction

## 1.1 Purpose and Organization

This *Surface Water Quality Technical Report* (TR) analyzes potential impacts on surface water quality from the construction, operation and maintenance of the Utah Lake Drainage Basin Water Delivery System (ULS). This analysis is based on flow projections as described in detail in the Surface Water Hydrology Technical Report for the Utah Lake Drainage Basin Water Delivery System (CUWCD 2004a).

This TR addresses issues raised during the public and agency scoping process for the ULS and provides baseline information to support the ULS Final Environmental Impact Statement (FEIS) prepared in compliance with the National Environmental Policy Act (NEPA).

This TR is organized by the following chapters:

Chapter 1 – An outline of the TR and a summary description of the Proposed Action and other alternatives

Chapter 2 – Methodology used in the analysis of surface water quality

Chapter 3 – Affected Environment (Baseline Conditions)

Chapter 4 – Analysis of Environmental Consequences (impacts)

Chapter 5 – Mitigation and monitoring for significant impacts identified in the analysis

Chapter 6 – Unavoidable adverse impacts

Chapter 7 – Cumulative impacts of the ULS and related actions

## 1.2 Description of Proposed Action and Other Alternatives

This section serves as an overview of the ULS alternatives for this technical report.

### 1.2.1 Spanish Fork Canyon–Provo Reservoir Canal Alternative (Proposed Action)

Table 1-1 presents the Proposed Action features. This alternative has a total transbasin diversion of 101,900 acre-feet, which consists of the following amounts of water: 30,000 acre-feet of municipal and industrial (M&I) secondary water to southern Utah County, 30,000 acre-feet of M&I water to Salt Lake County, 1,590 acre-feet of M&I water already contracted to the southern Utah County cities, and 40,310 acre-feet of M&I water to Utah Lake for exchange to Jordanelle Reservoir. It would involve constructing five new pipelines: 1) from the mouth of Diamond Fork Canyon to the mouth of Spanish Fork Canyon; 2) from the mouth of Spanish Fork Canyon to Santaquin in southern Utah County; 3) from Santaquin to Mona Reservoir; 4) from the mouth of Spanish Fork Canyon to Hobble Creek along the Mapleton-Springville Lateral alignment; and 5) from the mouth of Spanish Fork Canyon to the Provo Reservoir Canal and Jordan Valley Aqueduct. Under this alternative, the Department of the Interior (DOI) would acquire 57,073 acre-feet of the Central Utah Water Conservancy District's (District)

**Table 1-1**
**Construction Features of Utah Lake Drainage Basin Water Delivery System Alternatives**

| Feature | Spanish Fork Canyon – Provo Reservoir Canal Alternative (Preferred Alternative) | Bonneville Unit Water Alternative | No Action Alternative |
|---|---|---|---|
| **Sixth Water Power Facility and Transmission Line** | 45 MW generator and 15.5 miles of overhead transmission line upgraded to 138 kV from Sixth Water Power Facility to Highway 6 | 45 MW generator and 15.5 miles of overhead transmission line upgraded to 138 kV from Sixth Water Power Facility to Highway 6 | Not constructed |
| **Upper Diamond Fork Power Facility and Underground Cable** | 5 MW generator and 1.5 miles of 25 kV underground cable (existing) through Tanner Ridge Tunnel to Sixth Water Transmission Line | 5 MW generator and 1.5 miles of 25 kV underground cable (existing) through Tanner Ridge Tunnel to Sixth Water Transmission Line | Not constructed |
| **Spanish Fork Canyon Pipeline** | 7.0 mile steel pipeline, 84-inches diameter from Spanish Fork Flow Control Structure at mouth of Diamond Fork Creek to Moark Junction | 7.0 mile steel pipeline, 72-inches diameter from Spanish Fork Flow Control Structure at mouth of Diamond Fork Creek to Moark Junction | Not constructed |
| **Spanish Fork-Santaquin Pipeline** | 17.5 mile steel pipeline, ranging from 60- to 36-inches diameter, from terminus of Spanish Fork Canyon Pipeline to Santaquin | 17.5 mile steel pipeline, ranging from 48- to 36-inches diameter, from terminus of Spanish Fork Canyon Pipeline to Santaquin (CUPCA Section 207 feature) | Not constructed |
| **Santaquin-Mona Reservoir Pipeline** | 7.7 mile steel pipeline, 30-inches diameter, from terminus of Spanish Fork-Santaquin Pipeline to Mona Reservoir | Not constructed | Not constructed |
| **Mapleton-Springville Lateral Pipeline (CUPCA Section 207)** | 5.7 mile steel pipeline, 48-inches diameter from terminus of Spanish Fork Canyon Pipeline to Hobble Creek | 5.7 mile steel pipeline, 48-inches diameter, from terminus of Spanish Fork Canyon Pipeline to Hobble Creek | Not constructed |
| **Spanish Fork – Provo Reservoir Canal Pipeline** | 19.7 mile steel pipeline, ranging from 60- to 48 inches diameter, from terminus of Spanish Fork Canyon Pipeline to Provo Reservoir Canal and Jordan Valley Aqueduct | Not constructed | Not constructed |

secondary water rights in Utah Lake as part of the project water supply. Two power generating facilities would be constructed in the Diamond Fork System under this alternative.

The following summarizes the Proposed Action operation.

- 30,000 acre-feet of ULS M&I water would be conveyed through the Spanish Fork – Provo Reservoir Canal Pipeline to the Provo Reservoir Canal (or enclosure) and the Jordan Aqueduct to Salt Lake County water treatment plants as a culinary supply.

- An annual average of 16,273 acre-feet of Bonneville Unit water from Strawberry Reservoir would be released for in-stream flows in Sixth Water Creek and Diamond Fork Creek and flow down the Spanish Fork River to Utah Lake mainly during the winter months, as previously described in the 1990 Diamond Fork System Final Supplement to the Final Environmental Impact Statement (Reclamation 1990). This water is included in the annual average of 40,310 acre-feet that would be exchanged from Utah Lake to Jordanelle Reservoir.

- As the ULS facilities are completed, but not later than 2030, 30,000 acre-feet of ULS M&I water would be delivered through the Spanish Fork–Santaquin Pipeline and the Mapleton – Springfield Lateral Pipeline in southern Utah County under a contract with SUVMWA. Of this amount, an estimated 3,000 acre-feet would be conserved under Section 207 projects, assigned to DOI, conveyed through the Mapleton–Springville Lateral Pipeline, and is included in the 12,037 acre-feet delivered to Hobble Creek for June sucker spawning and rearing flows and other in-stream flows as provided by deliveries from Strawberry Reservoir to Utah Lake. This 12,037 acre-feet of water would then be exchanged from Utah Lake to Jordanelle Reservoir.

- Up to 10,200 acre-feet of SVP water shares acquired by SUVMWA cities would be conveyed to these cities in southern Utah County through the new ULS pipelines on a space-available basis. This water is part of the overall 61,000 acre-feet of SVP water stored in Strawberry Reservoir. An additional 8,831acre-feet of SVP water would be delivered to the Mapleton and Springville irrigation companies through the Mapleton-Springville Lateral Pipeline. The balance of the SVP water supply would be released through the Strawberry Tunnel and Syar Tunnel to the Diamond Fork System and released to the Spanish Fork River.

- Of the 1,590 acre-feet of M&I water already under contract to SUVMWA, 590 acre-feet would be used by SUVMWA member cities as secondary M&I water. This water would be delivered through the Spanish Fork Canyon Pipeline and Spanish Fork–Santaquin Pipeline to the SUVMWA member cities. The remaining 1,000 acre-feet has been assigned to DOI and is part of the 12,037 acre-feet released to Hobble Creek.

- An annual average of 16,000 acre-feet of Bonneville Unit water would be delivered to the lower Provo River to assist in meeting the in-stream flow objectives and would be subsequently exchanged from Utah Lake to Jordanelle Reservoir. This water would be conveyed through the Spanish Fork–Provo Reservoir Canal Pipeline and discharged to the Provo River at the pipeline crossing when needed to make the Utah Lake–Jordanelle Reservoir exchange and when flows in the Provo River are less than 75 cfs. A minimum 75 cfs flow normally occurs in the river between the Olmsted and Murdock diversions during the summer months when releases are made from Deer Creek Reservoir for conveyance through the Provo Reservoir Canal.

- As allowed under the Jordanelle-Deer Creek Operating Agreement, an annual 12,165 acre-feet of water would be provided as flows for June sucker spawning and rearing in the lower Provo River to meet JSRIP goals annually.

- An average annual delivery of 12,037 acre-feet of project water would be available through the Mapleton-Springville Lateral Pipeline to Hobble Creek for June sucker spawning and rearing flows (April through July) and to provide other fish and wildlife benefits throughout the year. This water would be part of 40,310 acre-feet of Utah Lake inflow from Strawberry Reservoir and would be subsequently exchanged from Utah Lake to Jordanelle Reservoir. Of the 12,037 acre-feet, 4,000 acre-feet would be provided in every year because this is the amount of water saved each year through Section 207. An average of 8,037 acre-feet would be provided when water is being delivered from Strawberry Reservoir to Utah Lake for exchange up to Jordanelle Reservoir. Hobble Creek supplemental water would not be delivered during high runoff years when Utah Lake is above compromise level. The high runoff years correspond with years when natural runoff would be sufficient to attract June sucker spawning.

- Approximately 3,300 acre-feet of lower Provo River water rights purchased by the District for the Mitigation Commission would flow undiverted to Utah Lake, thereby increasing the irrigation season flow in the lower Provo River.

- Hydroelectric power would be generated from the Bonneville Unit and SVP water conveyance and contracted to the Western Area Power Administration (see Table 1-1 for generating capacities).

### 1.2.2 Bonneville Unit Water Alternative

Table 1-1 presents the features of this alternative. This alternative has a total transbasin diversion of 101,900 acre-feet which consists of which consists of the following amounts of water: 15,800 acre-feet of M&I secondary water to southern Utah County, 1,590 acre-feet of M&I water already contracted to the southern Utah County cities, and 84,510 acre-feet of M&I water to Utah Lake for exchange to Jordanelle Reservoir. It would involve constructing three new pipelines, the same as described for the Proposed Action: 1) from the mouth of Diamond Fork Canyon to the mouth of Spanish Fork Canyon; 2) from the mouth of Spanish Fork Canyon to Santaquin in southern Utah County; and 3) from the mouth of Spanish Fork Canyon to Hobble Creek along the Mapleton – Springville Lateral alignment. The Spanish Fork Canyon Pipeline would be a federally funded ULS feature; the other two pipelines would be constructed as combined ULS and Section 207 Water Conservation Program features. Under this alternative, two power generating facilities would be constructed in the Diamond Fork System; the DOI would acquire approximately 15,000 acre-feet of District secondary water rights in Utah Lake as part of the project water supply; and no M&I water would be conveyed to Salt Lake County.

The following summarizes the Bonneville Unit Water Alternative operation:

- As the ULS facilities are completed, 15,800 acre-feet of ULS M&I water would be delivered through the Spanish Fork–Santaquin Pipeline in southern Utah County under a contract with SUVMWA. Of the 15,800 acre-feet, it is anticipated that 3,000 acre-feet would be conserved under 207 projects and returned to DOI for in-stream flows, and would be included in the 23,510 acre-feet conveyed through the Mapleton-Springville Lateral pipeline.

- An annual average of 16,273 acre-feet of Bonneville Unit water from Strawberry Reservoir would be released for in-stream flows in Sixth Water Creek and Diamond Fork Creek and flow down the Spanish

Fork River to Utah Lake on a year-round basis. This water would be exchanged from Utah Lake to Jordanelle Reservoir.

- Up to 10,200 acre-feet of SVP water shares acquired by SUVMWA cities would be conveyed to member cities by SUVMUA in southern Utah County through the new ULS pipelines. This water is part of the overall 61,000 acre-feet of SVP water stored in Strawberry Reservoir. The balance of the SVP water would be released through the Strawberry Tunnel and Syar Tunnel to the Diamond Fork System for conveyance to the Spanish Fork River (except for SVP water in the Mapleton-Springville Lateral).

- Of the 1,590 acre-feet already under contract to SUVMWA, 590 acre-feet would be used by SUVMWA member cities as secondary M&I water. This water would be delivered through the ULS pipelines to the SUVMWA member cities. The remaining 1,000 acre-feet has been assigned to DOI and would be part of the 23,510 acre-feet released to Hobble Creek.

- About 84,510 acre-feet of Bonneville Unit water would be conveyed to Utah Lake primarily from October through April (winter months) when the radial gates are up at the five diversion dams on the Spanish Fork River, thus completing the M&I exchange between Strawberry Reservoir and Jordanelle Reservoir. Of this 84,510 acre-feet, about 65,000 acre-feet would be conveyed to Utah Lake via the Spanish Fork River and 19,510 acre-feet would be conveyed to Utah Lake via Hobble Creek.

- Under the Jordanelle-Deer Creek Operating Agreement, an annual 12,165 acre-feet of water would be provided as flows for June sucker spawning and rearing in the lower Provo River to meet JSRIP goals annually.

- An annual average of 23,510 acre-feet of water would be conveyed through the Mapleton-Springville Lateral pipeline to Hobble Creek for June sucker spawning and rearing flows to meet JSRIP goals and to provide other fish and wildlife benefits throughout the year. This water would be subsequently exchanged from Utah Lake to Jordanelle Reservoir. Of the 23,510 acre-feet, 4,000 acre-feet would be provided in every year that it is needed. About 3,000 acre-feet of this amount is ULS M&I water that would be available for release in the spring and 1,000 acre-feet is conserved Bonneville Unit M&I water that would occur during the summer season. The remaining annual average 19,510 acre-feet only would be brought when water is being delivered from Strawberry Reservoir to Utah Lake for exchange up to Jordanelle Reservoir. Hobble Creek supplemental water would not be delivered during high runoff years when Utah Lake is above compromise level. The high runoff years correspond with years when natural runoff would be sufficient to attract June sucker spawning. An additional 8,831 acre-feet of SVP water would be delivered through the Mapleton-Springville Lateral Pipeline to the Springville and Mapleton irrigation companies.

- Approximately 3,300 acre-feet of lower Provo River water rights purchased by the District for the Mitigation Commission would flow undiverted to Utah Lake, thereby increasing the irrigation season flow in the lower Provo River.

- Hydroelectric power would be generated from the M&I water conveyance and contracted to the Western Area Power Administration (see Table 1-1 for generating capacities).

### 1.2.3 No Action Alternative

No new water conveyance features would be constructed under the No Action Alternative. The 86,100 acre-feet of Bonneville Unit M&I water, minus the 1,590 acre-feet of Bonneville Unit water already contracted for by SUVMWA member cities, would be conveyed from Strawberry Reservoir through the existing Diamond Fork

System and discharged into the Spanish Fork River at the mouth of Diamond Fork Canyon, as described in the 1999 Diamond Fork FS-FEIS. All of this water would be exchanged from Utah Lake to Jordanelle Reservoir.

The following summarizes the No Action Alternative operation.

- Approximately 16,273 acre-feet of Bonneville Unit water from Strawberry Reservoir would be released for in-stream flows in Sixth Water Creek and Diamond Fork Creek and flow down the Spanish Fork River to Utah Lake during the non-irrigation season. This water would be exchanged from Utah Lake to Jordanelle Reservoir.

- 590 acre-feet of the total 1,590 acre-feet of existing Bonneville Unit M&I System water already contracted would be used by SUVMWA member cities as M&I water. This water would be made available to SUVMWA member cities by existing wells and through exchanged to Utah Lake. The remaining 1,000 acre-feet already returned to the DOI under the Spanish Fork City Section 207 project would flow down the Spanish Fork River to Utah Lake.

- 86,100 acre-feet of Bonneville Unit water would be conveyed through the Spanish Fork River to Utah Lake on a year-round basis, thus completing the M&I exchange between Strawberry Reservoir and Jordanelle Reservoir.

- Under the Jordanelle-Deer Creek Operating Agreement, an annual 12,165 acre-feet of water would be provided as flows for June sucker spawning and rearing in the lower Provo River to meet JSRIP goals annually.

- Approximately 3,300 acre-feet of lower Provo River water rights purchased by the District for the Mitigation Commission would flow undiverted to Utah Lake, thereby increasing the irrigation season flow in the lower Provo River.

## 1.3 Scoping Issues

### 1.3.1 Issues Raised in Scoping Meetings

The following surface water quality issues were raised during the public and agency scoping process.

- What impacts would occur on the upper Strawberry River as a result of constructing a pipeline from the proposed pump station to Daniels Pass
- What would be the impacts of constructing the pipeline along Highway 6 and within the communities in Utah County?
- What would be the impacts of possible catastrophic failure of the pipeline through Utah Lake?
- What impacts would occur on water quality under each of the ULS concepts?
- What water quality impacts would occur from passing Strawberry Reservoir water through Deer Creek Reservoir?
- What impacts would occur of each ULS water delivery concept on Utah Lake emergent vegetation, water quality, and evaporation?
- What would be the impacts of the ULS water delivery concepts on pollution of surface water and groundwater; habitat destruction, fragmentation and alteration (aquatic and terrestrial); and groundwater depletion?

- What would be the short-term impacts of construction of a pipeline from Strawberry Reservoir to Daniels Pass, with particular concern for water quality, sediment yield, noxious weed invasion, and ORV use of disturbed sites?
- What would be the impacts of constructing a pipeline along Daniels Creek on riparian habitat, water quality and transportation networks?
- What impacts would occur on water quality and energy usage from delivering water from the Spanish Fork River?
- What would be the impacts on channel stability, wildlife habitats, and sediment transport?
- What would be impacts on water quality in Utah Lake and the Jordan River, including the effects of disturbing sediments that may contain heavy metals or nutrients, from laying the pipeline across Utah Lake?
- What would be the impacts of the ULS on Jordan River and Great Salt Lake wetlands habitats and water quality?
- What would be the impacts on Utah Lake from a pipeline rupture, since the area is in a zone of high earthquake risk?
- What would be the impacts of the ULS water delivery concepts on pollution of surface water and groundwater and groundwater depletion?
- What would the impacts be on water quality from Concept 1?
- What would be the impacts of each ULS water delivery concept on Utah Lake emergent vegetation, water quality, and evaporation?
- What would be the impacts of the ULS water delivery concepts on pollution of surface water and groundwater?
- What would be the impacts on channel stability, wildlife habitats, and sediment transport?
- What impacts would occur on the Utah Lake ecosystem in terms of water quality?
- What would be the impacts of imported water on water quality in Utah Lake?
- What would be the impact on Utah Lake water quality from the No Action Alternative?

### 1.3.2 Scoping Issues Eliminated From Further Consideration

The following issues were eliminated from further analysis because the Spanish Fork-Bluffdale Alternative, which included the construction of a pipeline across Utah Lake, was eliminated from consideration (see EIS Chapter 1, Section 1.11, Alternatives Considered But Eliminated from Detailed Analysis):

- What would be the impacts of possible catastrophic failure of the pipeline through Utah Lake?
- What would be impacts on water quality in Utah Lake and the Jordan River, including the effects of disturbing sediments that may contain heavy metals or nutrients, from laying the pipeline across Utah Lake?
- What would be the impacts on Utah Lake from a pipeline rupture, since the area is in a zone of high earthquake risk?
- What would the impacts be on water quality from Concept 3? [Concept 3 was the Spanish Fork-Bluffdale Alternative during early scoping]

The following issues were eliminated from further analysis because three alternatives that would have delivered Strawberry Reservoir water to Deer Creek Reservoir, have been eliminated from further analysis. The Strawberry Reservoir-Daniels Summit Alternative, which included a 12.5-mile long steel pipeline from Strawberry Reservoir to Daniels Summit and discharge of water into Daniels Creek for conveyance to Deer Creek Reservoir, was

eliminated from further analysis (see Chapter 1, Section 1.11.6). The Upper Strawberry River Basin Pipeline Alternative, which included 8-miles of steel pipeline across wetlands in the upper Strawberry River basin, was eliminated from further analysis (see Chapter 1, Section 1.11.7). The Strawberry Reservoir-Deer Creek Reservoir Alternative, which included construction of a pipeline from Strawberry Reservoir across Daniels Pass and down Daniels Canyon to the Provo River above Deer Creek Reservoir, was eliminated from further analysis (see Chapter 1, Section 1.11.8).

- What impacts would occur on the upper Strawberry River as a result of constructing a pipeline from the proposed pump station to Daniels Pass?
- What water quality impacts would occur from passing Strawberry Reservoir water through Deer Creek Reservoir?
- What would be the short-term impacts of construction of a pipeline from Strawberry Reservoir to Daniels Pass, with particular concern for water quality, sediment yield, noxious weed invasion, and ORV use of disturbed sites?
- What would be the impacts of constructing a pipeline along Daniels Creek on riparian habitat, water quality and transportation networks?
- What would the impacts be on water quality from Concept 1? [Concept 1 was the Strawberry Reservoir-Deer Creek Reservoir Pipeline during early scoping]

### 1.3.3 Scoping Issues Addressed in the Technical Report

All issues in Section 1.3.1 are addressed in the impact analysis except those listed in Section 1.3.2.

## 1.4 Impact Topics

The following water quality impact topics are addressed in this technical report.

- Lake and reservoir water quality
- Stream and river water quality

# Chapter 2
# Methodology

## 2.1 Assumptions

### 2.1.1 General

The data and the mass balance model required several assumptions in order to be used in the baseline and alternative modeling and impact analysis. In summary:

- Data obtained from USGS, EPA, NOAA and the Utah Division of Water Quality were adequately reviewed for quality by the respective organizations. Water quality professionals from each of these agencies reviewed, identified, and discarded data that were considered suspect. Consequently, the data analyzed for this technical report is considered accurate and valid.

- Water quality data from the past 10 years adequately represents current conditions. The Utah Division of Water Quality recommended that the water quality analysis be performed during the period 1990 through 1999.

- The U.S. Fish and Wildlife Service recommended that the water quality analysis not use selenium data prior to 1996 because of analytical techniques resulting in too many non-detect values. A new analytical technique was used starting in early 1996. Therefore, the selenium data from January 1996 through July 2003 is assumed to be representative of the historic water quality conditions.

- Non-detect data values were assumed to equal half the detection limit for a subject water quality characteristic. For a water quality characteristic of concern, a range of typical concentrations is derived by substituting zero for non-detect values to define the lower end of the range, and substitution of the full detection limit to define the upper end of the range. The median value of each substitution set (0 and the detection limit) of data are considered as the lower and upper values, respectively, of typical concentrations of the characteristic (Michael and Moore 1997). The median is a measure of central tendency that describes a property of the population of data, using a sample statistic, which is a good estimate of the central tendency of the population. The median is the middle measurement in a set of data, and the sample median is the best estimate of the population mean. In symmetrical distributions, the sample median also is an unbiased and consistent estimate of $\mu$, the population mean. Extremely high or low measurements do not affect the median as much as the mean, and when analyzing populations, the median may be preferred to express central tendency.

- The mass balance model, which was critical for analyzing the water quality data required several assumptions which are discussed below (Section 2.1.2).

#### *2.1.1.1 Data Quality*

The process of gathering and reporting data is inherently prone to errors. Such errors may be the result of improper sampling techniques, improperly calibrated field equipment, improperly calibrated laboratory equipment, error in reading or recording of analysis results, etc. Various methods are used by those responsible for data quality to identify suspect data and to determine whether such data should be discarded. The extent to

which the data used in this project have been reviewed for quality are discussed here. Most of the data used has already passed through a formal review process. It was generally assumed that this review process was adequate. However, all data were reviewed as they were used to identify any data points that were inconsistent with other historical data.

Water quality data provided by the Utah Division of Water Quality passes through a formal process before the data set is made available to the public. It is expected, therefore, that all such data are reasonable and appropriate for analysis.

Flow data obtained from USGS have passed through a review process with the exception of data for the 2002 water year. The data for 2002 is deemed provisional.

The weather data from NOAA have passed through a formal review process for all dates obtained for this project.

The extent to which other data received for this project have been reviewed for quality is not known.

#### *2.1.1.2 Treatment of Non-Detect Values*

The water quality data obtained contain a significant number of non-detect values. This is the result of limitations in the laboratory equipment or analysis methods to correctly report values below a certain value. For example, the minimum detection limit for phosphorus is typically 0.02 mg/L, signifying that concentrations below this value may not be reliably determined. An assumption was made to numerically evaluate these non-detect results when evaluating water quality conditions. For the ULS EIS water quality analysis, non-detect values were assumed to equal half the detection limit for the subject water quality characteristic.

### 2.1.2 Mass Balance Model

The mass balance model was used to estimate the water quality under baseline conditions (two baselines: historic and simulated; see discussion of both below, Section 2.2.3) and for each alternative for several water bodies within the project area, including Provo River, Hobble Creek, Spanish Fork River, and Utah Lake. The mass balance model assumes that, within a river or reservoir segment, constituents are completely mixed. It assumes that constituents are "conservative." This means, for example, that there is no transformation to other chemical forms, and that there is no gain or loss (such as might happen because of settling or re-suspension). Another assumption was that concentration data collected in the past 10 years adequately represents input concentrations. In a constantly changing landscape (caused in part from urbanization, shifts in agriculture, new industries, etc.), using a longer record may not be representative of current conditions. However, with less than 10 years worth of data, there may not be enough data to create statistically meaningful values (such as a monthly average concentrations). Therefore, data collected since 1990 to the present were considered in establishing concentrations of water quality characteristics when 10 years of data would not yield statistically valid values.

## 2.2 Impact Analysis Methodology

Flow data for all analyses were obtained from the Surface Water Hydrology Technical Report (CUWCD 2004). The majority of the water quality data were obtained from the EPA STORET database. Additional water quality data were obtained from the Utah Division of Water Quality and other sources as described below and in Appendix A.

### 2.2.1 LKSIM2000 TDS Model

The LKSIM2000 model is essentially a mass balance model that calculates water and salt balances for Utah Lake. Early versions of the model were developed in the 1970s by Drs. LaVere Merritt and Dean Fuhriman, and since about 1985, Dr. Wood Miller, professors of civil and environmental engineering at Brigham Young University. The current version, LKSIM2000, is used routinely by the District and their consultants to simulate lake salt concentrations associated with various water management scenarios for Utah Lake.

The model computes the water balances and "conservative" salt concentrations for monthly time steps for any selected time period within the 50-year historical data-base period, 1950-1999 water years. Total dissolved solids, TDS, are the primary water quality characteristic in the quality simulation, with the model calculating magnesium, sodium, potassium, chloride and sulfate concentrations as conservative salts. Calcium and bicarbonate (carbonate) ions are precipitated within Utah Lake in large quantities and thus are not conservative in the water, but calculations are made to estimate the amount of calcium carbonate that precipitates in Utah Lake.

Extensive data files, containing measured and/or correlated/calibrated hydrologic and water quality data for over 50 "tributary" inflows and outflows, were used in the modeling. Monthly evaporation values were determined using the Modified Morton model, and monthly evaporation values from that model are exported into the model data base as monthly evaporation in feet; the same evaporation value is used for all areas of Utah Lake for a given month. Monthly rainfall is determined using the Theissen Polygon method for the rainfall stations around Utah Lake and are entered into the data base as monthly values in feet. Provo Bay, Goshen Bay and the Main Lake each have their own precipitation files. Historical, end of the month, Utah Lake elevations were obtained and entered in the data base.

The model is useful in projecting/simulating the TDS response to various water management scenarios evaluated. For example, various land use and water supply and water use alternates might be run to determine the water amounts and qualities associated with each of the scenarios. In concept, any changed data is superimposed on historical conditions, in the attempt to determine how the water and salt budgets and quality would change if the same historical hydrologic sequence and conditions re-occurred except for the imposed changes.

Only 30 acceptable TDS values on nine dates were available for Utah Lake. Because these data were not sufficient to compute representative monthly concentrations, these concentrations were compared directly to LKSIM2000 results for the month and year corresponding to when the sample was collected.

### 2.2.2 Mass Balance Model

A mass balance model was used to estimate water quality under baseline conditions and each ULS alternative in the water bodies that would be potentially affected, including Provo River, Hobble Creek, Spanish Fork River, and Utah Lake. Two different baseline conditions have to be used for estimating water quality impacts in the Spanish Fork River and Utah Lake because the Diamond Fork System will begin to operate in 2005, conveying water already committed under the Diamond Fork System FS-FEIS (CUWCD 1999). One baseline condition can be used to estimate water quality impacts in the Provo River and Hobble Creek because these streams will not be affected by operating the Diamond Fork System. The following discusses the two baseline conditions, historic and simulated, and how the mass balance model was used to estimate water quality impacts.

**Historic baseline conditions** are defined as water quality conditions in the Provo River, Hobble Creek, Spanish Fork River, and Utah Lake occurring from 1990 through 1999. Data from EPA's STORET database were used to develop the average monthly water quality concentrations for each characteristic. These concentrations were subsequently used in a mass balance blending model to estimate water quality concentrations resulting from the Proposed Action and other alternatives. Water quality data from 1990 to 1999, and limited 2000 through 2002

data were used where available, to develop mass balance model input concentrations. These data represent the most recent historic conditions for water quality in water bodies that would be affected by the ULS. Water quality data used to develop mass balance input concentrations are included in Appendix A. After data quality screening, data from each month were averaged to create representative average historic concentration values for each month of the year, which is considered the historic baseline condition. For selenium in the Spanish Fork River, only data after January 1, 1996 were used because of a change of analysis methodology in late 1995. Monthly average data, as available, were used as input into the mass balance model. In months with no available data, values were interpolated from the average of data for the months preceding and following the month with missing data.

**Simulated baseline conditions** are defined as water quality conditions resulting from operating the Diamond Fork System to convey 86,100 acre-feet of Bonneville Unit water from Strawberry Reservoir to Utah Lake in exchange for water that would normally flow from Jordanelle Reservoir. The Spanish Fork River stream flow comes from blending two water sources: natural runoff and Strawberry Reservoir water. The historic baseline water quality includes the effect of historic Strawberry Valley Project (SVP) water deliveries to the Spanish Fork River. Calculation of the "natural" water quality of the Spanish Fork River involved isolating the contribution of the historic SVP deliveries from Strawberry Reservoir. The estimate of natural water quality in the Spanish Fork River was accomplished using a series of spreadsheet calculations. Once the natural Spanish Fork water quality concentrations were known, the calculation of water quality under the alternatives, including the simulated baseline, was performed.

Changes in flow patterns in the Spanish Fork River, even in the absence of the ULS project, will occur as the Diamond Fork System begins to operate in 2005. These flow pattern changes will affect Utah Lake as well. The changed flow patterns were simulated for year 2030 conditions. Future water quality constituent concentrations are unknown, therefore, known input concentrations used for the historic baseline (1990 through 1999) were combined with simulated flows under each alternative in 2030, in the absence of a ULS project, to estimate "simulated baseline" stream and reservoir concentrations for the Spanish Fork River and Utah Lake, respectively. For each inflow, a STORET station was selected in proximity of the input to determine the appropriate constituent concentrations. Inflow constituent concentrations were combined with average monthly flows from the hydrology study, and mass balance (mixing) calculations were performed to determine the resultant average monthly concentrations under each alternative.

In contrast to the Spanish Fork River, there would be only one source of flow in the Provo River and Hobble Creek under baseline conditions with the Diamond Fork System in operation, but without a ULS project, and therefore only one set of water quality data for each stream. Consequently, for Provo River and Hobble Creek, the historic baseline is the only baseline condition considered.

The estimated water quality conditions for each alternative were calculated by combining the natural stream water quality with the Strawberry Reservoir water quality, according to the ratio of the two sources of flow. Results from these calculations were extracted and summarized, and compared to the historic baseline and simulated baseline to estimate the impacts.

In Chapter 4 of this TR, the Provo River and Hobble Creek constituent concentrations under each alternative are compared only to historic baseline conditions. The Spanish Fork River and Utah Lake constituent concentrations are compared to both historic baseline conditions and simulated baseline conditions.

## 2.2.3 Verification and Calibration

### *2.2.3.1 LKSIM2000 TDS Model*

Model calibrations for the 50-year, 1950 to 1999, historical conditions, lead to what are considered to be good estimates of the unmeasured fresh and mineralized groundwater inflows.

The model operates from given beginning lake stage and salt concentrations. For each month in sequence, all of the inflows and outflows, including evaporation and precipitation are accumulated in each of the three subareas: Provo Bay, Goshen Bay and the Main Lake. Each area is completely mixed and then flow allowed to flow in whatever direction is needed to bring all subareas to the same elevation—and completely mixed again. The estimated percentages of Provo and Goshen Bay water that are exchanged with the Main Lake for the month is then interchanged and completely mixed in each subarea again. The salt concentrations in outflowing waters are the simulated qualities in the Main Lake at the beginning of the month. Statistical correlations have shown that there are no significant variations in the salt concentrations for offshore main sampling sites along the axis of the Main Lake, thus verifying the completely mixed assumption. Of course, over a few days, or even weeks, fairly large temporal and spatial salt variations do occur. These seem to be averaged out well month by month, except during a month or two during those occasional winters when a thick ice cover forms—this is of little interest since water use is low during this period. The mixing seems rather complete by summer, including the annual spring runoff, which brings more than 70 percent of the annual inflow into the lake during most years.

Both the range of short-term variations and the long-term average salts resulting from each scenario simulation are rather accurate, perhaps plus or minus 10 percent in the total values. However, the relative values found between various scenarios are felt to be even more accurate, perhaps with only 5 percent error in the differences between the various scenarios.

## 2.2.4 Localized Impacts on Utah Lake

### *2.2.4.1 Total Phosphorus Concentration*

Potential localized impacts on Utah Lake total phosphorus (TP) concentrations by ULS project water were evaluated by comparing historic lake surface (0.3 meter or less sampling depth) total phosphorus concentrations to ULS alternative inflow concentrations during months of project-associated water delivery. Total phosphorus surface concentration data from 1990 through 1999 at Utah Lake STORET stations closest to tributary inflows that could be affected by the ULS were obtained from the STORET water quality database (EPA 2004). STORET stations selected (number of total data points) were 491734 (15), 491739 (19), 791740 (11), 491770 (12), 491771 (12) and 491777 (19). Utah Lake average TP values were matched to the period of project water deliveries for each of the alternatives. Total phosphorus data were analyzed for the following tributary inflows to Utah Lake:

| | |
|---|---|
| • Provo River | Proposed Action, annual |
| • Hobble Creek | Proposed Action, April through May<br>Bonneville Unit Water, annual |
| • Spanish Fork River | Proposed Action, October through May<br>Bonneville Unit Water, October through April<br>No Action, annual |

Lake sample station locations were imported into a GIS and mapped with their associated maximum, average and minimum surface TP concentrations. River and stream historic baseline and project-associated flow-weighted

maximum, average and minimum TP concentrations and locations of wastewater treatment plants with maximum, average and minimum total phosphorus concentrations were mapped.

### *2.2.4.2 Total Dissolved Solids Concentration*

The Utah Lake STORET stations were used to map TDS concentration data for Utah Lake. The STORET sample station locations were imported into a GIS and mapped for specific dates when multiple sites were sampled. The TDS concentration data were statistically analyzed for standard deviation. Average TDS concentration was determined from all sample values available on days with sample data. These daily averages were plotted against Utah Lake end-of-month volume for the month closest to the TDS sampling days (sample dates prior to the 15$^{th}$ of the month were plotted against the end-of-month volume for the month preceding the TDS sample date; sample dates on or after the 15$^{th}$ of the month were plotted against the end-of-month volume for the same month).

# Chapter 3
# Affected Environment (Baseline Conditions)

## 3.1 Impact Area of Influence

The surface water quality impact area of influence includes each of the streams, lakes, and reservoirs that would be affected by the construction or operation of the project alternatives. Map 3-1 shows the overall ULS impact area of influence for surface water quality. The following water bodies were included in the impact area of influence.

### 3.1.1 Spanish Fork–Provo Reservoir Canal and Bonneville Unit Water Alternatives

- Jordan River (from Utah Lake outlet to the Jordan Narrows)
- Utah Lake
- Provo River between Murdock Diversion Dam and Utah Lake
- Hobble Creek between Mapleton Lateral and Utah Lake
- Spanish Fork River between Diamond Fork Creek and Utah Lake

### 3.1.2 No Action Alternative

- Utah Lake
- Spanish Fork River between Diamond Fork Creek and Utah Lake

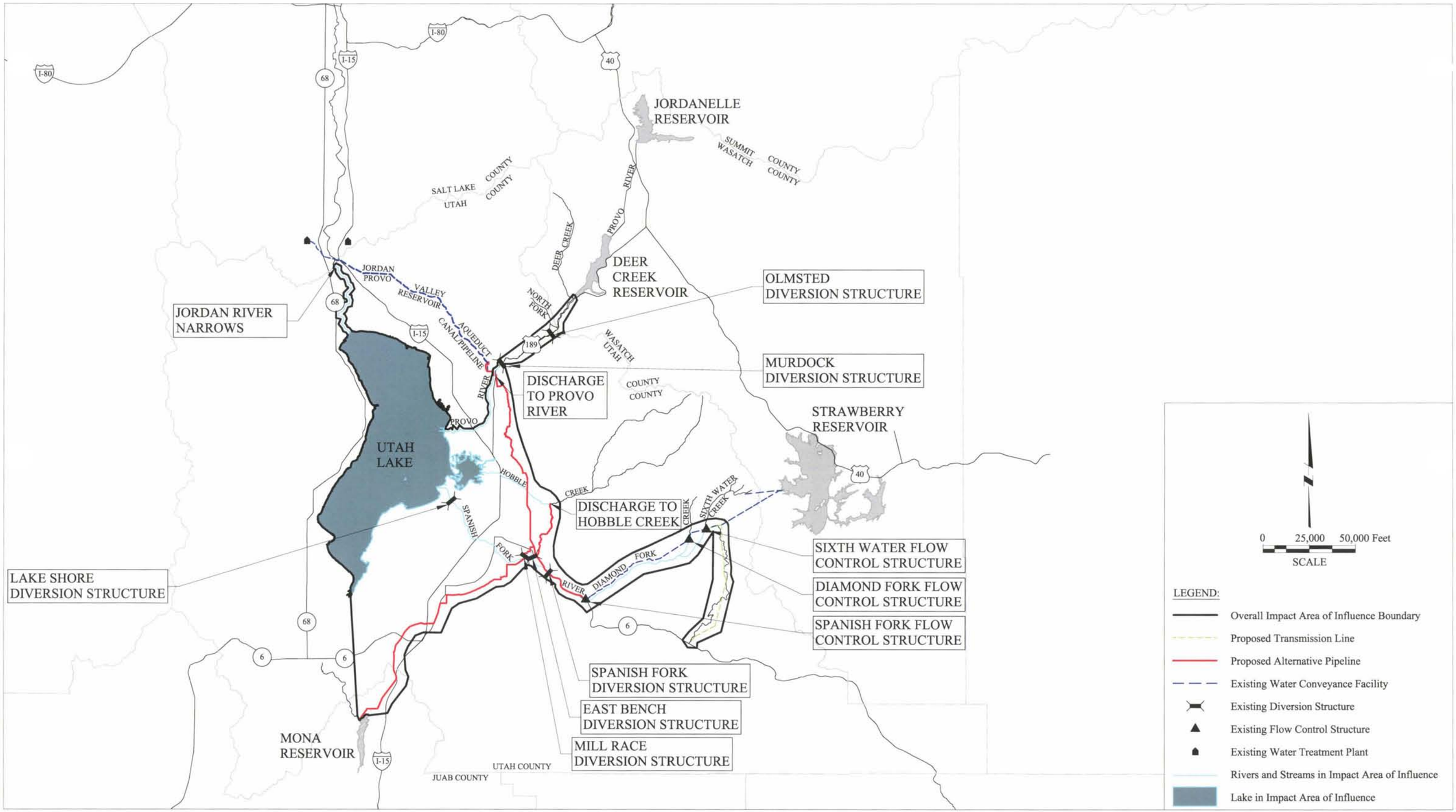
## 3.2 Lake and Reservoir Water Quality

### 3.2.1 Utah Lake

Utah Lake is a large, shallow, semi-saline, eutrophic lake. It has a surface area of about 150 square miles when full and an average depth of 9.2 feet. The lake is highly silted and experiences high turbidity, particularly during periods of high wind and wave action that stirs the lake bed sediments. It serves primarily as an irrigation water supply source for lands in northern Utah and Salt Lake counties. The water quality is generally adequate for most irrigation uses, but is not suitable for direct use in potable water systems. The lake provides a warm water commercial and public fishery and important waterfowl habitat.

Although Utah Lake water quality periodically exceeds State water quality standards for several parameters, the two issues of primary concern with respect to the ULS alternatives are total phosphorus (TP) and total dissolved solids (TDS). Historic Utah Lake surface (less than 0.3 meter sampling depth) TP concentration data and historic Utah Lake TDS concentration data are located in Appendix A, Tables A-8 through A-25.

**THIS PAGE INTENTIONALLY LEFT BLANK**




Map 3-1
Surface Water Quali
Impact Area of Influence

### *3.2.1.1 Total Phosphorus*

Elevated levels of phosphorus may tend to accelerate the eutrophication process. The 428 measurements of TP in Utah Lake collected between 1990 and 1999 have an average concentration of 0.11 mg/L, with a maximum concentration of 1.88 mg/L. Thirty-three of the measurements had concentrations below 0.05 mg/L, and 85 were above 0.10 mg/L. More than half of the samples collected had concentrations below 0.080 mg/L. Water quality data for Utah Lake inflows are included in Appendix A of this technical report.

**3.2.1.1.1 Localized TP Concentrations.** Total phosphorus in Utah Lake is highly influenced by physical and biological processes, and it is not possible to model or predict the actual operational effects of the ULS alternatives on TP concentrations in Utah Lake. Three tributary streams would convey water into Utah Lake under the ULS: Provo River, Hobble Creek, and Spanish Fork River. The Utah Lake STORET sample stations closest to mouths of the Provo River, Hobble Creek and Spanish Fork River are shown on Map 3-2. Maximum, average, and minimum TP concentrations are shown for each Utah Lake STORET station and for baseline conditions in the Provo River, Hobble Creek, and Spanish Fork River. Table 3-1 presents historic (1990 through 1999) TP concentration data for the Utah Lake STORET stations closest to the mouths of these streams during the months ULS water would inflow to the lake. The three Utah Lake STORET stations closest to the mouth of the Provo River show higher average and minimum TP concentrations than the Provo River baseline average and minimum TP concentrations. Utah Lake STORET station 491740 shows a maximum TP concentration lower than the Provo River baseline maximum TP concentration; the other two Utah Lake STORET stations near the mouth of the Provo River show higher maximum TP concentrations than the Provo River baseline maximum TP concentration. The Utah Lake STORET station closest to the mouth of Hobble Creek is located just outside Provo Bay and shows higher maximum, average and minimum TP concentrations than the Hobble Creek baseline maximum, average and minimum TP concentrations. The Utah Lake STORET stations closest to the mouth of the Spanish Fork River show average and minimum TP concentrations the same as or slightly higher than the Spanish Fork River baseline average and minimum TP concentrations. Utah Lake STORET station 491770 shows a maximum TP concentration higher than the Spanish Fork River baseline maximum TP concentration; the other Utah Lake STORET station 491771 shows a slightly lower maximum TP concentration than the Spanish Fork River baseline maximum TP concentration.

**Table 3-1**
**Utah Lake Surface Total Phosphorus Concentrations at Selected STORET Stations, 1990 to 1999**

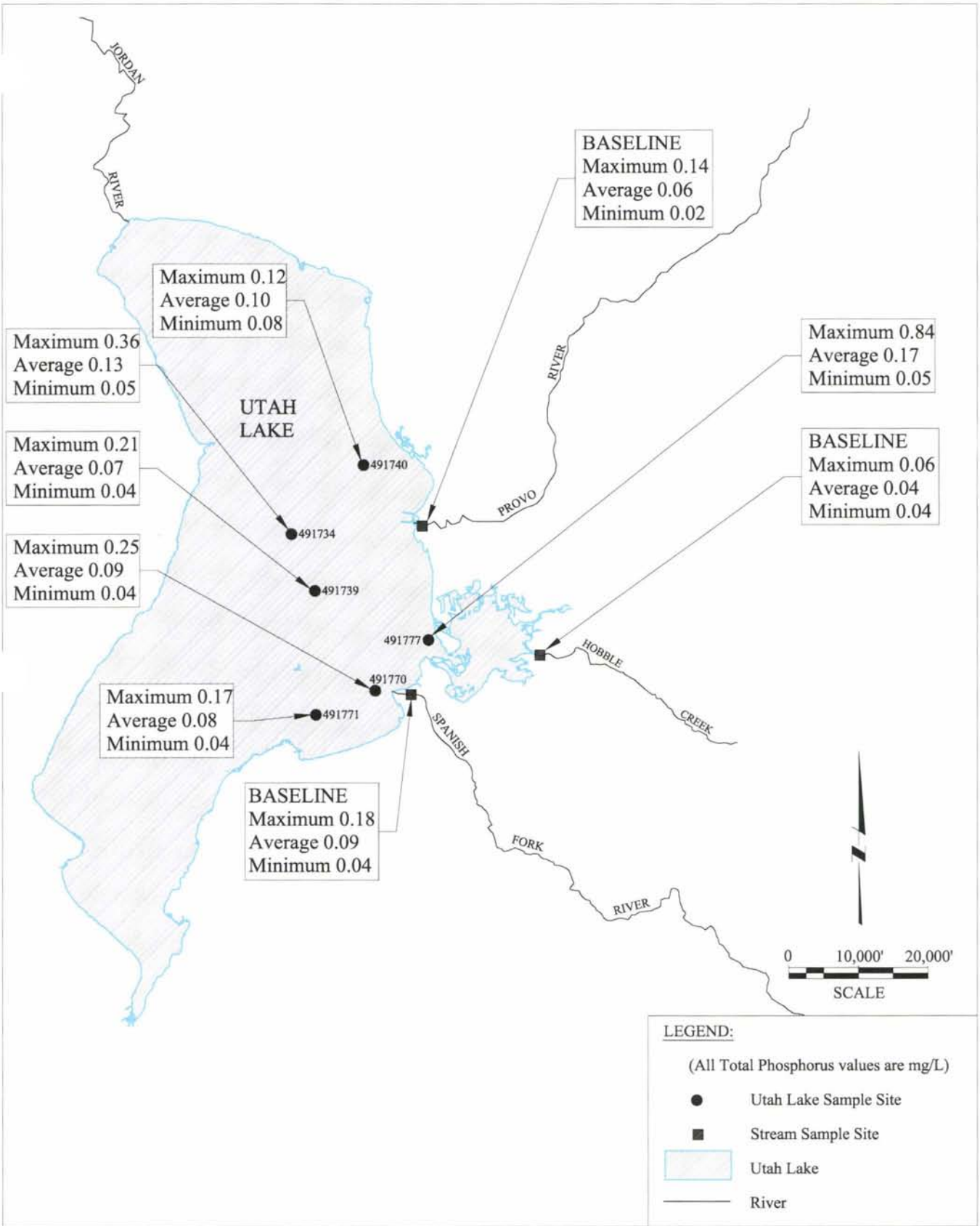
| Station Number | Potential Impact River/Stream | ULS Project Water Delivery Months | Number of Sample Values | Maximum TP Conc. (mg/L) | Average TP Conc. (mg/L) | Minimum TP Conc. (mg/L) |
|---|---|---|---|---|---|---|
| 491734 | Provo River | All | 15 | 0.36 | 0.13 | 0.05 |
| 491739 | Provo River | All | 18 | 0.21 | 0.07 | 0.04 |
| 491740 | Provo River | All | 11 | 0.12 | 0.10 | 0.08 |
| 491777 | Hobble Creek | April to June | 7 | 0.25 | 0.12 | 0.07 |
| 491777 | Hobble Creek | All | 19 | 0.84 | 0.17 | 0.05 |
| 491770 | Spanish Fork River | Oct. to May | 7 | 0.25 | 0.10 | 0.05 |
| 491770 | Spanish Fork River | Oct. to Apr. | 5 | 0.25 | 0.11 | 0.05 |
| 491770 | Spanish Fork River | All | 12 | 0.25 | 0.09 | 0.04 |
| 491771 | Spanish Fork River | Oct. to May | 7 | 0.17 | 0.09 | 0.06 |
| 491771 | Spanish Fork River | Oct. to Apr. | 5 | 0.17 | 0.11 | 0.06 |
| 491771 | Spanish Fork River | All | 12 | 0.17 | 0.08 | 0.04 |

**3.2.1.1.2 Estimated TP Load.** Under historic hydrological conditions during the period 1990 to 1999, the average volume of water entering Utah Lake associated with the Provo and Spanish Fork rivers and Hobble Creek totaled about 236,634 acre-feet. The average total volume of surface and subsurface water entering the lake totaled about 558,248 acre-feet. When combined with available monitoring data for the three streams, the 236,634 acre-feet is estimated to have carried approximately 23.7 tons per year of TP into Utah Lake. Wastewater treatment plant inflows totaled about 52,591 acre-feet, and the EPA Clean Lakes Study (UDEQ, et al. 1999) estimated TP inflow concentrations from these plants at 3.0 mg/L, contributing a TP load of 225.6 tons per year to Utah Lake. The other inflows to the lake were estimated to have carried a phosphorus load of 42.3 tons. Total phosphorus concentration of these other inflows is estimated at 0.11 mg/L, based on other total phosphorus loads estimated by the EPA Clean Lakes Study (UDEQ, et al. 1999). Based on these estimates, the total average historic phosphorus load to the lake is 291.6 tons per year (Table 3-2).

**Table 3-2**
**Estimated Historic Utah Lake Phosphorus Load**

| Inflow Source | Average Annual Inflow (acre-feet) | Concentration (mg/L) | Combined Load (Tons per Year) |
|---|---|---|---|
| Provo River | 124,721 | 0.06 | 10.7 |
| Spanish Fork River | 91,581 | 0.09 | 11.8 |
| Hobble Creek | 20,332 | 0.04 | 1.2 |
| WWTP Discharges | 52,591 | 3.00 | 225.6 |
| Other Inflows | 269,023 | 0.11 | 42.3 |
| **Total** | **558,248** | | **291.6** |

Using the same approach, the average simulated baseline phosphorus load to Utah Lake would be 45 tons per year (Table 3-3). Under simulated hydrological conditions, the average volume of water entering Utah Lake associated with the Provo and Spanish Fork rivers and Hobble Creek totaled 264,971 acre-feet (Table 3-2). The differences between the historic and simulated baseline are with the contributions from the Provo and Spanish Fork Rivers; Hobble Creek remains the same under historic and simulated baseline conditions. The average total volume of surface and subsurface water entering the lake totals 588,735 acre-feet. When combined with available monitoring data for the three streams, this volume of water is estimated to carry approximately 26.9 tons per year of TP into Utah Lake. Wastewater treatment plant inflows totaled about 52,591 acre-feet, contributing a TP load of 225.6 tons per year to Utah Lake. The other inflows to the lake are estimated to carry a phosphorus load of 42.3 tons, the same as for historic conditions. Based on these estimates, the total average simulated phosphorus load to the lake is approximately 294.8 tons per year (Table 3-3).




Map 3-2

Utah Lake Historic Surface Total Phosphorus Concentrations

| Table 3-3<br>Estimated Simulated Baseline Utah Lake Phosphorus Load | | | |
|---|---|---|---|
| **Inflow Source** | **Average Annual Inflow acre-feet** | **Concentration mg/L** | **Combined Load Tons per Year** |
| Provo River | 79,580 | 0.06 | 6.8 |
| Spanish Fork River | 165,059 | 0.08 | 18.9 |
| Hobble Creek | 20,332 | 0.04 | 1.2 |
| Project Return Flows | 560 | 0.05 | 0.0 |
| WWTP Discharges | 52,591 | 3.00 | 225.6 |
| Other Inflows | 269,023 | 0.11 | 42.3 |
| **Total** | **587,145** | | **294.8** |

### *3.2.1.2 Total Dissolved Solids*

**3.2.1.2.1 TDS Concentrations.** Utah Lake evaporates nearly as much water as it releases to the Jordan River each year, primarily because of its large surface area relative to its volume. This large volume of evaporation results in high TDS concentrations in the lake, because the salt in the tributary inflows is concentrated within the lake. Thirty TDS samples were collected from Utah Lake on 9 days during the 1990 to 1999 period. The TDS concentration exceeded the agricultural use criterion of 1,200 mg/L on one day during the 9 days that samples were collected and analyzed (Table 3-4).

The relationship between TDS and electrical conductivity (EC) for Utah Lake was examined in an effort to expand the amount of available historical Utah Lake TDS data. Normally, there is an excellent correlation between TDS and EC, and TDS (in mg/L) is equal to approximately 0.6 times EC (in µmhos/cm). The thirty available TDS measurements were correlated against the recorded simultaneous EC measurements. The EC measurements taken on August 14, 1990, which were associated with the highest TDS data (Table 3-4), turned out to be very low, when they should have been very high, ruining any possible correlation between TDS and EC for the entire thirty-sample set. Consequently, the EC data could not be used to compare historical TDS concentrations with TDS concentrations under the ULS alternatives.

| Table 3-4<br>Utah Lake Historical Total Dissolved Solids Concentrations<br>Page 1 of 2 | | | |
|---|---|---|---|
| **Sample Date** | **Monitoring Station ID Number** | **Monitoring Station Description** | **Measured Utah Lake TDS (mg/L)** |
| 08/14/90 | 491738 | 0.5 MI S OF A.F. BOAT HARBOR | 1,254 |
| 08/14/90 | 491750 | 3 MI WNW OF LINCOLN BEACH | 1,246 |
| 08/14/90 | 491751 | 4 MI E OF SARATOGA SPRINGS | 1,284 |
| 08/14/90 | 491777 | PROVO BAY OUTSIDE ENTRANCE | 1,214 |
| 08/14/90 | 491770 | 2.5 MI NE OF LINCOLN POINT | 1,284 |
| 08/14/90 | 491771 | 1 MI NE OF LINCOLN POINT | 1,278 |

**Table 3-4**
**Utah Lake Historical Total Dissolved Solids Concentrations**



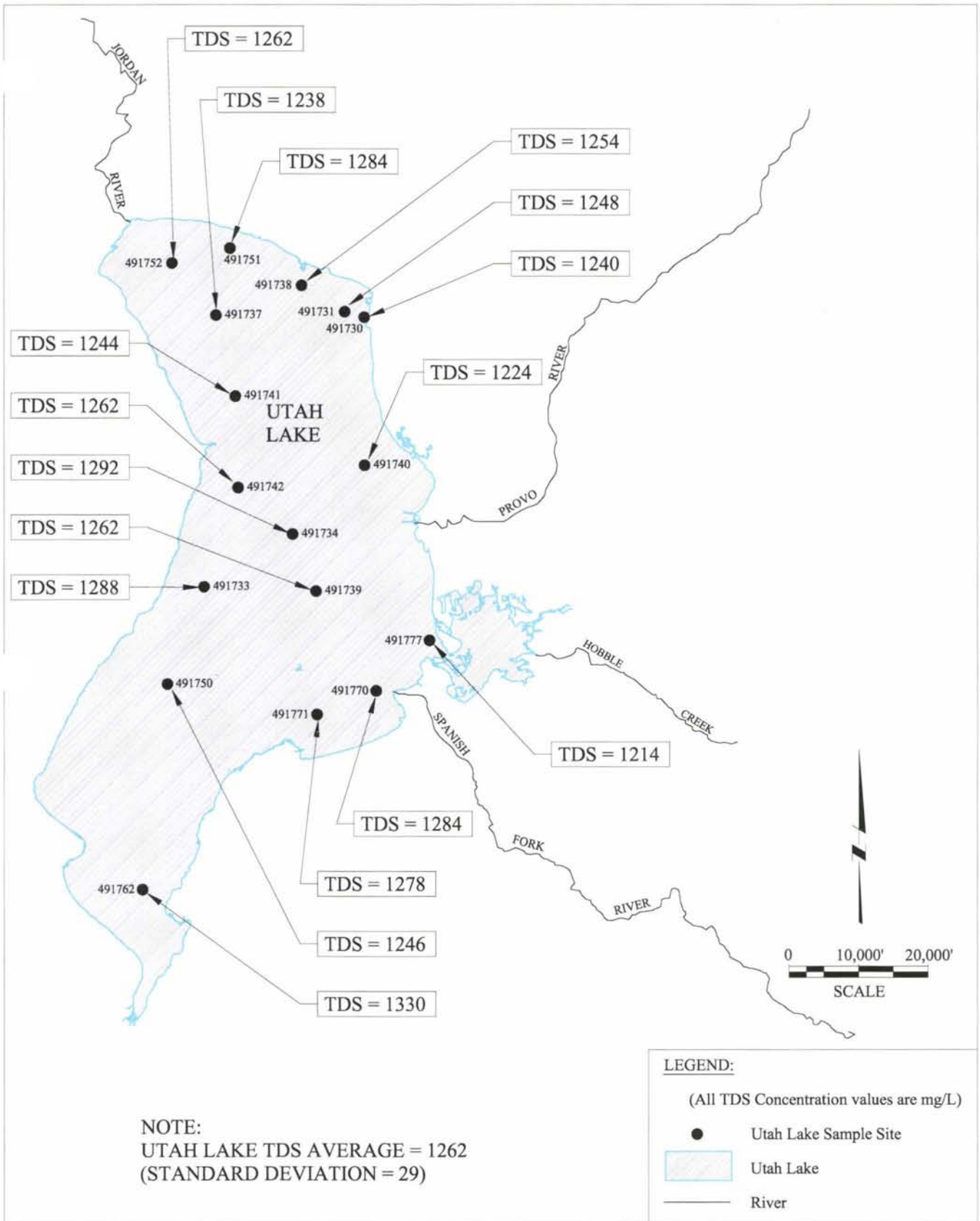
| Sample Date | Monitoring Station ID Number | Monitoring Station Description | Measured Utah Lake TDS (mg/L) |
|---|---|---|---|
| 08/14/90 | 491762 | GOSHEN BAY MIDWAY OFF MAIN POINT ON EAST SHORE | 1,330 |
| 08/14/90 | 491739 | 4 MI WEST OF PROVO AIRPORT | 1,262 |
| 08/14/90 | 491733 | 5MI N/NW OF LINCOLN BEACH | 1,288 |
| 08/14/90 | 491734 | E OF PROVO BOAT HARBOR | 1,292 |
| 08/14/90 | 491742 | 1 MI SE OF PELICAN POINT | 1,262 |
| 08/14/90 | 491741 | 1 MI NE OF PELICAN POINT | 1,244 |
| 08/14/90 | 491752 | 2 MI E OF SARATOGA SPRINGS | 1,262 |
| 08/14/90 | 491737 | 4 MI NORTH OF PELICAN POINT | 1,238 |
| 08/14/90 | 491730 | 300 FT OFFSHORE FROM GENEVA | 1,240 |
| 08/14/90 | 491732 | 0.5 MI W OF GENEVA DISCHARGE | 1,248 |
| 08/14/90 | 491740 | 1.5 MI NW OF PROVO BOAT HARBOR | 1,224 |
| 07/02/93 | 491731 | 0.5 MI W OF GENEVA DISCHARGE | 816 |
| 07/15/94 | 491731 | 0.5 MI W OF GENEVA DISCHARGE | 1,022 |
| 07/26/95 | 491731 | 0.5 MI W OF GENEVA DISCHARGE | 872 |
| 09/27/95 | 491731 | 0.5 MI W OF GENEVA DISCHARGE | 924 |
| 07/15/97 | 491731 | 0.5 MI W OF GENEVA DISCHARGE | 760 |
| 07/15/97 | 491732 | 0.5 MI W OF GENEVA DISCHARGE | 758 |
| 09/11/97 | 491732 | 0.5 MI W OF GENEVA DISCHARGE | 800 |
| 09/11/97 | 491731 | 0.5 MI W OF GENEVA DISCHARGE | 806 |
| 07/06/99 | 491731 | 0.5 MI W OF GENEVA DISCHARGE | 700 |
| 07/06/99 | 491762 | GOSHEN BAY MIDWAY OFF MAIN POINT ON EAST SHORE | 716 |
| 07/06/99 | 491777 | OUTSIDE ENTRANCE TO PROVO BAY | 682 |
| 08/19/99 | 491731 | 0.5 MI W OF GENEVA DISCHARGE | 720 |
| 08/19/99 | 491732 | 0.5 MI W OF GENEVA DISCHARGE | 714 |

The Utah Lake STORET stations were used to map TDS concentration data for Utah Lake on dates when multiple samples were collected in the lake.

Map 3-3 displays the TDS concentrations from samples collected on August 14, 1990. This map indicates that on this date, the TDS concentration throughout the lake was remarkably consistent. The standard deviation of the 18 TDS concentrations was 29 mg/L, and the maximum variation between any two stations was only 7 percent. The average TDS concentration in Utah Lake on August 14, 1990 was 1,262 mg/L.

A similar consistency in TDS concentrations is demonstrated in the three widely-separated measurements taken on July 6, 1999 (Map 3-4). The average TDS concentration in Utah Lake on this date was 699 mg/L. This consistency in TDS concentration provides evidence that any of the sampling stations can be reliably used to characterize average TDS throughout the lake. This is an important assumption, given the scarcity of TDS data during the period from 1990 through 1999.

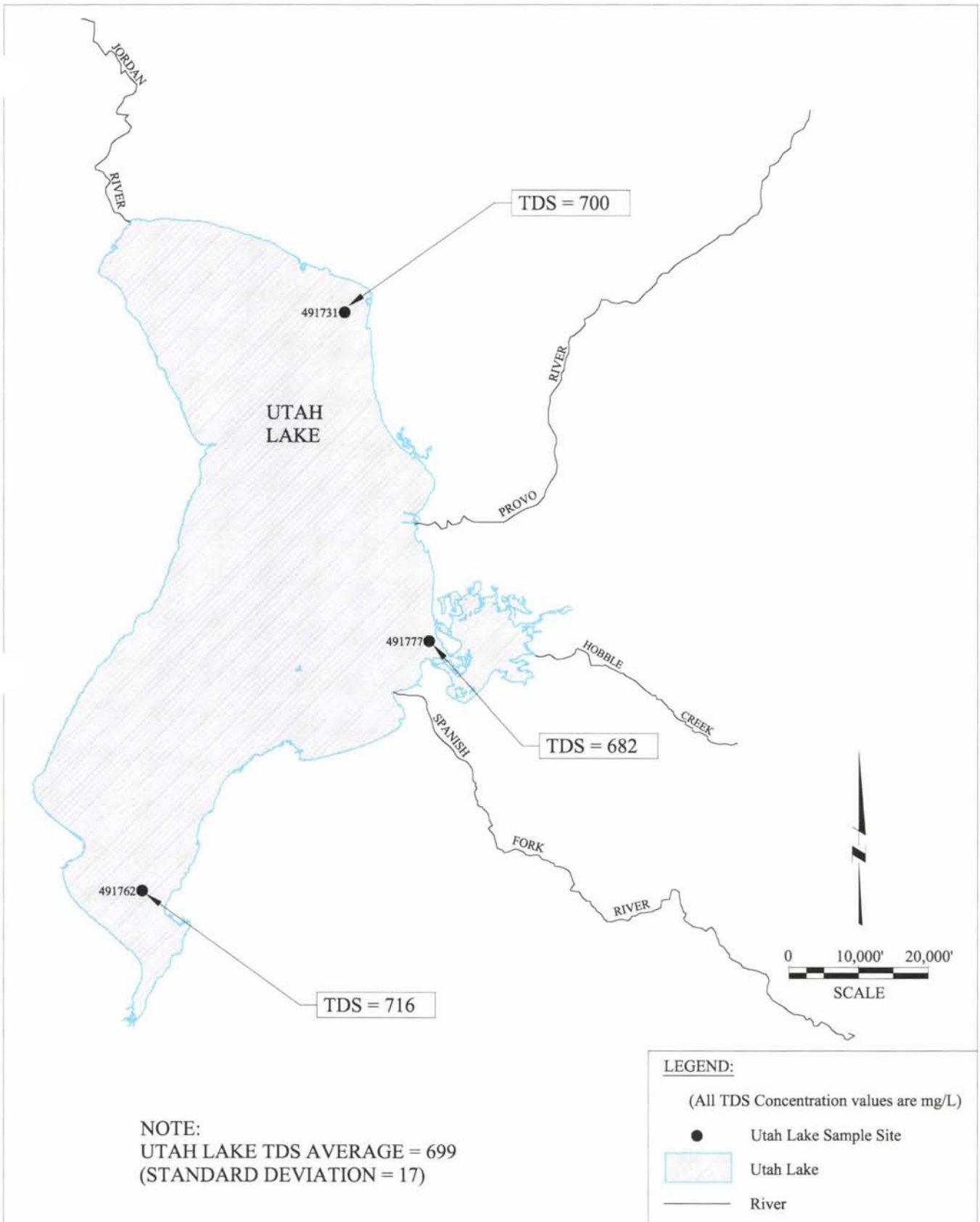
The remaining TDS concentration data for Utah Lake from 1990 through 1999 were collected only at STORET stations 491731 and 491732 (0.5 mile west of the Geneva Discharge site). These TDS concentration data were




Map 3-3

Utah Lake Total Dissolved Solids Concentration

14 August 1990




Map 3-4

Utah Lake Total Dissolved Solids Concentration

06 July 1999

plotted with lake volume, which yields a correlation index of $r^2 = 0.811$ between increasing lake volume and decreasing TDS concentration. The TDS concentration data and corresponding lake volume data are shown in Table 3-5. The resulting data relationship provides one method to estimate the trend in TDS concentrations with changes in Utah Lake volume (Figure 3-1).

**Table 3-5**
**Historic Utah Lake TDS Concentrations and Lake Volume**

| Date | Lake Volume (acre-feet) | TDS Concentration (mg/L) |
|---|---|---|
| July 1990 | 425,661 | 1262 |
| July 1993 | 691,377 | 816 |
| July 1994 | 664,744 | 1022 |
| July 1995 | 849,375 | 872 |
| September 1995 | 758,894 | 924 |
| July 1997 | 908,011 | 759 |
| September 1997 | 823,254 | 803 |
| July 1999 | 908,011 | 699 |
| August 1999 | 796,504 | 717 |

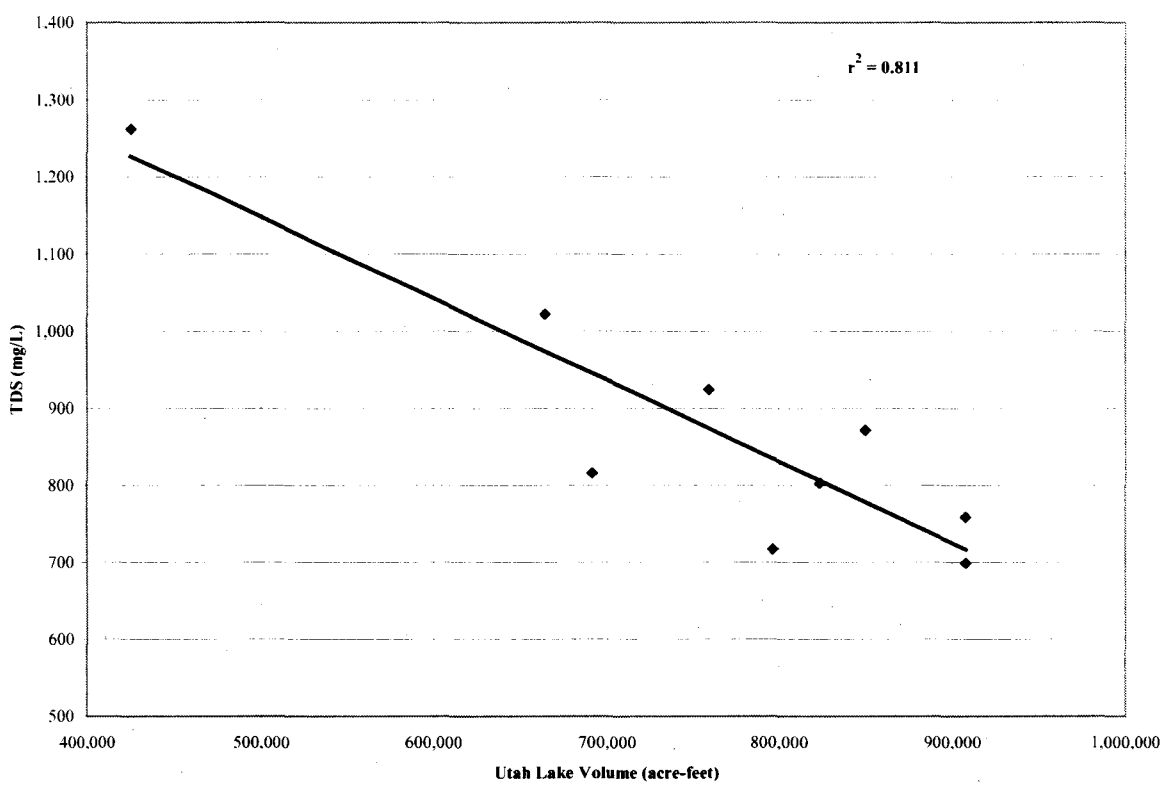



**Figure 3-1**
**Utah Lake TDS Concentration vs Lake Volume**

**3.2.1.2.2 Estimated TDS Load.** The TDS load to Utah Lake was estimated in a manner similar to that performed for total phosphorus. Inflow sources and flows were the same as previously described (Section 3.2.1.1.2). TDS concentrations for streams and rivers were averaged from STORET data for years 1990 through 1999. WWTP discharge TDS concentration was derived from typical values for untreated wastewater (Table 3-5 in Metcalf and Eddy 1979), assuming that the conventional wastewater treatment processes used at treatment plants around Utah Lake do not remove TDS. Other inflow TDS concentration was derived from the Utah Lake Water Quality Salinity Model (LKSIM 2000), which simulates TDS concentrations in Utah Lake (Merritt and Miller 2004). The estimated historic baseline TDS load to Utah Lake is shown in Table 3-6.

**Table 3-6**
**Estimated Historic Baseline Utah Lake Total Dissolved Solids Load**

| Inflow Source | Average Annual Inflow (acre-feet) | TDS Concentration (mg/L) | Combined TDS Load (tons per year) |
|---|---|---|---|
| Provo River | 124,721 | 276 | 49,225 |
| Spanish Fork River | 91,581 | 481 | 62,992 |
| Hobble Creek | 20,332 | 293 | 8,519 |
| Project Return Flows | 0 | 457 | 0 |
| WWTP Discharges | 52,591 | 600 | 45,123 |
| Other Inflows | 269,023 | 450 | 173,116 |
| **Total** | **558,248** | | **338,975** |

The estimated historic baseline TDS load to Utah Lake is dominated by other inflows consisting of irrigation return flows by surface and groundwater, M&I secondary water return flows, salt springs within the lake, other tributary streams, and other point sources. Discharges from wastewater treatment plants (WWTP) contribute an estimated 13.3 percent of the TDS load to Utah Lake via point-source discharges. The Spanish Fork River contributes a higher TDS load to Utah Lake than the Provo River or Hobble Creek because of watershed characteristics and irrigation return flows back into the Spanish Fork River.

The estimated simulated baseline TDS load to Utah Lake is shown in Table 3-7.

**Table 3-7**
**Estimated Simulated Baseline Utah Lake Total Dissolved Solids Load**

| Inflow Source | Average Annual Inflow (acre-feet) | TDS Concentration (mg/L) | Combined TDS Load (tons per year) |
|---|---|---|---|
| Provo River | 79,580 | 276 | 31,409 |
| Spanish Fork River | 165,059 | 387 | 91,345 |
| Hobble Creek | 20,332 | 293 | 8,519 |
| Project Return Flows | 560 | 457 | 366 |
| WWTP Discharges | 52,591 | 600 | 45,123 |
| Other Inflows | 269,023 | 450 | 173,116 |
| **Total** | **587,145** | | **349,878** |

The estimated simulated baseline TDS load to Utah Lake is dominated by other inflows consisting of irrigation return flows by surface and groundwater, M&I secondary water return flows, salt springs within the lake, other tributary streams, and other point sources. Discharges from wastewater treatment plants (WWTP) contribute an estimated 12.9 percent of the TDS load to Utah Lake via point-source discharges. The Spanish Fork River contributes a higher TDS load to Utah Lake than the Provo River or Hobble Creek because of watershed characteristics, irrigation return flows back into the Spanish Fork River, and higher average annual inflow with full conveyance of Bonneville Unit flows to Utah Lake for exchange to Jordanelle Reservoir.

## 3.3 Stream and River Water Quality

### 3.3.1 Provo River From Murdock Diversion to Utah Lake

The following subsections present the water quality baseline conditions in the Provo River from Murdock Diversion to Utah Lake. The critical months for Provo River water quality are July, August and September. Historic data beginning in 1990 were used to determine the baseline conditions and were collected within the reach of the lower Provo River between Murdock Diversion Dam and Utah Lake. The historic baseline concentrations are considered identical because the water source is the same under both conditions, with the only difference being water quantities flowing down the river. Consequently, because the two baselines are identical for the Provo River, to avoid confusion, baseline will be referred to only as historic baseline. Water quality data used to determine historic baseline water quality conditions are included in Appendix A.

#### *3.3.1.1 Dissolved Oxygen*

The water downstream from Murdock Diversion Dam re-aerates as a result of turbulence in the river channel and through contact with the air. The State of Utah has specified that a minimum average monthly dissolved oxygen concentration of 6.5 mg/L is necessary to support a cold-water fishery in the lower Provo River. Table 3-8 shows the average monthly historic baseline dissolved oxygen concentrations for each month in the Provo River from Murdock Diversion to Utah Lake.

**Table 3-8**
**Average Monthly Historic Baseline**
**Dissolved Oxygen Concentrations in the Lower Provo River**

| Month | Dissolved Oxygen Concentration (mg/L) |
|---|---|
| Jan | 10.7 |
| Feb | 11.0 |
| Mar | 11.0 |
| Apr | 10.0 |
| May | 10.0 |
| Jun | 9.8 |
| Jul | 10.3 |
| Aug | 9.1 |
| Sep | 9.1 |
| Oct | 9.3 |
| Nov | 11.0 |
| Dec | 10.8 |
| **Flow-Weighted Average** | **10.1** |

### *3.3.1.2 Water Temperature*

Water temperatures in the Provo River below Deer Creek Reservoir tend to increase as water flows downstream from the dam. The temperature increase during the late summer months is caused by high air temperatures. Ambient air temperatures govern the water temperature in the Provo River at and downstream of the Murdock Diversion. Table 3-9 shows the average monthly historic baseline water temperature in the lower Provo River between Murdock Diversion Dam and Utah Lake.

**Table 3-9**
**Average Monthly Historic Baseline**
**Water Temperature in the Lower Provo River**

| Month | Water Temperature (°C) |
|---|---|
| Jan | 2.6 |
| Feb | 4.3 |
| Mar | 6.6 |
| Apr | 7.9 |
| May | 11.3 |
| Jun | 13.6 |
| Jul | 16.4 |
| Aug | 18.2 |
| Sep | 16.7 |
| Oct | 11.2 |
| Nov | 6.2 |
| Dec | 4.4 |
| **Flow-Weighted Average** | **10.4** |

### *3.3.1.3 Total Phosphorus*

The State of Utah has identified a concentration of 0.05 mg/L TP as a pollution indicator in rivers such as the lower Provo River that are designated to support cold-water fisheries. Samples collected downstream of Deer Creek Dam are generally below this value, indicating that this part of the Provo River is usually not impaired for TP under historic baseline conditions. Historic baseline TP concentrations exceed the Utah pollution indicator for streams and rivers in May and September, likely because of spring and fall turnover conditions occurring in Deer Creek Reservoir. Total phosphorus concentrations increase in the reservoir during mixing of stratified water layers, which increases the concentration of TP throughout the water column. The mixed water is released from the reservoir into the Provo River and the TP is transported downstream as part of the river flow. Table 3-10 shows the average monthly historic baseline TP concentrations in the lower Provo River between Murdock Diversion Dam and Utah Lake.

| Table 3-10<br>Average Monthly Historic Baseline<br>Total Phosphorus Concentrations in the Lower Provo River | |
|---|---|
| **Month** | **Total Phosphorus as P Concentration (mg/L)** |
| Jan | 0.023 |
| Feb | 0.028 |
| Mar | 0.021 |
| Apr | 0.018 |
| May | 0.144 |
| Jun | 0.023 |
| Jul | 0.044 |
| Aug | 0.039 |
| Sep | 0.129 |
| Oct | 0.030 |
| Nov | 0.022 |
| Dec | 0.022 |
| **Flow-Weighted Average** | **0.060** |

### *3.3.1.4 Total Dissolved Solids*

Table 3-11 shows average monthly historic baseline TDS concentrations in the lower Provo River. The values observed in this reach of the Provo River are consistently below the 1,200 mg/L standard set by the State of Utah for water bodies being used for agricultural purposes.

| Table 3-11<br>Average Monthly Historic Baseline<br>Total Dissolved Solids Concentrations in the Lower Provo River | |
|---|---|
| **Month** | **Total Dissolved Solids Concentration (mg/L)** |
| Jan | 285 |
| Feb | 279 |
| Mar | 286 |
| Apr | 286 |
| May | 273 |
| Jun | 268 |
| Jul | 281 |
| Aug | 272 |
| Sep | 290 |
| Oct | 287 |
| Nov | 266 |
| Dec | 275 |
| **Flow-Weighted Average** | **276** |

### *3.3.1.5 pH*

Table 3-12 shows average monthly historic baseline pH values in the lower Provo River between Murdock Diversion Dam and Utah Lake. For water bodies that support cold-water fisheries, such as this reach of the Provo River, the State of Utah standard is pH in the range of 6.5 to 9.0 units. The observed values are within this range. The lower Provo River from Murdock Diversion Dam to Utah Lake has been listed on the State of Utah 303(d) list as a water impaired for pH conditions. If and when impairment to the pH does occur in the lower Provo River, it is primarily caused by low flow conditions in the summer months.

**Table 3-12**
**Average Monthly Historic Baseline pH in the Lower Provo River**

| Month | pH Value (units) |
|---|---|
| Jan | 8.3 |
| Feb | 8.3 |
| Mar | 8.3 |
| Apr | 8.2 |
| May | 8.4 |
| Jun | 8.2 |
| Jul | 8.3 |
| Aug | 8.2 |
| Sep | 8.2 |
| Oct | 8.2 |
| Nov | 8.4 |
| Dec | 8.3 |
| **Flow-Weighted Average** | **8.3** |

### *3.3.1.6 Nitrate Plus Nitrite as Nitrogen*

Table 3-13 shows average monthly baseline nitrate plus nitrite as nitrogen concentrations in the lower Provo River between Murdock Diversion Dam and Utah Lake. The State of Utah pollution indicator for nitrate plus nitrite as nitrogen is 4 mg/L. The nitrate plus nitrite as nitrogen concentrations in the lower Provo River are below the pollution indicator level.

**Table 3-13**
**Average Monthly Historic Baseline**
**Nitrate + Nitrite Concentrations in the Lower Provo River**

| Month | Nitrate + Nitrite as N Concentration (mg/L) |
|---|---|
| Jan | 0.39 |
| Feb | 0.53 |
| Mar | 0.82 |
| Apr | 0.35 |
| May | 0.27 |
| Jun | 0.32 |
| Jul | 0.43 |
| Aug | 0.27 |
| Sep | 0.28 |
| Oct | 0.43 |
| Nov | 0.32 |
| Dec | 0.35 |
| **Flow-Weighted Average** | **0.37** |

### *3.3.1.7 Total Ammonia as Nitrogen*

Table 3-14 shows average monthly historic baseline total ammonia as nitrogen concentrations in the lower Provo River between Murdock Diversion Dam and Utah Lake. Concentrations above the detection limit of 0.05 mg/L were observed 12 times out of 113 samples in the data sets. The State of Utah has established a standard for ammonia concentrations in water bodies that are classified as cold-water fisheries. The standard is a function of pH and water temperature (see Sections 3.4.1.5 and 3.4.1.2, respectively). There are no exceedences of historic baseline total ammonia during the period from 1990 through 2000.

**Table 3-14**
**Average Monthly Historic Baseline**
**Total Ammonia Concentrations in the Lower Provo River**

| Month | Total Ammonia as N Concentration (mg/L) |
|---|---|
| Jan | 0.120 |
| Feb | 0.031 |
| Mar | 0.072 |
| Apr | 0.045 |
| May | 0.027 |
| Jun | 0.025 |
| Jul | 0.038 |
| Aug | 0.033 |
| Sep | 0.030 |
| Oct | 0.034 |
| Nov | 0.032 |
| Dec | 0.076 |
| **Flow-Weighted Average** | **0.040** |

### *3.3.1.8 Selenium*

Selenium concentrations in the lower Provo River between Murdock Diversion Dam and Utah Lake generally do not exceed the detection limit, which ranges from 0.5 µg/L to 5.0 µg/L in the data analyzed. Half of the detection limit has been assumed as the selenium concentration for samples below the detection limit. Values above the detection limit have been observed several times during the period from 1990 through 2002. The State of Utah has specified a standard of 5 µg/L for water bodies that support cold-water fisheries, such as the lower Provo River. Table 3-15 shows average monthly historic baseline selenium concentrations in the lower Provo River.

**Table 3-15**
**Average Monthly Historic Baseline**
**Selenium Concentrations in the Lower Provo River**

| Month | Selenium Concentration (µg/L) |
|---|---|
| Jan | 1.1 |
| Feb | 1.5 |
| Mar | 2.0 |
| Apr | 0.9 |
| May | 0.8 |
| Jun | 1.5 |
| Jul | 1.1 |
| Aug | 1.3 |
| Sep | 0.9 |
| Oct | 1.0 |
| Nov | 0.5 |
| Dec | 0.8 |
| **Flow-Weighted Average** | **1.1** |

### *3.3.1.9 Summary of Historic Baseline Conditions*

Historic baseline concentrations for the Provo River between Murdock Diversion Dam and Utah Lake were estimated using data collected at STORET station number 499559 (Provo River at U114 crossing). Total phosphorus concentrations exceeded the 0.05 mg/L pollution indicator level in May and September (Table 3-16). All other constituents are within applicable standards or pollution indicator levels.

**Table 3-16**
**Summary of Historic Baseline Water Quality Conditions in the Lower Provo River**

| Water Quality Characteristic | Units | TDS (mg/L) | pH (units) | Dissolved Oxygen (mg/L) | Temperature (°C) | Nitrate as N (mg/L) | Ammonia as N (mg/L) | Phosphorus as P (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Annual Average Water Quality** | | | | | | | | | |
| Flow-Weighted Average | Value | 276 | 8.3 | 10.1 | 10.4 | 0.37 | 0.04 | 0.06 | 1.1 |
| **Maximum Monthly Concentration** | | | | | | | | | |
| | Value | 290 | 8.4 | 9.1[a] | 18.2 | 0.82 | 0.12 | 0.14 | 2.0 |

[a]Value is minimum monthly concentration

## 3.3.2 Hobble Creek From Mapleton Lateral to Utah Lake

The following subsections present the water quality baseline conditions in Hobble Creek from the Mapleton-Springville Lateral to Utah Lake. The critical months for Hobble Creek water quality are July, August and September. Historic data beginning in 1990 were used to determine the baseline conditions and were collected within the reach of Hobble Creek between the Mapleton Lateral and Utah Lake. The historic baseline concentrations are considered identical because the water source is the same under both conditions. Water quality data used to determine historic baseline water quality conditions are included in Appendix A.

### *3.3.2.1 Dissolved Oxygen*

Hobble Creek water downstream from the Mapleton Lateral re-aerates as a result of turbulence in the river channel and through contact with the air. The State of Utah has specified that a minimum average monthly dissolved oxygen concentration of 6.5 mg/L is necessary to support a cold-water fishery in Hobble Creek. Table 3-17 shows the average monthly historic baseline dissolved oxygen concentrations for each month in Hobble Creek from the Mapleton Lateral to Utah Lake.

**Table 3-17**
**Average Monthly Historic Baseline**
**Dissolved Oxygen Concentrations in Hobble Creek**

| Month | Dissolved Oxygen Concentration (mg/L) |
|---|---|
| Jan | 8.9 |
| Feb | 9.4 |
| Mar | 9.4 |
| Apr | 9.4 |
| May | 8.1 |
| Jun | 7.7 |
| Jul | 9.1 |
| Aug | 7.9 |
| Sep | 8.0 |
| Oct | 8.9 |
| Nov | 10.0 |
| Dec | 9.9 |
| **Flow-Weighted Average** | **8.8** |

### *3.3.2.2 Water Temperature*

Water temperatures in Hobble Creek below Mapleton Lateral tend to increase as water flows downstream. The temperature increase during the late summer months is caused by high air temperatures. Ambient air temperatures govern the water temperature in Hobble Creek at and downstream of the Mapleton Lateral. Table 3-18 shows the average monthly historic baseline water temperature in Hobble Creek between the Mapleton Lateral and Utah Lake.

**Table 3-18**
**Average Monthly Historic Baseline**
**Water Temperature in Hobble Creek**

| Month | Water Temperature (°C) |
|---|---|
| Jan | 4.2 |
| Feb | 7.8 |
| Mar | 9.0 |
| Apr | 9.9 |
| May | 14.6 |
| Jun | 12.9 |
| Jul | 23.2 |
| Aug | 19.7 |
| Sep | 17.9 |
| Oct | 10.9 |
| Nov | 6.3 |
| Dec | 4.7 |
| **Flow-Weighted Average** | **10.6** |

### *3.3.2.3 Total Phosphorus*

The State of Utah has identified a concentration of 0.05 mg/L TP as a pollution indicator in streams such as Hobble Creek that are designated to support cold-water fisheries. Samples collected downstream of the Mapleton Lateral are generally below this value, indicating that this part of Hobble Creek is usually not impaired for TP under historic baseline conditions. Historic baseline TP concentrations exceed the Utah pollution indicator for streams and rivers in May and September (for a detailed explanation, see Spanish Fork River, Section 3.4.3.3). Table 3-19 shows the average monthly historic baseline TP concentrations in Hobble Creek between the Mapleton Lateral and Utah Lake, which indicate that while the historic May and August values for Hobble Creek are slightly higher than the other ten months of the year, neither seriously violate the 0.05 mg/L level.

| Table 3-19<br>Average Monthly Historic Baseline<br>Total Phosphorus Concentrations in Hobble Creek | |
|---|---|
| **Month** | **Total Phosphorus as P Concentration (mg/L)** |
| Jan | 0.04 |
| Feb | 0.03 |
| Mar | 0.03 |
| Apr | 0.04 |
| May | 0.06 |
| Jun | 0.04 |
| Jul | 0.02 |
| Aug | 0.01 |
| Sep | 0.05 |
| Oct | 0.03 |
| Nov | 0.03 |
| Dec | 0.01 |
| **Flow-Weighted Average** | **0.04** |

### *3.3.2.4 Total Dissolved Solids*

Table 3-20 shows average monthly historic baseline TDS concentrations in Hobble Creek. The values observed in this reach of Hobble Creek are consistently below the 1,200 mg/L standard set by the State of Utah for water bodies being used for agricultural purposes.

| Table 3-20<br>Average Monthly Historic Baseline<br>Total Dissolved Solids Concentrations in Hobble Creek | |
|---|---|
| **Month** | **Total Dissolved Solids Concentration (mg/L)** |
| Jan | 316 |
| Feb | 310 |
| Mar | 271 |
| Apr | 282 |
| May | 295 |
| Jun | 251 |
| Jul | 403 |
| Aug | 346 |
| Sep | 333 |
| Oct | 346 |
| Nov | 337 |
| Dec | 321 |
| **Flow-Weighted Average** | **293** |

### *3.3.2.5 pH*

Table 3-21 shows average monthly historic baseline pH values in Hobble Creek between the Mapleton Lateral and Utah Lake. For water bodies that support cold-water fisheries, such as this reach of Hobble Creek, the State of Utah standard is pH in the range of 6.5 to 9.0 units. The observed values are within this range.

**Table 3-21**
**Average Monthly Historic Baseline pH in Hobble Creek**

| Month | pH Value (units) |
|---|---|
| Jan | 8.1 |
| Feb | 8.0 |
| Mar | 8.3 |
| Apr | 8.0 |
| May | 8.2 |
| Jun | 8.1 |
| Jul | 8.0 |
| Aug | 7.9 |
| Sep | 8.0 |
| Oct | 8.0 |
| Nov | 8.3 |
| Dec | 8.2 |
| **Flow-Weighted Average** | **8.2** |

### *3.3.2.6 Nitrate Plus Nitrite as Nitrogen*

Table 3-22 shows average monthly baseline nitrate plus nitrite as nitrogen concentrations in Hobble Creek between the Mapleton Lateral and Utah Lake. The State of Utah pollution indicator for nitrate plus nitrite as nitrogen is 4 mg/L. The nitrate plus nitrite as nitrogen concentrations in Hobble Creek are below the pollution indicator level.

**Table 3-22**
**Average Monthly Historic Baseline**
**Nitrate + Nitrite Concentrations in Hobble Creek**

| Month | Nitrate + Nitrite as N Concentration (mg/L) |
|---|---|
| Jan | 1.0 |
| Feb | 1.1 |
| Mar | 0.8 |
| Apr | 0.5 |
| May | 0.4 |
| Jun | 0.5 |
| Jul | 1.4 |
| Aug | 1.8 |
| Sep | 1.0 |
| Oct | 1.7 |
| Nov | 1.3 |
| Dec | 1.1 |
| **Flow-Weighted Average** | **0.7** |

### *3.3.2.7 Total Ammonia as Nitrogen*

Table 3-23 shows average monthly historic baseline total ammonia as nitrogen concentrations in Hobble Creek between the Mapleton Lateral and Utah Lake. The State of Utah has established a standard for ammonia concentrations in water bodies that are classified as cold-water fisheries. The standard is a function of pH and water temperature (see Sections 3.4.2.5 and 3.4.2.2, respectively). There are no exceedences of historic baseline total ammonia during the period from 1990 through 2000.

**Table 3-23**
**Average Monthly Historic Baseline**
**Total Ammonia Concentrations in Hobble Creek**

| Month | Total Ammonia as N Concentration (mg/L) |
|---|---|
| Jan | 0.04 |
| Feb | 0.04 |
| Mar | 0.03 |
| Apr | 0.12 |
| May | 0.04 |
| Jun | 0.04 |
| Jul | 0.03 |
| Aug | 0.03 |
| Sep | 0.03 |
| Oct | 0.03 |
| Nov | 0.07 |
| Dec | 0.03 |
| **Flow-Weighted Average** | **0.05** |

### *3.3.2.8 Selenium*

Selenium concentrations in Hobble Creek between the Mapleton Lateral and Utah Lake generally do not exceed the detection limit, which ranges from 0.5 μg/L to 5.0 μg/L in the data analyzed. Half of the detection limit has been assumed as the selenium concentration for samples below the detection limit. Values above the detection limit have been observed several times during the period from 1990 through 2001. The State of Utah has specified a standard of 5 μg/L for water bodies that support cold-water fisheries, such as Hobble Creek. Table 3-24 shows average monthly historic baseline selenium concentrations in Hobble Creek.

| Table 3-24<br>Average Monthly Historic Baseline<br>Selenium Concentrations in Hobble Creek | |
|---|---|
| **Month** | **Selenium Concentration (µg/L)** |
| Jan | 1.4 |
| Feb | 2.2 |
| Mar | 1.8 |
| Apr | 1.1 |
| May | 1.0 |
| Jun | 2.5 |
| Jul | 1.2 |
| Aug | 1.5 |
| Sep | 0.5 |
| Oct | 1.1 |
| Nov | 1.8 |
| Dec | 2.5 |
| **Flow-Weighted Average** | **1.6** |

### *3.3.2.9 Summary of Historic Baseline and Simulated Baseline Conditions*

Historic baseline concentrations for Hobble Creek between the Mapleton Lateral and Utah Lake were estimated using data collected at STORET station number 499610 (Hobble Creek at I-15 bridge crossing). Total phosphorus concentrations exceeded the 0.05 mg/L pollution indicator level in May and September (Table 3-25). All other constituents were within applicable standards or pollution indicator levels.

**Table 3-25**
**Summary of Historic Baseline Water Quality Conditions in Hobble Creek**

| Water Quality Characteristic | Units | TDS (mg/L) | pH (units) | Dissolved Oxygen (mg/L) | Temperature (°C) | Nitrate as N (mg/L) | Ammonia as N (mg/L) | Phosphorus as P (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Annual Average Water Quality** | | | | | | | | | |
| Flow-Weighted Average | Value | 293 | 8.2 | 8.8 | 10.6 | 0.7 | 0.05 | 0.04 | 1.6 |
| **Maximum Monthly Concentration** | | | | | | | | | |
| | Value | 403 | 8.3 | 7.7[a] | 23.2 | 1.8 | 0.12 | 0.06 | 2.5 |

[a]Value is minimum monthly concentration

## 3.3.3 Spanish Fork River From Diamond Fork Creek to Utah Lake

The following subsections present the water quality baseline conditions in the Spanish Fork River from the Diamond Fork Creek confluence to Utah Lake. The critical months for Spanish Fork River water quality are July, August and September. Historic data beginning in 1990 were used to determine the historic baseline conditions and were collected within the reach of the Spanish Fork River between the Diamond Fork Creek confluence and Utah Lake. The historic baseline conditions are different than the simulated baseline conditions. The simulated baseline conditions would occur if the Interim Proposed Action from the 1999 Diamond Fork Final Supplement to the Final Environmental Impact Statement was the final action of the Bonneville Unit water delivery into Utah Lake to make the Jordanelle Reservoir exchange. The simulated baseline conditions are those used in the NEPA compliance for the ULS EIS. Water quality data used to determine historic baseline water quality conditions are included in Appendix A.

### *3.3.3.1 Dissolved Oxygen*

Spanish Fork River water re-aerates as a result of mixing with Diamond Fork Creek water, turbulence in the river channel and through contact with the air. The State of Utah has specified that a minimum average monthly dissolved oxygen concentration of 6.5 mg/L is necessary to support a cold-water fishery in the Spanish Fork River from the confluence with Diamond Fork Creek to Moark Junction. A minimum average monthly dissolved oxygen concentration of 5.5 mg/L is necessary to support a warm water fishery in the Spanish Fork River from Moark Junction to Utah Lake. Table 3-26 shows the average monthly historic baseline and simulated baseline dissolved oxygen concentrations for each month in the Spanish Fork River from the confluence with Diamond Fork Creek to Utah Lake.

**Table 3-26**
**Average Monthly Historic Baseline and Simulated Baseline Dissolved Oxygen Concentrations in Spanish Fork River (mg/L)**

| | Historic Baseline Conditions | | Simulated Baseline Conditions | |
|---|---|---|---|---|
| **Month** | **Upper Spanish Fork River** | **Lower Spanish Fork River** | **Upper Spanish Fork River** | **Lower Spanish Fork River** |
| Jan | 12.0 | 12.7 | 12.3 | 12.7 |
| Feb | 11.2 | 11.0 | 11.8 | 11.7 |
| Mar | 11.2 | 11.0 | 11.9 | 11.7 |
| Apr | 10.2 | 8.4 | 11.2 | 10.1 |
| May | 10.0 | 8.1 | 10.4 | 9.0 |
| Jun | 10.7 | 8.8 | 10.9 | 9.4 |
| Jul | 13.1 | 11.4 | 12.9 | 11.3 |
| Aug | 13.2 | 10.8 | 13.0 | 10.8 |
| Sep | 14.0 | 12.9 | 13.8 | 12.8 |
| Oct | 9.1 | 9.5 | 9.8 | 10.0 |
| Nov | 11.6 | 12.0 | 11.5 | 11.7 |
| Dec | 12.4 | 12.7 | 12.0 | 12.2 |
| **Flow-Weighted Average** | **11.7** | **10.3** | **11.8** | **10.8** |

### *3.3.3.2 Water Temperature*

Water temperatures in the Spanish Fork River tend to increase as the water flows downstream. The temperature increase during the late summer months is caused by high air temperatures. Ambient air temperatures increasingly govern the water temperature in Spanish Fork River closer to Utah Lake. Table 3-27 shows the average monthly historic baseline and simulated baseline water temperature in the Spanish Fork River from the confluence with Diamond Fork Creek to Utah Lake.

**Table 3-27**
**Average Monthly Historic Baseline and Simulated Baseline Water Temperatures in Spanish Fork River (°C)**

| | Historic Baseline Conditions | | Simulated Baseline Conditions | |
|---|---|---|---|---|
| **Month** | **Upper Spanish Fork River** | **Lower Spanish Fork River** | **Upper Spanish Fork River** | **Lower Spanish Fork River** |
| Jan | 4.0 | 2.4 | 4.6 | 3.7 |
| Feb | 4.5 | 4.8 | 4.9 | 5.1 |
| Mar | 6.0 | 6.7 | 5.3 | 5.8 |
| Apr | 9.4 | 11.5 | 7.5 | 8.9 |
| May | 10.6 | 13.7 | 10.0 | 12.5 |
| Jun | 11.3 | 18.0 | 10.7 | 16.2 |
| Jul | 14.7 | 15.8 | 14.4 | 15.3 |
| Aug | 14.5 | 15.8 | 14.2 | 15.2 |
| Sep | 11.9 | 15.1 | 11.9 | 14.8 |
| Oct | 9.4 | 10.7 | 10.1 | 11.0 |
| Nov | 4.6 | 4.9 | 7.1 | 7.2 |
| Dec | 3.5 | 4.1 | 5.9 | 6.1 |
| **Flow-Weighted Average** | **10.6** | **10.1** | **9.9** | **9.5** |

### *3.3.3.3 Total Phosphorus*

The State of Utah has identified a concentration of 0.05 mg/L TP as a pollution indicator in streams such as the upper Spanish Fork River that are designated to support cold-water fisheries. Historic baseline and simulated baseline TP concentrations exceed the Utah pollution indicator for streams and rivers during many months. Table 3-28 shows the average monthly historic baseline and simulated baseline TP concentrations in the Spanish Fork River from the Diamond Fork Creek confluence to Utah Lake.

Total phosphorus concentrations in the upper Spanish Fork River rise abruptly above the 0.05 mg/L pollution indicator level in May and remain high through September-October under both baseline conditions because Strawberry Reservoir, the source of the water, has both spring and fall turnovers. The Strawberry Reservoir water is stratified, and the colder, heavier surface water displaces the lighter, warmer water at the bottom. During that six-month period between turnovers as the lake becomes stratified again during the summer and early fall, the Syar Tunnel Inlet draws the colder water near the bottom of the reservoir, which has a relatively low dissolved oxygen concentration and more TP than compared to the epilimnion, allowing for more TP to be transferred into

the Spanish Fork River system. By the time the water gets to the lower Spanish Fork River, the monthly TP concentrations are lower and more evenly distributed throughout the entire year.

**Table 3-28**
**Average Monthly Historic Baseline and Simulated Baseline**
**Total Phosphorus as P Concentrations in Spanish Fork River (mg/L)**

| | Historic Baseline Conditions | | Simulated Baseline Conditions | |
|---|---|---|---|---|
| **Month** | **Upper Spanish Fork River** | **Lower Spanish Fork River** | **Upper Spanish Fork River** | **Lower Spanish Fork River** |
| Jan | 0.02 | 0.05 | 0.04 | 0.06 |
| Feb | 0.04 | 0.10 | 0.05 | 0.09 |
| Mar | 0.04 | 0.07 | 0.03 | 0.06 |
| Apr | 0.04 | 0.18 | 0.04 | 0.13 |
| May | 0.30 | 0.10 | 0.24 | 0.08 |
| Jun | 0.11 | 0.08 | 0.10 | 0.08 |
| Jul | 0.24 | 0.08 | 0.23 | 0.08 |
| Aug | 0.11 | 0.05 | 0.10 | 0.05 |
| Sep | 0.12 | 0.09 | 0.12 | 0.10 |
| Oct | 0.06 | 0.08 | 0.08 | 0.09 |
| Nov | 0.03 | 0.04 | 0.04 | 0.05 |
| Dec | 0.02 | 0.04 | 0.04 | 0.04 |
| **Flow-Weighted Average** | **0.14** | **0.09** | **0.12** | **0.08** |

### *3.3.3.4 Total Dissolved Solids*

Table 3-29 shows average monthly historic baseline and simulated baseline TDS concentrations in the Spanish Fork River. The values observed in the Spanish Fork River are consistently below the 1,200 mg/L standard set by the State of Utah for water bodies being used for agricultural irrigation.

**Table 3-29**
**Average Monthly Historic Baseline and Simulated Baseline**
**Total Dissolved Solids Concentrations in Spanish Fork River (mg/L)**

| | Historic Baseline Conditions | | Simulated Baseline Conditions | |
|---|---|---|---|---|
| **Month** | **Upper Spanish Fork River** | **Lower Spanish Fork River** | **Upper Spanish Fork River** | **Lower Spanish Fork River** |
| Jan | 468 | 439 | 330 | 320 |
| Feb | 431 | 451 | 315 | 332 |
| Mar | 447 | 426 | 358 | 347 |
| Apr | 390 | 572 | 317 | 436 |
| May | 315 | 470 | 278 | 399 |
| Jun | 277 | 543 | 255 | 474 |
| Jul | 239 | 489 | 232 | 454 |
| Aug | 235 | 491 | 228 | 452 |
| Sep | 276 | 397 | 269 | 381 |
| Oct | 466 | 560 | 350 | 412 |
| Nov | 476 | 449 | 323 | 311 |
| Dec | 527 | 460 | 386 | 351 |
| **Flow-Weighted Average** | **324** | **481** | **285** | **387** |

### *3.3.3.5 pH*

Table 3-30 shows average monthly historic baseline and simulated baseline pH values in the Spanish Fork River from the confluence with Diamond Fork Creek to Utah Lake. For water bodies that support cold-water fisheries, such as the upper reach of the Spanish Fork River, the State of Utah standard is pH in the range of 6.5 to 9.0 units. The observed values are within this range.

**Table 3-30**
**Average Monthly Historic Baseline and Simulated Baseline pH in Spanish Fork River (units)**

| | Historic Baseline Conditions | | Simulated Baseline Conditions | |
|---|---|---|---|---|
| **Month** | **Upper Spanish Fork River** | **Lower Spanish Fork River** | **Upper Spanish Fork River** | **Lower Spanish Fork River** |
| Jan | 8.1 | 8.2 | 8.1 | 8.1 |
| Feb | 8.2 | 8.1 | 8.2 | 8.1 |
| Mar | 8.0 | 8.3 | 8.0 | 8.2 |
| Apr | 8.2 | 8.2 | 8.1 | 8.1 |
| May | 8.2 | 8.1 | 8.1 | 8.1 |
| Jun | 8.1 | 8.1 | 8.1 | 8.1 |
| Jul | 8.0 | 8.0 | 8.0 | 8.0 |
| Aug | 8.1 | 8.0 | 8.1 | 8.0 |
| Sep | 8.1 | 8.1 | 8.0 | 8.0 |
| Oct | 8.0 | 8.2 | 7.9 | 8.1 |
| Nov | 7.9 | 8.2 | 8.0 | 8.2 |
| Dec | 8.4 | 8.2 | 8.3 | 8.2 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** |

### *3.3.3.6 Nitrate Plus Nitrite as Nitrogen*

Table 3-31 shows average monthly baseline nitrate plus nitrite as nitrogen concentrations in the Spanish Fork River from the confluence with Diamond Fork Creek to Utah Lake. The State of Utah pollution indicator for nitrate plus nitrite as nitrogen is 4 mg/L. The nitrate plus nitrite as nitrogen concentrations in the Spanish Fork River are below the pollution indicator level.

**Table 3-31**
**Average Monthly Historic Baseline and Simulated Baseline**
**Nitrate Plus Nitrite as N Concentrations in Spanish Fork River (mg/L)**

| | Historic Baseline Conditions | | Simulated Baseline Conditions | |
|---|---|---|---|---|
| **Month** | **Upper Spanish Fork River** | **Lower Spanish Fork River** | **Upper Spanish Fork River** | **Lower Spanish Fork River** |
| Jan | 0.23 | 0.40 | 0.34 | 0.43 |
| Feb | 0.34 | 0.43 | 0.40 | 0.45 |
| Mar | 0.12 | 2.37 | 0.14 | 1.66 |
| Apr | 0.13 | 0.21 | 0.15 | 0.20 |
| May | 0.13 | 1.66 | 0.13 | 1.31 |
| Jun | 0.13 | 0.21 | 0.13 | 0.19 |
| Jul | 0.15 | 0.21 | 0.15 | 0.21 |
| Aug | 0.17 | 0.15 | 0.17 | 0.16 |
| Sep | 0.15 | 0.63 | 0.15 | 0.60 |
| Oct | 0.19 | 0.33 | 0.17 | 0.26 |
| Nov | 0.64 | 0.34 | 0.48 | 0.32 |
| Dec | 0.16 | 0.33 | 0.22 | 0.32 |
| **Flow-Weighted Average** | **0.17** | **0.82** | **0.19** | **0.64** |

### *3.3.3.7 Total Ammonia as Nitrogen*

Table 3-32 shows average monthly historic baseline and simulated baseline total ammonia as nitrogen concentrations in the Spanish Fork River from the confluence with Diamond Fork Creek to Utah Lake. The State of Utah has established a standard for ammonia concentrations in water bodies that are classified as cold-water fisheries. The standard is a function of pH and water temperature (see Sections 3.4.3.5 and 3.4.3.2, respectively). There are no exceedences of historic baseline total ammonia during the period from 1990 through 2000.

**Table 3-32**
**Average Monthly Historic Baseline and Simulated Baseline Ammonia as N Concentrations in Spanish Fork River (mg/L)**

| | Historic Baseline Conditions | | Simulated Baseline Conditions | |
|---|---|---|---|---|
| **Month** | **Upper Spanish Fork River** | **Lower Spanish Fork River** | **Upper Spanish Fork River** | **Lower Spanish Fork River** |
| Jan | 0.02 | 0.04 | 0.03 | 0.03 |
| Feb | 0.02 | 0.06 | 0.02 | 0.04 |
| Mar | 0.03 | 0.13 | 0.03 | 0.09 |
| Apr | 0.02 | 0.16 | 0.02 | 0.11 |
| May | 0.03 | 0.15 | 0.03 | 0.12 |
| Jun | 0.03 | 0.10 | 0.03 | 0.09 |
| Jul | 0.03 | 0.17 | 0.03 | 0.15 |
| Aug | 0.03 | 0.13 | 0.03 | 0.12 |
| Sep | 0.05 | 0.09 | 0.06 | 0.09 |
| Oct | 0.03 | 0.06 | 0.05 | 0.07 |
| Nov | 0.03 | 0.06 | 0.03 | 0.04 |
| Dec | 0.02 | 0.04 | 0.03 | 0.04 |
| **Flow-Weighted Average** | **0.03** | **0.11** | **0.03** | **0.09** |

### *3.3.3.8 Selenium*

Selenium concentrations in the Spanish Fork River from the confluence with Diamond Fork Creek to Utah Lake generally exceed the detection limit, which ranges from 0.5 μg/L to 5.0 μg/L in the data analyzed. Half of the detection limit has been assumed as the selenium concentration for samples below the detection limit. Only historical values between January 1, 1996 and July 29, 2003 have been used in the analysis because of a change in selenium analytical methodology in late 1995. Values above the detection limit have been observed numerous times during the period from 1990 through 2003. The primary sources of selenium in the Spanish Fork River are thought to be from Strawberry Tunnel and a landslide that extends into upper Sixth Water Creek. The State of Utah has specified a standard of 5 μg/L for water bodies that support cold-water fisheries, such as the Spanish Fork River. Table 3-33 shows average monthly historic baseline and simulated baseline selenium concentrations in the Spanish Fork River.

| Table 3-33<br>Average Monthly Historic Baseline and Simulated Baseline<br>Selenium Concentrations in Spanish Fork River (µg/L) | | | | |
|---|---|---|---|---|
| | **Historic Baseline Conditions** | | **Simulated Baseline Conditions** | |
| **Month** | **Upper Spanish Fork River** | **Lower Spanish Fork River** | **Upper Spanish Fork River** | **Lower Spanish Fork River** |
| Jan | 1.7 | 1.4 | 1.6 | 1.4 |
| Feb | 2.1 | 1.3 | 2.0 | 1.5 |
| Mar | 1.6 | 0.7 | 1.6 | 1.0 |
| Apr | 0.6 | 1.0 | 0.8 | 1.1 |
| May | 0.9 | 1.0 | 1.0 | 1.0 |
| Jun | 0.8 | 1.1 | 0.9 | 1.2 |
| Jul | 0.7 | 0.8 | 0.7 | 0.8 |
| Aug | 0.9 | 1.0 | 0.9 | 1.0 |
| Sep | 1.0 | 0.5 | 1.0 | 0.5 |
| Oct | 1.2 | 1.2 | 1.3 | 1.3 |
| Nov | 0.7 | 1.2 | 1.1 | 1.3 |
| Dec | 0.8 | 0.8 | 1.0 | 1.0 |
| **Flow-Weighted Average** | **1.0** | **1.0** | **1.0** | **1.1** |

### *3.3.3.9 Summary of Historic and Simulated Baseline Conditions*

Historic baseline concentrations for the Spanish Fork River from the confluence with Diamond Fork Creek to Utah Lake were estimated using data collected at STORET station numbers 499558 (Spanish Fork River at Lakeshore), 499560 (Spanish Fork River at Moark Diversion), and 499579 (Spanish Fork River above confluence with Diamond Fork Creek). Table 3-34 shows a summary of the flow-weighted concentrations of historic baseline water quality conditions in the Spanish Fork River. Total phosphorus concentrations frequently exceeded the 0.05 mg/L pollution indicator levels. All other water quality characteristics are within applicable standards or pollution indicator levels.

**Table 3-34**
**Summary of Historic Baseline Water Quality Conditions in the Spanish Fork River**

| Water Quality Characteristic | Units | TDS (mg/L) | pH (units) | Dissolved Oxygen (mg/L) | Temperature (°C) | Nitrate as N (mg/L) | Ammonia as N (mg/L) | Phosphorus as P (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Annual Average Water Quality** | | | | | | | | | |
| Upper Spanish Fork River | Value | 324 | 8.1 | 11.7 | 10.6 | 0.17 | 0.03 | 0.14 | 1.0 |
| Lower Spanish Fork River | Value | 481 | 8.1 | 10.3 | 10.1 | 0.82 | 0.11 | 0.09 | 1.0 |
| **Maximum Monthly Concentration** | | | | | | | | | |
| Upper Spanish Fork River | Value | 527 | 8.4 | 9.1[a] | 14.7 | 0.64 | 0.05 | 0.30 | 2.1 |
| Lower Spanish Fork River | Value | 572 | 8.3 | 8.1[a] | 18.0 | 2.37 | 0.17 | 0.18 | 1.4 |

[a]Value is minimum monthly concentration

Simulated baseline conditions are based on the flows that would occur if the 1999 Diamond Fork FS-FEIS Interim Proposed Action were to be the final action of the Bonneville Unit water delivery for exchange from Utah Lake to Jordanelle Reservoir. Table 3-35 shows a summary of the flow-weighted concentrations of simulated baseline water quality conditions in the Spanish Fork River. The simulated baseline conditions are those used in the NEPA compliance for the ULS EIS.

**Table 3-35**
**Summary of Simulated Baseline Water Quality Conditions in the Spanish Fork River**

| Water Quality Characteristic | Units | TDS (mg/L) | pH (units) | Dissolved Oxygen (mg/L) | Temperature (°C) | Nitrate as N (mg/L) | Ammonia as N (mg/L) | Phosphorus as P (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Annual Average Water Quality** | | | | | | | | | |
| Upper Spanish Fork River | Value | 285 | 8.1 | 11.8 | 9.9 | 0.19 | 0.03 | 0.12 | 1.0 |
| Lower Spanish Fork River | Value | 387 | 8.1 | 10.8 | 9.5 | 0.64 | 0.09 | 0.08 | 1.1 |
| **Maximum Monthly Concentration** | | | | | | | | | |
| Upper Spanish Fork River | Value | 386 | 8.3 | 9.8[a] | 14.4 | 0.48 | 0.06 | 0.24 | 2.0 |
| Lower Spanish Fork River | Value | 474 | 8.2 | 9.0[a] | 16.2 | 1.61 | 0.15 | 0.13 | 1.5 |

[a]Value is minimum monthly concentration

### 3.3.4 Jordan River

Historic data beginning in 1990 collected at STORET station number 499479 (Jordan River at Utah Lake Outlet) were used to determine the baseline conditions. These data are included in Appendix A, Table A-26. Baseline water quality conditions for the Jordan River from the Utah Lake outlet to the Jordan Narrows are presented in Table 3-16. Average baseline conditions for pH, dissolved oxygen, water temperature, nitrate plus nitrite and selenium are all within state water quality standards. The average and maximum baseline TP concentrations exceed the Utah pollution indicator 0.05 mg/L for streams and rivers. The high TP concentrations occur from phosphorus stored in Utah Lake bed sediments, decomposing aquatic plant matter in the lake, nutrient inflows to the lake from tributaries, wastewater treatment plant discharges, and other discharges into the lake. The average and maximum baseline TDS concentrations exceed the Utah water quality standard of 1,200 mg/L for agricultural water supplies. The high TDS concentrations in the Jordan River result from high evaporation rates causing TDS to concentrate in Utah Lake, salt springs that inflow to the lake, return flows carrying TDS into the lake, and the State Engineer's operation of Utah Lake levels and volume. Maximum baseline conditions for pH, nitrate plus nitrite, and selenium are all within state water quality standards. Maximum temperature exceeds the warmwater game fishery and non-game fishery water quality standard of 27 degrees C. Minimum baseline dissolved oxygen, while very low, does not exceed the 1-day average water quality standard of 3.0 mg/L for both the warm-water game fishery and non-game fishery applicable to the Jordan River.

**Table 3-36**
**Summary of Average and Maximum Baseline Water Quality Conditions in Jordan River From Utah Lake Outlet to Jordan Narrows**

| Water Quality Characteristic | | TDS | pH | Dissolved Oxygen | Temperature | Nitrate as N | Phosphorus as P | Selenium |
|---|---|---|---|---|---|---|---|---|
| | Units | (mg/L) | (units) | (mg/L) | (°C) | (mg/L) | (mg/L) | (µg/L) |
| **Average Water Quality Conditions** | | | | | | | | |
| | Value | 1,241 | 7.9 | 8.8 | 12.6 | 0.2 | 0.1 | 1.2 |
| **Maximum Water Quality Conditions** | | | | | | | | |
| | Value | 1,910 | 8.7 | 4.4[a] | 28.0 | 0.7 | 0.6 | 1.8 |

[a]Value is minimum monthly concentration

**THIS PAGE INTENTIONALLY LEFT BLANK**

# Chapter 4
# Environmental Consequences (Impacts)

## 4.1 Significance Criteria

Significance of water quality impacts was determined by whether or not water quality standards or pollutant indicators that are currently met would be exceeded; whether standards that are exceeded would be improved; or whether exceeded standards would be further degraded. The significance of water quality impacts with respect to related resource areas is described in the sections that deal with these related resources.

The State of Utah has established water quality standards that are based upon the beneficial uses. This information can be found in detail in Utah Administrative Code R317-2 Standards of Quality for Waters of the State. Table 4-1 lists water quality standards and Table 4-2 summarizes Utah water use classifications of the major hydrologic features in the impact area of influence. In addition, the Jordanelle Reservoir Water Quality Technical Advisory Committee (JTAC) has established water quality standards in the Provo River Watershed because of problems relating to eutrophication.

According to State standards, the pH for waters of all classifications must remain in the range from 6.5 to 9.0. For cold water species of fish (Class 3A) the maximum water temperature is 20 degrees Celsius. Maximum water temperature and minimum dissolved oxygen levels have been set for aquatic life. Minimum dissolved oxygen levels have been determined based upon the presence of early life stages of fish. When fish in early life stages are present, 8.0 mg/L is the minimum limit, otherwise it is 4.0 mg/L. The Utah Division of Water Quality, rather than perform an investigation at each location for early stages of life, has established the practice of using 6.5 mg/L as an indicator of a low DO level. For deep lakes and reservoirs, lower DO levels are anticipated and accepted.

The State's pollution indicators for total phosphorus (TP) are for recreational and aquatic wildlife uses (beneficial use classes 2 & 3). The 1984 Deer Creek Reservoir and Proposed Jordanelle Reservoir Water Quality Management Plan recommended that the TP concentration target be reduced to 0.04 mg/L for streams in the Provo River Watershed because of problems relating to eutrophication (Sowby and Berg Consultants, 1984).

**Table 4-1**
**State of Utah Water Quality Standards and Pollution Indicators by Key Parameters and Water Use Classification**



| Key Water Quality Parameters | Units | Water Use Classification | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1C Domestic | 2A Recreation (Primary Contact) | 2B Recreation (Secondary Contact) | 3A Coldwater Game Fishery | 3B Warmwater Game Fishery | 3C Non-Game Fishery | 3D Waterfowl | 4 Agriculture |
| Minimum pH | units | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| Maximum pH | units | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 |
| Minimum Dissolved Oxygen[a] | mg/L | No standard | No standard | No standard | 6.5 (30-day avg) | 5.5 (30-day avg) | 5.0 (30-day avg) | 5.0 (30-day avg) | No standard |
| | | | | | 9.5/5.0 (7-day avg) | 6.0/4.0 (7-day avg) | No standard | No standard | |
| | | | | | 8.0/4.0 (1-day avg) | 5.0/3.0 (1-day avg) | 3.0 (1-day avg) | 3.0 (1-day avg) | |
| Maximum Temperature | °C | No standard | No standard | No standard | 20 | 27 | 27 | No standard | No standard |
| Temperature Change | °C | No standard | No standard | No standard | 2 | 4 | 4 | No standard | No standard |
| Biochemical Oxygen Demand (BOD) | mg/L | No standard | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Nitrate as N[b] | mg/L | 10 | No indicator | No indicator | 4 | 4 | 4 | No indicator | No indicator |
| Total Ammonia as N | mg/L | No standard | No standard | No standard | (30-day avg)[c] | (30-day avg)[c] | No standard | No standard | No standard |
| | | | | | (1-hr avg)[d] | (1-hr avg)[d] | (1-hr avg)[d] | (1-hr avg)[d] | |
| Total Phosphorus as P[e] | mg/L | No indicator | 0.05 in streams<br>0.025 in lakes and reservoirs | 0.05 in streams<br>0.025 in lakes and reservoirs | No indicator | 0.05 in streams<br>0.025 in lakes and reservoirs | 0.05 in streams<br>0.025 in lakes and reservoirs | No indicator | No indicator |
| Maximum Total Coliforms | count | 5,000 | 1,000 | 5,000 | No standard | No standard | No standard | No standard | No standard |
| Total Dissolved Solids[f] (TDS) | mg/L | No standard | No standard | No standard | No standard | No standard | No standard | No standard | 1,200 |

**Table 4-1**
**State of Utah Water Quality Standards and Pollution Indicators by Key Parameters and Water Use Classification**



| Key Water Quality Parameters | Units | Water Use Classification | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1C Domestic | 2A Recreation (Primary Contact) | 2B Recreation (Secondary Contact) | 3A Coldwater Game Fishery | 3B Warmwater Game Fishery | 3C Non-Game Fishery | 3D Waterfowl | 4 Agriculture |
| Maximum Fecal Coliforms | count | 2,000 | 200 | 200 | No standard | No standard | No standard | No standard | No standard |
| Turbidity Increase | NTU | No standard | 10 | 10 | 10 | 10 | 15 | 15 | No standard |
| Selenium | See water use classifi-cations | 0.05 mg/L (maximum dissolved) | No standard | 0.05 mg/L (maximum dissolved) | 4.6 µg/L (4-day avg) | 4.6 µg/L (4-day avg) | 4.6 µg/L (4-day avg) | 4.6 µg/L (4-day avg) | No standard |
| | | | | | 18.4 µg/L (1-hour avg) | 18.4 µg/L (1-hour avg) | 18.4 µg/L (1-hour avg) | 18.4 µg/L (1-hour avg) | |

Source: Source: *R317-2. Standards of Quality for Waters of the State As in effect March 1, 2004. Available at:* http://www.rules.utah.gov/publicat/code/r317/r317-002.htm.

**NOTES:**

[a]These limits are not applicable to lower water levels in deep impoundments. The 30-day standard is used in this FS-FEIS as it corresponds with the monthly time step used for analysis.

[b]Nitrate as N is a pollution indicator, not a State water quality standard.

[c]The 30-Day average (chronic) concentration of un-ionized ammonia in mg/l as N does not exceed, more than once every three years on the average:

Fish Early Life Stages Present:

$$( 0.0577/(1+10^{7.688-pH}) + 2.487/(1+10^{7.688-pH}) ) * MIN(2.845, 1.45*10^{0.028*(25-Temperature)})$$

Fish Early Life Stages Absent

$$( 0.0577/(1+10^{7.688-pH}) + 2.487/(1+10^{7.688-pH}) ) * 1.45*10^{0.028*(25-MAX(Temperature-7)})$$

[d]The 1-Hour average (acute) concentration of un-ionized ammonia in mg/l as N does not exceed, more than once every three years on the average:

Class 3A:

$$0.275/(1+10^{7.204-pH}) + 39/(1+10^{pH-7.204})$$

Class 3B, 3C, 3D:

$$0.411/(1+10^{7.204-pH}) + 58.4/(1+10^{pH-7.204})$$

[e]Total phosphorus as P is a pollution indicator, not a State water quality standard.

[f]TDS standards shall be at background where it can be shown that natural or un-alterable conditions prevent its attainment. Limits may be adjusted if such adjustment does not impair the designated beneficial use of the receiving water.

**Table 4-2**
**State of Utah Water Use Classification of Hydrologic Features in the Impact Area of Influence**

| Affected Water Features | Water Use Classification[a] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1C Domestic | 2A[b] Recreation (Primary Contact) | 2B[c] Recreation (Secondary Contact) | 3A Coldwater Game Fishery | 3B Warmwater Game Fishery | 3C Non-Game Fishery | 3D Waterfowl | 4 Agriculture |
| **Lake and Reservoir Water Quality** | | | | | | | | |
| Utah Lake | | | X | | X | | X | X |
| **Stream and River Water Quality** | | | | | | | | |
| Spanish Fork and tributaries from Utah Lake to Moark Junction | | | X | | X | | X | X |
| Spanish Fork and tributaries from Moark Junction to headwaters | | | X | X | | | | X |
| Provo River (Murdock Diversion to Utah Lake) | | | X | X | | | | X |
| Hobble Creek | | | X | X | | | | X |
| Jordan River (Utah Lake to Narrows) | X | | X | | | X | | X |

[a]Source: *R317-2. Standards of Quality for Waters of the State As in effect March 1, 2004. Available at:* http://www.rules.utah.gov/publicat/code/r317/r317-002.htm.

[b]eg. swimming

[c]e.g. boating, wading, etc.

[d]All waters not specifically classified are presumptively classified as 2B, 3B, or 3D.

## 4.2 Potential Impacts Eliminated From Further Analysis

Potential water quality impacts associated with construction were eliminated from further analysis. With application of the Standard Operating Procedures described in the EIS (see Chapter 1, Section 1.8.8), impacts on water quality from construction activities associated with the Proposed Action and other alternatives are not expected to occur. Therefore, the following impact raised in the scoping meetings has been eliminated from further analysis:

- What would be the impacts of constructing the pipeline along Highway 6 and within the communities in Utah County?

Annual average flow to Utah Lake is approximately 700,000 acre-feet. Flows under the Proposed Action and other alternatives to Utah Lake are estimated to range from 40,000 to 85,000 acre-feet, or 6 to 12 percent of the total flow. Therefore, based on flow alone, impacts on water quality are expected to be minimal both in Utah Lake, and on the Jordan River (i.e., the outflow from Utah Lake). Therefore, impacts on water quality parameters in Utah Lake were eliminated from further analysis, except for total dissolved solids (TDS) and TP. The State of Utah's 2004 Clean Water Act Section 303(d) list of impaired water shows Utah Lake as impaired for TP and TDS in partial support of beneficial use class 3B (warmwater game fishery). Impacts on water quality characteristics in the Jordan River from the Utah Lake outlet to the Narrows were eliminated from further analysis because the ULS project would cause minimal or no changes in Jordan River flows.

Similarly, for the Bonneville Unit Water Alternative and No Action Alternative, changes in flow to and from the Provo River would be very minor. Therefore, the Provo River was eliminated from detailed analysis for these two alternatives.

The Jordan River below the Narrows and the Great Salt Lake are located outside of the ULS impact area of influence. The ULS would have no measurable hydrologic impacts on the Jordan River, therefore, there would be no impacts on water quality in the Jordan River and Great Salt Lake. The following impacts have been eliminated from further analysis.

- What would be the impacts of the ULS on Jordan River and Great Salt Lake wetland habitats and water quality?

## 4.3 Spanish Fork Canyon-Provo Reservoir Canal Alternative (Proposed Action)

### 4.3.1 Lake and Reservoir Water Quality

#### *4.3.1.1 Utah Lake*

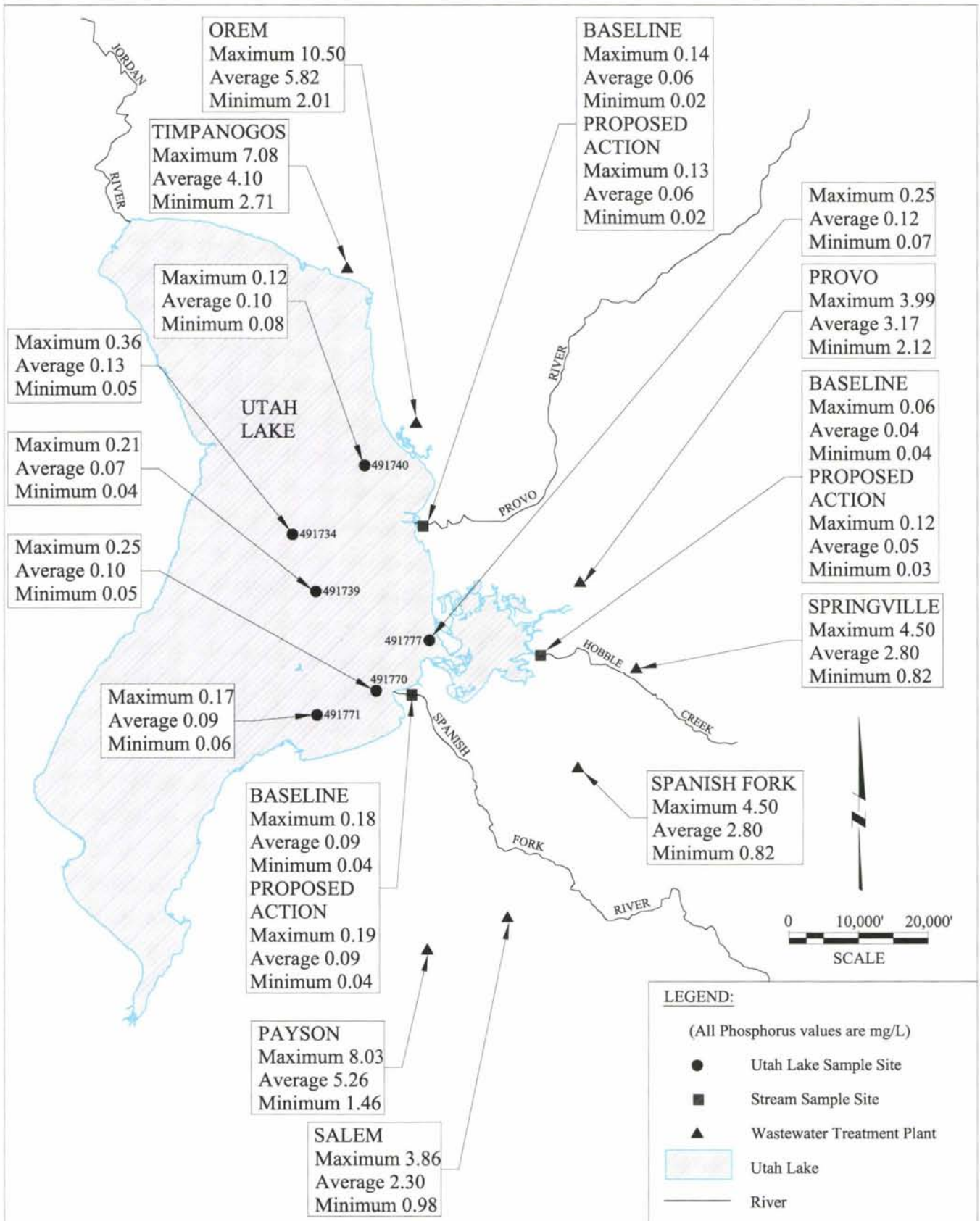
**4.3.1.1.1 Total Phosphorus.** Total phosphorus impacts in Utah Lake were analyzed in terms of localized TP concentrations and estimated TP load from inflow sources. Map 4-1 shows Utah Lake surface TP concentrations during seasonal project water delivery under the Proposed Action. The map shows the locations of Utah Valley wastewater treatment plants (WWTP) and the maximum, average and minimum TP concentrations in the WWTP effluents. The influence of the WWTP effluents on Utah Lake TP concentrations are discussed in the cumulative impacts section of this technical report. The following sections present the Proposed Action impact analysis for TP concentrations and TP load in Utah Lake.

#### *4.3.1.1.1.1 Localized TP Concentrations*

**A. Near Mouth of Provo River.** The ULS Proposed Action would provide in-stream flows to the lower Provo River throughout the year. Strawberry Reservoir water conveyed through the Spanish Fork-Provo Reservoir Canal Pipeline would be mixed with Provo River water near the mouth of Provo Canyon and flow down to Utah Lake. Utah Lake STORET stations 491734, 491739 and 491740 are closest to the mouth of the Provo River (Map 4-1). The Proposed Action annual flow-weighted average TP inflow concentration of 0.06 mg/L would be 0.01 to 0.07 mg/L lower than the historic annual average TP concentrations at these Utah Lake STORET stations. Historic annual average TP concentrations in surface samples at these stations during Proposed Action water delivery range from 0.07 mg/L to 0.13 mg/L (Table 3-1). The Proposed Action maximum flow-weighted TP inflow concentration of 0.13 mg/L would be 0.08 to 0.23 mg/L lower than historic maximum recorded TP concentrations at two Utah Lake STORET stations and 0.01 mg/L higher than the historic maximum recorded TP concentration at STORET station 491740. The Proposed Action minimum flow-weighted TP inflow concentration of 0.02 mg/L would be 0.02 to 0.06 mg/L lower than the historic minimum TP concentrations recorded at these Utah Lake STORET stations. The Proposed Action inflows from the lower Provo River would dilute and reduce Utah Lake TP concentrations near the mouth of the Provo River. The Proposed Action would not have a significant impact on TP concentrations in Utah Lake near the mouth of the Provo River.

**B. Near Mouth of Hobble Creek.** The ULS Proposed Action would provide June sucker spawning and rearing flows in Hobble Creek from April through May. Strawberry Reservoir water conveyed through the Mapleton-Springville Lateral Pipeline would be mixed with Hobble Creek water upstream of Springville City and flow down to Utah Lake. Utah Lake STORET station 491777 outside the mouth of Provo Bay is the closest station to the mouth of Hobble Creek (Map 4-1). The Proposed Action flow-weighted average TP concentration of 0.05 mg/L would be 0.07 mg/L lower than the historic average TP concentration at this Utah Lake STORET station during April and May. The historic average TP concentration in surface samples at this station during Proposed Action water delivery months of April and May is 0.12 mg/L (Table 3-1). The Proposed Action maximum flow-weighted TP inflow concentration of 0.12 mg/L would be 0.13 mg/L lower than the historic maximum recorded concentration of 0.25 mg/L at Utah Lake STORET station 499777. The Proposed Action minimum flow-weighted TP inflow concentration of 0.03 mg/L would be 0.04 mg/L lower than the historic minimum TP concentration of 0.07 mg/L recorded at STORET station 499777. The Proposed Action inflows from Hobble Creek would dilute and reduce Utah Lake TP concentrations near the mouth of Hobble Creek. The Proposed Action would not have a significant impact on TP concentrations in Utah Lake near the mouth of Hobble Creek.

**C. Near Mouth of Spanish Fork River.** The ULS Proposed Action would deliver Bonneville Unit flows through the Spanish Fork River to Utah Lake from October through May. In-stream flows provided to Sixth Water Creek and Diamond Fork Creek from Strawberry Reservoir water would flow down the Spanish Fork River to Utah Lake. Utah Lake STORET stations 491770 and 491771 are the closest stations to the mouth of the Spanish Fork River (Map 4-1). The Proposed Action flow-weighted average TP concentration of 0.09 mg/L would be 0.01 mg/L lower or the same as historic average TP concentrations at these Utah Lake STORET stations. Historic average TP concentrations in surface samples at these stations during Proposed Action water delivery months from October through May range from 0.09 mg/L to 0.10 mg/L (Table 3-1). The Proposed Action maximum flow-weighted TP inflow concentration of 0.19 mg/L would be 0.06 mg/L lower than historic maximum recorded TP concentration at Utah Lake STORET station 499770 and 0.02 mg/L higher than the historic maximum recorded TP concentration at STORET station 491771. The Proposed Action minimum flow-weighted TP inflow concentration of 0.04 mg/L would be 0.01 to 0.02 mg/L lower than the historic minimum TP concentrations recorded at these Utah Lake STORET stations. The Proposed Action inflows from the Spanish Fork River would slightly dilute and reduce or not change Utah Lake TP concentrations near the mouth of the Spanish Fork River. The Proposed Action would not have a significant impact on TP concentrations in Utah Lake near the mouth of the Spanish Fork River.




Map 4-1

Utah Lake Surface Phosphorus Concentrations During Seasonal Project Water Delivery - Proposed Action

***4.3.1.1.1.2 Estimated TP Load.*** The estimated TP load to Utah Lake under the Proposed Action would not change from the estimated historic TP load to Utah Lake (Table 4-3). The TP load would decrease in the Provo River because of water exchanged from Utah Lake to Jordanelle Reservoir, would decrease from Other Inflow because of reduced return flows in northern Utah County, and would increase in the Spanish Fork River, Hobble Creek, and in ULS return flows. Under the Proposed Action, the estimated net TP load of 291.6 tons per year from all inflow sources to Utah Lake would be the same as the estimated net historic TP load to Utah Lake. The Proposed Action would not have a significant impact on TP load to Utah Lake.

**Table 4-3**
**Estimated Utah Lake Total Phosphorus Load Under the Proposed Action and Change From Historic Baseline Total Phosphorus Load**

| Inflow Source | Average Annual Inflow (acre-feet) | TP Concentration (mg/L) | Combined TP Load (tons per year) | Change from Historic Baseline Load (tons per year) | Change from Historic Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 112,170 | 0.06 | 9.6 | -1.1 | -10 |
| Spanish Fork River | 96,902 | 0.09 | 12.5 | +0.7 | +5.9 |
| Hobble Creek | 39,274 | 0.05 | 2.8 | +1.6 | +133 |
| ULS Return Flows | 9,660 | 0.05 | 0.7 | +0.7 | NA |
| WWTP Discharges | 52,591 | 3.00 | 225.6 | 0 | 0 |
| Other Inflows | 256,707 | 0.11 | 40.4 | -1.9 | -4.5 |
| **Total** | **567,304** | | **291.6** | **0** | **0** |

The estimated TP load to Utah Lake under the Proposed Action would decrease by 3.2 tons per year (net –1.1 percent) from the estimated simulated baseline TP load to Utah Lake (Table 4-4). The TP load would increase in the Provo River and Hobble Creek because of increased Strawberry Reservoir water being mixed with Provo River and Hobble Creek water, would decrease from Other Inflows because of reduced return flows in northern Utah County, would decrease in the Spanish Fork River because of decreased load from reduced Strawberry Reservoir flows, and would increase in ULS return flows. Under the Proposed Action, the estimated net TP load of 291.6 tons per year from all inflow sources to Utah Lake would be lower than the estimated net simulated baseline TP load of 294.8 tons per year to Utah Lake. The Proposed Action would not have a significant impact on TP load to Utah Lake.

**Table 4-4**
**Estimated Utah Lake Total Phosphorus Load Under the Proposed Action and Change From Simulated Baseline Total Phosphorus Load**

| Inflow Source | Average Annual Inflow (acre-feet) | TP Concentration (mg/L) | Combined TP Load (tons per year) | Change from Simulated Baseline Load (tons per year) | Change from Simulated Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 112,170 | 0.06 | 9.6 | +2.8 | +41 |
| Spanish Fork River | 96,902 | 0.09 | 12.5 | -6.4 | -34 |
| Hobble Creek | 39,274 | 0.05 | 2.8 | +1.6 | +133 |
| ULS Return Flows | 9,660 | 0.05 | 0.7 | +0.7 | NA |
| WWTP Discharges | 52,591 | 3.00 | 225.6 | 0 | 0 |
| Other Inflows | 256,707 | 0.11 | 40.4 | -1.9 | -4.5 |
| **Total** | **567,304** | | **291.6** | **-3.2** | **-1.1** |

**4.3.1.1.2 Total Dissolved Solids.** Total dissolved solids impacts in Utah Lake were analyzed in terms of TDS concentrations and estimated TDS load from inflow sources. The influence of evaporation, tributary and WWTP effluent inflows, other inflows including salt springs and irrigation return flows, upstream water demands, and State Engineer operations of Utah Lake volume and levels on TDS concentrations in Utah Lake cannot be separated and the TDS concentrations discussed in this section represent cumulative concentrations rather than concentrations caused solely by the ULS operations. The changes in TDS concentrations under the ULS are therefore cumulative impacts resulting under ULS operations and are addressed in the cumulative impacts section of this technical report. The following sections present the Proposed Action impact analysis for TDS cumulative concentrations and TDS load in Utah Lake.

***4.3.1.1.2.1 TDS Cumulative Concentrations.*** The ULS and the M&I System (Jordanelle Reservoir) exchange flows originate in Strawberry Reservoir, which has an average TDS concentration of 159 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through the Spanish Fork River under the Proposed Action, the resulting inflow to Utah Lake would have an estimated average TDS concentration of 488 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through Hobble Creek under the Proposed Action, the resulting inflow to Utah Lake would have an estimated average TDS concentration of 230 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through the lower Provo River under the Proposed Action, the resulting inflow to Utah Lake would have an estimated average TDS concentration of 257 mg/L. ULS project return flows to Utah Lake under the Proposed Action would have an estimated TDS concentration of 457 mg/L. Wastewater treatment plant inflows to Utah Lake have an estimated TDS concentration of 600 mg/L (based on Table 3-5, Metcalf and Eddy 1979). Other inflows (irrigation return flows, other tributary inflows, springs, etc.) are estimated to have a TDS concentration of 450 mg/L (derived from LKSIM2000 model inflow and outflow concentrations). Therefore, the impact of the ULS inflows would be a dilution of TDS concentrations in the primary tributary inflows, and would dilute and reduce in-lake TDS concentrations.

Under the Proposed Action, TDS cumulative concentrations in Utah Lake would remain essentially unchanged compared with historic baseline conditions (Table 4-5). The TDS cumulative concentration would not exceed the agricultural use criterion of 1,200 mg/L because the Proposed Action inflows would contribute lower TDS concentration water than occurs in Utah Lake.

Compared to the simulated baseline TDS concentrations, the Proposed Action would increase TDS cumulative concentrations but would not exceed the agricultural use water quality standard (Table 4-5). The LKSIM2000 model provides a conservatively higher estimate of TDS cumulative concentrations under the Proposed Action, which is why the values shown are higher than the ULS simulated baseline.

**Table 4-5**
**Utah Lake Total Dissolved Solids Concentrations Under the Proposed Action Compared to Historical and Simulated Baseline Conditions**

| Sample Date | Monitoring Station ID Number | Utah Lake Measured Historic TDS (mg/L) | Utah Lake Simulated Baseline TDS (mg/L) | Projected Cumulative ULS Proposed Action TDS (mg/L) | Cumulative Change from Historic Baseline TDS (percent) | Cumulative Change from Simulated Baseline TDS (percent) |
|---|---|---|---|---|---|---|
| 8/14/90 | 491738 | 1,254 | 949 | 1,124 | -10.3 | +18 |
| 8/14/90 | 491750 | 1,246 | 949 | 1,124 | -9.8 | +18 |
| 8/14/90 | 491751 | 1,284 | 949 | 1,124 | -12.5 | +18 |
| 8/14/90 | 491777 | 1,214 | 949 | 1,124 | -7.4 | +18 |
| 8/14/90 | 491770 | 1,284 | 949 | 1,124 | -12.5 | +18 |
| 8/14/90 | 491771 | 1,278 | 949 | 1,124 | -12.1 | +18 |
| 8/14/90 | 491762 | 1,330 | 949 | 1,124 | -15.5 | +18 |
| 8/14/90 | 491739 | 1,262 | 949 | 1,124 | -10.9 | +18 |
| 8/14/90 | 491733 | 1,288 | 949 | 1,124 | -12.7 | +18 |
| 8/14/90 | 491734 | 1,292 | 949 | 1,124 | -13.0 | +18 |
| 8/14/90 | 491742 | 1,262 | 949 | 1,124 | -10.9 | +18 |
| 8/14/90 | 491741 | 1,244 | 949 | 1,124 | -9.6 | +18 |
| 8/14/90 | 491752 | 1,262 | 949 | 1,124 | -10.9 | +18 |
| 8/14/90 | 491737 | 1,238 | 949 | 1,124 | -9.2 | +18 |
| 8/14/90 | 491730 | 1,240 | 949 | 1,124 | -9.4 | +18 |
| 8/14/90 | 491732 | 1,248 | 949 | 1,124 | -9.9 | +18 |
| 8/14/90 | 491740 | 1,224 | 949 | 1,124 | -8.2 | +18 |
| 7/2/93 | 491731 | 816 | 877 | 962 | +17.9 | +9.7 |
| 7/15/94 | 491731 | 1,022 | 1,000 | 1,077 | +5.4 | +7.7 |
| 7/26/95 | 491731 | 872 | 855 | 888 | +1.8 | +3.9 |
| 9/27/95 | 491731 | 924 | 931 | 973 | +5.3 | +4.5 |
| 7/15/97 | 491731 | 760 | 677 | 714 | -6.1 | +5.5 |
| 7/15/97 | 491732 | 758 | 677 | 714 | -5.8 | +5.5 |
| 9/11/97 | 491731 | 806 | 765 | 799 | -0.9 | +4.4 |
| 9/11/97 | 491732 | 800 | 765 | 799 | -0.1 | +4.4 |
| 7/6/99 | 491731 | 700 | 643 | 659 | -5.9 | +2.5 |
| 7/6/99 | 491762 | 716 | 643 | 659 | -8.0 | +2.5 |
| 7/6/99 | 491777 | 682 | 643 | 659 | -3.4 | +2.5 |
| 8/19/99 | 491731 | 720 | 718 | 729 | +1.3 | +1.5 |
| 8/19/99 | 491732 | 714 | 718 | 729 | +2.1 | +1.5 |

The 17.9 percent increase in projected TDS cumulative concentration from historic baseline during July 1993 coincides with several anomalous events. Utah Lake volume dropped to approximately 208,000 acre-feet in August 1992, and then 40,000 acre-feet of Bonneville Unit water from Strawberry Reservoir was conveyed down Spanish Fork River to supplement Utah Lake volume in winter 1993. Jordanelle Reservoir began storing Provo

River water in April 1993, significantly reducing the Provo River inflow to Utah Lake. The 1993 winter snowpack and precipitation resulted in an extreme spring runoff to Utah Lake, and the lake volume doubled from 309,000 acre-feet in December 1992 to 691,000 acre-feet in June 1993. The effect of these anomalous events was to decrease the Utah Lake TDS concentration in July 1993 at the one station sampled, because of dilution with low TDS water and increased lake volume. However, the LKSIM2000 model projected a higher TDS cumulative concentration with the ULS project and did not reflect as much TDS dilution in the lake. The contribution to TDS dilution from Bonneville Unit inflows to Utah Lake beginning with 1995 is demonstrated by the in-lake TDS concentrations that occurred from 1995 through 1999, which ranged from 700 to 924 mg/L, at least 276 mg/L below the 1200 mg/L water quality standard for agricultural irrigation water.

***4.3.1.1.2.2 Estimated TDS Load.*** The estimated TDS load to Utah Lake under the Proposed Action would decrease from the estimated historic TDS load to Utah Lake (Table 4-6). The TDS load would decrease in the Provo River because of water exchanged from Utah Lake to Jordanelle Reservoir, would decrease from Other Inflow because of reduced return flows in northern Utah County, and would increase in the Spanish Fork River, Hobble Creek, and in ULS return flows. Under the Proposed Action, the estimated net TDS load of 338,391 tons per year from all inflow sources to Utah Lake would be 584 tons lower (-0.2 percent) than the estimated net historic TDS load of 338,975 tons per year to Utah Lake. The Proposed Action would not have a significant impact on TDS load to Utah Lake.

**Table 4-6**
**Estimated Utah Lake TDS Load Under the Proposed Action and Change From Historic Baseline**

| Inflow Source | Average Annual Inflow (acre-feet) | TDS Concentration (mg/L) | Combined TDS Load (tons per year) | Change from Historic Baseline Load (tons per year) | Change from Historic Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 112,170 | 257 | 41,224 | -8,001 | -16.3 |
| Spanish Fork River | 96,902 | 488 | 67,622 | +4,630 | +7.4 |
| Hobble Creek | 39,274 | 230 | 12,917 | +4,398 | +51.6 |
| ULS Return Flows | 9,660 | 457 | 6,315 | +6,315 | NA |
| WWTP Discharges | 52,591 | 600 | 45,123 | 0 | 0 |
| Other Inflows | 256,707 | 450 | 165,191 | -7,925 | -4.6 |
| **Total** | **567,304** | | **338,392** | **-584** | **-0.2** |

The estimated TDS load to Utah Lake under the Proposed Action would decrease by 11,487 tons per year (net – 3.3 percent) from the estimated simulated baseline TDS load to Utah Lake (Table 4-7). The TDS load would increase in the Provo River and Hobble Creek because of increased Strawberry Reservoir water being mixed with Provo River and Hobble Creek water, would decrease from Other Inflows because of reduced return flows in northern Utah County, would decrease in the Spanish Fork River because of decreased load from reduced Strawberry Reservoir flows, and would increase in ULS return flows. Under the Proposed Action, the estimated net TDS load of 338,391 tons per year from all inflow sources to Utah Lake would be lower than the estimated net simulated baseline TDS load of 349,878 tons per year to Utah Lake. The Proposed Action would not have a significant impact on TP load to Utah Lake.

| Table 4-7<br>Estimated Utah Lake TDS Load Under the Proposed Action<br>and Change From Simulated Baseline | | | | | |
|---|---|---|---|---|---|
| **Inflow Source** | **Average Annual Inflow (acre-feet)** | **TDS Concentration (mg/L)** | **Combined TDS Load (tons per year)** | **Change from Simulated Baseline Load (tons per year)** | **Change from Simulated Baseline Load (percent)** |
| Provo River | 112,170 | 257 | 41,224 | +9,815 | +31.2 |
| Spanish Fork River | 96,902 | 488 | 67,622 | -23,723 | -25.9 |
| Hobble Creek | 39,274 | 230 | 12,917 | +4,398 | +51.6 |
| ULS Return Flows | 9,660 | 457 | 6,315 | +5,949 | +1,625 |
| WWTP Discharges | 52,591 | 600 | 45,123 | 0 | 0 |
| Other Inflows | 256,707 | 450 | 165,191 | -7,925 | -4.6 |
| **Total** | **567,304** | | **338,392** | **-11,486** | **-3.3** |

## 4.3.2 Stream and River Water Quality

### *4.3.2.1 Provo River From Murdock Diversion to Utah Lake*

The following subsections present the impact analysis results for water quality conditions in the Provo River from the Murdock Diversion to Utah Lake under the Proposed Action. The average change from baseline conditions shown in each table is applicable to simulated baseline and historic baseline conditions.

**4.3.2.1.1 Dissolved Oxygen.** Provo River dissolved oxygen would increase or remain unchanged from historic baseline conditions (Table 4-8). The increased dissolved oxygen concentrations would occur from the Bonneville Unit water discharged to the lower Provo River, which at times could be most of the river flow between Murdock Diversion Dam and Utah Lake. The flow-weighted average dissolved oxygen concentrations would increase in the lower Provo River. There would be a significant beneficial impact on dissolved oxygen concentrations in the lower Provo River under the Proposed Action.

The dissolved oxygen concentrations shown in Table 4-8 were calculated assuming dissolved oxygen saturation a water temperatures measured in the Sixth Water Aqueduct outlet. The higher dissolved oxygen concentrations in the lower Provo River would be caused by discharge into the lower Provo River of water at saturation conveyed through the Spanish Fork-Provo Reservoir Canal Pipeline. The Bonneville Unit water would achieve saturation prior to entering the Spanish Fork-Provo Reservoir Canal Pipeline because it would:

- pass through the Sixth Water Power Facility turbines and returning to atmospheric pressure
- drop through a shaft into the Tanner Ridge Tunnel
- drop turbulently through the 190-foot deep vortex shaft after flowing through the Diamond Fork Power Facility and Diamond Fork Flow Control Structure
- flow through the Upper Diamond Fork Tunnel under gravity conditions exposed to atmospheric pressure, and
- flow through the Spanish Fork Flow Control Structure and return to atmospheric pressure

**Table 4-8**
**Average Monthly Dissolved Oxygen Concentrations in the Lower Provo River Under the Proposed Action (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Baseline Dissolved Oxygen Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 11.2 | 11.4 | 11.7 | 10.7 | +4.7 |
| Feb | 11.3 | 11.1 | 12.1 | 11.0 | +2.7 |
| Mar | 11.0 | 11.3 | 11.1 | 11.0 | 0 |
| Apr | 10.1 | 11.1 | 10.0 | 10.0 | +1.0 |
| May | 10.2 | 11.2 | 10.0 | 10.0 | +2.0 |
| Jun | 9.9 | 11.1 | 9.8 | 9.8 | +1.0 |
| Jul | 10.4 | 10.7 | 10.3 | 10.3 | +1.0 |
| Aug | 10.0 | 9.1 | 10.2 | 9.1 | +9.9 |
| Sep | 10.5 | 10.7 | 10.4 | 9.1 | +15 |
| Oct | 10.1 | 10.6 | 10.5 | 9.3 | +8.6 |
| Nov | 11.1 | 11.1 | 11.1 | 11.0 | +0.9 |
| Dec | 11.0 | 11.1 | 10.9 | 10.8 | +1.9 |
| **Flow-Weighted Average** | **10.3** | **10.7** | **10.2** | **10.1** | **+2.0** |

**4.3.2.1.2 Water Temperature.** Provo River water temperatures would decrease from historic baseline conditions during late summer months, providing some cooling of the river water, and would increase during the winter months, providing some warming of the river water (Table 4-9). These water quality conditions would be beneficial to fish and other aquatic resources that occur in the lower Provo River. None of the temperature changes would result in significant impacts on water temperature in the Provo River from Murdock Diversion Dam to Utah Lake. The flow-weighted average temperature would decrease in the lower Provo River under the Proposed Action.

**Table 4-9**
**Average Monthly Water Temperatures in the Lower Provo River Under the Proposed Action (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Baseline Water Temperature | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 3.3 | 3.6 | 4.1 | 2.6 | +27 |
| Feb | 4.5 | 4.3 | 5.0 | 4.3 | +4.7 |
| Mar | 6.6 | 6.3 | 6.5 | 6.6 | 0 |
| Apr | 7.7 | 6.4 | 7.9 | 7.9 | -2.5 |
| May | 11.0 | 9.2 | 11.3 | 11.3 | -2.7 |
| Jun | 13.2 | 10.2 | 13.6 | 13.6 | -2.9 |
| Jul | 15.6 | 13.5 | 16.4 | 16.4 | -4.9 |
| Aug | 14.9 | 18.2 | 14.2 | 18.2 | -18 |
| Sep | 12.7 | 12.0 | 12.8 | 16.7 | -24 |
| Oct | 11.3 | 11.4 | 11.3 | 11.2 | +0.9 |
| Nov | 6.9 | 7.0 | 7.2 | 6.2 | +11 |
| Dec | 5.6 | 7.3 | 4.9 | 4.4 | +27 |
| **Flow-Weighted Average** | **10.3** | **9.9** | **11.3** | **10.4** | **-1.0** |

**4.3.2.1.3 Total Phosphorus.** Provo River TP concentrations would increase from historic baseline conditions (Table 4-10). The Bonneville Unit water discharged into the Provo River from the Spanish Fork-Provo Reservoir Canal Pipeline would increase Provo River TP concentrations to 0.07 mg/L in October (above the 0.05 mg/L criterion). Total phosphorus concentrations in May and September would be 0.13 mg/L and 0.12 mg/L respectively, however, these concentrations would be caused by a high monthly Provo River historic baseline TP concentrations. The Bonneville Unit water would lower the TP concentrations in the lower Provo River during May and September on an average monthly basis. The flow-weighted average TP concentration would remain unchanged in the lower Provo River under the Proposed Action.

**Table 4-10**
**Average Monthly Total Phosphorus Concentrations in the Lower Provo River Under the Proposed Action (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Baseline Total Phosphorus Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.04 | 0.02 | +30 |
| Feb | 0.03 | 0.03 | 0.05 | 0.03 | +7.1 |
| Mar | 0.02 | 0.02 | 0.02 | 0.02 | -4.8 |
| Apr | 0.02 | 0.02 | 0.02 | 0.02 | +11 |
| May | 0.13 | 0.08 | 0.14 | 0.14 | -9.7 |
| Jun | 0.02 | 0.04 | 0.02 | 0.02 | -13 |
| Jul | 0.05 | 0.06 | 0.04 | 0.04 | +14 |
| Aug | 0.05 | 0.04 | 0.06 | 0.04 | +28 |
| Sep | 0.12 | 0.12 | 0.12 | 0.13 | -7.0 |
| Oct | 0.07 | 0.10 | 0.10 | 0.03 | +133 |
| Nov | 0.03 | 0.03 | 0.03 | 0.02 | +36 |
| Dec | 0.03 | 0.04 | 0.03 | 0.02 | +36 |
| **Flow-Weighted Average** | **0.06** | **0.05** | **0.07** | **0.06** | **0** |

**4.3.2.1.4 Total Dissolved Solids.** Provo River TDS concentrations would decrease or remain unchanged from historic baseline conditions (Table 4-11). The Bonneville Unit water discharged to the lower Provo River would have lower TDS concentrations than the river water, causing a slight dilution during all months except March. The flow-weighted average TDS concentration would decrease under the Proposed Action.

**Table 4-11**
**Average Monthly Total Dissolved Solids Concentrations in the Lower Provo River Under the Proposed Action (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Baseline Total Dissolved Solids Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 252 | 240 | 215 | 285 | -11 |
| Feb | 260 | 275 | 197 | 279 | -6.8 |
| Mar | 286 | 275 | 283 | 286 | 0 |
| Apr | 282 | 248 | 286 | 286 | -1.4 |
| May | 261 | 196 | 273 | 273 | -4.4 |
| Jun | 260 | 198 | 268 | 268 | -3.0 |
| Jul | 262 | 211 | 281 | 281 | -6.8 |
| Aug | 218 | 272 | 207 | 272 | -19 |
| Sep | 189 | 170 | 192 | 290 | -35 |
| Oct | 223 | 183 | 187 | 287 | -22 |
| Nov | 243 | 243 | 235 | 266 | -8.6 |
| Dec | 250 | 211 | 265 | 275 | -9.1 |
| **Flow-Weighted Average** | **257** | **228** | **261** | **276** | **-6.8** |

**4.3.2.1.5 pH.** Provo River pH would decrease or remain unchanged from historic baseline conditions (Table 4-12). The decreases generally would occur during the late summer and autumn months when flows in the lower Provo River decrease to several cfs. The Proposed Action would improve the pH conditions and prevent continued impairment of the lower Provo River, primarily by providing in-stream flows of water having pH within the State standards. The flow-weighted average pH would decrease in the lower Provo River under the Proposed Action.

**Table 4-12**
**Average Monthly pH in the Lower Provo River Under the Proposed Action (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Baseline pH | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.2 | 8.2 | 8.2 | 8.3 | -1.2 |
| Feb | 8.3 | 8.3 | 8.2 | 8.3 | 0 |
| Mar | 8.3 | 8.3 | 8.3 | 8.3 | 0 |
| Apr | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| May | 8.4 | 8.1 | 8.4 | 8.4 | 0 |
| Jun | 8.2 | 8.1 | 8.2 | 8.2 | 0 |
| Jul | 8.3 | 8.1 | 8.3 | 8.3 | 0 |
| Aug | 8.1 | 8.2 | 8.0 | 8.2 | -1.2 |
| Sep | 7.9 | 7.8 | 7.9 | 8.2 | -3.7 |
| Oct | 8.0 | 7.9 | 7.9 | 8.2 | -2.4 |
| Nov | 8.4 | 8.4 | 8.3 | 8.4 | 0 |
| Dec | 8.3 | 8.3 | 8.3 | 8.3 | 0 |
| **Flow-Weighted Average** | **8.2** | **8.2** | **8.3** | **8.3** | **-1.2** |

**4.3.2.1.6 Nitrate Plus Nitrite as Nitrogen.** Provo River nitrate plus nitrite as nitrogen concentrations would decrease or remain unchanged from historic baseline conditions, except in January when the concentration from the Bonneville Unit water would be increased over baseline conditions (Table 4-13). The increased nitrate plus nitrite concentration in January would not be a significant impact on water quality in the lower Provo River because the resulting concentration would be lower than the 4 mg/L water quality standard. During most months, the Bonneville Unit water discharged from the Spanish Fork-Provo Reservoir Canal Pipeline would improve the nitrate plus nitrite concentrations in the lower Provo River. The flow-weighted average concentration would decrease in the lower Provo River under the Proposed Action.

**Table 4-13**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Provo River Under the Proposed Action (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Baseline Nitrate +Nitrite as N Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.41 | 0.42 | 0.43 | 0.39 | +5.1 |
| Feb | 0.52 | 0.52 | 0.49 | 0.53 | -1.9 |
| Mar | 0.82 | 0.75 | 0.80 | 0.82 | 0 |
| Apr | 0.35 | 0.29 | 0.35 | 0.35 | 0 |
| May | 0.25 | 0.17 | 0.27 | 0.27 | -7.4 |
| Jun | 0.31 | 0.20 | 0.32 | 0.32 | -3.1 |
| Jul | 0.40 | 0.30 | 0.43 | 0.43 | -7.0 |
| Aug | 0.24 | 0.27 | 0.24 | 0.27 | -11 |
| Sep | 0.18 | 0.16 | 0.18 | 0.28 | -35 |
| Oct | 0.29 | 0.20 | 0.21 | 0.43 | -33.0 |
| Nov | 0.32 | 0.32 | 0.32 | 0.32 | 0 |
| Dec | 0.34 | 0.33 | 0.35 | 0.35 | -2.9 |
| **Flow-Weighted Average** | **0.34** | **0.30** | **0.32** | **0.37** | **-8.1** |

**4.3.2.1.7 Ammonia as Nitrogen.** Provo River ammonia as nitrogen concentrations would increase in some months and decrease in other months from historic baseline conditions (Table 4-14). Increased ammonia concentrations during the months of May, June, July, September, and October would be caused by higher ammonia concentrations in the Bonneville Unit water discharged from the Spanish Fork-Provo Reservoir Canal Pipeline. These increased ammonia concentrations would not be significant impacts on lower Provo River water quality because the concentrations would be far below the acute and chronic ammonia water quality standards as calculated using pH and water temperature. The flow-weighted average ammonia as nitrogen concentration would remain unchanged in the lower Provo River under the Proposed Action.

**Table 4-14**
**Average Monthly Ammonia as Nitrogen Concentrations in the Lower Provo River Under the Proposed Action (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Baseline Ammonia as N Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.10 | 0.09 | 0.07 | 0.120 | -17 |
| Feb | 0.03 | 0.03 | 0.03 | 0.031 | -3.2 |
| Mar | 0.07 | 0.07 | 0.07 | 0.072 | -2.8 |
| Apr | 0.04 | 0.04 | 0.05 | 0.045 | -11 |
| May | 0.03 | 0.03 | 0.03 | 0.027 | +11 |
| Jun | 0.03 | 0.03 | 0.03 | 0.025 | +20 |
| Jul | 0.04 | 0.04 | 0.04 | 0.038 | +5.3 |
| Aug | 0.03 | 0.03 | 0.03 | 0.033 | -9.1 |
| Sep | 0.07 | 0.08 | 0.07 | 0.030 | +133 |
| Oct | 0.06 | 0.07 | 0.07 | 0.034 | +76 |
| Nov | 0.03 | 0.03 | 0.03 | 0.032 | -6.3 |
| Dec | 0.07 | 0.05 | 0.07 | 0.076 | -7.9 |
| **Flow-Weighted Average** | **0.04** | **0.04** | **0.03** | **0.040** | **0** |

**4.3.2.1.8 Selenium.** Provo River selenium concentrations would decrease or remain unchanged from historic baseline conditions (Table 4-15). Many of the predicted selenium values would be slightly above or below the analytical detection limit for selenium. The Proposed Action would discharge Bonneville Unit water from the Spanish Fork-Provo Reservoir Canal Pipeline that would dilute any selenium in the lower Provo River. The flow-weighted average selenium concentration would decrease in the lower Provo River under the Proposed Action. There would be no significant impacts on selenium concentrations in the lower Provo River under the Proposed Action.

**Table 4-15**
**Average Monthly Selenium Concentrations in the Lower Provo River Under the Proposed Action (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Baseline Selenium Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.8 | 0.9 | 0.8 | 1.1 | -27 |
| Feb | 0.8 | 1.4 | 0.8 | 1.5 | -46 |
| Mar | 1.9 | 1.8 | 1.9 | 2.0 | -5.0 |
| Apr | 0.9 | 0.7 | 0.9 | 0.9 | 0 |
| May | 0.8 | 0.6 | 0.8 | 0.8 | 0 |
| Jun | 1.5 | 0.9 | 1.5 | 1.5 | 0 |
| Jul | 1.1 | 0.7 | 1.1 | 1.1 | 0 |
| Aug | 0.8 | 1.3 | 0.8 | 1.3 | -38 |
| Sep | 0.6 | 0.5 | 0.6 | 0.9 | -33 |
| Oct | 0.6 | 0.6 | 0.6 | 1.0 | -40 |
| Nov | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| Dec | 0.8 | 0.6 | 0.8 | 0.8 | 0 |
| **Flow-Weighted Average** | **1.0** | **0.9** | **1.0** | **1.1** | **-9.1** |

**4.3.2.1.9 Summary of Impacts on Lower Provo River Water Quality.** Lower Provo River annual average water quality conditions would improve or remain unchanged from historic baseline conditions. Table 4-16 summarizes the annual average water quality conditions in the lower Provo River under the Proposed Action and shows the change from historic baseline conditions, which would be the same as the change from simulated baseline conditions.

**Table 4-16**
**Provo River Annual Average Water Quality Under the Proposed Action and Change From Historic Baseline Conditions**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -19 | -0.1 | 0.2 | -0.1 | -0.03 | 0 | 0 | -0.1 |
| | Value | 257 | 8.2 | 10.3 | 10.3 | 0.34 | 0.04 | 0.06 | 1.0 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -48 | -0.1 | 0.6 | -0.6 | -0.07 | 0 | 0.01 | -0.3 |
| | Value | 228 | 8.2 | 10.7 | 9.9 | 0.30 | 0.04 | 0.05 | 0.9 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -12 | 0 | 0.2 | -0.2 | -0.01 | 0 | 0 | -0.1 |
| | Value | 261 | 8.3 | 10.2 | 11.3 | 0.32 | 0.03 | 0.07 | 1.0 |
| **Maximum Monthly Levels** | | | | | | | | | |
| Flow-Weighted Average | Change[2] | -4 | 0 | 0.8 | -2.6 | 0 | -0.02 | -0.01 | 0 |
| | Value | 286 | 8.4 | 9.9[a] | 15.6 | 0.82 | 0.10 | 0.13 | 2.0 |

**Notes:**
[1] Change from Historic Annual Average
[2] Change from Historic Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

## *4.3.2.2 Hobble Creek Between Utah Lake and Mapleton Lateral*

The following subsections present the impact analysis results for water quality conditions in Hobble Creek from the Mapleton Lateral to Utah Lake under the Proposed Action. The average change from baseline conditions shown in each table is applicable to simulated baseline and historic baseline conditions.

**4.3.2.2.1 Dissolved Oxygen.** Hobble Creek dissolved oxygen would increase from historic baseline conditions throughout the year under the Proposed Action (Table 4-17). Under the baseline conditions in Hobble Creek, there is no natural flow in the stream during some months (e.g., August and September of an average year). Therefore, the mass balance model combines zero Hobble Creek flow during these months with the Bonneville Unit supplemental flow discharged from the Mapleton-Springville Lateral Pipeline. The resulting predicted Hobble Creek dissolved oxygen concentrations would be equal to the Bonneville Unit water dissolved oxygen concentrations during those months of zero natural flow in average, dry, and wet years. The flow-weighted

average dissolved oxygen concentrations would increase in Hobble Creek. There would be a significant beneficial impact on dissolved oxygen concentrations in Hobble Creek under the Proposed Action.

The dissolved oxygen concentrations were calculated assuming saturation at water temperatures measured in the Sixth Water Aqueduct outlet. The higher concentrations in Hobble Creek would be caused by discharge of water at saturation conveyed through Mapleton-Springville Lateral Pipeline and into the creek. The Bonneville Unit water would achieve saturation prior to entering the Mapleton-Springville Lateral Pipeline because it would:

- pass through the Sixth Water Power Facility turbines and returning to atmospheric pressure
- drop through a shaft into the Tanner Ridge Tunnel
- drop turbulently through the 190-foot deep vortex shaft after flowing through the Diamond Fork Power Facility and Diamond Fork Flow Control Structure
- flow through the Upper Diamond Fork Tunnel under gravity conditions exposed to atmospheric pressure, and
- flow through the Spanish Fork Flow Control Structure and return to atmospheric pressure

**Table 4-17**
**Average Monthly Dissolved Oxygen Concentrations in Hobble Creek Under the Proposed Action (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Baseline Dissolved Oxygen Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 10.8 | 10.8 | 11.2 | 8.9 | +21 |
| Feb | 10.8 | 10.8 | 11.3 | 9.4 | +15 |
| Mar | 10.4 | 11.6 | 10.4 | 9.4 | +11 |
| Apr | 11.7 | 12.2 | 10.5 | 9.4 | +25 |
| May | 9.1 | 11.9 | 8.1 | 8.1 | +12 |
| Jun | 9.3 | 11.9 | 8.7 | 7.7 | +21 |
| Jul | 10.7 | 10.9 | 10.5 | 9.1 | +18 |
| Aug | 10.9 | 10.9 | 10.9 | 7.9 | +38 |
| Sep | 10.9 | 10.9 | 10.9 | 8.0 | +36 |
| Oct | 10.8 | 10.9 | 10.9 | 8.9 | +21 |
| Nov | 10.7 | 10.8 | 10.9 | 10.0 | +7.0 |
| Dec | 10.6 | 10.7 | 10.4 | 9.9 | +7.1 |
| **Flow-Weighted Average** | **10.3** | **11.5** | **10.1** | **8.8** | **+17** |

**4.3.2.2.2 Water Temperature.** Hobble Creek water temperatures would decrease from historic baseline conditions during the spring and summer months, providing cooling of the stream water, and would increase during the late fall and winter months, providing some warming of the stream water (Table 4-18). These water quality conditions would be beneficial to fish and other aquatic resources that occur in Hobble Creek. None of the temperature changes would result in significant impacts on water temperature in Hobble Creek from the Mapleton Lateral to Utah Lake, except during July, August and September when there would be a significant beneficial impact of decreasing the water temperature from a high of 23.2 to a low of 11.4° C during those months. The flow-weighted average temperature would decrease 12.3 percent in Hobble Creek under the Proposed Action.

**Table 4-18**
**Average Monthly Water Temperatures in Hobble Creek**
**Under the Proposed Action (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Baseline Water Temperature | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 4.9 | 4.8 | 4.9 | 4.2 | +17 |
| Feb | 6.4 | 6.8 | 6.4 | 7.8 | -18 |
| Mar | 7.7 | 6.0 | 7.7 | 9.0 | -14 |
| Apr | 8.2 | 5.4 | 8.2 | 9.9 | -17 |
| May | 14.6 | 8.1 | 14.6 | 14.6 | 0 |
| Jun | 11.8 | 8.1 | 11.8 | 12.9 | -8.5 |
| Jul | 14.3 | 11.4 | 14.3 | 23.2 | -38 |
| Aug | 11.4 | 11.4 | 11.4 | 19.7 | -42 |
| Sep | 11.4 | 11.4 | 11.4 | 17.9 | -36 |
| Oct | 11.4 | 11.4 | 11.4 | 10.9 | +4.6 |
| Nov | 8.5 | 8.3 | 8.5 | 6.3 | +35 |
| Dec | 6.4 | 7.5 | 6.4 | 4.7 | +36 |
| **Flow-Weighted Average** | **9.3** | **7.5** | **9.8** | **10.6** | **-12** |

**4.3.2.2.3 Total Phosphorus.** Hobble Creek TP concentrations would increase or remain unchanged from historic baseline conditions (Table 4-19). Total phosphorus concentrations in the Hobble Creek would rise above the historic baseline in July and remain above that level through October because of periodic high TP background concentrations in Strawberry Reservoir, which is the ultimate source of Hobble Creek water. During the summer months when there is little or no Hobble Creek flow, the mass balance model predicts that TP concentrations would be nearly equal or equal to TP concentrations in the Sixth Water Aqueduct outlet, which sometimes is above the 0.05 mg/L pollution indicator level. The increased TP concentrations in Hobble Creek during the summer months would not be a significant impact because stream flows would occur during months when no stream flow previously occurred. The flow-weighted average TP concentration in Hobble Creek would increase by 0.01 mg/L under the Proposed Action. However, this concentration would not exceed the pollution indicator level for Utah streams and rivers.

**Table 4-19**
**Average Monthly Total Phosphorus Concentrations in Hobble Creek Under the Proposed Action (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Baseline Total Phosphorus Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.05 | 0.05 | 0.05 | 0.04 | +25 |
| Feb | 0.05 | 0.04 | 0.05 | 0.03 | +67 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| May | 0.06 | 0.05 | 0.06 | 0.06 | 0 |
| Jun | 0.04 | 0.05 | 0.04 | 0.04 | 0 |
| Jul | 0.06 | 0.07 | 0.06 | 0.02 | +200 |
| Aug | 0.07 | 0.07 | 0.07 | 0.01 | +600 |
| Sep | 0.12 | 0.12 | 0.12 | 0.05 | +140 |
| Oct | 0.12 | 0.12 | 0.12 | 0.03 | +300 |
| Nov | 0.05 | 0.05 | 0.05 | 0.03 | +67 |
| Dec | 0.03 | 0.04 | 0.03 | 0.01 | +200 |
| **Flow-Weighted Average** | **0.05** | **0.05** | **0.05** | **0.04** | **+25** |

**4.3.2.2.4 Total Dissolved Solids.** Hobble Creek TDS concentrations would decrease in every month from histori baseline conditions except May, when there would be no change (Table 4-20). The Bonneville Unit water discharged from the Mapleton-Springville Lateral Pipeline would dilute the Hobble Creek water and lower the TDS concentrations. The flow-weighted average TDS concentration would decrease in Hobble Creek under the Proposed Action.

**Table 4-20**
**Average Monthly Total Dissolved Solids Concentrations in Hobble Creek Under the Proposed Action (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Baseline Total Dissolved Solids Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 217 | 232 | 217 | 316 | -31 |
| Feb | 218 | 243 | 218 | 310 | -30 |
| Mar | 247 | 219 | 247 | 271 | -8.9 |
| Apr | 253 | 207 | 253 | 282 | -10 |
| May | 295 | 154 | 295 | 295 | 0 |
| Jun | 229 | 154 | 229 | 251 | -8.8 |
| Jul | 221 | 161 | 221 | 403 | -45 |
| Aug | 161 | 161 | 161 | 346 | -54 |
| Sep | 156 | 156 | 156 | 333 | -53 |
| Oct | 164 | 156 | 160 | 346 | -53 |
| Nov | 241 | 231 | 222 | 337 | -29 |
| Dec | 242 | 231 | 268 | 321 | -25 |
| **Flow-Weighted Average** | **230** | **195** | **238** | **293** | **-22** |

**4.3.2.2.5 pH.** Hobble Creek pH would decrease or remain unchanged from historic baseline conditions during every month, except for a small increase in February (Table 4-21). The pH levels would be within the State water quality standards and there would be no significant impacts on pH under the Proposed Action. The flow-weighted average pH would decrease in Hobble Creek under the Proposed Action.

**Table 4-21**
**Average Monthly pH in Hobble Creek Under the Proposed Action (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Baseline pH | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Feb | 8.1 | 8.0 | 8.1 | 8.0 | +1.3 |
| Mar | 8.2 | 8.2 | 8.2 | 8.3 | -1.2 |
| Apr | 8.0 | 8.1 | 8.0 | 8.0 | 0 |
| May | 8.2 | 8.0 | 8.2 | 8.2 | 0 |
| Jun | 8.1 | 8.0 | 8.1 | 8.1 | 0 |
| Jul | 7.9 | 7.9 | 7.9 | 8.0 | -1.3 |
| Aug | 7.9 | 7.9 | 7.9 | 7.9 | 0 |
| Sep | 7.8 | 7.8 | 7.8 | 8.0 | -2.5 |
| Oct | 7.8 | 7.8 | 7.8 | 8.0 | -2.5 |
| Nov | 8.2 | 8.2 | 8.2 | 8.3 | -1.2 |
| Dec | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.0** | **8.1** | **8.2** | **-1.2** |

**4.3.2.2.6 Nitrate Plus Nitrite as Nitrogen.** Hobble Creek nitrate plus nitrite as nitrogen concentrations would decrease from historic baseline conditions during every month except in May when there would be no change (Table 4-22). The Bonneville Unit water discharged from the Mapleton-Springville Lateral Pipeline would dilute the Hobble Creek water and lower the nitrate plus nitrite concentrations. The flow-weighted average nitrate plus nitrite concentration would decrease by 0.2 mg/L under the Proposed Action.

**Table 4-22**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in Hobble Creek Under the Proposed Action (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Baseline Nitrate +Nitrite as N Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.7 | 0.7 | 0.7 | 1.0 | -30 |
| Feb | 0.7 | 0.8 | 0.7 | 1.1 | -36 |
| Mar | 0.6 | 0.4 | 0.6 | 0.8 | -25 |
| Apr | 0.4 | 0.3 | 0.4 | 0.5 | -20 |
| May | 0.4 | 0.1 | 0.4 | 0.4 | 0 |
| Jun | 0.4 | 0.1 | 0.4 | 0.5 | -20 |
| Jul | 0.5 | 0.2 | 0.5 | 1.4 | -64 |
| Aug | 0.2 | 0.2 | 0.2 | 1.8 | -89 |
| Sep | 0.1 | 0.1 | 0.1 | 1.0 | -90 |
| Oct | 0.2 | 0.1 | 0.2 | 1.7 | -88 |
| Nov | 0.7 | 0.7 | 0.7 | 1.3 | -46 |
| Dec | 0.9 | 0.7 | 0.9 | 1.1 | -18 |
| **Flow-Weighted Average** | **0.5** | **0.4** | **0.5** | **0.7** | **-29** |

**4.3.2.2.7 Ammonia as Nitrogen.** Hobble Creek ammonia as nitrogen concentrations would decrease in some months, increase in other months, or remain unchanged from historic baseline conditions (Table 4-23). Increased ammonia concentrations during the months of July, September, and October would be caused by higher ammonia concentrations in the Bonneville Unit water discharged from the Mapleton-Springville Lateral Pipeline. These increased ammonia concentrations would not be significant impacts on Hobble Creek water quality because the concentrations would be far below the acute and chronic ammonia water quality standards as calculated using pH and water temperature. The flow-weighted average ammonia as nitrogen concentration would decrease in Hobble Creek under the Proposed Action.

**Table 4-23**
**Average Monthly Ammonia as Nitrogen Concentrations in Hobble Creek Under the Proposed Action (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Baseline Ammonia as N Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.03 | 0.04 | -25 |
| Feb | 0.04 | 0.05 | 0.04 | 0.04 | 0 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.04 | 0.03 | 0.04 | 0.12 | -67 |
| May | 0.04 | 0.03 | 0.04 | 0.04 | 0 |
| Jun | 0.03 | 0.03 | 0.03 | 0.04 | -25 |
| Jul | 0.05 | 0.03 | 0.05 | 0.03 | +67 |
| Aug | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Sep | 0.08 | 0.08 | 0.08 | 0.03 | +167 |
| Oct | 0.08 | 0.08 | 0.08 | 0.03 | +167 |
| Nov | 0.03 | 0.03 | 0.03 | 0.07 | -57 |
| Dec | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| **Flow-Weighted Average** | **0.04** | **0.03** | **0.04** | **0.05** | **-20** |

**4.3.2.2.8 Selenium.** Hobble Creek selenium concentrations would decrease or remain unchanged from historic baseline conditions (Table 4-24). Many of the predicted selenium values would be slightly above or below the analytical detection limit for selenium. The Proposed Action would discharge Bonneville Unit water from the Mapleton-Springville Lateral Pipeline that would dilute any selenium in Hobble Creek. The flow-weighted average selenium concentration would decrease in Hobble Creek under the Proposed Action. There would be no significant impacts on selenium in Hobble Creek under the Proposed Action.

**Table 4-24**
**Average Monthly Selenium Concentrations in Hobble Creek Under the Proposed Action (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Baseline Selenium Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.9 | 0.9 | 0.9 | 1.4 | -36 |
| Feb | 1.2 | 1.5 | 1.2 | 2.2 | -46 |
| Mar | 1.4 | 1.0 | 1.4 | 1.8 | -22 |
| Apr | 0.9 | 0.6 | 0.9 | 1.1 | -18 |
| May | 1.0 | 0.5 | 1.0 | 1.0 | 0 |
| Jun | 2.0 | 0.5 | 2.0 | 2.5 | -20 |
| Jul | 0.7 | 0.5 | 0.7 | 1.2 | -42 |
| Aug | 0.5 | 0.5 | 0.5 | 1.5 | -67 |
| Sep | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| Oct | 0.5 | 0.5 | 0.5 | 1.1 | -55 |
| Nov | 1.0 | 1.0 | 1.0 | 1.8 | -44 |
| Dec | 1.9 | 1.4 | 1.9 | 2.5 | -24 |
| **Flow-Weighted Average** | **1.1** | **0.8** | **1.1** | **1.6** | **-31** |

**4.3.2.2.9 Summary of Impacts on Hobble Creek Water Quality.** Hobble Creek annual average water quality conditions would improve or remain unchanged from historic baseline conditions. Table 4-25 summarizes the annual average water quality conditions in Hobble Creek under the Proposed Action and shows the change from historic baseline conditions, which would be the same as the change from simulated baseline conditions.

During the summer months when there is little or no Hobble Creek flow, the mass balance model predicts that TP concentrations would be nearly equal or equal to TP concentrations in the Sixth Water Aqueduct outlet, which sometimes is above the 0.05 mg/L pollution indicator. The increased TP concentrations in Hobble Creek during the summer months would not be a significant impact because stream flows would occur during months when no stream flow previously occurred.

**Table 4-25**
**Hobble Creek Annual Average Water Quality Under the Proposed Action and Change From Historic Baseline Conditions**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -63 | -0.1 | 1.5 | -1.4 | -0.23 | -0.01 | 0.01 | -0.5 |
| | Value | 230 | 8.1 | 10.3 | 9.3 | 0.47 | 0.04 | 0.05 | 1.1 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -110 | -0.1 | 2.0 | 0.2 | -0.56 | -0.002 | 0.02 | -0.1 |
| | Value | 195 | 8.0 | 11.5 | 7.5 | 0.36 | 0.03 | 0.05 | 0.8 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -56 | -0.1 | 1.2 | -1.0 | -0.18 | -0.01 | 0.01 | -0.5 |
| | Value | 238 | 8.1 | 10.1 | 9.8 | 0.51 | 0.04 | 0.05 | 1.1 |
| **Maximum Monthly Levels** | | | | | | | | | |
| Flow-Weighted Average | Change[2] | -145 | -0.1 | 1.4 | -10.1 | -0.97 | +0.04 | 0.06 | -0.8 |
| | Value | 258 | 8.2 | 9.1[a] | 13.0 | 0.83 | 0.08 | 0.12 | 1.7 |

**Notes:**
[1] Change from Historic Annual Average
[2] Change from Historic Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

### *4.3.2.3 Spanish Fork River From Diamond Fork Creek to Utah Lake*

The following subsections present the impact analysis results for water quality conditions in the Spanish Fork River from Diamond Fork Creek to Utah Lake under the Proposed Action. Each of the following subsections present the changes from historic baseline conditions and the changes from simulated baseline conditions separately. The upper Spanish Fork River is represented by the reach from the Diamond Fork Creek confluence to Moark Junction. The lower Spanish Fork River is represented by the reach from Moark Junction to Utah Lake.

**4.3.2.3.1 Dissolved Oxygen.** Upper Spanish Fork River dissolved oxygen concentrations would increase or remain unchanged from historic baseline conditions during all months except March through June when the concentrations would decrease slightly (Table 4-26). The dissolved oxygen impacts during these months would not be significant because the average monthly dissolved oxygen concentrations would remain above the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would not change in the upper Spanish Fork River under the Proposed Action compared to historic baseline conditions.

**Table 4-26**
**Average Monthly Dissolved Oxygen Concentrations in Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Historic Baseline Dissolved Oxygen Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.0 | 12.1 | 11.9 | 12.0 | 0 |
| Feb | 11.2 | 11.3 | 10.9 | 11.2 | 0 |
| Mar | 11.1 | 11.6 | 10.9 | 11.2 | -0.9 |
| Apr | 10.1 | 10.4 | 9.8 | 10.2 | -1.0 |
| May | 9.9 | 11.1 | 9.8 | 10.0 | -1.0 |
| Jun | 10.5 | 11.4 | 10.0 | 10.7 | -1.9 |
| Jul | 13.8 | 12.8 | 14.5 | 13.1 | +5.3 |
| Aug | 13.9 | 13.2 | 14.3 | 13.2 | +5.3 |
| Sep | 15.2 | 14.9 | 14.9 | 14.0 | +8.6 |
| Oct | 9.7 | 10.0 | 9.5 | 9.1 | +6.6 |
| Nov | 11.6 | 11.6 | 11.7 | 11.6 | 0 |
| Dec | 12.4 | 12.3 | 12.7 | 12.4 | 0 |
| **Flow-Weighted Average** | **11.7** | **11.9** | **11.7** | **11.7** | **0** |

Dissolved oxygen concentrations in the lower Spanish Fork River would increase or remained unchanged from historic baseline conditions, except during the months of March through June, August and November when the concentrations would decrease slightly (Table 4-27). The dissolved oxygen impacts during these months would not be significant because the average monthly dissolved oxygen concentrations would remain above the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would increase slightly in the lower Spanish Fork River under the Proposed Action compared to historic baseline conditions.

**Table 4-27**
**Average Monthly Dissolved Oxygen Concentrations in Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Historic Baseline Dissolved Oxygen Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.7 | 12.7 | 12.7 | 12.6 | +0.8 |
| Feb | 11.0 | 11.1 | 10.8 | 11.0 | 0 |
| Mar | 10.9 | 11.3 | 10.6 | 11.0 | -0.9 |
| Apr | 8.3 | 8.5 | 7.9 | 8.4 | -1.2 |
| May | 8.0 | 7.6 | 7.8 | 8.1 | -1.2 |
| Jun | 8.1 | 7.0 | 7.0 | 8.4 | -3.6 |
| Jul | 11.5 | 6.8 | 11.6 | 11.4 | +0.9 |
| Aug | 10.7 | 10.8 | 10.7 | 10.8 | -0.9 |
| Sep | 14.0 | 13.3 | 13.3 | 12.9 | +8.5 |
| Oct | 10.0 | 10.2 | 9.8 | 9.5 | +5.3 |
| Nov | 11.9 | 11.9 | 12.0 | 12.0 | -0.8 |
| Dec | 12.7 | 12.6 | 13.0 | 12.7 | 0 |
| **Flow-Weighted Average** | **10.0** | **11.0** | **10.0** | **10.3** | **-2.9** |

Dissolved oxygen concentrations in the upper Spanish Fork River would increase from simulated baseline conditions during 6 months, and would decrease during January through June and October (Table 4-28). The dissolved oxygen impacts during these months would not be significant because the average monthly dissolved oxygen concentrations would remain above the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would decrease slightly in the upper Spanish Fork River under the Proposed Action compared to simulated baseline conditions.

**Table 4-28**
**Average Monthly Dissolved Oxygen Concentrations in Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Simulated Baseline Dissolved Oxygen Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.0 | 12.1 | 11.9 | 12.3 | -2.4 |
| Feb | 11.2 | 11.3 | 10.9 | 11.8 | -5.1 |
| Mar | 11.1 | 11.6 | 10.9 | 11.9 | -6.7 |
| Apr | 10.1 | 10.4 | 9.8 | 11.2 | -9.8 |
| May | 9.9 | 11.1 | 9.8 | 10.4 | -4.8 |
| Jun | 10.5 | 11.4 | 10.0 | 10.9 | -3.7 |
| Jul | 13.8 | 12.8 | 14.5 | 12.9 | +7.0 |
| Aug | 13.9 | 13.2 | 14.3 | 13.0 | +6.9 |
| Sep | 15.2 | 14.9 | 14.9 | 13.8 | +10 |
| Oct | 9.7 | 10.0 | 9.5 | 9.8 | -1.0 |
| Nov | 11.6 | 11.6 | 11.7 | 11.5 | +0.9 |
| Dec | 12.4 | 12.3 | 12.7 | 12.0 | +3.3 |
| **Flow-Weighted Average** | **11.7** | **11.9** | **11.7** | **11.8** | **-0.8** |

Dissolved oxygen concentrations in the lower Spanish Fork River would increase or remained unchanged from simulated baseline conditions except from February through June and August, when the concentration would decrease (Table 4-29). The dissolved oxygen impacts during months of decrease would not be significant because the average monthly dissolved oxygen concentration would remain above the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would not change in the lower Spanish Fork River under the Proposed Action compared to simulated baseline conditions.

**Table 4-29**
**Average Monthly Dissolved Oxygen Concentrations in Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Simulated Baseline Dissolved Oxygen Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.7 | 12.7 | 12.7 | 12.7 | 0 |
| Feb | 11.0 | 11.1 | 10.8 | 11.7 | -6.0 |
| Mar | 10.9 | 11.3 | 10.6 | 11.7 | -6.8 |
| Apr | 8.3 | 8.5 | 7.9 | 10.1 | -17. |
| May | 8.0 | 7.6 | 7.8 | 9.0 | -11 |
| Jun | 8.1 | 7.0 | 7.0 | 9.4 | -13 |
| Jul | 11.5 | 6.8 | 11.6 | 11.3 | +1.8 |
| Aug | 10.7 | 10.8 | 10.7 | 10.8 | -0.9 |
| Sep | 14.0 | 13.3 | 13.3 | 12.8 | +9.4 |
| Oct | 10.0 | 10.2 | 9.8 | 10.0 | 0 |
| Nov | 11.9 | 11.9 | 12.0 | 11.7 | +1.7 |
| Dec | 12.7 | 12.6 | 13.0 | 12.2 | +4.1 |
| **Flow-Weighted Average** | **10.0** | **11.0** | **10.0** | **10.8** | **-7.4** |

**4.3.2.3.2 Water Temperature.** Water temperatures in the upper Spanish Fork River would increase or remain unchanged from historic baseline conditions (Table 4-30). None of the temperature increases would result in significant impacts on water temperature in the upper Spanish Fork River. The flow-weighted average temperature would increase by 0.1 degree C in the upper Spanish Fork River under the Proposed Action.

**Table 4-30**
**Average Monthly Water Temperatures in Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Historic Baseline Water Temperature | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 4.0 | 4.2 | 3.7 | 4.0 | 0 |
| Feb | 4.5 | 4.6 | 4.4 | 4.5 | 0 |
| Mar | 6.1 | 5.5 | 6.3 | 6.0 | +1.6 |
| Apr | 9.6 | 9.0 | 10.0 | 9.4 | +2.1 |
| May | 10.7 | 9.2 | 10.8 | 10.6 | +0.9 |
| Jun | 12.0 | 9.5 | 13.2 | 11.3 | +6.2 |
| Jul | 15.8 | 14.2 | 16.8 | 14.7 | +7.5 |
| Aug | 15.4 | 14.5 | 16.0 | 14.5 | +6.2 |
| Sep | 12.1 | 12.1 | 12.1 | 11.9 | +1.7 |
| Oct | 10.0 | 10.3 | 10.3 | 9.4 | +6.4 |
| Nov | 5.4 | 6.0 | 6.0 | 4.6 | +17 |
| Dec | 3.5 | 4.4 | 4.4 | 3.5 | 0 |
| **Flow-Weighted Average** | **10.7** | **9.6** | **11.0** | **10.6** | **+0.9** |

Water temperatures in the lower Spanish Fork River would increase or remain unchanged from historic baseline conditions, except during December when the temperature would decrease (Table 4-31). None of the temperature increases would result in significant impacts on water temperature in the lower Spanish Fork River. The flow-weighted average temperature would decrease 0.3 degrees C in the lower Spanish Fork River under the Proposed Action.

**Table 4-31**
**Average Monthly Water Temperatures in Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Historic Baseline Water Temperature | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 2.4 | 2.7 | 1.9 | 2.4 | 0 |
| Feb | 4.8 | 4.9 | 4.7 | 4.8 | 0 |
| Mar | 6.9 | 6.3 | 7.2 | 6.7 | +3.0 |
| Apr | 11.8 | 11.4 | 12.4 | 11.5 | +2.6 |
| May | 13.9 | 14.5 | 14.3 | 13.7 | +1.5 |
| Jun | 20.2 | 15.4 | 23.8 | 18.0 | +12 |
| Jul | 17.3 | 15.9 | 18.3 | 15.8 | +9.5 |
| Aug | 17.2 | 15.2 | 17.0 | 15.8 | +8.9 |
| Sep | 17.0 | 15.6 | 15.7 | 15.1 | +12 |
| Oct | 10.9 | 11.0 | 10.8 | 10.7 | +1.9 |
| Nov | 5.6 | 6.1 | 4.8 | 4.9 | +14 |
| Dec | 4.0 | 4.6 | 2.6 | 4.1 | -2.4 |
| **Flow-Weighted Average** | **9.8** | **6.9** | **11.0** | **10.1** | **-3.0** |

Water temperatures in the upper Spanish Fork River would increase during 7 months and decrease during 5 months from simulated baseline conditions (Table 4-32). None of the temperature increases would result in significant impacts on water temperature in the upper Spanish Fork River. The flow-weighted average temperature would increase 0.8 degrees C in the upper Spanish Fork River under the Proposed Action.

**Table 4-32**
**Average Monthly Water Temperatures in Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Simulated Baseline Water Temperature | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 4.0 | 4.2 | 3.7 | 4.6 | -13 |
| Feb | 4.5 | 4.6 | 4.4 | 4.9 | -8.1 |
| Mar | 6.1 | 5.5 | 6.3 | 5.3 | +15 |
| Apr | 9.6 | 9.0 | 10.0 | 7.5 | +28 |
| May | 10.7 | 9.2 | 10.8 | 10.0 | +7.0 |
| Jun | 12.0 | 9.5 | 13.2 | 10.7 | +12 |
| Jul | 15.8 | 14.2 | 16.8 | 14.4 | +9.7 |
| Aug | 15.4 | 14.5 | 16.0 | 14.2 | +8.5 |
| Sep | 12.1 | 12.1 | 12.1 | 11.9 | +1.7 |
| Oct | 10.0 | 10.3 | 10.3 | 10.1 | -1.0 |
| Nov | 5.4 | 6.0 | 6.0 | 7.1 | -24 |
| Dec | 3.5 | 4.4 | 4.4 | 5.9 | -41 |
| **Flow-Weighted Average** | **10.7** | **9.6** | **11.0** | **9.9** | **+8.1** |

Water temperatures in the lower Spanish Fork River would increase during 7 months and decrease during 5 months from simulated baseline conditions (Table 4-33). None of the temperature increases would result in significant impacts on water temperature in the lower Spanish Fork River. The flow-weighted average temperature would increase 0.3 degrees C in the lower Spanish Fork River under the Proposed Action.

**Table 4-33**
**Average Monthly Water Temperatures in Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Simulated Baseline Water Temperature | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 2.4 | 2.7 | 1.9 | 3.7 | -35 |
| Feb | 4.8 | 4.9 | 4.7 | 5.1 | -5.9 |
| Mar | 6.9 | 6.3 | 7.2 | 5.8 | +19 |
| Apr | 11.8 | 11.4 | 12.4 | 8.9 | +33 |
| May | 13.9 | 14.5 | 14.3 | 12.5 | +11 |
| Jun | 20.2 | 15.4 | 23.8 | 16.2 | +25 |
| Jul | 17.3 | 15.9 | 18.3 | 15.3 | +13 |
| Aug | 17.2 | 15.2 | 17.0 | 15.2 | +13 |
| Sep | 17.0 | 15.6 | 15.7 | 14.8 | +15 |
| Oct | 10.9 | 11.0 | 10.8 | 11.0 | -0.9 |
| Nov | 5.6 | 6.1 | 4.8 | 7.2 | -22 |
| Dec | 4.0 | 4.6 | 2.6 | 6.1 | -34 |
| **Flow-Weighted Average** | **9.8** | **6.9** | **11.0** | **9.5** | **+3.2** |

**4.3.2.3.3 Total Phosphorus.** Total phosphorus concentrations in upper Spanish Fork River would increase (May through November) or remain unchanged (December through April) from historic baseline conditions (Table 4-34). The TP concentrations would increase from historic baseline concentrations already exceeding the pollution indicator level (0.05 mg/L) during the 6 months from May through October (range 0.08 to 0.31 mg/L). Total phosphorus concentrations in the Spanish Fork River would rise above the historic baseline because of periodic high TP background conditions in Strawberry Reservoir, which is one source of Spanish Fork River water. The flow-weighted average TP concentration in the upper Spanish Fork River would increase by 0.01 mg/L under the Proposed Action, with the historic baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-34**
**Average Monthly Total Phosphorus Concentrations in Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Historic Baseline Total Phosphorus Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.02 | 0.03 | 0.01 | 0.02 | 0 |
| Feb | 0.04 | 0.04 | 0.03 | 0.04 | 0 |
| Mar | 0.04 | 0.03 | 0.04 | 0.04 | 0 |
| Apr | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| May | 0.31 | 0.15 | 0.32 | 0.30 | +3.3 |
| Jun | 0.12 | 0.07 | 0.15 | 0.11 | +9.1 |
| Jul | 0.30 | 0.22 | 0.35 | 0.24 | +25 |
| Aug | 0.12 | 0.11 | 0.12 | 0.11 | +9.1 |
| Sep | 0.13 | 0.12 | 0.12 | 0.12 | +8.3 |
| Oct | 0.08 | 0.09 | 0.07 | 0.06 | +33 |
| Nov | 0.04 | 0.04 | 0.03 | 0.03 | +33 |
| Dec | 0.02 | 0.03 | 0.01 | 0.02 | 0 |
| **Flow-Weighted Average** | **0.15** | **0.09** | **0.17** | **0.14** | **+7.1** |

Total phosphorus concentrations in the lower Spanish Fork River would increase or remain unchanged from historic baseline conditions, except for decreased concentrations during the months of August and September (Table 4-35). The TP concentrations would increase from historic baseline concentrations exceeding the pollution indicator levels during April, June, July and October. Total phosphorus concentrations in the Spanish Fork River would rise above the historic baseline because of periodic high TP background concentrations in Strawberry Reservoir, which is one source of Spanish Fork River water. The flow-weighted average TP concentration in the lower Spanish Fork River would remain unchanged under the Proposed Action, with the historic baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-35**
**Average Monthly Total Phosphorus Concentrations in Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Historic Baseline Total Phosphorus Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.05 | 0.05 | 0.05 | 0.05 | 0 |
| Feb | 0.10 | 0.10 | 0.11 | 0.10 | 0 |
| Mar | 0.07 | 0.06 | 0.08 | 0.07 | 0 |
| Apr | 0.19 | 0.18 | 0.20 | 0.18 | +5.6 |
| May | 0.10 | 0.10 | 0.10 | 0.10 | 0 |
| Jun | 0.09 | 0.08 | 0.11 | 0.08 | +13 |
| Jul | 0.09 | 0.09 | 0.09 | 0.08 | +13 |
| Aug | 0.04 | 0.05 | 0.04 | 0.05 | -20 |
| Sep | 0.08 | 0.09 | 0.09 | 0.09 | -11 |
| Oct | 0.09 | 0.10 | 0.09 | 0.08 | +13 |
| Nov | 0.05 | 0.05 | 0.04 | 0.04 | +25 |
| Dec | 0.04 | 0.04 | 0.03 | 0.04 | 0 |
| **Flow-Weighted Average** | **0.09** | **0.08** | **0.10** | **0.09** | **0** |

Total phosphorus concentrations in upper Spanish Fork River would increase or remain unchanged from simulated baseline conditions, except for decreased concentrations during the months of December, January and February (Table 4-36). The TP concentrations would increase from simulated baseline concentrations already exceeding the pollution indicator levels during the 5 months from May through September. Total phosphorus concentrations in the Spanish Fork River would rise above the simulated baseline because of periodic high TP background concentrations in Strawberry Reservoir, which is one source of Spanish Fork River water. The flow-weighted average TP concentration in the lower Spanish Fork River would increase by 0.03 mg/L under the Proposed Action, with the simulated baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-36**
**Average Monthly Total Phosphorus Concentrations in Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Simulated Baseline Total Phosphorus Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.02 | 0.03 | 0.01 | 0.04 | -50 |
| Feb | 0.04 | 0.04 | 0.03 | 0.05 | -20 |
| Mar | 0.04 | 0.03 | 0.04 | 0.03 | +33 |
| Apr | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| May | 0.31 | 0.15 | 0.32 | 0.24 | +29 |
| Jun | 0.12 | 0.07 | 0.15 | 0.10 | +20 |
| Jul | 0.30 | 0.22 | 0.35 | 0.23 | +30 |
| Aug | 0.12 | 0.11 | 0.12 | 0.10 | +20 |
| Sep | 0.13 | 0.12 | 0.12 | 0.12 | +8.3 |
| Oct | 0.08 | 0.09 | 0.07 | 0.08 | 0 |
| Nov | 0.04 | 0.04 | 0.03 | 0.04 | 0 |
| Dec | 0.02 | 0.03 | 0.01 | 0.04 | -50 |
| **Flow-Weighted Average** | **0.15** | **0.09** | **0.17** | **0.12** | **+25** |

Total phosphorus concentrations in the lower Spanish Fork River would increase or remain unchanged from simulated baseline conditions, except for decreased concentrations during the months of January, August and September (Table 4-37). The TP concentrations would increase from simulated baseline concentrations already exceeding the pollution indicator levels during the 6 months from February through July. Total phosphorus concentrations in the Spanish Fork River would rise above the simulated baseline because of periodic high TP background concentrations in Strawberry Reservoir, which is the ultimate source of Spanish Fork River water. The flow-weighted average TP concentration in the lower Spanish Fork River would increase by 0.01 mg/L under the Proposed Action, with the simulated baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-37**
**Average Monthly Total Phosphorus Concentrations in Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Simulated Baseline Total Phosphorus Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.05 | 0.05 | 0.05 | 0.06 | -17 |
| Feb | 0.10 | 0.10 | 0.11 | 0.09 | +11 |
| Mar | 0.07 | 0.06 | 0.08 | 0.06 | +17 |
| Apr | 0.19 | 0.18 | 0.20 | 0.13 | +46 |
| May | 0.10 | 0.10 | 0.10 | 0.08 | +25 |
| Jun | 0.09 | 0.08 | 0.11 | 0.08 | +13 |
| Jul | 0.09 | 0.09 | 0.09 | 0.08 | +13 |
| Aug | 0.04 | 0.05 | 0.04 | 0.05 | -20 |
| Sep | 0.08 | 0.09 | 0.09 | 0.10 | -20 |
| Oct | 0.09 | 0.10 | 0.09 | 0.09 | 0 |
| Nov | 0.05 | 0.05 | 0.04 | 0.05 | 0 |
| Dec | 0.04 | 0.04 | 0.03 | 0.04 | 0 |
| **Flow-Weighted Average** | **0.09** | **0.08** | **0.10** | **0.08** | **+13** |

**4.3.2.3.4 Total Dissolved Solids.** Total dissolved solids concentrations in the upper Spanish Fork River would increase in every month from historic baseline conditions except February (no change), October and November (Table 4-38). The flow-weighted average TDS concentration would increase 6.5 percent in the upper Spanish Fork River under the Proposed Action, however, all concentrations would be below the agricultural use criterion of 1,200 mg/L.

**Table 4-38**
**Average Monthly Total Dissolved Solids Concentrations in Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Historic Baseline Total Dissolved Solids Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 474 | 427 | 539 | 468 | +1.3 |
| Feb | 431 | 408 | 476 | 431 | 0 |
| Mar | 462 | 390 | 492 | 447 | +3.4 |
| Apr | 399 | 376 | 416 | 390 | +2.3 |
| May | 320 | 224 | 330 | 315 | +1.6 |
| Jun | 305 | 208 | 353 | 277 | +10 |
| Jul | 263 | 228 | 288 | 239 | +10 |
| Aug | 257 | 235 | 271 | 235 | +9.4 |
| Sep | 322 | 310 | 310 | 276 | +17 |
| Oct | 366 | 322 | 409 | 466 | -22 |
| Nov | 427 | 391 | 484 | 476 | -10 |
| Dec | 531 | 477 | 641 | 527 | +0.8 |
| **Flow-Weighted Average** | **345** | **302** | **374** | **324** | **+6.5** |

Total dissolved solids concentrations in the lower Spanish Fork River would increase in every month from historic baseline conditions except February (no change), October and November (Table 4-39). The flow-weighted average TDS concentration would increase slightly (1.5 percent) in the lower Spanish Fork River under the Proposed Action, however, all concentrations would be below the agricultural use criterion of 1,200 mg/L.

**Table 4-39**
**Average Monthly Total Dissolved Solids Concentrations in Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Historic Baseline Total Dissolved Solids Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 444 | 414 | 495 | 439 | +1.1 |
| Feb | 451 | 434 | 494 | 451 | 0 |
| Mar | 439 | 386 | 464 | 426 | +3.1 |
| Apr | 588 | 464 | 619 | 572 | +2.8 |
| May | 479 | 511 | 499 | 470 | +1.9 |
| Jun | 630 | 543 | 772 | 543 | +16 |
| Jul | 599 | 489 | 673 | 489 | +23 |
| Aug | 601 | 448 | 587 | 491 | +23 |
| Sep | 524 | 434 | 435 | 397 | +32 |
| Oct | 432 | 373 | 485 | 560 | -23 |
| Nov | 406 | 376 | 456 | 449 | -9.6 |
| Dec | 463 | 433 | 540 | 460 | +0.7 |
| **Flow-Weighted Average** | **488** | **423** | **543** | **481** | **+1.5** |

Total dissolved solids concentrations in the upper Spanish Fork River would increase substantially in every montl from simulated baseline conditions (Table 4-40). The flow-weighted average TDS concentration would increase 21.1 percent in the upper Spanish Fork River under the Proposed Action, however, all concentrations would be below the agricultural use criterion of 1,200 mg/L.

**Table 4-40**
**Average Monthly Total Dissolved Solids Concentrations in Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Simulated Baseline Total Dissolved Solids Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 474 | 427 | 539 | 330 | +44 |
| Feb | 431 | 408 | 476 | 315 | +37 |
| Mar | 462 | 390 | 492 | 358 | +29 |
| Apr | 399 | 377 | 416 | 317 | +26 |
| May | 320 | 224 | 330 | 278 | +15 |
| Jun | 305 | 208 | 353 | 255 | +19 |
| Jul | 263 | 228 | 288 | 232 | +13 |
| Aug | 257 | 235 | 271 | 228 | +13 |
| Sep | 322 | 310 | 310 | 269 | +20 |
| Oct | 366 | 322 | 409 | 350 | +4.6 |
| Nov | 427 | 391 | 484 | 323 | +32 |
| Dec | 531 | 477 | 641 | 386 | +38 |
| **Flow-Weighted Average** | **345** | **302** | **374** | **285** | **+21** |

Total dissolved solids concentrations in the upper Spanish Fork River would increase substantially in every month from simulated baseline conditions (Table 4-41). The flow-weighted average TDS concentration would increase 26.1 percent in the lower Spanish Fork River under the Proposed Action, however, all concentrations would be below the agricultural use criterion of 1,200 mg/L.

**Table 4-41**
**Average Monthly Total Dissolved Solids Concentrations in Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Simulated Baseline Total Dissolved Solids Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 444 | 414 | 495 | 320 | +39 |
| Feb | 451 | 434 | 494 | 332 | +36 |
| Mar | 439 | 386 | 464 | 347 | +27 |
| Apr | 588 | 564 | 619 | 436 | +35 |
| May | 479 | 511 | 499 | 399 | +20 |
| Jun | 630 | 543 | 772 | 474 | +33 |
| Jul | 599 | 489 | 673 | 455 | +33 |
| Aug | 601 | 448 | 587 | 452 | +33 |
| Sep | 524 | 434 | 438 | 371 | +38 |
| Oct | 432 | 373 | 485 | 412 | +5.0 |
| Nov | 406 | 376 | 456 | 311 | +31 |
| Dec | 463 | 433 | 540 | 351 | +32 |
| **Flow-Weighted Average** | **488** | **423** | **543** | **387** | **+26** |

**4.3.2.3.5 pH.** The pH levels in the upper Spanish Fork River would increase or decrease slightly (July, Septembe through November) or remain unchanged from historic baseline conditions during every month (Table 4-42). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Proposed Action. The flow-weighted average pH would remain unchanged from the historic baseline in the upper Spanish Fork River under the Proposed Action.

**Table 4-42**
**Average Monthly pH in the Upper Spanish Fork River**
**Under the Proposed Action and**
**Change From Historic Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Historic Baseline pH | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Feb | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Mar | 8.0 | 8.0 | 7.9 | 8.0 | 0 |
| Apr | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| May | 8.2 | 8.1 | 8.2 | 8.2 | 0 |
| Jun | 8.1 | 8.1 | 8.2 | 8.1 | 0 |
| Jul | 8.1 | 8.0 | 8.1 | 8.0 | +1.3 |
| Aug | 8.1 | 8.1 | 8.2 | 8.1 | 0 |
| Sep | 8.2 | 7.1 | 8.1 | 8.1 | +1.2 |
| Oct | 7.9 | 7.9 | 7.9 | 8.0 | -1.3 |
| Nov | 8.0 | 8.0 | 7.9 | 7.9 | +1.3 |
| Dec | 8.4 | 8.3 | 8.4 | 8.4 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

The pH levels in the lower Spanish Fork River would increase or decrease slightly (September, October) or remain unchanged from historic baseline conditions during every month (Table 4-43). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Proposed Action. The flow-weighted average pH would remain unchanged from the historic baseline in the upper Spanish Fork River under the Proposed Action.

**Table 4-43**
**Average Monthly pH in the Lower Spanish Fork River**
**Under the Proposed Action and**
**Change From Historic Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Historic Baseline pH | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Feb | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Mar | 8.3 | 8.2 | 8.3 | 8.3 | 0 |
| Apr | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| May | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Jun | 8.1 | 8.1 | 8.2 | 8.1 | 0 |
| Jul | 8.0 | 8.0 | 8.1 | 8.0 | 0 |
| Aug | 8.0 | 8.0 | 8.0 | 8.0 | 0 |
| Sep | 8.2 | 8.1 | 8.1 | 8.1 | +1.2 |
| Oct | 8.1 | 8.0 | 8.2 | 8.2 | -1.2 |
| Nov | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Dec | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

The pH levels in the upper Spanish Fork River would increase slightly or remain unchanged from simulated baseline conditions during every month (Table 4-44). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Proposed Action. The flow-weighted average pH would remain unchanged from the simulated baseline in the upper Spanish Fork River under the Proposed Action.

**Table 4-44**
**Average Monthly pH in the Upper Spanish Fork River**
**Under the Proposed Action and**
**Change From Simulated Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Simulated Baseline pH | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Feb | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Mar | 8.0 | 8.0 | 7.9 | 8.0 | 0 |
| Apr | 8.2 | 8.2 | 8.2 | 8.1 | +1.2 |
| May | 8.2 | 8.1 | 8.2 | 8.1 | +1.2 |
| Jun | 8.1 | 8.1 | 8.2 | 8.1 | 0 |
| Jul | 8.1 | 8.0 | 8.1 | 8.1 | +1.3 |
| Aug | 8.1 | 8.1 | 8.2 | 8.1 | 0 |
| Sep | 8.2 | 7.1 | 8.1 | 8.0 | +2.5 |
| Oct | 7.9 | 7.9 | 7.9 | 7.9 | 0 |
| Nov | 8.0 | 8.0 | 7.9 | 8.0 | 0 |
| Dec | 8.4 | 8.3 | 8.4 | 8.3 | +1.2 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

The pH levels in the lower Spanish Fork River would increase slightly or remain unchanged from historic baseline conditions during every month (Table 4-45). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Proposed Action. The flow-weighted average pH would remain unchanged from the historic baseline in the lower Spanish Fork River under the Proposed Action

**Table 4-45**
**Average Monthly pH in the Lower Spanish Fork River**
**Under the Proposed Action and**
**Change From Simulated Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Simulated Baseline pH | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.2 | 8.2 | 8.2 | 8.1 | +1.2 |
| Feb | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Mar | 8.3 | 8.2 | 8.3 | 8.2 | +1.2 |
| Apr | 8.2 | 8.2 | 8.2 | 8.1 | +1.2 |
| May | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Jun | 8.1 | 8.1 | 8.2 | 8.1 | 0 |
| Jul | 8.0 | 8.0 | 8.1 | 8.0 | 0 |
| Aug | 8.0 | 8.0 | 8.0 | 8.0 | 0 |
| Sep | 8.2 | 8.1 | 8.1 | 8.0 | +2.5 |
| Oct | 8.1 | 8.0 | 8.2 | 8.1 | 0 |
| Nov | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Dec | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

**4.3.2.3.6 Nitrate Plus Nitrite as Nitrogen.** Nitrate plus nitrite as nitrogen concentrations in the upper Spanish Fork River would either remain the same or decrease from historic baseline conditions during every month (Table 4-46). The flow-weighted average nitrate plus nitrite concentration would remain unchanged from the historic baseline under the Proposed Action. All values would be below the State of Utah pollution indicator level (4 mg/L).

**Table 4-46**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Historic Baseline Nitrate +Nitrite as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.23 | 0.26 | 0.18 | 0.23 | 0 |
| Feb | 0.34 | 0.35 | 0.32 | 0.34 | 0 |
| Mar | 0.12 | 0.13 | 0.14 | 0.12 | 0 |
| Apr | 0.13 | 0.13 | 0.14 | 0.13 | 0 |
| May | 0.13 | 0.12 | 0.14 | 0.13 | 0 |
| Jun | 0.13 | 0.12 | 0.16 | 0.13 | 0 |
| Jul | 0.13 | 0.16 | 0.25 | 0.15 | -13 |
| Aug | 0.16 | 0.17 | 0.32 | 0.17 | -5.9 |
| Sep | 0.15 | 0.15 | 0.35 | 0.15 | 0 |
| Oct | 0.17 | 0.17 | 0.26 | 0.19 | -11 |
| Nov | 0.59 | 0.55 | 0.69 | 0.64 | -7.8 |
| Dec | 0.16 | 0.18 | 0.15 | 0.16 | 0 |
| **Flow-Weighted Average** | **0.17** | **0.18** | **0.23** | **0.17** | **0** |

Nitrate plus nitrite as nitrogen concentrations in the lower Spanish Fork River would vary considerably (-18.2 for October to +39.7 percent for September) from historic baseline conditions from month to month (Table 4-47). The flow-weighted average nitrate plus nitrite concentration would increase 6.1 percent under the Proposed Action. All values would be below the State of Utah pollution indicator level (4 mg/L).

**Table 4-47**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Historic Baseline Nitrate +Nitrite as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.39 | 0.40 | 0.38 | 0.40 | -2.5 |
| Feb | 0.43 | 0.43 | 0.42 | 0.43 | 0 |
| Mar | 2.49 | 2.01 | 2.72 | 2.37 | +5.1 |
| Apr | 0.21 | 0.21 | 0.21 | 0.21 | 0 |
| May | 1.70 | 1.86 | 1.80 | 1.66 | +2.4 |
| Jun | 0.23 | 0.19 | 0.26 | 0.21 | +9.5 |
| Jul | 0.21 | 0.19 | 0.21 | 0.21 | 0 |
| Aug | 0.13 | 0.16 | 0.13 | 0.15 | -13 |
| Sep | 0.88 | 0.70 | 0.71 | 0.63 | +40 |
| Oct | 0.27 | 0.24 | 0.30 | 0.33 | -18 |
| Nov | 0.34 | 0.33 | 0.34 | 0.34 | 0 |
| Dec | 0.33 | 0.33 | 0.33 | 0.33 | 0 |
| **Flow-Weighted Average** | **0.87** | **0.61** | **0.88** | **0.82** | **+6.1** |

Nitrate plus nitrite as nitrogen concentrations in the upper Spanish Fork River would either decrease or remain th same (except November which shows an increase of 22.9 percent) from simulated baseline conditions (Table 4-48). The flow-weighted average nitrate plus nitrite concentration would decrease 11 percent under the Proposed Action. All values would be below the State of Utah pollution indicator level (4 mg/L).

**Table 4-48**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Simulated Baseline Nitrate +Nitrite as N Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.23 | 0.26 | 0.18 | 0.34 | -32 |
| Feb | 0.34 | 0.35 | 0.32 | 0.40 | -15 |
| Mar | 0.12 | 0.13 | 0.14 | 0.14 | -14 |
| Apr | 0.13 | 0.13 | 0.14 | 0.15 | -13 |
| May | 0.13 | 0.12 | 0.14 | 0.13 | 0 |
| Jun | 0.13 | 0.12 | 0.16 | 0.13 | 0 |
| Jul | 0.13 | 0.16 | 0.25 | 0.15 | -13 |
| Aug | 0.16 | 0.17 | 0.32 | 0.17 | -6.9 |
| Sep | 0.15 | 0.15 | 0.35 | 0.15 | 0 |
| Oct | 0.17 | 0.17 | 0.26 | 0.17 | 0 |
| Nov | 0.59 | 0.55 | 0.69 | 0.48 | +23 |
| Dec | 0.16 | 0.18 | 0.15 | 0.22 | -27 |
| **Flow-Weighted Average** | **0.17** | **0.18** | **0.23** | **0.19** | **-11** |

Nitrate plus nitrite as nitrogen concentrations in the lower Spanish Fork River would either increase or decrease with only July remaining unchanged from simulated baseline conditions (Table 4-49). The flow-weighted average nitrate plus nitrite concentration would increase 35.9 percent under the Proposed Action. All values would be below the State of Utah pollution indicator level (4 mg/L).

**Table 4-49**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Simulated Baseline Nitrate +Nitrite as N Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.39 | 0.40 | 0.38 | 0.43 | -9.3 |
| Feb | 0.43 | 0.43 | 0.42 | 0.45 | -4.4 |
| Mar | 2.49 | 2.01 | 2.72 | 1.66 | +50 |
| Apr | 0.21 | 0.21 | 0.21 | 0.20 | +5.0 |
| May | 1.70 | 1.86 | 1.80 | 1.31 | +30 |
| Jun | 0.23 | 0.19 | 0.26 | 0.19 | +21 |
| Jul | 0.21 | 0.19 | 0.21 | 0.21 | 0 |
| Aug | 0.13 | 0.16 | 0.13 | 0.16 | -19 |
| Sep | 0.88 | 0.70 | 0.71 | 0.60 | +47 |
| Oct | 0.27 | 0.24 | 0.30 | 0.26 | +3.8 |
| Nov | 0.34 | 0.33 | 0.34 | 0.32 | +6.3 |
| Dec | 0.33 | 0.33 | 0.33 | 0.32 | +3.1 |
| **Flow-Weighted Average** | **0.87** | **0.61** | **0.88** | **0.64** | **+36** |

**4.3.2.3.7 Ammonia as Nitrogen.** Ammonia as nitrogen concentrations in the upper Spanish Fork River would decrease from July through September, increase in October and remain unchanged from November through June from historic baseline conditions (Table 4-50). The flow-weighted average ammonia as nitrogen concentration would remain unchanged from the historic baseline in the upper Spanish Fork River under the Proposed Action. All values would be below the State of Utah calculated water quality standards.

**Table 4-50**
**Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Historic Baseline Ammonia as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.02 | 0.03 | 0.02 | 0.02 | 0 |
| Feb | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| May | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jun | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jul | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Aug | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Sep | 0.04 | 0.05 | 0.05 | 0.05 | -20 |
| Oct | 0.05 | 0.05 | 0.04 | 0.03 | +67 |
| Nov | 0.02 | 0.03 | 0.02 | 0.02 | 0 |
| Dec | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| **Flow-Weighted Average** | **0.03** | **0.03** | **0.03** | **0.03** | **0** |

Ammonia as nitrogen concentrations in the lower Spanish Fork River would increase or remain unchanged from historic baseline conditions (Table 4-51). The flow-weighted average ammonia as nitrogen concentration would remain unchanged from the historic baseline in the lower Spanish Fork River under the Proposed Action. All values would be below the State of Utah calculated water quality standards.

**Table 4-51**
**Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Historic Baseline Ammonia as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| Feb | 0 | 0.06 | 0.06 | 0.06 | 0 |
| Mar | 0.13 | 0.11 | 0.14 | 0.13 | 0 |
| Apr | 0.17 | 0.16 | 0.18 | 0.16 | +6.3 |
| May | 0.15 | 0.16 | 0.16 | 0.15 | 0 |
| Jun | 0.12 | 0.19 | 0.15 | 0.10 | +20 |
| Jul | 0.21 | 0.19 | 0.24 | 0.17 | +24 |
| Aug | 0.16 | 0.12 | 0.16 | 0.13 | +23 |
| Sep | 0.10 | 0.09 | 0.09 | 0.09 | +11 |
| Oct | 0.07 | 0.07 | 0.06 | 0.06 | +17 |
| Nov | 0.06 | 0.05 | 0.06 | 0.06 | 0 |
| Dec | 0.04 | 0.04 | 0.05 | 0.04 | 0 |
| **Flow-Weighted Average** | **0.11** | **0.07** | **0.13** | **0.11** | **0** |

Ammonia as nitrogen concentrations in the upper Spanish Fork River would either decrease 33.3 percent or remain unchanged from simulated baseline conditions (Table 4-52). The flow-weighted average ammonia as nitrogen concentration would remain unchanged from the simulated baseline in the upper Spanish Fork River under the Proposed Action. All values would be below the State of Utah calculated water quality standards.

**Table 4-52**
**Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Simulated Baseline Ammonia as N Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Feb | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| May | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jun | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jul | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Aug | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Sep | 0.04 | 0.05 | 0.05 | 0.06 | -33 |
| Oct | 0.05 | 0.05 | 0.04 | 0.05 | 0 |
| Nov | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Dec | 0.02 | 0.02 | 0.02 | 0.03 | -33 |
| **Flow-Weighted Average** | **0.03** | **0.03** | **0.03** | **0.03** | **0** |

Ammonia as nitrogen concentrations in the lower Spanish Fork River would increase as much as 54.5 percent or remain unchanged (October, December) from simulated baseline conditions (Table 4-53). The flow-weighted average ammonia as nitrogen concentration would increase 22.2 percent from the simulated baseline in the upper Spanish Fork River under the Proposed Action. All values would be below the State of Utah calculated water quality standards.

**Table 4-53**
**Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Simulated Baseline Ammonia as N Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.04 | 0.04 | 0.04 | 0.03 | +33 |
| Feb | 0 | 0.06 | 0.06 | 0.04 | +50 |
| Mar | 0.13 | 0.11 | 0.14 | 0.09 | +44 |
| Apr | 0.17 | 0.16 | 0.18 | 0.11 | +55 |
| May | 0.15 | 0.16 | 0.16 | 0.12 | +25 |
| Jun | 0.12 | 0.19 | 0.15 | 0.09 | +33 |
| Jul | 0.21 | 0.19 | 0.24 | 0.15 | +40 |
| Aug | 0.16 | 0.12 | 0.16 | 0.12 | +33 |
| Sep | 0.10 | 0.09 | 0.09 | 0.09 | +11 |
| Oct | 0.07 | 0.07 | 0.06 | 0.07 | 0 |
| Nov | 0.06 | 0.05 | 0.06 | 0.04 | +50 |
| Dec | 0.04 | 0.04 | 0.05 | 0.04 | 0 |
| **Flow-Weighted Average** | **0.11** | **0.07** | **0.13** | **0.09** | **+22** |

**4.3.2.3.8 Selenium.** Selenium concentrations in the upper Spanish Fork River would remain unchanged from historic baseline conditions for 8 months of the year (Table 4-54). Minor increases or decreases in the other months disappear because of rounding when averaged. There would be no significant impacts on selenium concentrations in the upper Spanish Fork River under the Proposed Action. The flow-weighted average selenium concentration would not change in the upper Spanish Fork River under the Proposed Action.

**Table 4-54**
**Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Historic Baseline Selenium Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.7 | 1.7 | 1.8 | 1.7 | 0 |
| Feb | 2.1 | 2.1 | 2.2 | 2.1 | 0 |
| Mar | 1.6 | 1.6 | 1.6 | 1.6 | 0 |
| Apr | 0.6 | 0.7 | 0.5 | 0.6 | 0 |
| May | 0.9 | 1.0 | 0.9 | 0.9 | 0 |
| Jun | 0.7 | 1.0 | 0.5 | 0.8 | -13 |
| Jul | 0.7 | 0.7 | 0.6 | 0.7 | 0 |
| Aug | 0.8 | 0.9 | 0.8 | 0.9 | -11 |
| Sep | 1.2 | 1.1 | 1.1 | 1.0 | +20 |
| Oct | 1.3 | 1.3 | 1.2 | 1.2 | +8 |
| Nov | 0.8 | 0.9 | 0.7 | 0.7 | +14 |
| Dec | 0.8 | 0.9 | 0.6 | 0.8 | 0 |
| **Flow-Weighted Average** | **1.0** | **1.1** | **0.9** | **1.0** | **0** |

Selenium concentrations in the lower Spanish Fork River would remain unchanged from historic baseline conditions for 10 months of the year, but would increase slightly in July and October (Table 4-55). The increases are minor and disappear with rounding. There would be no significant impacts on selenium concentrations in the lower Spanish Fork River under the Proposed Action. The flow-weighted average selenium concentration would remain unchanged from the historic baseline in the lower Spanish Fork River under the Proposed Action. Monthly increases would occur because of the flow reduction in the Spanish Fork River under the Proposed Action, resulting in slightly less dilution of the natural selenium in the river.

**Table 4-55**
**Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Historic Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Historic Baseline Selenium Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.4 | 1.4 | 1.4 | 1.4 | 0 |
| Feb | 1.3 | 1.3 | 1.2 | 1.3 | 0 |
| Mar | 0.7 | 0.9 | 0.6 | 0.7 | 0 |
| Apr | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| May | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Jun | 1.1 | 0.9 | 1.1 | 1.1 | 0 |
| Jul | 0.9 | 0.6 | 0.9 | 0.8 | +13 |
| Aug | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Sep | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| Oct | 1.3 | 1.4 | 1.3 | 1.2 | +8 |
| Nov | 1.2 | 1.3 | 1.2 | 1.2 | 0 |
| Dec | 0.8 | 0.8 | 0.6 | 0.8 | 0 |
| **Flow-Weighted Average** | **1.0** | **1.1** | **1.0** | **1.0** | **0** |

Selenium concentrations in the upper Spanish Fork River would either remain unchanged or decrease from simulated baseline conditions except for the month of September (Table 4-56). There would be no significant impacts on selenium concentrations in the upper Spanish Fork River under the Proposed Action. The flow-weighted average selenium concentration would decrease by nine percent from the simulated baseline in the upper Spanish Fork River under the Proposed Action. This increase would occur because of slightly less dilution in the Spanish Fork River caused by reduced Strawberry Reservoir water.

**Table 4-56**
**Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Simulated Baseline Selenium Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.7 | 1.7 | 1.8 | 1.6 | +6 |
| Feb | 2.1 | 2.1 | 2.2 | 2.0 | +5 |
| Mar | 1.6 | 1.6 | 1.6 | 1.6 | 0 |
| Apr | 0.6 | 0.6 | 0.5 | 0.8 | -25 |
| May | 0.9 | 1.0 | 0.9 | 1.0 | -10 |
| Jun | 0.7 | 1.0 | 0.5 | 0.9 | -22 |
| Jul | 0.7 | 0.7 | 0.6 | 0.7 | 0 |
| Aug | 0.8 | 0.9 | 0.8 | 0.9 | -11 |
| Sep | 1.2 | 1.1 | 1.1 | 1.0 | +20 |
| Oct | 1.3 | 1.3 | 1.2 | 1.3 | 0 |
| Nov | 0.8 | 0.9 | 0.7 | 1.0 | -20 |
| Dec | 0.8 | 0.9 | 0.6 | 1.0 | -20 |
| **Flow-Weighted Average** | **1.1** | **1.1** | **0.9** | **1.0** | **+10** |

Selenium concentrations in the lower Spanish Fork River would increase for two months, decrease for five months and remain unchanged for five months of the year from simulated baseline conditions (Table 4-57). There would be no significant impacts on selenium concentrations in the upper Spanish Fork River under the Proposed Action. The flow-weighted average selenium concentration would decrease by 9 percent from the simulated baseline in the lower Spanish Fork River under the Proposed Action. This decrease would occur because of dilution from return flows to the lower Spanish Fork River.

**Table 4-57**
**Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the Proposed Action and Change From Simulated Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Simulated Baseline Selenium Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.4 | 1.4 | 1.4 | 1.4 | 0 |
| Feb | 1.3 | 1.3 | 1.2 | 1.5 | -13 |
| Mar | 0.7 | 0.9 | 0.6 | 1.0 | -30 |
| Apr | 1.0 | 1.0 | 1.0 | 1.1 | +9 |
| May | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Jun | 1.1 | 0.9 | 1.1 | 1.2 | -8 |
| Jul | 0.9 | 0.6 | 0.9 | 0.8 | +13 |
| Aug | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Sep | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| Oct | 1.3 | 1.4 | 1.3 | 1.3 | 0 |
| Nov | 1.2 | 1.3 | 1.2 | 1.3 | -8 |
| Dec | 0.8 | 0.8 | 0.6 | 1.0 | -20 |
| **Flow-Weighted Average** | **1.0** | **1.0** | **1.0** | **1.1** | **-9** |

**4.3.2.3.9 Summary of Impacts on Spanish Fork River Water Quality.** Upper Spanish Fork River annual average water quality conditions would change slightly with increases in TDS, water temperature, TP, and dissolved oxygen, and remain unchanged with nitrate + nitrite as nitrogen, ammonia, selenium and pH from historic baseline conditions (Table 4-58).

**Table 4-58**
**Upper Spanish Fork River Annual Average Water Quality**
**Under the Proposed Action and Change From Historic Baseline Conditions**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| | Change[1] | 21 | 0 | 0 | 0.1 | +0.06 | 0 | 0.1 | 0.0 |
| | Value | 345 | 8.1 | 11.7 | 10.7 | 0.23 | 0.03 | 0.15 | 1.0 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| | Change[1] | -23 | 0 | 0.2 | -1.0 | .02 | 0 | -0.05 | +0.1 |
| | Value | 302 | 8.1 | 11.9 | 9.6 | 0.18 | 0.03 | 0.09 | 1.1 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| | Change[1] | 50 | 0 | 0 | 0.4 | -0.01 | 0 | 0.03 | -0.1 |
| | Value | 374 | 8.1 | 11.7 | 11 | 16 | 0.03 | 0.17 | 0.9 |
| **Maximum Monthly Levels** | | | | | | | | | |
| | Change[2] | 4 | 0 | 0.6 | 1.0 | -0.05 | -0.01 | 0.01 | 0 |
| | Value | 531 | 8.4 | 9.7[a] | 15.8 | 0.59 | 0.05 | 0.31 | 2.1 |

**Notes:**
[1] Change from Historic Annual Average
[2] Change from Historic Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

Lower Spanish Fork River annual average water quality conditions would change slightly with increases in TDS nitrate + nitrite as nitrogen, and dissolved oxygen, decreased temperature, and remain unchanged with ammonia, pH, phosphorus and selenium from historic baseline conditions (Table 4-59).

**Table 4-59**
**Lower Spanish Fork River Annual Average Water Quality**
**Under the Proposed Action and Change From Historic Baseline Conditions**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| | Change[1] | 7 | 0 | -0.3 | -0.3 | 0.05 | 0 | 0 | 0 |
| | Value | 488 | 8.1 | 10.0 | 9.8 | 0.87 | 0.11 | 0.09 | 1.0 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| | Change[1] | -58 | 0 | 0.7 | -3.3 | -2.2 | -0.03 | -0.01 | +0.1 |
| | Value | 423 | 8.1 | 11.0 | 6.9 | 0.61 | 0.07 | 0.08 | 1.1 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| | Change[1] | 62 | 0 | -0.3 | 0.9 | 0.06 | 0.02 | 0.01 | 0 |
| | Value | 543 | 8.1 | 10.0 | 11 | 0.88 | 0.13 | 0.10 | 1.0 |
| **Maximum Monthly Levels** | | | | | | | | | |
| | Change[2] | 58 | 0 | -0.1 | 2.2 | 0.12 | 0.05 | 0.01 | 0 |
| | Value | 630 | 8.3 | 8.0[a] | 20.2 | 2.49 | 0.21 | 0.19 | 1.4 |

**Notes:**
[1] Change from Historic Annual Average
[2] Change from Historic Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

Upper Spanish Fork River annual average water quality conditions would change slightly with increases in TDS, temperature, TP, and dissolved oxygen, decreased nitrate + nitrite as nitrogen and selenium, and remain unchanged with ammonia and pH from simulated baseline conditions (Table 4-60).

**Table 4-60**
**Upper Spanish Fork River Annual Average Water Quality**
**Under the Proposed Action and Change From Simulated Baseline Conditions**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| | Change[1] | 60 | 0 | -0.1 | 0.8 | -0.02 | 0 | 0.03 | 0 |
| | Value | 345 | 8.1 | 11.7 | 10.7 | 0.17 | 0.03 | 0.15 | 1.0 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| | Change[1] | 16 | 0 | 0.1 | -0.3 | 0 | 0 | -0.03 | -0.1 |
| | Value | 302 | 8.1 | 11.9 | 9.6 | 0.18 | 0.03 | 0.09 | 1.1 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| | Change[1] | 88 | 0.1 | -0.1 | 1.1 | +0.04 | 0 | 0.05 | -0.1 |
| | Value | 374 | 8.1 | 11.7 | 11 | 0.23 | 0.03 | 0.17 | 0.9 |
| **Maximum Monthly Levels** | | | | | | | | | |
| | Change[2] | 145 | 0.1 | -0.1 | 1.3 | 0.108 | -0.008 | 0.064 | +0.1 |
| | Value | 531 | 8.4 | 9.7[a] | 15.8 | 0.589 | 0.047 | 0.305 | 2.1 |

**Notes:**
[1] Change from Simulated Annual Average
[2] Change from Simulated Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

Lower Spanish Fork River annual average water quality conditions would change slightly with increases in TDS, water temperature, nitrate + nitrite as nitrogen, ammonia, TP and dissolved oxygen, decrease in selenium and remain unchanged in pH from simulated baseline conditions (Table 4-61).

**Table 4-61**
**Lower Spanish Fork River Annual Average Water Quality**
**Under the Proposed Action and Change From Simulated Baseline Conditions**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| | Change[1] | 101 | 0 | -0.8 | 0.3 | 0.23 | 0.02 | 0.01 | -0.1 |
| | Value | 488 | 8.1 | 10.0 | 9.8 | 0.87 | 0.11 | 0.09 | 1.0 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| | Change[1] | 36 | 0 | 0.2 | -2.7 | -0.03 | -0.01 | 0 | -0.2 |
| | Value | 423 | 8.1 | 11.0 | 6.9 | 0.61 | 0.07 | 0.08 | 1.1 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| | Change[1] | 156 | 0 | -0.8 | 1.5 | 0.24 | 0.04 | 0.02 | -0.1 |
| | Value | 543 | 8.1 | 10.0 | 11 | 0.88 | 0.13 | 0.10 | 1.0 |
| **Maximum Monthly Levels** | | | | | | | | | |
| | Change[2] | 156 | 0.1 | -1.0 | 4.0 | 0.883 | 0.064 | 0.059 | -0.1 |
| | Value | 630 | 8.3 | 8.0[a] | 20.2 | 2.491 | 0.213 | 0.190 | 1.4 |

**Notes:**
[1] Change from Simulated Annual Average
[2] Change from Simulated Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

## 4.3.3 Summary of Proposed Action Impacts

The Proposed Action would decrease localized TP concentrations in Utah Lake near the mouths of the Provo River, Hobble Creek and Spanish Fork River. The Proposed Action would result in a 3.2 tons per year decrease (-1.1 percent) in TP load into Utah Lake compared to simulated baseline conditions. The Proposed Action would slightly increase TDS concentrations in Utah Lake compared to simulated baseline conditions, with the concentrations remaining under or near the agricultural use standard of 1,200 mg/L. Average annual TDS load to Utah Lake would decrease by 11,486 tons (-3.3 percent) from simulated baseline under the Proposed Action.

Water quality conditions in the lower Provo River and Hobble Creek would generally improve because of the Bonneville Unit water provided for in-stream flows. Dissolved oxygen concentrations would increase in the lower Provo River and Hobble Creek during most months, resulting in a significant beneficial impact on water quality. Water temperatures would decrease during summer months and increase in winter months, providing benefits to aquatic resources throughout the year. Total phosphorus concentrations would remain unchanged on an average annual basis, however, monthly TP concentrations would increase to above the pollution indicator level during some summer and fall months. Water quality conditions in the Spanish Fork River would remain unchanged or change slightly under the Proposed Action. Dissolved oxygen concentrations and water temperatures would increase or decrease slightly from simulated baseline conditions, with all values remaining within water quality standards. Total phosphorus concentrations would increase slightly above simulated baseline conditions during most months from levels above the pollution indicator level for streams.

## 4.4 Bonneville Unit Water Alternative

### 4.4.1 Lake and Reservoir Water Quality

#### *4.4.1.1 Utah Lake*

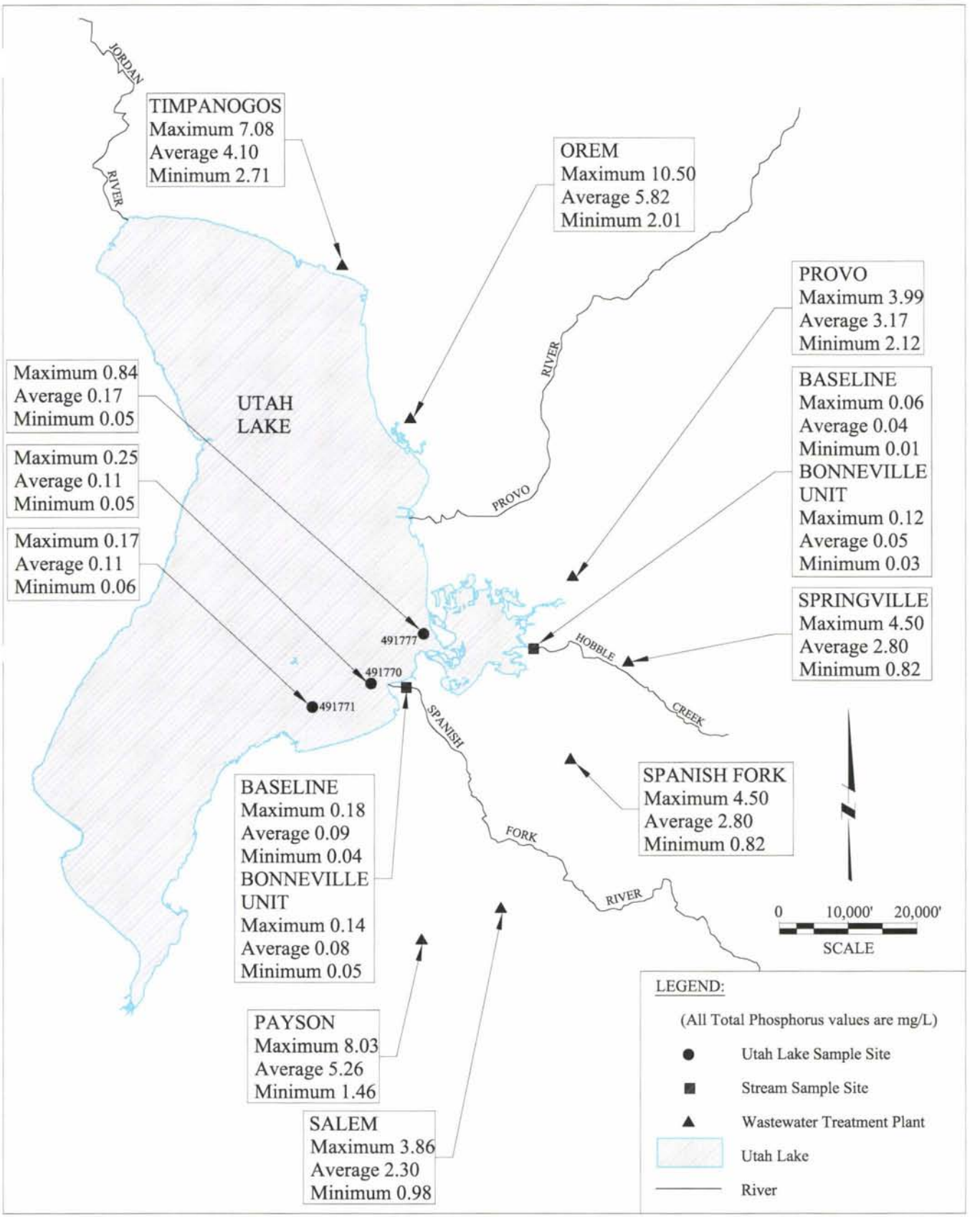
**4.4.1.1.1 Total Phosphorus.** The methodology used to analyze TP impacts in Utah Lake under the Proposed Action was used to analyze TP impacts on Utah Lake under the Bonneville Unit Water Alternative. Map 4-2 shows Utah Lake surface TP concentrations during seasonal project water delivery under the Bonneville Unit Water Alternative. The following sections present the Bonneville Unit Water Alternative impact analysis for TP localized concentrations and TP load in Utah Lake.

***4.4.1.1.1.1 Localized TP Concentrations***

**A. Near Mouth of Hobble Creek**. The Bonneville Unit Water Alternative would deliver Bonneville Unit flows to Hobble Creek year-round in similar monthly volumes. Strawberry Reservoir water conveyed through the Mapleton-Springville Lateral Pipeline would be mixed with Hobble Creek water upstream of Springville City and flow down to Utah Lake. Utah Lake STORET station 491777 outside the mouth of Provo Bay is the closest station to the mouth of Hobble Creek (Map 4-2). Annual flow-weighted average TP concentration in Hobble Creek under the Bonneville Unit Water Alternative would be 0.05 mg/L. This would be 0.12 mg/L lower than the historic annual average surface TP concentration at STORET station 491777. The historic average annual TP concentration at this station is 0.17 mg./L (Table 3-1). The Bonneville Unit Water Alternative maximum flow-weighted TP inflow concentration of 0.12 mg/L would be 0.72 mg/L lower than the historic maximum recorded concentration of 0.84 mg/L at STORET station 491777. The Bonneville Unit Water Alternative minimum flow-weighted TP inflow concentration of 0.03 mg/L would be 0.02 mg/L lower than the historic minimum recorded concentration of 0.05 mg/L at STORET station 491777. The Bonneville Unit Water Alternative would dilute and reduce Utah Lake TP concentrations near the mouth of Hobble Creek. The Bonneville Unit Water Alternative would not have a significant impact on TP concentrations in Utah Lake near the mouth of Hobble Creek.

**B. Near Mouth of Spanish Fork River.** The ULS Bonneville Unit Water Alternative would deliver Bonneville Unit flows through the Spanish Fork River to Utah Lake from October through April. In-stream flows provided to Sixth Water Creek and Diamond Fork Creek from Strawberry Reservoir water would flow down the Spanish Fork River to Utah Lake. Utah Lake STORET stations 491770 and 491771 are the closest stations to the mouth of the Spanish Fork River (Map 4-2). The Bonneville Unit Water Alternative flow-weighted average TP concentration of 0.08 mg/L would be 0.03 mg/L lower than historic average TP concentrations at these Utah Lake STORET stations. Historic average TP concentrations in surface samples at these stations during Bonneville Unit Water Alternative water delivery months from October through April is 0.11 mg/L (Table 3-1). ). The Bonneville Unit Water Alternative maximum flow-weighted TP inflow concentration of 0.14 mg/L would be 0.11 mg/L lower than historic maximum recorded TP concentration at Utah Lake STORET station 499770 and 0.03 mg/L lower than the historic maximum recorded TP concentration at STORET station 491771. The Bonneville Unit Water Alternative minimum flow-weighted TP inflow concentration of 0.05 mg/L would be 0.01 mg/L lower than or equal to the historic minimum TP concentrations recorded at these Utah Lake STORET stations. The Bonneville Unit Water Alternative would dilute and reduce Utah Lake TP concentrations near the mouth of the Spanish Fork River. The Bonneville Unit Water Alternative would not have a significant impact on TP concentrations in Utah Lake near the mouth of the Spanish Fork River.

***4.4.1.1.1.2 Estimated TP Load.*** The estimated TP load to Utah Lake under the Bonneville Unit Water Alternative would increase by 4.2 tons per year (+1.4 percent) compared to historic TP load (Table 4-62). Total phosphorus loads would decrease in the Provo River because of water exchanged from Utah Lake to Jordanelle Reservoir, an would increase in the Spanish Fork River, Hobble Creek and in ULS return flows. The TP load from Other




Map 4-2

Utah Lake Surface Total Phosphorus Concentrations During Seasonal Project Water Delivery - Bonneville Unit Alternative

Inflows would decrease because of reduced return flows from northern Utah County. Under the Bonneville Unit Water Alternative, the estimated net TP load of 295.8 tons per year from all inflow sources to Utah Lake would be slightly higher than the estimated historic TP load. The Bonneville Unit Water Alternative would have a significant impact on TP load to Utah Lake.

**Table 4-62**
**Estimated Utah Lake Total Phosphorus Load Under the Bonneville Unit Water Alternative and Change From Historic Baseline**

| Inflow Source | Average Annual Inflow (acre-feet) | TP Concentration (mg/L) | Combined TP Load (tons per year) | Change from Historic Baseline Load (tons per year) | Change from Historic Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 94,063 | 0.06 | 8.1 | -2.6 | -24 |
| Spanish Fork River | 158,138 | 0.08 | 18.1 | +6.3 | +53 |
| Hobble Creek | 46,024 | 0.05 | 3.3 | +2.1 | +175 |
| ULS Return Flows | 4,660 | 0.05 | 0.3 | +0.3 | NA |
| WWTP Discharges | 52,591 | 3.00 | 225.6 | 0 | 0 |
| Other Inflows | 256,707 | 0.11 | 40.4 | -1.9 | -4.5 |
| **Total** | **612,183** | | **295.8** | **+4.2** | **+1.4** |

The estimated TP load to Utah Lake under the Bonneville Unit Water Alternative would increase by 1.0 ton per year (+0.3 percent) compared to simulated baseline TP load (Table 4-63). TP load would increase in the Provo River because June sucker flows, in Hobble Creek because of increased Strawberry Reservoir flows and in ULS return flows. The TP load in Other Inflows would decrease because of reduced return flows from northern Utah County. Under the Bonneville Unit Water Alternative, the estimated net TP load of 295.8 tons from all inflow sources would be slightly higher than the simulated baseline TP load of 294.8 tons to Utah Lake. The Bonneville Unit Water Alternative would have a significant impact on TP load to Utah Lake.

**Table 4-63**
**Estimated Utah Lake Phosphorus Load Under the Bonneville Unit Water Alternative and Change From Simulated Baseline**

| Inflow Source | Average Annual Inflow (acre-feet) | TP Concentration (mg/L) | Combined TP Load (tons per year) | Change from Simulated Baseline Load (tons per year) | Change from Simulated Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 94,063 | 0.06 | 8.1 | +1.3 | +19 |
| Spanish Fork River | 158,138 | 0.08 | 18.1 | -1.0 | -5.2 |
| Hobble Creek | 46,024 | 0.05 | 3.3 | +2.1 | +175 |
| ULS Return Flows | 4,660 | 0.05 | 0.3 | +0.3 | NA |
| WWTP Discharges | 52,591 | 3.00 | 225.6 | 0 | 0 |
| Other Inflows | 256,707 | 0.11 | 40.4 | -1.9 | -4.5 |
| **Total** | **612,183** | | **295.8** | **+1.0** | **+0.3** |

**4.4.1.1.2 Total Dissolved Solids.** The methodology used to analyze TDS impacts in Utah Lake under the Proposed Action was used to analyze TDS impacts in Utah Lake under the Bonneville Unit Water Alternative. The following sections present the Bonneville Unit Water Alternative impact analysis for TDS cumulative concentrations and TDS load in Utah Lake.

***4.4.1.1.2.1 TDS Cumulative Concentrations.*** The ULS and the M&I System (Jordanelle Reservoir) exchange flows originate in Strawberry Reservoir, which has an average TDS concentration of 159 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through the Spanish Fork River under the Bonneville Unit Water Alternative, the resulting inflow to Utah Lake would have an estimated average TDS concentration of 309 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through Hobble Creek under the Bonneville Unit Water Alternative, the resulting inflow to Utah Lake would have an estimated average TDS concentration of 219 mg/L. ULS project return flows to Utah Lake under the Bonneville Unit Water Alternative would have an estimated TDS concentration of 457 mg/L. Wastewater treatment plant inflows to Utah Lake have an estimated TDS concentration of 600 mg/L (based on Table 3-5, Metcalf and Eddy 1979). Other inflows (irrigation return flows, other tributary inflows, springs, etc.) are estimated to have a TDS concentration of 450 mg/L (derived from LKSIM2000 model inflow and outflow concentrations). Therefore, the impact of the ULS inflows would be a dilution of TDS concentrations in the primary tributary inflows, and would dilute and reduce in-lake TDS concentrations.

Under the Bonneville Unit Water Alternative, Utah Lake salinity would decrease slightly from historical baseline measurements except for one measurement (station 491731 on 7/2/93), and all concentrations would be below the agricultural use water quality standard of 1,200 mg/L (Table 4-64).

Compared to the simulated baseline TDS concentrations, the Bonneville Unit Water Alternative would increase TDS cumulative concentrations compared to all STORET stations measured on 8/14/90, but would not exceed the agricultural use water quality standard (Table 4-64). Compared to all other Utah Lake simulated baseline values, the Bonneville Unit Water Alternative would decrease TDS concentrations slightly. The LKSIM2000 model provides a conservatively higher estimate of TDS cumulative concentrations under the Bonneville Unit Water Alternative, which is why the values shown are higher than the ULS simulated baseline.

**Table 4-64**
**Utah Lake Total Dissolved Solids Cumulative Concentrations Under the Bonneville Unit Water Alternative Compared to Historical and Simulated Baseline Conditions**

**Page 1 of 2**

| Sample Date | Monitoring Station ID Number | Utah Lake Measured Historic TDS (mg/L) | Utah Lake Simulated Baseline TDS (mg/L) | Projected Cumulative ULS Bonneville Unit Water Alternative TDS (mg/L) | Cumulative Change from Historic Baseline TDS (percent) | Cumulative Change from Simulated Baseline TDS (percent) |
|---|---|---|---|---|---|---|
| 8/14/90 | 491730 | 1,240 | 1,002 | 1,059 | -15 | +5.7 |
| 8/14/90 | 491732 | 1,248 | 1,002 | 1,059 | -15 | +5.7 |
| 8/14/90 | 491733 | 1,288 | 1,002 | 1,059 | -18 | +5.7 |
| 8/14/90 | 491734 | 1,292 | 1,002 | 1,059 | -18 | +5.7 |
| 8/14/90 | 491737 | 1,238 | 1,002 | 1,059 | -14 | +5.7 |

**Table 4-64**
**Utah Lake Total Dissolved Solids Cumulative Concentrations Under the Bonneville Unit Water Alternative Compared to Historical and Simulated Baseline Conditions**



| Sample Date | Monitoring Station ID Number | Utah Lake Measured Historic TDS (mg/L) | Utah Lake Simulated Baseline TDS (mg/L) | Projected Cumulative ULS Bonneville Unit Water Alternative TDS (mg/L) | Cumulative Change from Historic Baseline TDS (percent) | Cumulative Change from Simulated Baseline TDS (percent) |
|---|---|---|---|---|---|---|
| 8/14/90 | 491738 | 1254 | 1,002 | 1,059 | -16 | +5.7 |
| 8/14/90 | 491739 | 1,262 | 1,002 | 1,059 | -16 | +5.7 |
| 8/14/90 | 491740 | 1,224 | 1,002 | 1,059 | -13 | +5.7 |
| 8/14/90 | 491741 | 1,244 | 1,002 | 1,059 | -15 | +5.7 |
| 8/14/90 | 491742 | 1,262 | 1,002 | 1,059 | -16 | +5.7 |
| 8/14/90 | 491750 | 1,246 | 1,002 | 1,059 | -15 | +5.7 |
| 8/14/90 | 491751 | 1,284 | 1,002 | 1,059 | -18 | +5.7 |
| 8/14/90 | 491752 | 1,262 | 1,002 | 1,059 | -16 | +5.7 |
| 8/14/90 | 491762 | 1,330 | 1,002 | 1,059 | -20 | +5.7 |
| 8/14/90 | 491770 | 1,284 | 1,002 | 1,059 | -18 | +5.7 |
| 8/14/90 | 491771 | 1,278 | 1,002 | 1,059 | -17 | +5.7 |
| 8/14/90 | 491777 | 1,214 | 1,002 | 1,059 | -13 | +5.7 |
| 7/2/93 | 491731 | 816 | 921 | 865 | +6.0 | -6.1 |
| 7/15/94 | 491731 | 1,022 | 1,069 | 996 | -2.5 | -6.8 |
| 7/26/95 | 491731 | 872 | 855 | 786 | -9.9 | -8.1 |
| 9/27/95 | 491731 | 924 | 931 | 867 | -6.2 | -6.9 |
| 7/15/97 | 491731 | 760 | 728 | 689 | -9.3 | -5.4 |
| 7/15/97 | 491732 | 758 | 728 | 689 | -9.1 | -5.4 |
| 9/11/97 | 491731 | 806 | 785 | 742 | -7.9 | -5.5 |
| 9/11/97 | 491732 | 800 | 785 | 742 | -7.3 | -7.3 |
| 7/6/99 | 491731 | 700 | 681 | 634 | -9.4 | -6.9 |
| 7/6/99 | 491762 | 716 | 681 | 634 | -11.5 | -6.9 |
| 7/6/99 | 491777 | 682 | 681 | 634 | -7.0 | -6.9 |
| 8/19/99 | 491731 | 720 | 718 | 678 | -5.8 | -5.6 |
| 8/19/99 | 491732 | 714 | 718 | 678 | -5.0 | -5.6 |

***4.4.1.1.2.2 Estimated TDS Load.*** The estimated TDS load to Utah Lake under the Bonneville Unit Water Alternative would increase from the estimated historic TDS load to Utah Lake (Table 4-65). The TDS load would decrease in the Provo River because of water exchanged from Utah Lake to Jordanelle Reservoir, would decrease from Other Inflow because of reduced return flows in northern Utah County, and would increase in the Spanish Fork River, Hobble Creek, and in ULS return flows. Under the Bonneville Unit Water Alternative, the estimated net TDS load of 349,021 tons per year from all inflow sources to Utah Lake would be 10,046 tons higher (+3.0 percent) than the estimated net historic TDS load of 338,975 tons per year to Utah Lake. The Bonneville Unit Water Alternative would have a significant impact on TDS load to Utah Lake compared to historic baseline conditions.

**Table 4-65**
**Estimated Utah Lake Total Dissolved Solids Load Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions**

| Inflow Source | Average Annual Inflow (acre-feet) | Concentration (mg/L) | Combined Load (tons per year) | Change from Historic Baseline Load (tons per year) | Change from Historic Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 94,063 | 276 | 37,125 | -12,100 | -25 |
| Spanish Fork River | 158,138 | 372 | 84,123 | 21,131 | 34 |
| Hobble Creek | 46,024 | 219 | 14,413 | 5,894 | 69 |
| ULS Return Flows | 4,660 | 457 | 3,046 | 3,036 | NA |
| WWTP Discharges | 52,591 | 600 | 45,123 | 0 | 0 |
| Other Inflows | 256,707 | 450 | 165,191 | -7,925 | -5 |
| **Total** | **612,183** | | **349,021** | **10,046** | **+3** |

The estimated TDS load to Utah Lake under the Bonneville Unit Water Alternative would decrease by 1,989 tons per year (net –0.6 percent) from the estimated simulated baseline TDS load to Utah Lake (Table 4-66). The TDS load would increase in the Provo River and Hobble Creek because of increased Strawberry Reservoir water being mixed with Provo River and Hobble Creek water, would decrease from Other Inflows because of reduced return flows in northern Utah County, would decrease in the Spanish Fork River because of decreased load from reduced Strawberry Reservoir flows, and would increase in ULS return flows. Under the Bonneville Unit Water Alternative, the estimated net TDS load of 347,734 tons per year from all inflow sources to Utah Lake would be lower than the estimated net simulated baseline TDS load of 349,878 tons per year to Utah Lake. The Bonneville Unit Water Alternative would not have a significant impact on TP load to Utah Lake compared to simulated baseline conditions.

**Table 4-66**
**Estimated Utah Lake TDS Load Under the Bonneville Unit Water Alternative and Change From Simulated Baseline**

| Inflow Source | Average Annual Inflow (acre-feet) | Concentration (mg/L) | Combined Load (tons per year) | Change from Simulated Baseline Load (tons per year) | Change from Simulated Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 94,063 | 276 | 37,125 | +5,716 | +18.2 |
| Spanish Fork River | 158,138 | 372 | 84,123 | -7,222 | _7.9 |
| Hobble Creek | 46,024 | 219 | 14,413 | +5,894 | +69.2 |
| ULS Return Flows | 4,660 | 264 | 1,759 | +1,548 | NA |
| WWTP Discharges | 52,591 | 600 | 45,123 | 0 | 0 |
| Other Inflows | 256,707 | 450 | 165,191 | -7,925 | -4.6 |
| **Total** | **612,183** | | **347,734** | **-1,989** | **-0.6** |

## 4.4.2 Stream and River Water Quality

The following subsections present the impact analysis results for water quality conditions in Hobble Creek from the Mapleton Lateral to Utah Lake under the Bonneville Unit Water Alternative. The average change from baseline conditions shown in each table is applicable to simulated baseline and historic baseline conditions.

### *4.4.2.1 Hobble Creek Between Utah Lake and Mapleton Lateral*

**4.4.2.1.1 Dissolved Oxygen.** Hobble Creek dissolved oxygen would increase from historic baseline conditions throughout the year under the Bonneville Unit Water Alternative (Table 4-67). Under the baseline conditions in Hobble Creek, there is no natural flow in the stream during some months (e.g., August and September of an average year). Therefore, the mass balance model combines zero Hobble Creek flow during these months with the Bonneville Unit supplemental flow discharged from the Mapleton-Springville Lateral Pipeline. The resulting predicted Hobble Creek dissolved oxygen concentrations would be equal to the Bonneville Unit water dissolved oxygen concentrations during those months of zero natural flow in average, dry, and wet years. The flow-weighted average dissolved oxygen concentrations would increase in Hobble Creek. There would be a significant beneficial impact on dissolved oxygen concentrations in Hobble Creek under the Bonneville Unit Water Alternative.

The dissolved oxygen concentrations were calculated assuming saturation at water temperatures measured in the Sixth Water Aqueduct outlet. The higher concentrations in Hobble Creek would be caused by discharge of water at saturation conveyed through Mapleton-Springville Lateral Pipeline and into the creek. The Bonneville Unit water would achieve saturation prior to entering the Mapleton-Springville Lateral Pipeline because it would:

- pass through the Sixth Water Power Facility turbines and returning to atmospheric pressure
- drop through a shaft into the Tanner Ridge Tunnel
- drop turbulently through the 190-foot deep vortex shaft after flowing through the Diamond Fork Power Facility and Diamond Fork Flow Control Structure
- flow through the Upper Diamond Fork Tunnel under gravity conditions exposed to atmospheric pressure, and
- flow through the Spanish Fork Flow Control Structure and return to atmospheric pressure

**Table 4-67**
**Average Monthly Dissolved Oxygen Concentrations in Hobble Creek Under the Bonneville Unit Water Alternative (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Baseline Dissolved Oxygen Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 11.1 | 11.4 | 10.7 | 8.9 | +25 |
| Feb | 11.1 | 11.3 | 10.9 | 9.4 | +18 |
| Mar | 10.9 | 12.1 | 10.4 | 9.4 | +16 |
| Apr | 11.5 | 12.0 | 9.9 | 9.4 | +22 |
| May | 9.1 | 11.9 | 8.1 | 8.1 | +12 |
| Jun | 9.7 | 11.9 | 8.7 | 7.7 | +26 |
| Jul | 10.8 | 10.9 | 10.4 | 9.1 | +19 |
| Aug | 10.9 | 10.9 | 10.9 | 7.9 | +38.0 |
| Sep | 10.9 | 10.9 | 10.9 | 8.0 | +36 |
| Oct | 10.8 | 10.9 | 10.8 | 8.9 | +21 |
| Nov | 10.9 | 11.0 | 10.7 | 10.0 | +9.0 |
| Dec | 10.8 | 10.9 | 10.4 | 9.9 | +9.1 |
| **Flow-Weighted Average** | **10.5** | **11.5** | **9.8** | **8.8** | **+19** |

**4.4.2.1.2 Water Temperature.** Hobble Creek water temperatures would decrease from historic baseline conditions during the spring and summer months, providing cooling of the stream water, and would increase during the late fall and winter months, providing some warming of the stream water (Table 4-68). These water quality conditions would be beneficial to fish and other aquatic resources that occur in Hobble Creek. None of the temperature changes would result in significant impacts on water temperature in Hobble Creek from the Mapleton Lateral to Utah Lake, except during July, August and September when there would be a significant beneficial impact of decreasing the water temperature from a high of 23.2 to a low of 11.4 °C during those months. The flow-weighted average temperature would decrease in Hobble Creek 12.3 percent under the Bonneville Unit Water Alternative.

**Table 4-68**
**Average Monthly Water Temperatures in Hobble Creek**
**Under the Bonneville Unit Water Alternative (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Baseline Water Temperature | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 4.8 | 5.0 | 4.8 | 4.2 | +14 |
| Feb | 6.7 | 6.4 | 6.7 | 7.8 | -14 |
| Mar | 7.6 | 5.4 | 7.6 | 9.0 | -16 |
| Apr | 9.1 | 5.8 | 9.1 | 9.9 | -8.1 |
| May | 14.6 | 8.1 | 14.6 | 14.6 | 0 |
| Jun | 11.8 | 8.1 | 11.8 | 12.9 | -8.5 |
| Jul | 14.4 | 11.4 | 14.4 | 23.2 | -38 |
| Aug | 11.4 | 11.4 | 11.4 | 19.7 | -42 |
| Sep | 11.4 | 11.4 | 11.4 | 17.9 | -36 |
| Oct | 11.4 | 11.4 | 11.4 | 10.9 | +4.6 |
| Nov | 8.1 | 8.8 | 8.1 | 6.3 | +29 |
| Dec | 6.4 | 8.2 | 6.4 | 4.7 | +36 |
| **Flow-Weighted Average** | **9.3** | **7.9** | **10.1** | **10.6** | **-12** |

**4.4.2.1.3 Total Phosphorus.** Hobble Creek TP concentrations would increase or remain unchanged from histori baseline conditions (Table 4-69). Total phosphorus concentrations in the Hobble Creek would rise above the historic baseline in July and remain above that level through October because of periodic high TP background concentrations in Strawberry Reservoir, which would be one source of Hobble Creek water. During the summer months when there is little or no Hobble Creek flow, the mass balance model predicts that TP concentrations would be nearly equal or equal to TP concentrations in the Sixth Water Aqueduct outlet, which sometimes is above the 0.05 mg/L pollution indicator level. The increased TP concentrations in Hobble Creek during the summer months would not be a significant impact because stream flows would occur during months when no stream flow previously occurred. The flow-weighted average TP concentration in Hobble Creek would increase by 0.01 mg/L under the Bonneville Unit Water Alternative. However, this concentration would not exceed the pollution indicator level for Utah streams and rivers.

**Table 4-69**
**Average Monthly Total Phosphorus Concentrations in Hobble Creek Under the Bonneville Unit Water Alternative (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Baseline Total Phosphorus Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.05 | 0.05 | 0.05 | 0.04 | +25 |
| Feb | 0.04 | 0.05 | 0.04 | 0.03 | +33 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| May | 0.06 | 0.05 | 0.06 | 0.06 | 0 |
| Jun | 0.04 | 0.05 | 0.04 | 0.04 | 0 |
| Jul | 0.06 | 0.07 | 0.06 | 0.02 | +200 |
| Aug | 0.07 | 0.07 | 0.07 | 0.01 | +600 |
| Sep | 0.12 | 0.12 | 0.12 | 0.05 | +140 |
| Oct | 0.12 | 0.12 | 0.11 | 0.03 | +300 |
| Nov | 0.05 | 0.05 | 0.04 | 0.03 | +67 |
| Dec | 0.04 | 0.04 | 0.03 | 0.01 | +300 |
| **Flow-Weighted Average** | **0.05** | **0.05** | **0.05** | **0.04** | **+25** |

**4.2.1.4 Total Dissolved Solids.** Hobble Creek TDS concentrations would decrease in every month from historic baseline conditions except May, when there would be no change (Table 4-70). The Bonneville Unit water discharged from the Mapleton-Springville Lateral Pipeline would dilute the Hobble Creek water and lower the TDS concentrations. The flow-weighted average TDS concentration would decrease in Hobble Creek under the Bonneville Unit Water Alternative.

**Table 4-70**
**Average Monthly Total Dissolved Solids Concentrations in Hobble Creek Under the Bonneville Unit Water Alternative (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Baseline Total Dissolved Solids Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 236 | 209 | 236 | 316 | -25 |
| Feb | 237 | 220 | 237 | 310 | -24 |
| Mar | 247 | 207 | 247 | 271 | -8.9 |
| Apr | 269 | 213 | 269 | 282 | -4.6 |
| May | 295 | 154 | 295 | 295 | 0 |
| Jun | 228 | 154 | 228 | 251 | -9.2 |
| Jul | 224 | 161 | 224 | 403 | -44 |
| Aug | 161 | 161 | 161 | 346 | -54 |
| Sep | 156 | 156 | 156 | 333 | -53 |
| Oct | 164 | 156 | 164 | 346 | -53 |
| Nov | 243 | 207 | 243 | 337 | -28 |
| Dec | 267 | 208 | 267 | 321 | -17 |
| **Flow-Weighted Average** | **219** | **187** | **248** | **293** | **-25** |

**4.4.2.1.5 pH.** Hobble Creek pH would decrease or remain unchanged from historic baseline conditions during every month (Table 4-71). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Bonneville Unit Water Alternative. The flow-weighted average pH would decrease in Hobble Creek under the Bonneville Unit Water Alternative.

**Table 4-71**
**Average Monthly pH in Hobble Creek Under the Bonneville Unit Water Alternative (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Baseline pH | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Feb | 8.0 | 8.1 | 8.1 | 8.0 | 0 |
| Mar | 8.2 | 8.2 | 8.2 | 8.3 | -1.2 |
| Apr | 8.0 | 8.1 | 8.0 | 8.0 | 0 |
| May | 8.2 | 8.0 | 8.2 | 8.2 | 0 |
| Jun | 8.1 | 8.0 | 8.1 | 8.1 | 0 |
| Jul | 7.9 | 7.9 | 7.9 | 8.0 | -1.3 |
| Aug | 7.9 | 7.9 | 7.9 | 7.9 | 0 |
| Sep | 7.8 | 7.8 | 7.8 | 8.0 | -2.5 |
| Oct | 7.8 | 7.8 | 7.8 | 8.0 | -2.5 |
| Nov | 8.2 | 8.2 | 8.2 | 8.3 | -1.2 |
| Dec | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.0** | **8.1** | **8.2** | **-1.2** |

**4.4.2.1.6 Nitrate Plus Nitrite as Nitrogen.** Hobble Creek nitrate plus nitrite as nitrogen concentrations would decrease from historic baseline conditions during every month except April and May when there would be no change (Table 4-72). The Bonneville Unit water discharged from the Mapleton-Springville Lateral Pipeline would dilute the Hobble Creek water and lower the nitrate plus nitrite concentrations. The flow-weighted average nitrate plus nitrite concentration would decrease by 0.3 mg/L under the Bonneville Unit Water Alternative.

**Table 4-72**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in Hobble Creek Under the Bonneville Unit Water Alternative (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Baseline Nitrate +Nitrite as N Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.7 | 0.7 | 0.7 | 1.0 | -30 |
| Feb | 0.8 | 0.7 | 0.8 | 1.1 | -27 |
| Mar | 0.6 | 0.4 | 0.6 | 0.8 | -25 |
| Apr | 0.5 | 0.3 | 0.5 | 0.5 | 0 |
| May | 0.4 | 0.1 | 0.4 | 0.4 | 0 |
| Jun | 0.4 | 0.1 | 0.4 | 0.5 | -20 |
| Jul | 0.5 | 0.2 | 0.5 | 1.4 | -64 |
| Aug | 0.2 | 0.2 | 0.2 | 1.8 | -89 |
| Sep | 0.1 | 0.1 | 0.1 | 1.0 | -90 |
| Oct | 0.2 | 0.1 | 0.2 | 1.7 | -88 |
| Nov | 0.8 | 0.6 | 0.8 | 1.3 | -39 |
| Dec | 0.8 | 0.6 | 0.8 | 1.1 | -27 |
| **Flow-Weighted Average** | **0.4** | **0.4** | **0.5** | **0.7** | **-43** |

**4.4.2.1.7 Ammonia as Nitrogen.** Hobble Creek ammonia as nitrogen concentrations would decrease in some months, increase in other months, or remain unchanged from historic baseline conditions (Table 4-73). Increased ammonia concentrations during the months of July, September, and October would be caused by higher ammonia concentrations in the Bonneville Unit water discharged from the Mapleton-Springville Lateral Pipeline. These increased ammonia concentrations would not be significant impacts on Hobble Creek water quality because the concentrations would be far below the acute and chronic ammonia water quality standards as calculated using pH and water temperature. The flow-weighted average ammonia as nitrogen concentration would decrease in Hobble Creek under the Bonneville Unit Water Alternative.

**Table 4-73**
**Average Monthly Ammonia as Nitrogen Concentrations in Hobble Creek Under the Bonneville Unit Water Alternative (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Baseline Ammonia as N Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.03 | 0.04 | -25 |
| Feb | 0.04 | 0.05 | 0.04 | 0.04 | 0 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.04 | 0.03 | 0.04 | 0.12 | -67 |
| May | 0.04 | 0.03 | 0.04 | 0.04 | 0 |
| Jun | 0.03 | 0.03 | 0.03 | 0.04 | -25.0 |
| Jul | 0.05 | 0.03 | 0.05 | 0.03 | +67 |
| Aug | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Sep | 0.08 | 0.08 | 0.08 | 0.03 | +167 |
| Oct | 0.08 | 0.08 | 0.08 | 0.03 | +167 |
| Nov | 0.03 | 0.03 | 0.03 | 0.07 | -57 |
| Dec | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| **Flow-Weighted Average** | **0.04** | **0.04** | **0.04** | **0.05** | **-20** |

**4.4.2.1.8 Selenium.** Hobble Creek selenium concentrations would decrease or remain unchanged from historic baseline conditions (Table 4-74). Many of the predicted selenium values would be slightly above or below the analytical detection limit for selenium. The Bonneville Unit Water Alternative would discharge Bonneville Unit water from the Mapleton-Springville Lateral Pipeline that would dilute any selenium in Hobble Creek. There would be no significant impacts on selenium in Hobble Creek under the Bonneville Unit Water Alternative. The flow-weighted average selenium concentration would decrease in Hobble Creek under the Bonneville Unit Water Alternative.

**Table 4-74**
**Average Monthly Selenium Concentrations in Hobble Creek Under the Bonneville Unit Water Alternative (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Baseline Selenium Concentration | Average Change from Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.0 | 0.8 | 1.0 | 1.4 | -29 |
| Feb | 1.4 | 1.2 | 1.4 | 2.2 | -36 |
| Mar | 1.4 | 0.9 | 1.4 | 1.8 | -22 |
| Apr | 1.0 | 0.7 | 1.0 | 1.1 | -9.1 |
| May | 1.0 | 0.5 | 1.0 | 1.0 | 0 |
| Jun | 2.0 | 0.5 | 2.0 | 2.5 | -20 |
| Jul | 0.7 | 0.5 | 0.7 | 1.2 | -42 |
| Aug | 0.5 | 0.5 | 0.5 | 1.5 | -67 |
| Sep | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| Oct | 0.5 | 0.5 | 0.5 | 1.1 | -55 |
| Nov | 1.1 | 0.9 | 1.1 | 1.8 | -39 |
| Dec | 1.8 | 1.1 | 1.8 | 2.5 | -28 |
| **Flow-Weighted Average** | **1.0** | **0.7** | **1.2** | **1.6** | **-38** |

**4.4.2.1.9 Summary of Impacts on Hobble Creek Water Quality.** Hobble Creek annual average water quality conditions would improve or remain unchanged from historic baseline conditions, except for dissolved oxygen and total phosphorus concentrations at the discharge point from the Mapleton-Springville Lateral Pipeline into Hobble Creek. Table 4-75 summarizes the annual average water quality conditions in Hobble Creek under the Bonneville Unit Water Alternative and shows the change from historic baseline conditions, which would be the same as the change from simulated baseline conditions.

During the summer months when there is little or no Hobble Creek flow, the mass balance model predicts that TI concentrations would be nearly equal or equal to TP concentrations in the Sixth Water Aqueduct outlet, which sometimes is above the 0.05 mg/L pollution indicator. The increased TP concentrations in Hobble Creek during the summer months would not be a significant impact because stream flows would occur during months when no stream flow previously occurred.

**Table 4-75**
**Hobble Creek Annual Average Water Quality**
**Under the Bonneville Unit Water Alternative Compared to Historic Baseline**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -74 | -0.1 | 1.7 | -1.3 | -0.26 | -0.01 | 0.01 | -0.6 |
| | Value | 219 | 8.1 | 10.5 | 9.3 | 0.44 | 0.04 | 0.05 | 1.0 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -117 | -0.1 | 2.7 | 0.6 | -0.58 | -0.01 | 0.02 | -1.0 |
| | Value | 187 | 8.0 | 11.5 | 7.9 | 0.35 | 0.04 | 0.05 | 0.7 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| Flow-Weighted Average | Change[1] | -46 | 0.0 | 1.0 | -0.7 | -0.15 | -0.01 | 0.01 | -0.4 |
| | Value | 248 | 8.1 | 9.8 | 10.1 | 0.54 | 0.04 | 0.05 | 1.2 |
| **Maximum Monthly Levels** | | | | | | | | | |
| Flow-Weighted Average | Change[2] | -145 | -0.1 | 1.4 | -10.3 | -1.03 | -0.04 | 0.06 | -0.9 |
| | Value | 258 | 8.2 | 9.1[a] | 12.9 | 0.77 | 0.08 | 0.12 | 1.6 |

**Notes:**
[1] Change from Baseline Annual Average
[2] Change from Baseline Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

### 4.4.2.2 *Spanish Fork River From Diamond Fork Creek to Utah Lake*

The following subsections present the impact analysis results for water quality conditions in the Spanish Fork River from Diamond Fork Creek to Utah Lake under the Bonneville Unit Water Alternative. Each of the following subsections present the changes from historic baseline conditions and the changes from simulated baseline conditions separately. The upper Spanish Fork River is represented by the reach from the Diamond Fork Creek confluence to Moark Junction. The lower Spanish Fork River is represented by the reach from Moark Junction to Utah Lake.

**4.4.2.2.1 Dissolved Oxygen.** Upper Spanish Fork River dissolved oxygen concentrations would increase from historic baseline conditions in all months except May, June, November and December. (Table 4-76). The decrease in dissolved oxygen impacts during these months would not be significant because the average monthly dissolved oxygen concentration would not be below the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would increase slightly in the upper Spanish Fork River under the Bonneville Unit Water Alternative compared to historic baseline conditions.

**Table 4-76**
**Average Monthly Dissolved Oxygen Concentrations in Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Historic Baseline Dissolved Oxygen Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.4 | 12.4 | 12.3 | 12.0 | +3.3 |
| Feb | 12.0 | 12.0 | 12.0 | 11.2 | +7.1 |
| Mar | 12.0 | 12.5 | 11.9 | 11.2 | +7.1 |
| Apr | 11.1 | 11.5 | 11.0 | 10.2 | +8.8 |
| May | 9.8 | 11.0 | 9.8 | 10.0 | -2.0 |
| Jun | 10.4 | 11.4 | 10.0 | 10.7 | -2.8 |
| Jul | 14.0 | 12.8 | 14.5 | 13.1 | +6.9 |
| Aug | 14.1 | 13.2 | 14.3 | 13.2 | +6.8 |
| Sep | 15.9 | 14.8 | 14.9 | 14.0 | +13 |
| Oct | 10.0 | 10.4 | 10.1 | 9.1 | +9.9 |
| Nov | 11.5 | 11.5 | 11.5 | 11.6 | -0.9 |
| Dec | 11.9 | 11.8 | 12.1 | 12.4 | -4.0 |
| **Flow-Weighted Average** | **11.9** | **12.0** | **11.9** | **11.7** | **+1.7** |

Dissolved oxygen concentrations in the lower Spanish Fork River would increase from baseline conditions in all months except May, June, August, November and December (Table 4-77). The dissolved oxygen impacts during those months would not be significant because the dissolved oxygen concentration would not fall below the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would increase by 11 percent in the lower Spanish Fork River under the Bonneville Unit Water Alternative compared to historic baseline conditions.

**Table 4-77**
**Average Monthly Dissolved Oxygen Concentrations in Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Historic Baseline Dissolved Oxygen Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.7 | 12.7 | 12.7 | 12.6 | +0.8 |
| Feb | 11.9 | 12.0 | 11.9 | 11.0 | +8.2 |
| Mar | 11.8 | 12.4 | 11.7 | 11.0 | +7.3 |
| Apr | 9.9 | 10.4 | 9.7 | 8.4 | +17 |
| May | 7.8 | 7.6 | 7.8 | 8.1 | -3.7 |
| Jun | 7.8 | 6.6 | 7.0 | 8.4 | -7.1 |
| Jul | 11.7 | 12.4 | 11.7 | 11.4 | +2.6 |
| Aug | 10.7 | 10.7 | 10.7 | 10.8 | -0.9 |
| Sep | 14.6 | 13.7 | 13.5 | 12.9 | +13 |
| Oct | 10.2 | 10.5 | 10.3 | 9.5 | +7.4 |
| Nov | 11.7 | 11.6 | 11.7 | 12.0 | -2.5 |
| Dec | 12.0 | 11.9 | 12.2 | 12.7 | -5.5 |
| **Flow-Weighted Average** | **11.0** | **12.0** | **11.0** | **10.3** | **+6.8** |

Dissolved oxygen concentrations in the upper Spanish Fork River would increase from simulated baseline conditions in all months except April through June and December (Table 4-78). The dissolved oxygen impacts during these months would not be significant because the oxygen concentration would be above the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would increase slightly in the upper Spanish Fork River under the Bonneville Unit Water Alternative compared to simulated baseline conditions.

**Table 4-78**
**Average Monthly Dissolved Oxygen Concentrations in Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Simulated Baseline Dissolved Oxygen Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.4 | 12.4 | 12.3 | 12.3 | +0.8 |
| Feb | 12.0 | 12.0 | 12.0 | 11.8 | +1.7 |
| Mar | 12.0 | 12.5 | 11.9 | 11.9 | +0.8 |
| Apr | 11.1 | 11.5 | 11.0 | 11.2 | -0.9 |
| May | 9.8 | 11.0 | 9.8 | 10.4 | -5.8 |
| Jun | 10.4 | 11.4 | 10.0 | 10.9 | -4.6 |
| Jul | 14.0 | 12.8 | 14.5 | 12.9 | +8.5 |
| Aug | 14.1 | 13.2 | 14.3 | 13.0 | +8.5 |
| Sep | 15.9 | 14.8 | 14.9 | 13.8 | +15 |
| Oct | 10.0 | 10.4 | 10.1 | 9.8 | +2.0 |
| Nov | 11.5 | 11.5 | 11.5 | 11.5 | 0.0 |
| Dec | 11.9 | 11.8 | 12.1 | 12.0 | -0.8 |
| **Flow-Weighted Average** | **11.9** | **12.0** | **11.9** | **11.8** | **+0.8** |

Dissolved oxygen concentrations in the lower Spanish Fork River would increase from simulated baseline conditions in all months except April through June and December (Table 4-79). The dissolved oxygen impacts during those months would not be significant because the average monthly dissolved oxygen concentration would remain above the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would increase by 10 percent in the lower Spanish Fork River under the Bonneville Unit Water Alternative compared to simulated baseline conditions.

**Table 4-79**
**Average Monthly Dissolved Oxygen Concentrations in Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Simulated Baseline Dissolved Oxygen Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.7 | 12.7 | 12.7 | 12.7 | 0.0 |
| Feb | 11.9 | 12.0 | 11.9 | 11.7 | +1.7 |
| Mar | 11.8 | 12.4 | 11.7 | 11.7 | +0.9 |
| Apr | 9.9 | 10.4 | 9.7 | 10.1 | -2.0 |
| May | 7.8 | 7.6 | 7.8 | 9.0 | -13 |
| Jun | 7.8 | 6.6 | 7.0 | 9.4 | -17 |
| Jul | 11.7 | 12.4 | 11.7 | 11.3 | +3.5 |
| Aug | 10.7 | 10.7 | 10.7 | 10.8 | -0.9 |
| Sep | 14.6 | 13.7 | 13.5 | 12.8 | +14 |
| Oct | 10.2 | 10.5 | 10.3 | 10.0 | +2.0 |
| Nov | 11.7 | 11.6 | 11.7 | 11.7 | 0.0 |
| Dec | 12.0 | 11.9 | 12.2 | 12.2 | -1.6 |
| **Flow-Weighted Average** | **11.0** | **12.0** | **11.0** | **10.8** | **+1.9** |

**4.4.2.2.2 Water Temperature.** Water temperatures in the upper Spanish Fork River would increase from historic baseline conditions except in March and April (Table 4-80). None of the temperature increases would result in significant impacts on water temperature in the upper Spanish Fork River. The flow-weighted average temperature would decrease by 0.8 degree C in the upper Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-80**
**Average Monthly Water Temperatures in Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Historic Baseline Water Temperature | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 4.7 | 4.9 | 4.7 | 4.0 | +18 |
| Feb | 5.0 | 5.1 | 5.0 | 4.5 | +11 |
| Mar | 5.2 | 4.6 | 5.2 | 6.0 | -13 |
| Apr | 7.6 | 7.0 | 7.9 | 9.4 | -19 |
| May | 10.8 | 9.2 | 10.8 | 10.6 | +1.9 |
| Jun | 12.3 | 9.5 | 13.2 | 11.3 | +8.8 |
| Jul | 16.1 | 14.2 | 16.8 | 14.7 | +9.5 |
| Aug | 15.8 | 14.5 | 16.0 | 14.5 | +9.0 |
| Sep | 12.2 | 12.0 | 12.1 | 11.9 | +2.5 |
| Oct | 10.4 | 10.8 | 10.4 | 9.4 | +11 |
| Nov | 7.8 | 8.3 | 7.7 | 4.6 | +70 |
| Dec | 6.7 | 7.6 | 5.6 | 3.5 | +91 |
| **Flow-Weighted Average** | **9.8** | **8.7** | **9.9** | **10.6** | **-7.5** |

Water temperatures in the lower Spanish Fork River would increase from historic baseline conditions, except during March and April when the temperature would decrease (Table 4-81). None of the temperature increases would result in significant impacts on water temperature for the warmwater game fishery in the lower Spanish Fork River. The flow-weighted average temperature would decrease 1.6 degrees C in the lower Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-81**
**Average Monthly Water Temperatures in Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Historic Baseline Water Temperature | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 3.9 | 4.2 | 3.9 | 2.4 | +63 |
| Feb | 5.1 | 5.2 | 5.1 | 4.8 | +6.3 |
| Mar | 5.7 | 5.0 | 5.7 | 6.7 | -15 |
| Apr | 9.1 | 8.3 | 9.5 | 11.5 | -21 |
| May | 14.2 | 14.5 | 14.3 | 13.7 | +3.6 |
| Jun | 21.1 | 25.0 | 23.8 | 18.0 | +17 |
| Jul | 19.1 | 25.0 | 18.4 | 15.8 | +21 |
| Aug | 17.8 | 16.8 | 17.2 | 15.8 | +13 |
| Sep | 18.0 | 16.4 | 16.0 | 15.1 | +19 |
| Oct | 11.1 | 11.2 | 11.1 | 10.7 | +3.7 |
| Nov | 7.8 | 8.3 | 7.8 | 4.9 | +59 |
| Dec | 6.9 | 7.6 | 6.0 | 4.1 | +68 |
| **Flow-Weighted Average** | **8.5** | **7.2** | **9.6** | **10.1** | **-16** |

Water temperatures in the upper Spanish Fork River would increase in every month except March from simulated baseline conditions (Table 4-82). None of the temperature increases would result in significant impacts on water temperature in the upper Spanish Fork River. The flow-weighted average temperature would decrease 0.1 degree C in the upper Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-82**
**Average Monthly Water Temperatures in Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Simulated Baseline Water Temperature | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 4.7 | 4.9 | 4.7 | 4.6 | +2.2 |
| Feb | 5.0 | 5.1 | 5.0 | 4.9 | +2.0 |
| Mar | 5.2 | 4.6 | 5.2 | 5.3 | -1.9 |
| Apr | 7.6 | 7.0 | 7.9 | 7.5 | +1.3 |
| May | 10.8 | 9.2 | 10.8 | 10.0 | +8.0 |
| Jun | 12.3 | 9.5 | 13.2 | 10.7 | +15 |
| Jul | 16.1 | 14.2 | 16.8 | 14.4 | +12 |
| Aug | 15.8 | 14.5 | 16.0 | 14.2 | +11 |
| Sep | 12.2 | 12.0 | 12.1 | 11.9 | +2.5 |
| Oct | 10.4 | 10.8 | 10.4 | 10.1 | +3.0 |
| Nov | 7.8 | 8.3 | 7.7 | 7.1 | +9.9 |
| Dec | 6.7 | 7.6 | 5.6 | 5.9 | +14 |
| **Flow-Weighted Average** | **9.8** | **8.7** | **9.9** | **9.9** | **-1.0** |

Water temperatures in the lower Spanish Fork River would increase in every month except February and March from simulated baseline conditions (Table 4-83). None of the temperature increases would result in significant impacts on water temperature for the warmwater game fishery in the lower Spanish Fork River. The flow-weighted average temperature would decrease 1.0 degree C from simulated baseline conditions in the lower Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-83**
**Average Monthly Water Temperatures in Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Simulated Baseline Water Temperature | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 3.9 | 4.2 | 3.9 | 3.7 | +5.4 |
| Feb | 5.1 | 5.2 | 5.1 | 5.1 | 0 |
| Mar | 5.7 | 5.0 | 5.7 | 5.8 | -1.7 |
| Apr | 9.1 | 8.3 | 9.5 | 8.9 | +2.2 |
| May | 14.2 | 14.5 | 14.3 | 12.5 | +14 |
| Jun | 21.1 | 25.0 | 23.8 | 16.2 | +18 |
| Jul | 19.1 | 25.0 | 18.4 | 15.3 | +25 |
| Aug | 17.8 | 16.8 | 17.2 | 15.2 | +17 |
| Sep | 18.0 | 16.4 | 16.0 | 14.8 | +22 |
| Oct | 11.1 | 11.2 | 11.1 | 11.0 | +1.0 |
| Nov | 7.8 | 8.3 | 7.8 | 7.2 | +8.3 |
| Dec | 6.9 | 7.6 | 6.0 | 6.1 | +13 |
| **Flow-Weighted Average** | **8.5** | **7.2** | **9.6** | **9.5** | **-11** |

**4.4.2.2.3 Total Phosphorus.** Total phosphorus concentrations in upper Spanish Fork River would increase from historic baseline conditions except for March and April (Table 4-84). The TP concentrations would increase from historic baseline concentrations exceeding the pollution indicator level (0.05 mg/L) during the 6 months from May through October (range 0.09 to 0.32 mg/L). Total phosphorus concentrations in the Spanish Fork River would rise above the historic baseline because of periodic high TP background concentrations in Strawberry Reservoir, which is one source of Spanish Fork River water. The flow-weighted average TP concentration in the upper Spanish Fork River would decrease by 0.01 mg/L under the Bonneville Unit Water Alternative, with the historic baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-84**
**Average Monthly Total Phosphorus Concentrations in Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Historic Baseline Total Phosphorus Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.04 | 0.04 | 0.04 | 0.02 | +100 |
| Feb | 0.05 | 0.05 | 0.05 | 0.04 | +25 |
| Mar | 0.03 | 0.03 | 0.03 | 0.04 | -25 |
| Apr | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| May | 0.32 | 0.15 | 0.32 | 0.30 | +6.7 |
| Jun | 0.13 | 0.07 | 0.14 | 0.11 | +18 |
| Jul | 0.32 | 0.22 | 0.35 | 0.24 | +33 |
| Aug | 0.12 | 0.11 | 0.12 | 0.11 | +9.1 |
| Sep | 0.13 | 0.12 | 0.12 | 0.12 | +8.3 |
| Oct | 0.09 | 0.10 | 0.09 | 0.06 | +50 |
| Nov | 0.05 | 0.05 | 0.05 | 0.03 | +68 |
| Dec | 0.04 | 0.05 | 0.03 | 0.02 | +100 |
| **Flow-Weighted Average** | **0.13** | **0.08** | **0.14** | **0.14** | **-7.1** |

Total phosphorus concentrations in the lower Spanish Fork River would increase or remain unchanged (May) from historic baseline conditions, except for decreased concentrations during the months of February through April, August, and September (Table 4-85). The TP concentrations would increase 0.01 mg/L from a historic baseline concentration at the pollution indicator level (0.05 mg/L) only during the month of January. All the other increases would be during months in which the historic baseline values already exceeded the pollution indicator level. Total phosphorus concentrations in the Spanish Fork River would rise above the historic baseline because of periodic high TP background concentrations in Strawberry Reservoir, which is one source of Spanish Fork River water. The flow-weighted average TP concentration in the lower Spanish Fork River would decrease under the Bonneville Unit Water Alternative, with the historic baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-85**
**Average Monthly Total Phosphorus Concentrations in Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Historic Baseline Total Phosphorus Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.06 | 0.06 | 0.06 | 0.05 | +20 |
| Feb | 0.08 | 0.08 | 0.08 | 0.10 | -20 |
| Mar | 0.06 | 0.05 | 0.06 | 0.07 | -14 |
| Apr | 0.14 | 0.12 | 0.14 | 0.18 | -22 |
| May | 0.10 | 0.10 | 0.10 | 0.10 | 0 |
| Jun | 0.09 | 0.11 | 0.11 | 0.08 | +13 |
| Jul | 0.10 | 0.12 | 0.09 | 0.08 | +25 |
| Aug | 0.04 | 0.04 | 0.04 | 0.05 | -20 |
| Sep | 0.07 | 0.09 | 0.09 | 0.09 | -22 |
| Oct | 0.10 | 0.11 | 0.10 | 0.08 | +25 |
| Nov | 0.05 | 0.05 | 0.05 | 0.04 | +25 |
| Dec | 0.05 | 0.05 | 0.04 | 0.04 | +25 |
| **Flow-Weighted Average** | **0.08** | **0.07** | **0.08** | **0.09** | **-11** |

Total phosphorus concentrations in upper Spanish Fork River would increase or remain unchanged from simulated baseline conditions (Table 4-86). The TP concentrations would increase from simulated baseline concentrations already exceeding the pollution indicator level (0.05 mg/L) during the 6 months from May through October. Total phosphorus concentrations in the Spanish Fork River would rise above the simulated baseline because of periodic high TP background concentrations in Strawberry Reservoir, which is one source of Spanish Fork River water. The flow-weighted average TP concentration in the lower Spanish Fork River would increase by 0.01 mg/L under the Bonneville Unit Water Alternative, with the simulated baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-86**
**Average Monthly Total Phosphorus Concentrations in Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Simulated Baseline Total Phosphorus Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| Feb | 0.05 | 0.05 | 0.05 | 0.05 | 0 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| May | 0.32 | 0.15 | 0.32 | 0.24 | +33 |
| Jun | 0.13 | 0.07 | 0.14 | 0.10 | +30 |
| Jul | 0.32 | 0.22 | 0.35 | 0.23 | +39 |
| Aug | 0.12 | 0.11 | 0.12 | 0.10 | +20 |
| Sep | 0.13 | 0.12 | 0.12 | 0.12 | +8.3 |
| Oct | 0.09 | 0.10 | 0.09 | 0.08 | +13 |
| Nov | 0.05 | 0.05 | 0.05 | 0.04 | +25 |
| Dec | 0.04 | 0.05 | 0.03 | 0.04 | 0 |
| **Flow-Weighted Average** | **0.13** | **0.08** | **0.14** | **0.12** | **8.3** |

Total phosphorus concentrations in the lower Spanish Fork River would increase or remain unchanged from simulated baseline conditions, except for decreased concentrations during the months of January, August and September (Table 4-87). The TP concentrations would increase from simulated baseline concentrations already exceeding the pollution indicator levels during the 4 months from April through July. Total phosphorus concentrations in the Spanish Fork River would rise above the simulated baseline because of periodic high TP background concentrations in Strawberry Reservoir, which is one source of Spanish Fork River water. The flow-weighted average TP concentration in the lower Spanish Fork River would remain unchanged under the Bonneville Unit Water Alternative, with the simulated baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-87**
**Average Monthly Total Phosphorus Concentrations in Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Simulated Baseline Total Phosphorus Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.06 | 0.06 | 0.06 | 0.06 | 0 |
| Feb | 0.08 | 0.08 | 0.08 | 0.09 | -11 |
| Mar | 0.06 | 0.05 | 0.06 | 0.06 | 0 |
| Apr | 0.14 | 0.12 | 0.14 | 0.13 | +7.7 |
| May | 0.10 | 0.10 | 0.10 | 0.08 | 25 |
| Jun | 0.09 | 0.11 | 0.11 | 0.08 | +13 |
| Jul | 0.10 | 0.12 | 0.09 | 0.08 | +25 |
| Aug | 0.04 | 0.04 | 0.04 | 0.05 | -20 |
| Sep | 0.07 | 0.09 | 0.09 | 0.10 | -30 |
| Oct | 0.10 | 0.11 | 0.10 | 0.09 | +11 |
| Nov | 0.05 | 0.05 | 0.05 | 0.05 | 0 |
| Dec | 0.05 | 0.05 | 0.04 | 0.04 | +25 |
| **Flow-Weighted Average** | **0.08** | **0.07** | **0.08** | **0.08** | **0** |

**4.4.2.2.4 Total Dissolved Solids.** Total dissolved solids concentrations in the upper Spanish Fork River would decrease from October through April and increase in concentrations from May through September from historic baseline conditions (Table 4-88). The flow-weighted average TDS concentration would decrease 4.6 percent in the upper Spanish Fork River under the Bonneville Unit Water Alternative, however, all concentrations would be below the agricultural use criterion of 1,200 mg/L.

**Table 4-88**
**Average Monthly Total Dissolved Solids Concentrations in Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Historic Baseline Total Dissolved Solids Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 308 | 267 | 315 | 468 | -34 |
| Feb | 283 | 262 | 283 | 431 | -34 |
| Mar | 343 | 265 | 349 | 447 | -23 |
| Apr | 323 | 299 | 335 | 390 | -17 |
| May | 327 | 223 | 330 | 315 | +3.8 |
| Jun | 316 | 208 | 352 | 277 | +14 |
| Jul | 271 | 228 | 288 | 239 | +13 |
| Aug | 265 | 235 | 271 | 235 | +13 |
| Sep | 347 | 306 | 309 | 276 | +26 |
| Oct | 304 | 250 | 302 | 466 | -35 |
| Nov | 281 | 249 | 287 | 476 | -41 |
| Dec | 336 | 283 | 401 | 527 | -36 |
| **Flow-Weighted Average** | **309** | **256** | **320** | **324** | **-4.6** |

Total dissolved solids concentrations in the lower Spanish Fork River would increase from May through September and decrease from October through April from historic baseline (Table 4-89). The flow-weighted average TDS concentration would decrease 22.7 percent from historic baseline in the lower Spanish Fork River under the Bonneville Unit Water Alternative, however, all concentrations would be below the agricultural use criterion of 1,200 mg/L.

**Table 4-89**
**Average Monthly Total Dissolved Solids Concentrations in Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Historic Baseline Total Dissolved Solids Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 300 | 270 | 307 | 439 | -32 |
| Feb | 298 | 281 | 298 | 451 | -34 |
| Mar | 334 | 270 | 338 | 426 | -22 |
| Apr | 448 | 417 | 468 | 572 | -22 |
| May | 494 | 511 | 499 | 470 | +5.1 |
| Jun | 665 | 543 | 768 | 543 | +23 |
| Jul | 732 | 489 | 673 | 489 | +50 |
| Aug | 649 | 448 | 586 | 491 | +32 |
| Sep | 589 | 428 | 433 | 397 | +48 |
| Oct | 352 | 278 | 346 | 560 | -37 |
| Nov | 273 | 246 | 279 | 449 | -39 |
| Dec | 310 | 275 | 357 | 460 | -33 |
| **Flow-Weighted Average** | **372** | **293** | **410** | **481** | **-23** |

Total dissolved solids concentrations in the upper Spanish Fork River would increase from April through September and decrease from October through March from simulated baseline conditions (Table 4-90). The flow-weighted average TDS concentration would increase 8.4 percent in the upper Spanish Fork River under the Bonneville Unit Water Alternative, however, all concentrations would be below the agricultural use criterion of 1,200 mg/L.

**Table 4-90**
**Average Monthly Total Dissolved Solids Concentrations in Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Simulated Baseline Total Dissolved Solids Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 308 | 267 | 315 | 330 | -6.7 |
| Feb | 283 | 262 | 283 | 315 | -10 |
| Mar | 343 | 265 | 349 | 658 | -4.2 |
| Apr | 323 | 299 | 335 | 317 | +1.9 |
| May | 327 | 223 | 330 | 378 | +18 |
| Jun | 316 | 208 | 352 | 255 | -24 |
| Jul | 271 | 228 | 288 | 232 | +17 |
| Aug | 265 | 235 | 271 | 228 | +16 |
| Sep | 347 | 306 | 309 | 269 | +29 |
| Oct | 304 | 250 | 302 | 350 | -13 |
| Nov | 281 | 249 | 287 | 323 | -13 |
| Dec | 336 | 283 | 401 | 386 | -13 |
| **Flow-Weighted Average** | **309** | **256** | **320** | **285** | **+8.4** |

Total dissolved solids concentrations in the upper Spanish Fork River would increase from April through September and decrease from October through March from simulated baseline conditions (Table 4-91). The flow-weighted average TDS concentration would decrease 3.9 percent in the lower Spanish Fork River under the Bonneville Unit Water Alternative. All concentrations would be below the agricultural use criterion of 1,200 mg/L.

**Table 4-91**
**Average Monthly Total Dissolved Solids Concentrations in Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Simulated Baseline Total Dissolved Solids Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 300 | 270 | 307 | 320 | -6.3 |
| Feb | 298 | 281 | 298 | 332 | -10 |
| Mar | 334 | 270 | 338 | 347 | -3.7 |
| Apr | 448 | 417 | 468 | 436 | +2.8 |
| May | 494 | 511 | 499 | 399 | +24 |
| Jun | 665 | 543 | 768 | 474 | +40 |
| Jul | 732 | 489 | 673 | 454 | +61 |
| Aug | 649 | 448 | 586 | 452 | +44 |
| Sep | 589 | 428 | 433 | 381 | +55 |
| Oct | 352 | 278 | 346 | 412 | -15 |
| Nov | 273 | 246 | 279 | 311 | -12 |
| Dec | 310 | 275 | 357 | 351 | -12 |
| **Flow-Weighted Average** | **372** | **293** | **410** | **386** | **-3.9** |

**4.4.2.2.5 pH.** The pH levels in the upper Spanish Fork River would decrease, increase or remain unchanged from historic baseline conditions during every month (Table 4-92). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Bonneville Unit Water Alternative. The flow-weighted average pH would remain unchanged in the upper Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-92**
**Average Monthly pH in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Historic Baseline pH | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Feb | 8.1 | 8.1 | 8.1 | 8.2 | -1.2 |
| Mar | 8.0 | 8.1 | 8.0 | 8.0 | 0 |
| Apr | 8.1 | 8.1 | 8.1 | 8.2 | -1.2 |
| May | 8.2 | 8.1 | 8.2 | 8.2 | 0 |
| Jun | 8.2 | 8.1 | 8.2 | 8.1 | +1.2 |
| Jul | 8.1 | 8.0 | 8.1 | 8.0 | +1.3 |
| Aug | 8.2 | 8.1 | 8.2 | 8.1 | +1.2 |
| Sep | 8.2 | 8.1 | 8.1 | 8.1 | +1.2 |
| Oct | 7.9 | 7.9 | 7.9 | 8.0 | -1.3 |
| Nov | 8.1 | 8.1 | 8.1 | 7.9 | +2.5 |
| Dec | 8.3 | 8.3 | 8.3 | 8.4 | -1.2 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

The pH levels in the lower Spanish Fork River would increase, decrease slightly or remain unchanged from historic baseline conditions during every month (Table 4-93). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Bonneville Unit Water Alternative. The flow-weighted average pH would remain unchanged from the historic baseline in the upper Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-93**
**Average Monthly pH in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Historic Baseline pH | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.2 | -1.2 |
| Feb | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Mar | 8.2 | 8.2 | 8.2 | 8.3 | -1.2 |
| Apr | 8.1 | 8.1 | 8.2 | 8.2 | -1.2 |
| May | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Jun | 8.1 | 8.2 | 8.2 | 8.1 | 0 |
| Jul | 8.1 | 8.2 | 8.1 | 8.0 | +1.3 |
| Aug | 8.0 | 8.0 | 8.0 | 8.0 | 0 |
| Sep | 8.2 | 8.1 | 8.1 | 8.1 | +1.2 |
| Oct | 8.0 | 7.9 | 8.0 | 8.2 | -1.4 |
| Nov | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Dec | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

'he pH levels in the upper Spanish Fork River would increase slightly or remain unchanged from simulated baseline conditions during every month (Table 4-94). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Bonneville Unit Water Alternative. The flow-weighted average pH would remain unchanged from the simulated baseline in the upper Spanish Fork River under the Bonneville Unit Alternative.

**Table 4-94**
**Average Monthly pH in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Simulated Baseline pH | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Feb | 8.1 | 8.1 | 8.1 | 8.2 | -1.2 |
| Mar | 8.0 | 8.1 | 8.0 | 8.0 | 0 |
| Apr | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| May | 8.2 | 8.1 | 8.2 | 8.1 | +1.2 |
| Jun | 8.2 | 8.1 | 8.2 | 8.1 | +1.2 |
| Jul | 8.1 | 8.0 | 8.1 | 8.1 | 0 |
| Aug | 8.2 | 8.1 | 8.2 | 8.1 | +1.2 |
| Sep | 8.2 | 8.1 | 8.1 | 8.0 | +2.5 |
| Oct | 7.9 | 7.9 | 7.9 | 7.9 | 0 |
| Nov | 8.1 | 8.1 | 8.1 | 8.0 | +1.3 |
| Dec | 8.3 | 8.3 | 8.3 | 8.3 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

The pH levels in the lower Spanish Fork River would increase slightly or remain unchanged from historic baseline conditions during every month (Table 4-95). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the Bonneville Unit Water Alternative. The flow-weighted average pH would remain unchanged from the historic baseline in the lower Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-95**
**Average Monthly pH in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Simulated Baseline pH | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Feb | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Mar | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Apr | 8.1 | 8.1 | 8.2 | 8.1 | 0 |
| May | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Jun | 8.1 | 8.2 | 8.2 | 8.1 | 0 |
| Jul | 8.1 | 8.2 | 8.1 | 8.0 | +1.3 |
| Aug | 8.0 | 8.0 | 8.0 | 8.0 | 0 |
| Sep | 8.2 | 8.1 | 8.1 | 8.0 | +2.5 |
| Oct | 8.0 | 7.9 | 8.0 | 8.1 | -1.2 |
| Nov | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Dec | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

**4.4.2.2.6 Nitrate Plus Nitrite as Nitrogen.** Nitrate plus nitrite as nitrogen concentrations in the upper Spanish Fork River would either remain unchanged (May, June, September), increase (December through April, July), or decrease (August, October, November) from historic baseline conditions during every month (Table 4-96). The flow-weighted average nitrate plus nitrite concentration would increase 17.6 percent from the historic baseline under the Bonneville Unit Water Alternative. All values would be below the State of Utah pollution indicator level (4 mg/L).

**Table 4-96**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Historic Baseline Nitrate +Nitrite as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.35 | 0.39 | 0.35 | 0.23 | +52 |
| Feb | 0.41 | 0.42 | 0.41 | 0.34 | +21 |
| Mar | 0.14 | 0.16 | 0.14 | 0.12 | +17 |
| Apr | 0.14 | 0.15 | 0.14 | 0.13 | +7.7 |
| May | 0.13 | 0.12 | 0.13 | 0.13 | 0 |
| Jun | 0.13 | 0.12 | 0.14 | 0.13 | 0 |
| Jul | 0.12 | 0.16 | 0.11 | 0.15 | +20 |
| Aug | 0.15 | 0.17 | 0.15 | 0.17 | -12 |
| Sep | 0.15 | 0.15 | 0.15 | 0.15 | 0 |
| Oct | 0.17 | 0.16 | 0.17 | 0.19 | -11 |
| Nov | 0.44 | 0.41 | 0.44 | 0.64 | -46 |
| Dec | 0.24 | 0.26 | 0.21 | 0.16 | +50 |
| **Flow-Weighted Average** | **0.20** | **0.23** | **0.20** | **0.17** | **+18** |

Nitrate plus nitrite as nitrogen concentrations in the lower Spanish Fork River would increase or decrease (only July remains unchanged) from historic baseline conditions (Table 4-97). The flow-weighted average nitrate plus nitrite concentration would decrease 15.9 percent under the Bonneville Unit Water Alternative. All values would be below the State of Utah pollution indicator level (4 mg/L).

**Table 4-97**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Historic Baseline Nitrate +Nitrite as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.43 | 0.44 | 0.43 | 0.40 | +7.5 |
| Feb | 0.45 | 0.46 | 0.45 | 0.43 | +4.7 |
| Mar | 1.54 | 0.94 | 1.57 | 2.37 | -35 |
| Apr | 0.20 | 0.20 | 0.20 | 0.21 | -4.8 |
| May | 1.77 | 1.86 | 1.80 | 1.66 | +6.6 |
| Jun | 0.23 | 0.27 | 0.26 | 0.21 | +9.5 |
| Jul | 0.21 | 0.20 | 0.21 | 0.21 | 0 |
| Aug | 0.12 | 0.13 | 0.13 | 0.15 | -20.0 |
| Sep | 1.02 | 0.80 | 0.75 | 0.63 | +62 |
| Oct | 0.23 | 0.20 | 0.23 | 0.33 | -30 |
| Nov | 0.32 | 0.32 | 0.32 | 0.34 | -5.9 |
| Dec | 0.32 | 0.32 | 0.32 | 0.33 | -3.0 |
| **Flow-Weighted Average** | **0.69** | **0.44** | **0.68** | **0.82** | **-16** |

Nitrate plus nitrite as nitrogen concentrations in the upper Spanish Fork River would either increase, decrease, or remain unchanged from simulated baseline conditions (Table 4-98). The flow-weighted average nitrate plus nitrite concentration would increase 5.2 percent under the Bonneville Unit Water Alternative. All values would be below the State of Utah pollution indicator level (4 mg/L).

**Table 4-98**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Simulated Baseline Nitrate +Nitrite as N Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.35 | 0.39 | 0.35 | 0.34 | +2.9 |
| Feb | 0.41 | 0.42 | 0.41 | 0.40 | +2.5 |
| Mar | 0.14 | 0.16 | 0.14 | 0.14 | 0 |
| Apr | 0.14 | 0.15 | 0.14 | 0.15 | -6.7 |
| May | 0.13 | 0.12 | 0.13 | 0.13 | 0 |
| Jun | 0.13 | 0.12 | 0.14 | 0.13 | 0 |
| Jul | 0.12 | 0.16 | 0.11 | 0.15 | -20 |
| Aug | 0.15 | 0.17 | 0.15 | 0.17 | -12 |
| Sep | 0.15 | 0.15 | 0.15 | 0.15 | 0 |
| Oct | 0.17 | 0.16 | 0.17 | 0.17 | 0 |
| Nov | 0.44 | 0.41 | 0.44 | 0.48 | -8.3 |
| Dec | 0.24 | 0.26 | 0.21 | 0.22 | +9.1 |
| **Flow-Weighted Average** | **0.20** | **0.23** | **0.20** | **0.19** | **+5.2** |

Nitrate plus nitrite as nitrogen concentrations in the lower Spanish Fork River would either increase, decrease or remain unchanged from simulated baseline conditions (Table 4-99). The flow-weighted average nitrate plus nitrite concentration would increase 7.8 percent under the Bonneville Unit Water Alternative. All values would be below the State of Utah pollution indicator level (4 mg/L).

**Table 4-99**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Simulated Baseline Nitrate +Nitrite as N Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.43 | 0.44 | 0.43 | 0.43 | 0 |
| Feb | 0.45 | 0.46 | 0.45 | 0.45 | 0 |
| Mar | 1.54 | 0.94 | 1.57 | 1.66 | -7.2 |
| Apr | 0.20 | 0.20 | 0.20 | 0.20 | 0 |
| May | 1.77 | 1.86 | 1.80 | 1.31 | +35 |
| Jun | 0.23 | 0.27 | 0.26 | 0.19 | +21 |
| Jul | 0.21 | 0.20 | 0.21 | 0.21 | 0 |
| Aug | 0.12 | 0.13 | 0.13 | 0.16 | -25 |
| Sep | 1.02 | 0.80 | 0.75 | 0.60 | +70 |
| Oct | 0.23 | 0.20 | 0.23 | 0.26 | -12 |
| Nov | 0.32 | 0.32 | 0.32 | 0.32 | 0 |
| Dec | 0.32 | 0.32 | 0.32 | 0.32 | 0 |
| **Flow-Weighted Average** | **0.69** | **0.44** | **0.68** | **0.64** | **+7.8** |

**4.4.2.2.7 Ammonia as Nitrogen.** Ammonia as nitrogen concentrations in the upper Spanish Fork River would increase, decrease and remain unchanged February through June from historic baseline conditions (Table 4-100). The flow-weighted average ammonia as nitrogen concentration would remain unchanged from the historic baseline in the upper Spanish Fork River under the Bonneville Unit Water Alternative. All values would be below the State of Utah water quality standards calculated using pH and water temperature.

**Table 4-100**
**Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Historic Baseline Ammonia as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.03 | 0.02 | +50 |
| Feb | 0.02 | 0.03 | 0.02 | 0.02 | 0 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| May | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jun | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jul | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Aug | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Sep | 0.04 | 0.05 | 0.05 | 0.05 | -20 |
| Oct | 0.06 | 0.07 | 0.06 | 0.03 | +100 |
| Nov | 0.03 | 0.03 | 0.03 | 0.02 | +50 |
| Dec | 0.03 | 0.03 | 0.02 | 0.02 | +50 |
| **Flow-Weighted Average** | **0.03** | **0.03** | **0.03** | **0.03** | **0** |

Ammonia as nitrogen concentrations in the lower Spanish Fork River would increase or decrease from historic baseline conditions (Table 4-101). The flow-weighted average ammonia as nitrogen concentration would decrease 27.3 percent from the historic baseline in the lower Spanish Fork River under the Bonneville Unit Water Alternative. All values would be below the State of Utah water quality standards calculated using pH and water temperature.

**Table 4-101**
**Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Historic Baseline Ammonia as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.03 | 0.04 | -25 |
| Feb | 0.04 | 0.04 | 0.04 | 0.06 | -33 |
| Mar | 0.09 | 0.06 | 0.09 | 0.13 | -31 |
| Apr | 0.12 | 0.10 | 0.13 | 0.16 | -25 |
| May | 0.16 | 0.16 | 0.16 | 0.15 | +6.7 |
| Jun | 0.12 | 0.15 | 0.15 | 0.10 | +20 |
| Jul | 0.27 | 0.45 | 0.25 | 0.17 | +59 |
| Aug | 0.18 | 0.16 | 0.16 | 0.13 | +39 |
| Sep | 0.10 | 0.10 | 0.10 | 0.09 | +11 |
| Oct | 0.07 | 0.08 | 0.07 | 0.06 | +17 |
| Nov | 0.04 | 0.04 | 0.04 | 0.06 | -33 |
| Dec | 0.03 | 0.03 | 0.04 | 0.04 | -25 |
| **Flow-Weighted Average** | **0.08** | **0.05** | **0.09** | **0.11** | **-27** |

Ammonia as nitrogen concentrations in the upper Spanish Fork River would decrease or increase July through October, or remain unchanged November through June from simulated baseline conditions (Table 4-102). The flow-weighted average ammonia as nitrogen concentration would remain unchanged from the simulated baseline in the upper Spanish Fork River under the Bonneville Unit Water Alternative. All values would be below the State of Utah water quality standards calculated using pH and water temperature.

**Table 4-102**
**Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Simulated Baseline Ammonia as N Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Feb | 0.02 | 0.03 | 0.02 | 0.02 | 0 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| May | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jun | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jul | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Aug | 0.02 | 0.03 | 0.02 | 0.03 | -33 |
| Sep | 0.04 | 0.05 | 0.05 | 0.06 | -33 |
| Oct | 0.06 | 0.07 | 0.06 | 0.05 | +20 |
| Nov | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Dec | 0.03 | 0.03 | 0.02 | 0.03 | 0 |
| **Flow-Weighted Average** | **0.03** | **0.03** | **0.03** | **0.03** | **0** |

Ammonia as nitrogen concentrations in the lower Spanish Fork River would increase, decrease or remain unchanged from simulated baseline conditions (Table 4-103). The flow-weighted average ammonia as nitrogen concentration would decrease 11.1 percent from the simulated baseline in the lower Spanish Fork River under the Bonneville Unit Water Alternative. All values would be below the State of Utah water quality standards calculated using pH and water temperature.

**Table 4-103**
**Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Simulated Baseline Ammonia as N Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Feb | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| Mar | 0.09 | 0.06 | 0.09 | 0.09 | 0 |
| Apr | 0.12 | 0.10 | 0.13 | 0.11 | +9.1 |
| May | 0.16 | 0.16 | 0.16 | 0.12 | +33 |
| Jun | 0.12 | 0.16 | 0.15 | 0.09 | -33 |
| Jul | 0.27 | 0.45 | 0.25 | 0.15 | +80 |
| Aug | 0.18 | 0.16 | 0.16 | 0.12 | +50 |
| Sep | 0.10 | 0.10 | 0.10 | 0.09 | +11 |
| Oct | 0.07 | 0.08 | 0.07 | 0.07 | 0 |
| Nov | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| Dec | 0.03 | 0.03 | 0.04 | 0.04 | -25 |
| **Flow-Weighted Average** | **0.08** | **0.05** | **0.10** | **0.09** | **-11** |

**4.4.2.2.8 Selenium.** Annual average flow-weighted selenium concentration in the upper Spanish Fork River would increase slightly from historic baseline conditions (Table 4-104). There would be decreases in five months, increases in five months and two months would remain unchanged from historic baseline. There would be no significant impacts on selenium concentrations in the upper Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-104**
**Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Historic Baseline Selenium Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.6 | 1.5 | 1.6 | 1.7 | -6 |
| Feb | 1.9 | 1.9 | 1.9 | 2.1 | -10 |
| Mar | 1.6 | 1.6 | 1.6 | 1.6 | 0 |
| Apr | 0.8 | 0.9 | 0.8 | 0.6 | +33 |
| May | 0.9 | 1.0 | 0.9 | 0.9 | 0 |
| Jun | 0.7 | 1.0 | 0.6 | 0.8 | -13 |
| Jul | 0.7 | 0.7 | 0.6 | 0.7 | 0 |
| Aug | 0.8 | 0.9 | 0.8 | 0.9 | -11 |
| Sep | 1.3 | 1.1 | 1.1 | 1.0 | +30 |
| Oct | 1.3 | 1.4 | 1.4 | 1.2 | +8 |
| Nov | 1.1 | 1.2 | 1.1 | 0.7 | +57 |
| Dec | 1.1 | 1.2 | 1.0 | 0.8 | +38 |
| **Flow-Weighted Average** | **1.1** | **1.2** | **1.0** | **1.0** | **+9** |

Annual average flow-weighted selenium concentrations in the lower Spanish Fork River would increase slightly from historic baseline conditions (Table 4-105). Increases in selenium concentrations in some months would occur because of the flow reduction in the Spanish Fork River under the Bonneville Unit Water Alternative, resulting in slightly less dilution of the natural selenium in the river. The flow-weighted average selenium concentration would increase by 20 percent over the historic baseline in the lower Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-105**
**Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Historic Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Historic Baseline Selenium Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.4 | 1.4 | 1.4 | 1.4 | 0 |
| Feb | 1.6 | 1.6 | 1.6 | 1.3 | +23 |
| Mar | 1.1 | 1.3 | 1.0 | 0.7 | +57 |
| Apr | 1.1 | 1.1 | 1.1 | 1.0 | +10 |
| May | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Jun | 1.1 | 1.1 | 1.1 | 1.1 | 0 |
| Jul | 0.9 | 0.9 | 0.9 | 0.8 | +13 |
| Aug | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Sep | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| Oct | 1.4 | 1.4 | 1.4 | 1.2 | +17 |
| Nov | 1.3 | 1.3 | 1.3 | 1.2 | +8 |
| Dec | 1.1 | 1.2 | 1.0 | 0.8 | +38 |
| **Flow-Weighted Average** | **1.2** | **1.3** | **1.2** | **1.0** | **+20** |

Average annual flow-weighted selenium concentrations in the upper Spanish Fork River would remain unchanged from simulated baseline conditions (Table 4-106). Increases in selenium concentrations in some months would occur because of the flow reduction in the Spanish Fork River under the Bonneville Unit Water Alternative, resulting in slightly less dilution of the natural selenium in the river. The flow-weighted average selenium concentration would increase 10 percent from the simulated baseline in the upper Spanish Fork River under the Bonneville Unit Water Alternative. There would be no significant impacts on selenium concentrations in the upper Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-106**
**Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Simulated Baseline Selenium Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.6 | 1.5 | 1.6 | 1.6 | 0 |
| Feb | 1.9 | 1.9 | 1.9 | 2.0 | -5 |
| Mar | 1.6 | 1.6 | 1.6 | 1.6 | 0 |
| Apr | 0.8 | 0.9 | 0.8 | 0.8 | 0 |
| May | 0.9 | 1.0 | 0.9 | 1.0 | -10 |
| Jun | 0.7 | 1.0 | 0.6 | 0.9 | -22 |
| Jul | 0.7 | 0.7 | 0.6 | 0.7 | 0 |
| Aug | 0.8 | 0.9 | 0.8 | 0.9 | -11 |
| Sep | 1.3 | 1.1 | 1.1 | 1.0 | +30 |
| Oct | 1.3 | 1.4 | 1.4 | 1.3 | 0 |
| Nov | 1.1 | 1.2 | 1.1 | 1.0 | +10 |
| Dec | 1.1 | 1.2 | 1.0 | 1.0 | +10 |
| **Flow-Weighted Average** | **1.1** | **1.2** | **1.0** | **1.0** | **+10** |

Annual average flow-weighted selenium concentrations in the lower Spanish Fork River would remain unchange from simulated baseline conditions (Table 4-107). Increases in selenium concentration in some months would occur because of the flow reduction in the Spanish Fork River under the Bonneville Unit Water Alternative, resulting in slightly less dilution of the natural selenium in the river. The flow-weighted average selenium concentration would remain unchanged from the simulated baseline in the lower Spanish Fork River under the Bonneville Unit Water Alternative. There would be no significant impacts on selenium in the lower Spanish Fork River under the Bonneville Unit Water Alternative.

**Table 4-107**
**Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the Bonneville Unit Water Alternative and Change From Simulated Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Simulated Baseline Selenium Concentration | Average Change from Simulated Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.4 | 1.4 | 1.4 | 1.4 | 0 |
| Feb | 1.6 | 1.6 | 1.6 | 1.5 | +7 |
| Mar | 1.1 | 1.3 | 1.0 | 1.0 | +10 |
| Apr | 1.1 | 1.1 | 1.1 | 1.1 | 0 |
| May | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Jun | 1.1 | 1.1 | 1.1 | 1.2 | -8 |
| Jul | 0.9 | 0.9 | 0.9 | 0.8 | +13 |
| Aug | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Sep | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| Oct | 1.4 | 1.4 | 1.4 | 1.3 | +8 |
| Nov | 1.3 | 1.3 | 1.3 | 1.3 | 0 |
| Dec | 1.1 | 1.2 | 1.0 | 1.0 | +10 |
| **Flow-Weighted Average** | **1.1** | **1.3** | **1.2** | **1.1** | **0** |

**4.4.2.2.9 Summary of Impacts on Spanish Fork Water Quality.** Tables 4-108 and 4-109 summarize annual average water quality impacts of the Bonneville Unit Water Alternative. Monthly maximum comparisons are based on average flows. The Bonneville Unit Water Alternative generally would result in slight increases in dissolved oxygen relative to baseline conditions (Tables 4-108 and 4-109). On a monthly basis dissolved oxygen remains above the 6.5 mg/L criterion except in October, when it drops to as low as 4.4 mg/L.

Total phosphorus levels generally decrease under this alternative compared to both the historical baseline and the simulated baseline. However, there are some months (particularly May and July) in which there are increases above already high levels, resulting in concentrations as high as 0.32 mg/L compared to the criterion of 0.05 mg/L. There would be no other significant water quality impacts on the Spanish Fork River under this alternative.

**Table 4-108**
**Spanish Fork River Water Quality From Diamond Fork Creek to Utah Lake Under the Bonneville Unit Water Alternative Compared to Historical Baseline**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | -15 | 0 | 0.2 | -0.8 | 0.03 | 0 | -0.01 | +0.1 |
| | Value | 309 | 8.1 | 11.9 | 9.8 | 0.20 | 0.03 | 0.13 | 1.1 |
| Lower Spanish Fork River | Change[1] | -109 | 0 | 0.7 | -1.6 | -0.13 | -0.03 | -0.01 | +0.2 |
| | Value | 372 | 8.1 | 11.0 | 8.5 | 0.69 | 0.08 | 0.08 | 1.2 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | -68 | 0 | 0.3 | -1.9 | 0.06 | 0 | -0.06 | +0.2 |
| | Value | 256 | 8.1 | 12.0 | 8.7 | 0.23 | 0.03 | 0.08 | 1.2 |
| Lower Spanish Fork River | Change[1] | -188 | 0 | 1.7 | -2.9 | -0.38 | -0.05 | -0.02 | +0.3 |
| | Value | 293 | 8.1 | 12.0 | 7.2 | 0.44 | 0.05 | 0.07 | 1.3 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | -4 | 0 | 0.1 | -0.7 | 0.03 | 0 | 0 | 0 |
| | Value | 320 | 8.1 | 11.9 | 9.9 | 0.20 | 0.03 | 0.14 | 1.0 |
| Lower Spanish Fork River | Change[1] | -71 | 0 | 0.7 | -0.5 | -0.14 | -0.02 | -0.01 | +0.2 |
| | Value | 410 | 8.1 | 11.0 | 9.6 | 0.68 | 0.09 | 0.08 | 1.2 |
| **Maximum Monthly Levels** | | | | | | | | | |
| Upper Spanish Fork River | Change[2] | -180 | -0.1 | 0.7 | 1.4 | -0.20 | 0.01 | 0.02 | -0.2 |
| | Value | 347 | 8.3 | 9.8[a] | 16.1 | 0.44 | 0.06 | 0.32 | 1.9 |
| Lower Spanish Fork River | Change[2] | 160 | -0.1 | -0.3 | 3.1 | -0.60 | 0.10 | -0.04 | +0.2 |
| | Value | 732 | 8.2 | 7.8[a] | 21.1 | 1.77 | 0.27 | 0.14 | 1.6 |

All values are flow-weighted.
[1] Change from Historic Baseline Annual Average
[2] Change from Historic Baseline Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

**Table 4-109**
**Spanish Fork River Water Quality From Diamond Fork Creek to Utah Lake Under the Bonneville Unit Water Alternative Compared to Simulated Baseline**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | 24 | 0 | 0.1 | -0.1 | 0.01 | 0 | 0.01 | +0.1 |
| | Value | 309 | 8.1 | 11.9 | 9.8 | 0.20 | 0.03 | 0.13 | 1.1 |
| Lower Spanish Fork River | Change[1] | -15 | 0 | 0.2 | -1.0 | 0.05 | -0.01 | 0 | +0.1 |
| | Value | 372 | 8.1 | 11.0 | 8.5 | 0.69 | 0.08 | 0.08 | 1.2 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | -29 | 0 | 1.2 | -1.2 | 0.04 | 0 | -0.04 | 0 |
| | Value | 256 | 8.1 | 12.0 | 8.7 | 0.23 | 0.03 | 0.08 | 1.2 |
| Lower Spanish Fork River | Change[1] | -94 | 0 | 2.2 | -2.3 | -0.20 | -0.04 | -0.01 | 0 |
| | Value | 293 | 8.1 | 12.0 | 7.2 | 0.44 | 0.05 | 0.07 | 1.3 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | 35 | 0 | 0.1 | 0 | 0.01 | 0 | 0.02 | 0 |
| | Value | 320 | 8.1 | 11.9 | 9.9 | 0.20 | 0.03 | 0.14 | 1.0 |
| Lower Spanish Fork River | Change[1] | 23 | 0 | 0.2 | 0.1 | 0.04 | -0.01 | 0 | +0.1 |
| | Value | 410 | 8.1 | 11.0 | 9.6 | 0.68 | 0.10 | 0.08 | 1.2 |
| **Maximum Monthly Levels** | | | | | | | | | |
| Upper Spanish Fork River | Change[2] | -39 | 0 | 0 | 1.7 | -0.04 | 0.26 | 0.08 | -0.1 |
| | Value | 347 | 8.3 | 9.8[a] | 16.1 | 0.44 | 0.32 | 0.32 | 1.9 |
| Lower Spanish Fork River | Change[2] | 258 | 0 | -1.2 | 4.9 | 0.16 | -0.01 | 0.01 | +0.1 |
| | Value | 732 | 8.2 | 7.8[a] | 21.1 | 1.77 | 0.14 | 0.14 | 1.6 |

All values are flow-weighted.
[1] Change from Simulated Baseline Annual Average
[2] Change from Simulated Baseline Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

## 4.4.3 Summary of Bonneville Unit Water Alternative Impacts

Total phosphorus concentrations in Utah Lake would decrease or remain unchanged near the mouths of Hobble Creek and Spanish Fork River. The Bonneville Unit Water Alternative would result in a 1.0 ton per year increase (+0.3 percent) in TP load into Utah Lake compared to simulated baseline conditions. This net increase in TP load in Utah Lake would be a significant water quality impact. The Bonneville Unit Water Alternative would slightly decrease TDS concentrations in Utah Lake compared to simulated baseline conditions, with the concentrations

emaining under the agricultural use standard of 1,200 mg/L. The total average annual TDS load into Utah Lake would decrease by 1,989 tons per year (-0.6 percent) from simulated baseline conditions.

Water quality conditions in Hobble Creek would generally improve because of the Bonneville Unit water provided for in-stream flows downstream of the Mapleton Lateral. Dissolved oxygen concentrations would increase in Hobble Creek during every month, resulting in a significant beneficial impact on water quality. Water temperatures would decrease during summer months and increase in winter months, providing benefits to aquatic resources throughout the year. Total phosphorus concentrations in Hobble Creek would increase by 0.01 mg/L on an average annual basis, and monthly TP concentrations would increase to above the pollution indicator level during some summer and fall months. TDS, pH, nitrate plus nitrite, ammonia, and selenium concentrations would decrease or remain unchanged.

Water quality conditions in the Spanish Fork River would remain unchanged or change slightly under the Bonneville Unit Water Alternative. Dissolved oxygen concentrations would increase or decrease slightly from simulated baseline conditions, with all values remaining above the minimum water quality standards. Water temperatures would increase or decrease slightly from simulated baseline conditions, with all values remaining below water quality standards. Total phosphorus concentrations would generally increase slightly above simulated baseline conditions during most months from levels above the pollution indicator level for streams. TDS, pH, nitrate plus nitrite, ammonia, and selenium concentrations would increase or decrease slightly, with all monthly values remaining within water quality standards. Impacts on Spanish Fork River water quality would not exceed the significance criteria.

## 4.5 No Action Alternative

Water quality under the No Action Alternative would be the same as the simulated baseline condition. Since there would be no difference between the No Action Alternative and the simulated baseline, this alternative is only compared to the historic baseline conditions.

### 4.5.1 Lake and Reservoir Water Quality

#### *4.5.1.1 Utah Lake*

**4.5.1.1.1 Total Phosphorus.** The methodology used to analyze TP impacts in Utah Lake under the Proposed Action was used to analyze TP impacts in Utah Lake under the No Action Alternative. Map 4-3 shows Utah Lake surface TP concentrations during seasonal project water delivery under the No Action Alternative. The following sections present the No Action Alternative impact analysis for TP localized concentrations and TP load in Utah Lake.

##### *4.5.1.1.1.1 Localized TP Concentrations*

**A. Near Mouth of Spanish Fork River.** The No Action Alternative would deliver Bonneville Unit flows through the Spanish Fork River to Utah Lake year-round. In-stream flows provided to Sixth Water Creek and Diamond Fork Creek from Strawberry Reservoir water would flow down the Spanish Fork River to Utah Lake. Utah Lake STORET stations 491770 and 491771 are the closest stations to the mouth of the Spanish Fork River (Map 4-3). The No Action Alternative flow-weighted average TP concentration of 0.09 mg/L would be 0.01 mg/L higher than or equal to historic average TP concentrations at these Utah Lake STORET stations. Historic average TP concentrations in surface samples at these stations during No Action Alternative water delivery months range rom 0.08 mg/L to 0.09 mg/L (Table 3-1). The No Action Alternative maximum flow-weighted TP inflow concentration of 0.13 mg/L would be 0.12 mg/L lower than historic maximum recorded TP concentration at Utah

Lake STORET station 499770 and 0.05 mg/L lower than the historic maximum recorded TP concentration at STORET station 491771. The No Action Alternative minimum flow-weighted TP inflow concentration of 0.04 mg/L would be equal to the historic minimum TP concentrations recorded at these Utah Lake STORET stations. The No Action Alternative would dilute or slightly increase Utah Lake TP concentrations near the mouth of the Spanish Fork River. The No Action would not have a significant impact on TP concentrations in Utah Lake near the mouth of the Spanish Fork River.

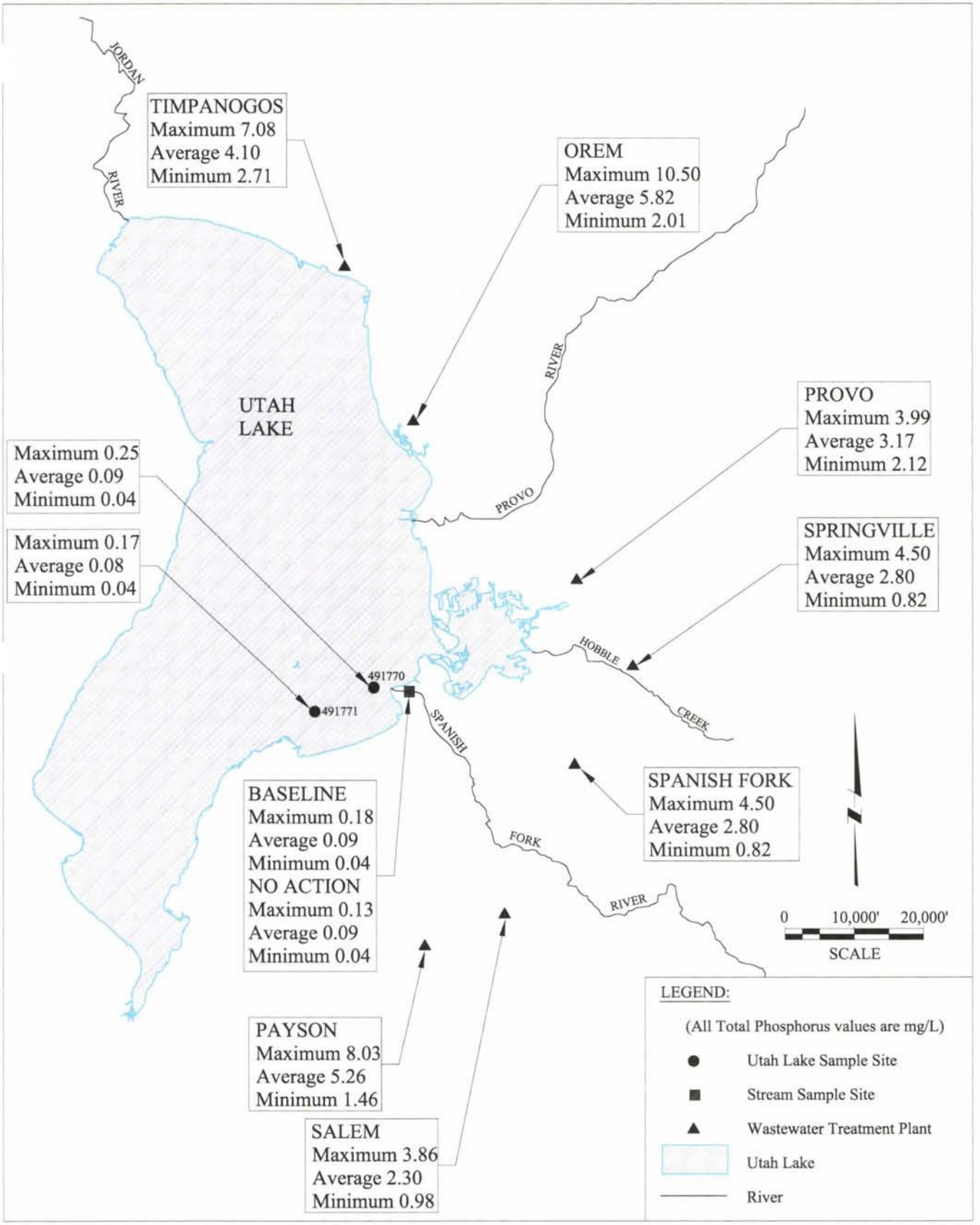
***4.5.1.1.1.2 Estimated TP Load.*** The estimated TP load to Utah Lake under the No Action Alternative would increase by 2.5 tons per year (net +0.9 percent) compared to historic baseline conditions (Table 4-110). Total phosphorus loads would decrease in the Provo River because of water exchanged from Utah Lake to Jordanelle Reservoir, decrease from Other Inflows because of reduced return flows in northern Utah County and would substantially increase in the Spanish Fork River because of increased Strawberry Reservoir flows.

**Table 4-110**
**Estimated Utah Lake Phosphorus Load Under the No Action Alternative and Change From Historic Baseline**

| Inflow Source | Average Annual Inflow (acre-feet) | TP Concentration (mg/L) | Combined TP Load (tons per year) | Change from Historic Baseline Load (tons per year) | Change from Historic Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 94,063 | 0.06 | 8.1 | -2.6 | -24 |
| Spanish Fork River | **166,649** | 0.08 | 19.1 | +7.3 | +65 |
| Hobble Creek | 20,332 | 0.04 | 1.2 | 0 | 0 |
| ULS Return Flows | 210 | 0.05 | 0 | 0 | 0 |
| WWTP Discharges | 52,591 | 3.00 | 225.6 | 0 | 0 |
| Other Inflows | 256,707 | 0.11 | 40.4 | -1.9 | -4.5 |
| **Total** | **588,962** | | **294.1** | **+2.5** | **+0.9** |

**4.5.1.1.2 Total Dissolved Solids.** The methodology used to analyze TDS impacts in Utah Lake under the Proposed Action was used to analyze TDS impacts in Utah Lake under the No Action Alternative. The following sections present the No Action Alternative impact analysis for TDS cumulative concentrations and TDS load in Utah Lake.

***4.5.1.1.2.1 TDS Cumulative Concentrations*** The ULS and the M&I System (Jordanelle Reservoir) exchange flows originate in Strawberry Reservoir, which has an average TDS concentration of 159 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through the Spanish Fork River under the No Action Alternative, the resulting inflow to Utah Lake would have an estimated average TDS concentration of 387 mg/L. Other inflows (irrigation return flows, other tributary inflows, springs, etc.) are estimated to have a TDS concentration of 450 mg/L (derived from LKSIM2000 model inflow and outflow concentrations). Therefore, the impact of the ULS inflows would be a dilution of TDS concentrations in the primary tributary inflows, and would dilute and reduce in-lake TDS concentrations.




Map 4-3

Utah Lake Surface Total Phosphorus Concentrations During Seasonal Project Water Delivery - No Action Alternative

Under the No Action Alternative, Utah Lake estimated TDS concentrations would generally decrease slightly from historic baseline conditions, and all estimated TDS concentrations would below the agricultural use criterion of 1,200 mg/L (Table 4-111).

**Table 4-111**
**Utah Lake Total Dissolved Solids Concentrations Under the No Action Alternative**
**Compared to Historic Baseline Conditions**

| Sample Date | Monitoring Station ID Number | Utah Lake Measured Historic TDS (mg/L) | Projected Cumulative ULS No Action Alternative TDS (mg/L) | Cumulative Change from Historic Baseline TDS (percent) |
|---|---|---|---|---|
| 8/14/90 | 491730 | 1,240 | 993 | -20 |
| 8/14/90 | 491732 | 1,248 | 993 | -20 |
| 8/14/90 | 491733 | 1,288 | 993 | -23 |
| 8/14/90 | 491734 | 1,292 | 993 | -23 |
| 8/14/90 | 491737 | 1,238 | 993 | -20 |
| 8/14/90 | 491738 | 1254 | 993 | -21 |
| 8/14/90 | 491739 | 1,262 | 993 | -21 |
| 8/14/90 | 491740 | 1,224 | 993 | -19 |
| 8/14/90 | 491741 | 1,244 | 993 | -20 |
| 8/14/90 | 491742 | 1,262 | 993 | -21 |
| 8/14/90 | 491750 | 1,246 | 993 | -20 |
| 8/14/90 | 491751 | 1,284 | 993 | -23 |
| 8/14/90 | 491752 | 1,262 | 993 | -21 |
| 8/14/90 | 491762 | 1,330 | 993 | -25 |
| 8/14/90 | 491770 | 1,284 | 993 | -23 |
| 8/14/90 | 491771 | 1,278 | 993 | -22 |
| 8/14/90 | 491777 | 1,214 | 993 | -18 |
| 7/2/93 | 491731 | 816 | 927 | +14 |
| 7/15/94 | 491731 | 1,022 | 1,063 | +4.0 |
| 7/26/95 | 491731 | 872 | 850 | -2.5 |
| 9/27/95 | 491731 | 924 | 923 | -0.1 |
| 7/15/97 | 491731 | 760 | 719 | -5.4 |
| 7/15/97 | 491732 | 758 | 719 | -5.1 |
| 9/11/97 | 491731 | 806 | 776 | -3.7 |
| 9/11/97 | 491732 | 800 | 776 | -3.0 |
| 7/6/99 | 491731 | 700 | 666 | -4.9 |
| 7/6/99 | 491762 | 716 | 666 | -7.0 |
| 7/6/99 | 491777 | 682 | 666 | -2.3 |
| 8/19/99 | 491731 | 720 | 702 | -2.5 |
| 8/19/99 | 491732 | 714 | 702 | -1.7 |

***4.5.1.1.2.2 Estimated TDS Load.*** The estimated TDS load to Utah Lake under the No Action Alternative would increase from the estimated historic TDS load to Utah Lake (Table 4-112). The TDS load would decrease in the Provo River because of water exchanged from Utah Lake to Jordanelle Reservoir, would decrease in Other Inflows because of reduced return flows in northern Utah County and would increase in the Spanish Fork River because of increased Strawberry Reservoir flow and increase in ULS return flows. Under the No Action Alternative, the estimated net TDS load of 347,440 tons per year from all inflow sources to Utah Lake would be 8,465 tons higher (+2.5 percent) than the estimated net historic TDS load of 338,975 tons per year to Utah Lake. The No Action Alternative would have a significant impact on TDS load to Utah Lake.

**Table 4-112**
**Estimated Utah Lake TDS Load Under the No Action Alternative and Change From Historic Baseline**

| Inflow Source | Average Annual Inflow (acre-feet) | Concentration (mg/L) | Combined Load (tons per year) | Change from Historic Baseline Load (tons per year) | Change from Historic Baseline Load (percent) |
|---|---|---|---|---|---|
| Provo River | 94,063 | 276 | 37,125 | -12,100 | -24.6 |
| Spanish Fork River | 165,059 | 387 | 91,345 | +28,353 | +45.0 |
| Hobble Creek | 20,332 | 293 | 8,519 | 0 | 0 |
| ULS Return Flows | 210 | 264 | 137 | +137 | NA |
| WWTP Discharges | 52,591 | 600 | 45,123 | 0 | 0 |
| Other Inflows | 256,707 | 450 | 165,191 | -7,925 | -4.6 |
| **Total** | **588,962** | | **347,440** | **+8,465** | **+2.5** |

## 4.5.2 Stream and River Water Quality

### *4.5.2.1 Spanish Fork River From Diamond Fork Creek to Utah Lake*

The following subsections present the impact analysis results for water quality conditions in the Spanish Fork River from Diamond Fork Creek to Utah Lake under the No Action Alternative. Each of the following subsections present the changes of the No Action Alternative from historic baseline conditions. The upper Spanish Fork River is represented by the reach from the Diamond Fork Creek confluence to Moark Junction. The lower Spanish Fork River is represented by the reach from Moark Junction to Utah Lake.

**4.5.2.1.1 Dissolved Oxygen.** Upper Spanish Fork River dissolved oxygen concentrations would be above baseline conditions for all months except July through September and November and December (Table 4-113). All values would remain well above the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would increase slightly in the upper Spanish Fork River under the No Action Alternative compared to historic baseline conditions. There would be no impacts on the dissolved oxygen concentrations from the No Action Alternative in the upper Spanish Fork River.

**Table 4-113**
**Average Monthly Dissolved Oxygen Concentrations in Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Historic Baseline Dissolved Oxygen Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.3 | 12.5 | 12.3 | 12.0 | +2.5 |
| Feb | 11.8 | 12.1 | 11.6 | 11.2 | +5.4 |
| Mar | 11.9 | 12.7 | 11.6 | 11.2 | +6.3 |
| Apr | 11.2 | 12.1 | 10.4 | 10.2 | +9.8 |
| May | 10.4 | 11.6 | 9.9 | 10.0 | +4.0 |
| Jun | 10.9 | 11.6 | 10.3 | 10.7 | +1.9 |
| Jul | 12.9 | 12.3 | 13.8 | 13.0 | -0.8 |
| Aug | 13.0 | 12.7 | 13.8 | 13.2 | -1.5 |
| Sep | 13.8 | 14.6 | 14.5 | 14.0 | -1.4 |
| Oct | 9.8 | 10.1 | 9.5 | 9.1 | 7.7 |
| Nov | 11.5 | 11.5 | 11.5 | 11.6 | -0.9 |
| Dec | 12.0 | 11.8 | 12.1 | 12.4 | -3.2 |
| **Flow-Weighted Average** | **11.8** | **12.1** | **11.8** | **11.7** | **+0.8** |

Dissolved oxygen concentrations in the lower Spanish Fork River would increase or remain the same every mon compared to historic baseline conditions except during July, September, November and December when the concentration would decrease slightly (Table 4-114). All values would remain well above the 6.5 mg/L water quality standard. The flow-weighted average dissolved oxygen concentration would increase slightly in the lower Spanish Fork River under the No Action Alternative compared to historic baseline conditions. There would be no impacts on the dissolved oxygen concentrations from the No Action Alternative in the lower Spanish Fork River.

**Table 4-114**
**Average Monthly Dissolved Oxygen Concentrations in Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Dissolved Oxygen Concentration | ULS Dry Year Dissolved Oxygen Concentration | ULS Wet Year Dissolved Oxygen Concentration | Historic Baseline Dissolved Oxygen Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 12.7 | 12.7 | 12.7 | 12.7 | 0.0 |
| Feb | 11.7 | 12.0 | 11.5 | 11.0 | +6.4 |
| Mar | 11.7 | 12.5 | 11.4 | 11.0 | +6.4 |
| Apr | 10.1 | 11.3 | 8.8 | 8.4 | +20 |
| May | 9.0 | 11.2 | 8.1 | 8.1 | +11 |
| Jun | 9.4 | 11.2 | 7.8 | 8.8 | +6.8 |
| Jul | 11.3 | 6.8 | 11.5 | 11.4 | -0.9 |
| Aug | 10.8 | 10.8 | 10.7 | 10.8 | 0.0 |
| Sep | 12.8 | 13.1 | 13.0 | 12.9 | -0.8 |
| Oct | 10.0 | 10.3 | 9.8 | 9.5 | +5.3 |
| Nov | 11.7 | 11.7 | 11.7 | 12.2 | -4.1 |
| Dec | 12.2 | 12.0 | 12.3 | 12.7 | -3.9 |
| **Flow-Weighted Average** | **10.8** | **12.0** | **10.0** | **10.3** | **+4.9** |

**1.5.2.1.2 Water Temperature.** Water temperatures in the upper Spanish Fork River would increase and decrease from historic baseline conditions except in September when it would remain unchanged (Table 4-115). None of the temperature changes would result in significant impacts on water temperature in the upper Spanish Fork River. The flow-weighted average temperature would decrease by 0.7 degree C in the upper Spanish Fork River under the No Action Alternative.

**Table 4-115**
**Average Monthly Water Temperatures in Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Historic Baseline Water Temperature | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 4.6 | 5.0 | 4.6 | 4.0 | +15 |
| Feb | 4.9 | 5.1 | 4.8 | 4.5 | +8.9 |
| Mar | 5.3 | 4.5 | 5.6 | 6.0 | -12 |
| Apr | 7.5 | 5.9 | 9.0 | 9.4 | -20 |
| May | 10.0 | 8.5 | 10.6 | 10.6 | -6.0 |
| Jun | 10.7 | 8.8 | 12.4 | 11.3 | -5.3 |
| Jul | 14.4 | 13.6 | 15.9 | 14.7 | -2.0 |
| Aug | 14.2 | 13.8 | 15.4 | 14.5 | -2.1 |
| Sep | 11.9 | 12.0 | 12.0 | 11.9 | 0 |
| Oct | 10.1 | 10.4 | 9.8 | 9.4 | +7.4 |
| Nov | 7.1 | 7.8 | 7.5 | 4.6 | +54 |
| Dec | 5.9 | 7.3 | 5.3 | 3.5 | +71 |
| **Flow-Weighted Average** | **9.9** | **8.2** | **10.3** | **10.6** | **-6.7** |

Water temperatures in the lower Spanish Fork River would increase and decrease from historic baseline conditions (Table 4-116). None of the temperature changes would result in significant impacts on water temperature in the lower Spanish Fork River. The flow-weighted average temperature would decrease 0.6 degree C in the lower Spanish Fork River under the No Action Alternative

**Table 4-116**
**Average Monthly Water Temperatures in Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (°C)**

| Month | ULS Average Water Temperature | ULS Dry Year Water Temperature | ULS Wet Year Water Temperature | Historic Baseline Water Temperature | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 3.7 | 4.3 | 3.7 | 2.4 | +54 |
| Feb | 5.1 | 5.2 | 5.0 | 4.8 | +6.3 |
| Mar | 5.8 | 4.7 | 6.2 | 6.7 | -13 |
| Apr | 8.9 | 6.9 | 11.0 | 11.5 | -23 |
| May | 12.5 | 9.2 | 13.8 | 13.7 | -8.8 |
| Jun | 16.2 | 10.2 | 21.4 | 18.0 | -10 |
| Jul | 15.3 | 57.4 | 17.1 | 15.8 | -3.2 |
| Aug | 15.2 | 14.4 | 16.2 | 15.8 | -3.8 |
| Sep | 14.8 | 15.3 | 15.2 | 15.1 | -2.0 |
| Oct | 11.0 | 11.1 | 10.8 | 10.7 | +2.8 |
| Nov | 7.2 | 7.8 | 7.6 | 4.9 | +46 |
| Dec | 6.1 | 7.2 | 5.7 | 4.1 | +48 |
| **Flow-Weighted Average** | **9.5** | **7.0** | **10.2** | **10.1** | **-5.9** |

**4.5.2.1.3 Total Phosphorus.** Total phosphorus concentrations in upper Spanish Fork River would increase, decrease, or remain unchanged (April, September) from historic baseline conditions (Table 4-117). The TP concentrations would decrease, increase or remain unchanged from historic baseline concentrations already exceeding the pollution indicator level (0.05 mg/L) during the 6 months from May through October (range 0.07 to 0.30 mg/L), resulting in significant impacts on water quality in the Spanish Fork River. Total phosphorus concentrations in the Spanish Fork River rise above the historic baseline because of high phosphorus background conditions in Strawberry Reservoir, which is the ultimate source of Spanish Fork River water. The flow-weighted average TP concentration in the upper Spanish Fork River would decrease by 0.02 mg/L under the No Action Alternative, with the historic baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-117**
**Average Monthly Total Phosphorus Concentrations in Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Historic Baseline Total Phosphorus Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.04 | 0.05 | 0.04 | 0.02 | +100 |
| Feb | 0.05 | 0.05 | 0.04 | 0.04 | +25 |
| Mar | 0.03 | 0.03 | 0.03 | 0.04 | -25 |
| Apr | 0.04 | 0.04 | 0.04 | 0.04 | 0 |
| May | 0.24 | 0.08 | 0.03 | 0.30 | -20 |
| Jun | 0.10 | 0.06 | 0.13 | 0.11 | -9.1 |
| Jul | 0.23 | 0.18 | 0.30 | 0.24 | -4.2 |
| Aug | 0.10 | 0.10 | 0.12 | 0.11 | -9.1 |
| Sep | 0.12 | 0.12 | 0.12 | 0.12 | 0 |
| Oct | 0.08 | 0.09 | 0.07 | 0.06 | +33 |
| Nov | 0.04 | 0.05 | 0.05 | 0.03 | +33 |
| Dec | 0.04 | 0.04 | 0.03 | 0.02 | +100 |
| **Flow-Weighted Average** | **0.12** | **0.07** | **0.01** | **0.14** | **-14** |

Total phosphorus concentrations in the lower Spanish Fork River would increase, decrease or remain unchanged from historic baseline conditions (Table 4-118). The TP concentrations would increase above the 0.05 mg/L pollution indicator level from a historic baseline concentration already at or above the pollution indicator level only during the month of January, resulting in a significant impact on water quality in the lower Spanish Fork River during that month. Total phosphorus concentrations in the Spanish Fork River rise above the historic baseline because of high phosphorus background conditions in Strawberry Reservoir, which is the ultimate source of Spanish Fork River water. The flow-weighted average TP concentration in the lower Spanish Fork River would decrease under the No Action Alternative, with the historic baseline concentration already exceeding the pollution indicator level for Utah streams and rivers.

**Table 4-118**
**Average Monthly Total Phosphorus Concentrations in Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Phosphorus Concentration | ULS Dry Year Total Phosphorus Concentration | ULS Wet Year Total Phosphorus Concentration | Historic Baseline Total Phosphorus Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.06 | 0.06 | 0.06 | 0.05 | +20 |
| Feb | 0.09 | 0.08 | 0.09 | 0.10 | -10 |
| Mar | 0.06 | 0.04 | 0.06 | 0.07 | -14 |
| Apr | 0.13 | 0.09 | 0.17 | 0.18 | -28 |
| May | 0.08 | 0.05 | 0.10 | 0.10 | -20 |
| Jun | 0.08 | 0.05 | 0.10 | 0.08 | 0 |
| Jul | 0.08 | 0.09 | 0.09 | 0.08 | 0 |
| Aug | 0.05 | 0.05 | 0.05 | 0.05 | 0 |
| Sep | 0.10 | 0.09 | 0.09 | 0.09 | +11 |
| Oct | 0.09 | 0.10 | 0.09 | 0.08 | +13 |
| Nov | 0.05 | 0.05 | 0.05 | 0.04 | +25 |
| Dec | 0.04 | 0.05 | 0.04 | 0.04 | 0 |
| **Flow-Weighted Average** | **0.08** | **0.06** | **0.09** | **0.09** | **-11** |

**4.5.2.1.4 Total Dissolved Solids.** Total dissolved solids concentrations in the upper Spanish Fork River would decrease every month from historic baseline conditions (Table 4-119). The flow-weighted average TDS concentration would decrease 12.0 percent in the upper Spanish Fork River under the No Action Alternative, but all concentrations are below the agricultural use criterion of 1,200 mg/L.

**Table 4-119**
**Average Monthly Total Dissolved Solids Concentrations in Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Historic Baseline Total Dissolved Solids Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 330 | 253 | 333 | 468 | -30 |
| Feb | 315 | 250 | 349 | 431 | -27 |
| Mar | 358 | 245 | 398 | 447 | -20 |
| Apr | 317 | 258 | 377 | 390 | -19 |
| May | 278 | 179 | 318 | 315 | -12 |
| Jun | 255 | 181 | 322 | 277 | -7.9 |
| Jul | 232 | 211 | 266 | 239 | -2.9 |
| Aug | 228 | 219 | 255 | 235 | -3.0 |
| Sep | 269 | 296 | 294 | 276 | -2.5 |
| Oct | 350 | 302 | 405 | 466 | -25 |
| Nov | 323 | 279 | 298 | 476 | -32 |
| Dec | 386 | 302 | 423 | 527 | -27 |
| **Flow-Weighted Average** | **285** | **231** | **325** | **324** | **-12** |

Total dissolved solids concentrations in the lower Spanish Fork River would decrease every month from historic baseline (Table 4-120). The flow-weighted average TDS concentration would decrease from historic baseline 19.5 percent in the lower Spanish Fork River under the No Action Alternative, but all concentrations are below the agricultural use criterion of 1,200 mg/L.

**Table 4-120**
**Average Monthly Total Dissolved Solids Concentrations in Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Total Dissolved Solids Concentration | ULS Dry Year Total Dissolved Solids Concentration | ULS Wet Year Total Dissolved Solids Concentration | Historic Baseline Total Dissolved Solids Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 320 | 256 | 321 | 439 | -27 |
| Feb | 332 | 268 | 368 | 451 | -26 |
| Mar | 347 | 249 | 382 | 426 | -19 |
| Apr | 436 | 334 | 547 | 572 | -24 |
| May | 399 | 216 | 474 | 470 | -15 |
| Jun | 474 | 238 | 676 | 543 | -13 |
| Jul | 454 | 489 | 583 | 489 | -7.2 |
| Aug | 562 | 386 | 527 | 491 | -7.9 |
| Sep | 381 | 414 | 407 | 397 | -4.0 |
| Oct | 412 | 347 | 479 | 560 | -26 |
| Nov | 311 | 274 | 289 | 449 | -31 |
| Dec | 351 | 292 | 374 | 460 | -24 |
| **Flow-Weighted Average** | **387** | **274** | **442** | **481.2** | **-20** |

**.5.2.1.5 pH.** The pH levels in the upper Spanish Fork River would decrease, increase or remain unchanged from historic baseline conditions during every month (Table 4-121). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the No Action Alternative. The flow-weighted average pH would remain unchanged in the upper Spanish Fork River under the No Action Alternative.

**Table 4-121**
**Average Monthly pH in the Upper Spanish Fork River**
**Under the No Action Alternative and**
**Change From Historic Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Historic Baseline pH | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Feb | 8.2 | 8.1 | 8.2 | 8.2 | 0 |
| Mar | 8.0 | 8.1 | 8.0 | 8.0 | 0 |
| Apr | 8.1 | 8.1 | 8.2 | 8.2 | -1.2 |
| May | 8.1 | 8.0 | 8.2 | 8.2 | -1.2 |
| Jun | 8.1 | 8.0 | 8.2 | 8.1 | 0 |
| Jul | 8.0 | 8.0 | 8.1 | 8.0 | 0 |
| Aug | 8.1 | 8.0 | 8.1 | 8.1 | 0 |
| Sep | 8.0 | 8.1 | 8.1 | 8.1 | -1.2 |
| Oct | 7.9 | 7.9 | 7.9 | 8.0 | -1.3 |
| Nov | 8.0 | 8.1 | 8.1 | 7.9 | +1.3 |
| Dec | 8.3 | 8.3 | 8.3 | 8.4 | -1.2 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

The pH levels in the lower Spanish Fork River would increase, decrease or remain unchanged from historic baseline conditions during every month (Table 4-122). The pH levels would be within the State water quality standards and there would be no significant impacts on pH from the No Action Alternative. The flow-weighted average pH would remain unchanged from the historic baseline in the upper Spanish Fork River under the No Action Alternative.

**Table 4-122**
**Average Monthly pH in the Lower Spanish Fork River**
**Under the No Action Alternative and**
**Change From Historic Baseline Conditions (units)**

| Month | ULS Average pH | ULS Dry Year pH | ULS Wet Year pH | Historic Baseline pH | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 8.1 | 8.1 | 8.1 | 8.2 | -1.2 |
| Feb | 8.1 | 8.1 | 8.1 | 8.1 | 0 |
| Mar | 8.2 | 8.1 | 8.2 | 8.3 | -1.2 |
| Apr | 8.1 | 8.1 | 8.2 | 8.2 | -1.2 |
| May | 8.1 | 8.0 | 8.1 | 8.1 | 0 |
| Jun | 8.1 | 8.0 | 8.1 | 8.1 | 0 |
| Jul | 8.0 | 8.0 | 8.0 | 8.0 | 0 |
| Aug | 8.0 | 7.9 | 8.0 | 8.0 | 0 |
| Sep | 8.0 | 8.1 | 8.1 | 8.1 | -1.2 |
| Oct | 8.1 | 8.0 | 8.1 | 8.2 | -1.2 |
| Nov | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| Dec | 8.2 | 8.2 | 8.2 | 8.2 | 0 |
| **Flow-Weighted Average** | **8.1** | **8.1** | **8.1** | **8.1** | **0** |

**1.5.2.1.6 Nitrate Plus Nitrite as Nitrogen.** Nitrate plus nitrite as nitrogen concentrations in the upper Spanish Fork River would either remain unchanged (May through September), increase (December through April), or decrease (October, November) from historic baseline conditions (Table 4-123). The flow-weighted average nitrate plus nitrite concentration would increase from the historic baseline 11.8 percent under the No Action Alternative. All values are well below the State of Utah pollution indicator level (4 mg/L).

**Table 4-123**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Historic Baseline Nitrate +Nitrite as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.34 | 0.40 | 0.33 | 0.23 | +48 |
| Feb | 0.40 | 0.43 | 0.38 | 0.34 | +18 |
| Mar | 0.14 | 0.16 | 0.13 | 0.12 | +17 |
| Apr | 0.15 | 0.16 | 0.13 | 0.13 | +15 |
| May | 0.13 | 0.12 | 0.13 | 0.13 | 0 |
| Jun | 0.13 | 0.12 | 0.13 | 0.13 | 0 |
| Jul | 0.15 | 0.17 | 0.12 | 0.15 | 0 |
| Aug | 0.17 | 0.18 | 0.16 | 0.17 | 0 |
| Sep | 0.15 | 0.15 | 0.15 | 0.15 | 0 |
| Oct | 0.17 | 0.17 | 0.18 | 0.19 | -10 |
| Nov | 0.48 | 0.44 | 0.46 | 0.64 | -25 |
| Dec | 0.22 | 0.25 | 0.20 | 0.16 | +37.5 |
| **Flow-Weighted Average** | **0.19** | **0.21** | **0.19** | **0.17** | **+12** |

Nitrate plus nitrite as nitrogen concentrations in the lower Spanish Fork River would increase or decrease (only July remains unchanged) from historic baseline conditions (Table 4-124). The flow-weighted average nitrate plus nitrite concentration would decrease 22.0 percent under the No Action Alternative. All values are well below the State of Utah pollution indicator level (4 mg/L).

**Table 4-124**
**Average Monthly Nitrate Plus Nitrite as Nitrogen Concentrations in the Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Nitrate +Nitrite as N Concentration | ULS Dry Year Nitrate +Nitrite as N Concentration | ULS Wet Year Nitrate +Nitrite as N Concentration | Historic Baseline Nitrate +Nitrite as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.43 | 0.45 | 0.43 | 0.40 | +7.5 |
| Feb | 0.45 | 0.46 | 0.44 | 0.43 | +4.7 |
| Mar | 1.66 | 0.77 | 1.97 | 2.37 | 30 |
| Apr | 0.20 | 0.19 | 0.21 | 0.21 | -5.0 |
| May | 1.31 | 0.42 | 1.68 | 1.66 | -21 |
| Jun | 0.19 | 0.14 | 0.24 | 0.21 | -9.5 |
| Jul | 0.21 | 0.19 | 0.21 | 0.21 | 0 |
| Aug | 0.16 | 0.17 | 0.14 | 0.15 | +6.7 |
| Sep | 0.60 | 0.66 | 0.65 | 0.63 | -4.8 |
| Oct | 0.26 | 0.23 | 0.29 | 0.33 | -21 |
| Nov | 0.32 | 0.32 | 0.32 | 0.34 | -5.9 |
| Dec | 0.32 | 0.32 | 0.32 | 0.33 | -3.0 |
| **Flow-Weighted Average** | **0.64** | **0.39** | **0.73** | **0.82** | **-22** |

**4.5.2.1.7 Ammonia as Nitrogen.** Ammonia as nitrogen concentrations in the upper Spanish Fork River would increase (September through January) or remain unchanged (February through August) from historic baseline conditions (Table 4-125). The flow-weighted average ammonia as nitrogen concentration would remain unchanged from the historic baseline in the upper Spanish Fork River under the No Action Alternative.

**Table 4-125**
**Average Monthly Ammonia as Nitrogen Concentrations in the Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Historic Baseline Ammonia as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.03 | 0.02 | +50 |
| Feb | 0.02 | 0.03 | 0.02 | 0.02 | 0 |
| Mar | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Apr | 0.02 | 0.03 | 0.02 | 0.02 | 0 |
| May | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jun | 0.03 | 0.03 | 0.03 | 0.03 | 0 |
| Jul | 0.03 | 0.03 | 0.02 | 0.03 | 0 |
| Aug | 0.03 | 0.03 | 0.02 | 0.03 | 0 |
| Sep | 0.06 | 0.05 | 0.05 | 0.05 | +20 |
| Oct | 0.05 | 0.06 | 0.04 | 0.03 | +68 |
| Nov | 0.03 | 0.03 | 0.03 | 0.02 | +50 |
| Dec | 0.03 | 0.03 | 0.02 | 0.02 | +50 |
| **Flow-Weighted Average** | **0.03** | **0.03** | **0.03** | **0.03** | **0** |

Ammonia as nitrogen concentrations in the lower Spanish Fork River would increase, decrease, or remain unchanged from historic baseline conditions (Table 4-126). The flow-weighted average ammonia as nitrogen concentration would decrease 18.2 percent from the historic baseline in the lower Spanish Fork River under the No Action Alternative.

**Table 4-126**
**Average Monthly Ammonia as Nitrogen Concentrations in the Lower Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (mg/L)**

| Month | ULS Average Ammonia as N Concentration | ULS Dry Year Ammonia as N Concentration | ULS Wet Year Ammonia as N Concentration | Historic Baseline Ammonia as N Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 0.03 | 0.03 | 0.03 | 0.04 | -25 |
| Feb | 0.04 | 0.04 | 0.05 | 0.06 | -33 |
| Mar | 0.09 | 0.05 | 0.11 | 0.13 | -31 |
| Apr | 0.11 | 0.08 | 0.15 | 0.16 | -31 |
| May | 0.12 | 0.05 | 0.15 | 0.15 | -20 |
| Jun | 0.09 | 0.04 | 0.13 | 0.10 | -10 |
| Jul | 0.15 | 0.19 | 0.21 | 0.17 | -13 |
| Aug | 0.12 | 0.10 | 0.14 | 0.13 | -7.7 |
| Sep | 0.09 | 0.09 | 0.09 | 0.09 | 0 |
| Oct | 0.07 | 0.07 | 0.06 | 0.06 | +1.7 |
| Nov | 0.04 | 0.04 | 0.04 | 0.06 | -33 |
| Dec | 0.04 | 0.03 | 0.03 | 0.04 | 0 |
| **Flow-Weighted Average** | **0.09** | **0.05** | **0.10** | **0.11** | **-18** |

**1.5.2.1.8 Selenium.** Annual average flow-weighted selenium concentration in the upper Spanish Fork River would remain unchanged from historic baseline conditions under the No Action Alternative (Table 4-127). There would be no significant impacts on selenium in the upper Spanish Fork River under the No Action Alternative.

**Table 4-127**
**Average Monthly Selenium Concentrations in the Upper Spanish Fork River Under the No Action Alternative and Change From Historic Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Historic Baseline Selenium Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.6 | 1.5 | 1.6 | 1.7 | -6 |
| Feb | 2.0 | 1.9 | 2.0 | 2.1 | -5 |
| Mar | 1.6 | 1.6 | 1.6 | 1.6 | 0 |
| Apr | 0.8 | 1.0 | 0.6 | 0.6 | +33 |
| May | 1.0 | 1.1 | 0.9 | 0.9 | +11 |
| Jun | 0.9 | 1.1 | 0.6 | 0.8 | +13 |
| Jul | 0.7 | 0.7 | 0.7 | 0.7 | 0 |
| Aug | 0.9 | 0.9 | 0.8 | 0.9 | 0 |
| Sep | 1.0 | 1.1 | 1.1 | 1.0 | 0 |
| Oct | 1.3 | 1.4 | 1.2 | 1.2 | +8 |
| Nov | 1.0 | 1.1 | 1.1 | 0.7 | +43 |
| Dec | 1.0 | 1.2 | 1.0 | 0.8 | +25 |
| **Flow-Weighted Average** | **1.0** | **1.2** | **1.0** | **1.0** | **0** |

Annual average flow-weighted selenium concentrations in the lower Spanish Fork River would increase slightly over historic baseline conditions under the No Action Alternative (Table 4-128). The flow-weighted average selenium concentration would increase by 10 percent from the historic baseline in the lower Spanish Fork River under the No Action Alternative. There would be no significant impacts on selenium in the lower Spanish Fork River under the No Action Alternative.

**Table 4-128**
**Average Monthly Selenium Concentrations in the Lower Spanish Fork River Under the No Action Alternative and Change from Historic Baseline Conditions (µg/L)**

| Month | ULS Average Selenium Concentration | ULS Dry Year Selenium Concentration | ULS Wet Year Selenium Concentration | Historic Baseline Selenium Concentration | Average Change from Historic Baseline Conditions (%) |
|---|---|---|---|---|---|
| Jan | 1.4 | 1.4 | 1.4 | 1.4 | 0 |
| Feb | 1.5 | 1.6 | 1.5 | 1.3 | +15 |
| Mar | 1.0 | 1.4 | 0.9 | 0.7 | +43 |
| Apr | 1.1 | 1.1 | 1.1 | 1.0 | +10 |
| May | 1.0 | 1.1 | 1.0 | 1.0 | 0 |
| Jun | 1.2 | 1.2 | 1.1 | 1.1 | +9 |
| Jul | 0.8 | 0.6 | 0.9 | 0.8 | 0 |
| Aug | 1.0 | 1.0 | 1.0 | 1.0 | 0 |
| Sep | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| Oct | 1.3 | 1.4 | 1.3 | 1.2 | +8 |
| Nov | 1.3 | 1.3 | 1.3 | 1.2 | +8 |
| Dec | 1.0 | 1.1 | 1.0 | 0.8 | +25 |
| **Flow-Weighted Average** | **1.1** | **1.3** | **1.1** | **1.0** | **+10** |

**4.5.2.1.9 Summary of Impacts on Spanish Fork Water Quality.** Table 4-125 summarize annual average water quality impacts of the No Action Alternative. Monthly maximum comparisons are based on average flows. The No Action Alternative generally would result in slight decreases in dissolved oxygen relative to the historical baseline (Table 4-129). On a monthly basis, dissolved oxygen would be above the 6.5 mg/L criterion except during August and October.

On a monthly basis, the TP concentration would increase slightly (0.06 mg/L) above the historic baseline concentration already at the pollution indicator level (0.05 mg/L) only during January under the No Action Alternative. Other significant TP increases would be from a historic baseline concentration that is already above the criterion, all constituting a significant monthly impact on the Spanish Fork River.

**Table 4-129**
**Spanish Fork River Water Quality From Diamond Fork Creek to Utah Lake Under the No Action Alternative Compared to Historic Baseline Conditions**

| Water Quality Characteristic | | TDS (mg/L) | pH (units) | DO (mg/L) | Temperature (°C) | Nitrate[3] (mg/L) | Ammonia (mg/L) | Phosphorus (mg/L) | Selenium (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Average Flow Water Quality** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | -39 | 0 | 0.1 | -0.7 | 0.02 | 0 | -0.02 | 0 |
| | Value | 285 | 8.1 | 11.8 | 9.9 | 0.19 | 0.03 | 0.12 | 1.0 |
| Lower Spanish Fork River | Change[1] | -94 | 0 | 0.5 | -0.6 | -0.18 | -0.02 | -0.01 | +0.1 |
| | Value | 387 | 8.1 | 10.8 | 9.5 | 0.64 | 0.09 | 0.08 | 1.1 |
| **Dry Year Water Quality (1992)** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | -93 | 0 | 0.4 | -2.4 | 0.04 | 0 | -0.07 | +0.2 |
| | Value | 231 | 8.1 | 12.1 | 8.2 | 0.21 | 0.03 | 0.07 | 1.2 |
| Lower Spanish Fork River | Change[1] | -207 | 0 | 1.7 | -3.1 | -0.43 | -0.06 | -0.03 | +0.3 |
| | Value | 274 | 8.1 | 12.0 | 7.0 | 0.39 | 0.05 | 0.06 | 1.3 |
| **Wet Year Water Quality (1998)** | | | | | | | | | |
| Upper Spanish Fork River | Change[1] | 1 | 0 | 0.1 | -0.3 | 0.02 | 0 | -0.13 | 0 |
| | Value | 325 | 8.1 | 11.8 | 10.3 | 0.19 | 0.03 | 0.01 | 1.0 |
| Lower Spanish Fork River | Change[1] | -39 | 0 | -0.3 | 0.1 | -0.09 | -0.01 | 0 | +0.1 |
| | Value | 442 | 8.1 | 10.0 | 10.2 | 0.73 | 0.10 | 0.09 | 1.1 |
| **Maximum Monthly Levels** | | | | | | | | | |
| Upper Spanish Fork River | Change[2] | -141 | -0.1 | 0.7 | -0.3 | -0.16 | 0.01 | -0.06 | -0.1 |
| | Value | 386 | 8.3 | 9.8[a] | 14.4 | 0.48 | 0.06 | 0.24 | 2.0 |
| Lower Spanish Fork River | Change[2] | 81 | -0.1 | 0.9 | -1.8 | 0.84 | -0.02 | -0.05 | +0.1 |
| | Value | 562 | 8.2 | 9.0[a] | 16.2 | 1.66 | 0.15 | 0.13 | 1.5 |

All values are flow-weighted.
[1] Change from Historic Baseline Annual Average
[2] Change from Historic Baseline Maximum Monthly
[3] Nitrate + Nitrite as Nitrogen
[a] Minimum monthly water quality value.

### 4.5.3 Summary of No Action Alternative Impacts

The No Action Alternative would slightly increase or not change TP concentrations in Utah Lake near the mouth of the Spanish Fork River. The No Action Alternative would result in a 2.5 tons per year increase (+0.9 percent) in TP load into Utah Lake compared to historic baseline conditions. This net increase in TP load in Utah Lake would be a significant water quality impact. The No Action Alternative would slightly increase or decrease TDS cumulative concentrations in Utah Lake compared to historic baseline conditions, with the concentrations remaining under the agricultural use standard of 1,200 mg/L. The total estimated TDS load into Utah Lake under the No Action Alternative would increase by 8,465 tons per year (+2.5 percent) over historic baseline conditions. This increase in TDS load would be a significant impact on Utah Lake water quality.

Water quality conditions in the Spanish Fork River would remain unchanged or change slightly under the No Action Alternative. Dissolved oxygen concentrations would increase or decrease slightly from historic baseline conditions, with all values remaining above the minimum water quality standards. Water temperatures would increase or decrease slightly from simulated baseline conditions, with all values remaining below water quality standards. Total phosphorus concentrations would decrease slightly from baseline conditions during most months from levels above the pollution indicator level for streams. TDS concentrations would decrease in all months, remaining below the water quality standard. Other water quality characteristics including pH, nitrate plus nitrite, and ammonia would increase or decrease slightly, with all monthly values remaining within water quality standards. Selenium concentrations would decrease or remain unchanged from baseline conditions. Impacts on Spanish Fork River water quality would not exceed the significance criteria under the No Action Alternative.

# Chapter 5
# Mitigation and Monitoring

## 5.1 Spanish Fork Canyon-Provo Reservoir Canal Alternative (Proposed Action)

### 5.1.1 Mitigation and Monitoring

None.

## 5.2 Bonneville Unit Water Alternative

### 5.2.1 Mitigation and Monitoring

None.

## 5.3 No Action Alternative

### 5.3.1 Mitigation and Monitoring

None.

**THIS PAGE INTENTIONALLY LEFT BLANK**

# Chapter 6
# Unavoidable Adverse Impacts

## 6.1 Spanish Fork Canyon-Provo Reservoir Canal Alternative (Proposed Action)

None.

## 6.2 Bonneville Unit Water Alternative

The Bonneville Unit Water Alternative would have unavoidable adverse impacts on Utah Lake water quality. Total phosphorus load increases into Utah Lake would be an unavoidable adverse impact.

## 6.3 No Action Alternative

The No Action Alternative would have unavoidable adverse impacts on Utah Lake water quality. Total phosphorus load increases into Utah Lake would be an unavoidable adverse impact on water quality. Total dissolved solids load increases into Utah Lake would be an unavoidable adverse impact on water quality.

**THIS PAGE INTENTIONALLY LEFT BLANK**

# Chapter 7
# Cumulative Impacts

## 7.1 Spanish Fork Canyon-Provo Reservoir Canal Alternative (Proposed Action)

The Proposed Action would have the following cumulative impacts on water quality. Of the projects listed in the EIS Chapter 1, Section 1.10.3 (Future Projects Included in the Cumulative Impact Analysis), one specific project would have the potential to create cumulative impacts on water quality. This project is the Lower Provo River Diversion Dam Modifications (EIS Chapter 1, Section 1.10.3.5). Cumulative impacts also would occur on water quality from State Engineer operation of Utah Lake and wastewater treatment plant discharges to Utah Lake.

### 7.1.1 Lower Provo River Diversion Dam Modifications

During construction of the diversion dam modifications on the lower Provo River, additional earth fill material likely would be required to modify the diversion dams to allow fish passage and continue diverting water into canals. The additional earth fill material would cause some temporary turbidity and introduce new sources of sediment that would temporarily affect water quality and cause cumulative impacts with in-stream flow water discharged to the river for June sucker spawning and rearing and for fish and wildlife habitat improvement.

During ULS operation, the diversion dam modifications could potentially result in longer pools that could cause a cumulative impact on water temperatures. These cumulative impacts would not exceed the significance criteria for water quality supporting coldwater fish in the lower Provo River.

### 7.1.2 State Engineer Operation of Utah Lake

Chapter 4, Section 4.3.1.1.2.1 TDS Cumulative Concentrations describes the influence of multiple factors and actions on TDS concentrations in Utah Lake, such as evaporation, precipitation, wind mixing, tributary inflows from the Provo River, Hobble Creek, and Spanish Fork River, tributary inflows from other streams and rivers, wastewater treatment plant effluent inflows, other discharges, other inflows including salt springs in the lake and irrigation return flows, basin runoff, upstream water demands, and State Engineer operations of the lake level and volume. These factors and actions would combine with the ULS inflows to result in the projected TDS cumulative concentrations in Utah Lake reported in Table 4-5 in Chapter 4, Section 4.3.1.1.2.1 TDS Cumulative Concentrations. These cumulative impacts are not projected to exceed the significance criteria for water quality supporting agricultural irrigation. The correlation of increasing TDS concentration and decreasing Utah Lake volume is documented in Chapter 3, Section 3.2.1.2.1 TDS Concentrations. The correlation index of $r^2 = 0.811$ indicates that as the lake volume decreases below about 450,000 acre-feet, the TDS concentration could exceed the 1,200 mg/L water quality standard for agricultural water. The primary actions that affect Utah Lake level and volume are water storage and release by the State Engineer. The State Engineer operation of releasing water from Utah Lake to meet water rights in Salt Lake County, resulting in decreased lake stage and volume, could lead to a cumulative water quality impact of TDS concentrations exceeding the 1,200 mg/L significance criterion.

### 7.1.3 Wastewater Treatment Plant Discharges to Utah Lake

Seven wastewater treatment plants (WWTPs) are located around Utah Lake and discharge treated effluent that flows either directly or indirectly into the lake. These WWTPs discharge effluent that contains high concentrations of TP, with maximum recorded concentrations ranging from 10.5 to 3.86 mg/L TP, average recorded concentrations ranging from 5.82 to 2.30 mg/L TP, and minimum recorded concentrations ranging from 2.71 to 0.82 mg/L TP. Map 4-1 in Chapter 4, Section 4.3.1.1.1 Total Phosphorus shows the location of each

WWTP and ranges of TP concentrations in their effluents, along with the baseline and Proposed Action TP concentrations in the affected tributary inflows. The WWTP effluents, even when mixed with the diluting concentrations of ULS inflows, and combined with other TP sources, would result in cumulative impacts on TP concentrations in Utah Lake. These cumulative impacts would be significant because the resulting TP concentrations in Utah Lake would exceed the pollution indicator of 0.025 mg/L.

## 7.2 Bonneville Unit Water Alternative

The cumulative impacts on water quality would be the same as or similar to those under the Proposed Action.

### 7.2.1 Lower Provo River Diversion Dam Modifications

Cumulative water quality impacts would be the same as documented in Section 7.1.1.

### 7.2.2 State Engineer Operation of Utah Lake

The TDS concentrations in Utah Lake are influenced by the multiple factors and actions described in Section 7.1.2. These factors and actions would combine with the ULS inflows to result in the projected TDS cumulative concentrations in Utah Lake reported in Table 4-64 in Chapter 4, Section 4.4.1.1.2.1 TDS Cumulative Concentrations. These cumulative impacts are not projected to exceed the significance criteria for water quality supporting agricultural irrigation. The State Engineer operation of releasing water from Utah Lake to meet water rights in Salt Lake County, resulting in decreased lake stage and volume, could lead to a cumulative water quality impact of TDS concentrations exceeding the 1,200 mg/L significance criterion.

### 7.2.3 Wastewater Treatment Plant Discharges to Utah Lake

Seven wastewater treatment plants (WWTPs) are located around Utah Lake and discharge treated effluent that flows either directly or indirectly into the lake, as described in Section 7.1.3. Map 4-2 in Section 4.4.1.1.1 Total Phosphorus shows the location of each WWTP and ranges of TP concentrations in their effluents, along with the baseline and Bonneville Unit Water Alternative TP concentrations in the affected tributary inflows. The WWTP effluents, even when mixed with the diluting concentrations of ULS inflows, and combined with other TP sources, would result in cumulative impacts on TP concentrations in Utah Lake. These cumulative impacts would be significant because the resulting TP concentrations in Utah Lake would exceed the pollution indicator of 0.025 mg/L.

## 7.3 No Action Alternative

The cumulative impacts would be the same as or similar to those under the Proposed Action.

### 7.3.1 Lower Provo River Diversion Dam Modifications

Cumulative water quality impacts would be the same as documented in Section 7.1.1.

### 7.3.2 State Engineer Operation of Utah Lake

The TDS concentrations in Utah Lake are influenced by the multiple factors and actions described in Section 7.1.2. These factors and actions would combine with the ULS inflows to result in the projected TDS cumulative

:oncentrations in Utah Lake reported in Table 4-111 in Chapter 4, Section 4.5.1.1.2.1 TDS Cumulative Concentrations. These cumulative impacts are not projected to exceed the significance criteria for water quality supporting agricultural irrigation. The State Engineer operation of releasing water from Utah Lake to meet water rights in Salt Lake County, resulting in decreased lake stage and volume, could lead to a cumulative water quality impact of TDS concentrations exceeding the 1,200 mg/L significance criterion.

### 7.3.3 Wastewater Treatment Plant Discharges to Utah Lake

Seven wastewater treatment plants (WWTPs) are located around Utah Lake and discharge treated effluent that flows either directly or indirectly into the lake, as described in Section 7.1.3. Map 4-3 in Chapter 4, Section 4.5.1.1.1 Total Phosphorus shows the location of each WWTP and ranges of TP concentrations in their effluents, along with the baseline and No Action Alternative TP concentrations in the affected tributary inflows. The WWTP effluents, even when mixed with the diluting concentrations of Bonneville Unit inflows, and combined with other TP sources, would result in cumulative impacts on TP concentrations in Utah Lake. These cumulative impacts would be significant because the resulting TP concentrations in Utah Lake would exceed the pollution indicator of 0.025 mg/L.

**THIS PAGE INTENTIONALLY LEFT BLANK**

## References Cited


American National Standards Institute (ANSI). 1990. ANSI S12.40-1990 (R1996) American National Standard Sound Level Descriptors for Determination of Compatible Land Use.

Central Utah Water Conservancy District (CUWCD). 1998. Diamond Fork System, final supplement to the final environmental impact statement.

_____. 2004, Draft surface water hydrology technical report for the Utah Lake drainage basin water delivery system environmental impact statement.

Metcalf and Eddy, Inc. 1979. Wastewater Engineering: Treatment, Disposal, Reuse. McGraw-Hill Inc. New York, New York.

Michael, G.Y. and T.F. Moore. 1997. A Suggested Framework for Conducting UAAs and Interpreting Results. Project 91-NPS-1. Water Environment Research Foundation. pp. 1-17 through 1-20.

Sowby and Berg Consultants. 1984. Deer Creek Reservoir and proposed Jordanelle Reservoir water quality management plan.

Utah Department of Environmental Quality, Sowby and Berg Consultants, Miller, A. W., and Loveless, R. 1999. Phase I EPA Clean Lakes Study. Diagnostic and Feasibility Report on Utah Lake. EPA Grant #S008647-01. Brigham Young University, Mountainland Association of Governments, and Utah Department of Environmental Quality, Salt Lake City, Utah.

**THIS PAGE INTENTIONALLY LEFT BLANK**

# Glossary

**Affected environment.** The part of the environment that changes from a proposed change in operation or management.

**Alternative.** A proposition or situation offering a choice between two or more proposals, only one of which may be chosen. An opportunity for deciding between two or more courses or propositions.

**Baseline.** The set of starting conditions from which changes and impacts are quantified.

**Mitigate, mitigation**. To cause to become less severe or harmful; reduce impacts; actions to avoid, minimize, reduce, eliminate or rectify impacts to resources.

**Monitor.** To systematically and repeatedly measure conditions in order to track changes.

**Proposed Action.** The proposal or proposed project by sponsoring agent or proponent.

**Reclamation.** Returning disturbed land to a form and productivity that will be ecologically balanced and in conformity with a predetermined goal and land-use objective.

**Scoping.** Process established to incorporate public input on proposed activities, disclosed in a NEPA document.

**Standard Operating Procedures (SOPs).** Measures followed during construction, operation or maintenance of a project to avoid, minimize or rectify adverse impacts on natural resources and people.

**THIS PAGE INTENTIONALLY LEFT BLANK**

# Abbreviations and Acronyms

| Abbreviation/Acronym | Meaning/Description |
|---|---|
| AF | Acre-Feet |
| APE | Area of Potential Effect |
| AUMs | Animal Unit Months |
| Binns HQI | Binns Method Habitat Quality Index |
| BLM | U.S. Bureau of Land Management |
| BOD | Biochemical Oxygen Demand |
| B.U. | Bonneville Unit |
| C | Centigrade |
| CEQ | Council on Environmental Quality |
| cfs | Cubic Feet Per Second |
| CO | Carbon Monoxide |
| COE | U.S. Army Corps of Engineers |
| Conc. | Concentration |
| CRSP | Colorado River Storage Project |
| CUP | Central Utah Project |
| CUPCA | Central Utah Project Completion Act |
| CUWCD | Central Utah Water Conservancy District |
| dB | Decibel |
| dBA | A-weighted Decibels |
| DEIS | Draft Environmental Impact Statement |
| DEQ | Utah Department of Environmental Quality |
| DO | Dissolved Oxygen |
| DOI | U.S. Department of the Interior |
| DPR | Definite Plan Report |
| EC | Electrical Conductivity |
| EIS | Environmental Impact Statement |
| EPA | U.S. Environmental Protection Agency |
| ESA | 1973 Endangered Species Act |
| F | Fahrenheit |
| FDM | Fugitive Dust Model |
| FEIS | Final Environmental Impact Statement |
| fps | Foot per Second |
| FS-FEIS | Final Supplement to the Final Environmental Impact Statement |
| ft | Foot |
| $ft^3$ | Cubic Foot |
| FWS | U.S. Fish and Wildlife Service |
| GPS | Global Positioning System |
| HEC-RAS | Hydrologic Engineering Center – River Analysis System |
| HEP | Habitat Evaluation Procedure |
| HQI | Habitat Quality Index |
| IABAT | Interagency Aquatic Biological Assessment Team |
| IFIM | Instream Flow Incremental Methodology |
| in | Inch/inches |

| Abbreviation/Acronym | Meaning/Description |
|---|---|
| JSRIP | June Sucker Recovery Implementation Program |
| JTAC | Jordanelle Reservoir Technical Advisory Committee |
| lb | Pound |
| M&I | Municipal and Industrial |
| mg/L | Milligrams per Liter |
| Mitigation Commission | Utah Reclamation Mitigation and Conservation Commission |
| NEPA | National Environmental Policy Act |
| $NO_2$ | Nitrogen Dioxide |
| NOAA | National Oceanic and Atmospheric Administration |
| NRHP | National Register of Historical Properties |
| NTU | Nephelometric Turbidity Units |
| O&M | Operations and Maintenance |
| $O_3$ | Ozone |
| Pb | Lead |
| pH | A measure of a solution's hydrogen ion concentration (acidity) |
| ppm | Parts Per Million |
| ROD | Record of Decision |
| SFN | Spanish Fork Canyon – Nephi Irrigation System |
| $SO_2$ | Sulfur Dioxide |
| SOPs | Standard Operating Procedures |
| STORET | U.S. EPA database |
| SUVMWA | South Utah Valley Municipal Water Association |
| SVP | Strawberry Valley Project |
| SWUA | Strawberry Water Users Association |
| TDS | Total Dissolved Solids |
| TP | Total Phosphorus |
| TR | Technical Report |
| UDEQ | Utah Department of Environmental Quality |
| UDNR | Utah Department of Natural Resources |
| UDOT | Utah Department of Transportation |
| ULS | Utah Lake System |
| ULT | Ute ladies'-tresses |
| µg | Microgram |
| URMCC | Utah Reclamation, Mitigation and Conservation Commission |
| RECLAMATION | U.S. Bureau of Reclamation |
| USC | United States Code |
| USDA | U.S. Department of Agriculture |
| USFS | U.S. Forest Service |
| USGS | U.S. Geological Survey |
| 1999 FS-FEIS | Diamond Fork System 1999 Final Supplement to the 1984 Diamond Fork Power System Final Environmental Impact Statement |

# Utah Lake Drainage Basin
# Water Delivery System
# Bonneville Unit, Central Utah Project

## Final
## Environmental Impact Statement
## Surface Water Quality
## Technical Report

## *Appendix A*
## *Surface Water Quality Data*

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Dissolved oxygen (DO) | 1/16/1990 | 9.8 | mg/l | 9.8 | |
| 499678 | Dissolved oxygen (DO) | 3/8/1990 | 10.3 | mg/l | 10.3 | |
| 499678 | Dissolved oxygen (DO) | 4/25/1990 | 10 | mg/l | 10 | |
| 499678 | Dissolved oxygen (DO) | 5/9/1990 | 10.6 | mg/l | 10.6 | |
| 499678 | Dissolved oxygen (DO) | 5/30/1990 | 9.2 | mg/l | 9.2 | |
| 499678 | Dissolved oxygen (DO) | 6/13/1990 | 8.3 | mg/l | 8.3 | |
| 499678 | Dissolved oxygen (DO) | 7/11/1990 | 9 | mg/l | 9 | |
| 499678 | Dissolved oxygen (DO) | 8/8/1990 | 8.4 | mg/l | 8.4 | |
| 499678 | Dissolved oxygen (DO) | 9/12/1990 | 7.8 | mg/l | 7.8 | |
| 499678 | Dissolved oxygen (DO) | 10/11/1990 | 11.2 | mg/l | 11.2 | |
| 499678 | Dissolved oxygen (DO) | 11/7/1990 | 9.1 | mg/l | 9.1 | |
| 499678 | Dissolved oxygen (DO) | 2/13/1991 | 10 | mg/l | 10 | |
| 499678 | Dissolved oxygen (DO) | 3/13/1991 | 10.1 | mg/l | 10.1 | |
| 499678 | Dissolved oxygen (DO) | 5/2/1991 | 9.9 | mg/l | 9.9 | |
| 499678 | Dissolved oxygen (DO) | 7/15/1991 | 11.9 | mg/l | 11.9 | |
| 499678 | Dissolved oxygen (DO) | 8/14/1991 | 11.1 | mg/l | 11.1 | |
| 499678 | Dissolved oxygen (DO) | 9/18/1991 | 9.8 | mg/l | 9.8 | |
| 499678 | Dissolved oxygen (DO) | 10/16/1991 | 10.2 | mg/l | 10.2 | |
| 499678 | Dissolved oxygen (DO) | 11/19/1991 | 10.8 | mg/l | 10.8 | |
| 499678 | Dissolved oxygen (DO) | 1/15/1992 | 10.6 | mg/l | 10.6 | |
| 499678 | Dissolved oxygen (DO) | 3/16/1992 | 10.2 | mg/l | 10.2 | |
| 499678 | Dissolved oxygen (DO) | 3/17/1992 | 9.3 | mg/l | 9.3 | |
| 499678 | Dissolved oxygen (DO) | 4/14/1992 | 9.6 | mg/l | 9.6 | |
| 499678 | Dissolved oxygen (DO) | 4/16/1992 | 10.4 | mg/l | 10.4 | |
| 499678 | Dissolved oxygen (DO) | 4/27/1992 | 10.6 | mg/l | 10.6 | |
| 499678 | Dissolved oxygen (DO) | 5/11/1992 | 10.2 | mg/l | 10.2 | |
| 499678 | Dissolved oxygen (DO) | 5/27/1992 | 9.9 | mg/l | 9.9 | |
| 499678 | Dissolved oxygen (DO) | 6/10/1992 | 9.4 | mg/l | 9.4 | |
| 499678 | Dissolved oxygen (DO) | 7/13/1992 | 9 | mg/l | 9 | |
| 499678 | Dissolved oxygen (DO) | 8/14/1992 | 9.2 | mg/l | 9.2 | |
| 499678 | Dissolved oxygen (DO) | 9/11/1992 | 9.6 | mg/l | 9.6 | |
| 499678 | Dissolved oxygen (DO) | 11/17/1992 | 11 | mg/l | 11 | |
| 499678 | Dissolved oxygen (DO) | 2/9/1993 | 11.1 | mg/l | 11.1 | |
| 499678 | Dissolved oxygen (DO) | 3/17/1993 | 10.6 | mg/l | 10.6 | |
| 499678 | Dissolved oxygen (DO) | 4/14/1993 | 10.9 | mg/l | 10.9 | |
| 499678 | Dissolved oxygen (DO) | 5/18/1993 | 9.1 | mg/l | 9.1 | |
| 499678 | Dissolved oxygen (DO) | 6/15/1993 | 9 | mg/l | 9 | |
| 499678 | Dissolved oxygen (DO) | 7/29/1993 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 8/24/1993 | 8.6 | mg/l | 8.6 | |
| 499678 | Dissolved oxygen (DO) | 9/30/1993 | 9 | mg/l | 9 | |
| 499678 | Dissolved oxygen (DO) | 11/2/1993 | 11.2 | mg/l | 11.2 | |
| 499678 | Dissolved oxygen (DO) | 1/19/1994 | 10.9 | mg/l | 10.9 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Dissolved oxygen (DO) | 3/16/1994 | 10.7 | mg/l | 10.7 | |
| 499678 | Dissolved oxygen (DO) | 3/29/1994 | 11.9 | mg/l | 11.9 | |
| 499678 | Dissolved oxygen (DO) | 4/12/1994 | 11.5 | mg/l | 11.5 | |
| 499678 | Dissolved oxygen (DO) | 4/27/1994 | 10.3 | mg/l | 10.3 | |
| 499678 | Dissolved oxygen (DO) | 5/11/1994 | 9.3 | mg/l | 9.3 | |
| 499678 | Dissolved oxygen (DO) | 5/25/1994 | 9.2 | mg/l | 9.2 | |
| 499678 | Dissolved oxygen (DO) | 6/7/1994 | 7.7 | mg/l | 7.7 | |
| 499678 | Dissolved oxygen (DO) | 7/13/1994 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 8/15/1994 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 9/20/1994 | 9 | mg/l | 9 | |
| 499678 | Dissolved oxygen (DO) | 10/27/1994 | 10.2 | mg/l | 10.2 | |
| 499678 | Dissolved oxygen (DO) | 11/15/1994 | 11.6 | mg/l | 11.6 | |
| 499678 | Dissolved oxygen (DO) | 1/23/1995 | 13.6 | mg/l | 13.6 | |
| 499678 | Dissolved oxygen (DO) | 3/14/1995 | 10.8 | mg/l | 10.8 | |
| 499678 | Dissolved oxygen (DO) | 4/3/1995 | 9.8 | mg/l | 9.8 | |
| 499678 | Dissolved oxygen (DO) | 4/18/1995 | 9.3 | mg/l | 9.3 | |
| 499678 | Dissolved oxygen (DO) | 5/2/1995 | 8.5 | mg/l | 8.5 | |
| 499678 | Dissolved oxygen (DO) | 5/15/1995 | 9.2 | mg/l | 9.2 | |
| 499678 | Dissolved oxygen (DO) | 5/30/1995 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 6/13/1995 | 9.3 | mg/l | 9.3 | |
| 499678 | Dissolved oxygen (DO) | 7/12/1995 | 8.2 | mg/l | 8.2 | |
| 499678 | Dissolved oxygen (DO) | 8/15/1995 | 9.2 | mg/l | 9.2 | |
| 499678 | Dissolved oxygen (DO) | 9/19/1995 | 8.3 | mg/l | 8.3 | |
| 499678 | Dissolved oxygen (DO) | 11/1/1995 | 9.8 | mg/l | 9.8 | |
| 499678 | Dissolved oxygen (DO) | 1/9/1996 | 9.8 | mg/l | 9.8 | |
| 499678 | Dissolved oxygen (DO) | 3/13/1996 | 12.1 | mg/l | 12.1 | |
| 499678 | Dissolved oxygen (DO) | 4/22/1996 | 11.9 | mg/l | 11.9 | |
| 499678 | Dissolved oxygen (DO) | 5/23/1996 | 8 | mg/l | 8 | |
| 499678 | Dissolved oxygen (DO) | 6/19/1996 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 7/16/1996 | 8.3 | mg/l | 8.3 | |
| 499678 | Dissolved oxygen (DO) | 8/20/1996 | 8.5 | mg/l | 8.5 | |
| 499678 | Dissolved oxygen (DO) | 9/24/1996 | 8.8 | mg/l | 8.8 | |
| 499678 | Dissolved oxygen (DO) | 10/17/1996 | 10.1 | mg/l | 10.1 | |
| 499678 | Dissolved oxygen (DO) | 1/30/1997 | 11 | mg/l | 11 | |
| 499678 | Dissolved oxygen (DO) | 4/30/1997 | 10.3 | mg/l | 10.3 | |
| 499678 | Dissolved oxygen (DO) | 5/27/1997 | 8.2 | mg/l | 8.2 | |
| 499678 | Dissolved oxygen (DO) | 6/26/1997 | 8.8 | mg/l | 8.8 | |
| 499678 | Dissolved oxygen (DO) | 7/28/1997 | 9 | mg/l | 9 | |
| 499678 | Dissolved oxygen (DO) | 8/26/1997 | 9.3 | mg/l | 9.3 | |
| 499678 | Dissolved oxygen (DO) | 9/30/1997 | 9.2 | mg/l | 9.2 | |
| 499678 | Dissolved oxygen (DO) | 10/29/1997 | 9.2 | mg/l | 9.2 | |
| 499678 | Dissolved oxygen (DO) | 11/17/1997 | 11.2 | mg/l | 11.2 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Dissolved oxygen (DO) | 1/21/1998 | 12 | mg/l | 12 | |
| 499678 | Dissolved oxygen (DO) | 2/23/1998 | 12.2 | mg/l | 12.2 | |
| 499678 | Dissolved oxygen (DO) | 3/19/1998 | 11.4 | mg/l | 11.4 | |
| 499678 | Dissolved oxygen (DO) | 4/28/1998 | 9 | mg/l | 9 | |
| 499678 | Dissolved oxygen (DO) | 5/28/1998 | 9.3 | mg/l | 9.3 | |
| 499678 | Dissolved oxygen (DO) | 6/24/1998 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 7/22/1998 | 9.1 | mg/l | 9.1 | |
| 499678 | Dissolved oxygen (DO) | 8/19/1998 | 8.8 | mg/l | 8.8 | |
| 499678 | Dissolved oxygen (DO) | 9/9/1998 | 8.4 | mg/l | 8.4 | |
| 499678 | Dissolved oxygen (DO) | 10/14/1998 | 9.4 | mg/l | 9.4 | |
| 499678 | Dissolved oxygen (DO) | 11/19/1998 | 10.7 | mg/l | 10.7 | |
| 499678 | Dissolved oxygen (DO) | 1/12/1999 | 12 | mg/l | 12 | |
| 499678 | Dissolved oxygen (DO) | 3/9/1999 | 11.6 | mg/l | 11.6 | |
| 499678 | Dissolved oxygen (DO) | 4/21/1999 | 11.4 | mg/l | 11.4 | |
| 499678 | Dissolved oxygen (DO) | 5/25/1999 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 6/29/1999 | 9.5 | mg/l | 9.5 | |
| 499678 | Dissolved oxygen (DO) | 7/28/1999 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 8/19/1999 | 8.8 | mg/l | 8.8 | |
| 499678 | Dissolved oxygen (DO) | 9/16/1999 | 8.5 | mg/l | 8.5 | |
| 499678 | Dissolved oxygen (DO) | 10/21/1999 | 10.9 | mg/l | 10.9 | |
| 499678 | Dissolved oxygen (DO) | 11/23/1999 | 11.3 | mg/l | 11.3 | |
| 499678 | Dissolved oxygen (DO) | 1/26/2000 | 10.62 | mg/l | 10.62 | |
| 499678 | Dissolved oxygen (DO) | 2/23/2000 | 10.73 | mg/l | 10.73 | |
| 499678 | Dissolved oxygen (DO) | 3/30/2000 | 11.22 | mg/l | 11.22 | |
| 499678 | Dissolved oxygen (DO) | 4/12/2000 | 10.47 | mg/l | 10.47 | |
| 499678 | Dissolved oxygen (DO) | 4/27/2000 | 9.59 | mg/l | 9.59 | |
| 499678 | Dissolved oxygen (DO) | 5/10/2000 | 9.3 | mg/l | 9.3 | |
| 499678 | Dissolved oxygen (DO) | 7/11/2000 | 8.94 | mg/l | 8.94 | |
| 499678 | Dissolved oxygen (DO) | 6/7/2000 | 9.14 | mg/l | 9.14 | |
| 499678 | Dissolved oxygen (DO) | 8/9/2000 | 8.7 | mg/l | 8.7 | |
| 499678 | Dissolved oxygen (DO) | 9/21/2000 | 9.58 | mg/l | 9.58 | |
| 499678 | Dissolved oxygen (DO) | 10/17/2000 | 9.59 | mg/l | 9.59 | |
| 499678 | Dissolved oxygen (DO) | 1/23/2001 | 10.08 | mg/l | 10.08 | |
| 499678 | Dissolved oxygen (DO) | 3/20/2001 | 9.84 | mg/l | 9.84 | |
| 499678 | Dissolved oxygen (DO) | 5/17/2001 | 9.17 | mg/l | 9.17 | |
| 499678 | Dissolved oxygen (DO) | 6/21/2001 | 9.09 | mg/l | 9.09 | |
| 499678 | Dissolved oxygen (DO) | 7/18/2001 | 9.43 | mg/l | 9.43 | |
| 499678 | Dissolved oxygen (DO) | 8/22/2001 | 8.91 | mg/l | 8.91 | |
| 499678 | Dissolved oxygen (DO) | 9/20/2001 | 8.87 | mg/l | 8.87 | |
| 499678 | Dissolved oxygen (DO) | 10/16/2001 | 10.23 | mg/l | 10.23 | |
| 499678 | Dissolved oxygen (DO) | 11/20/2001 | 10.71 | mg/l | 10.71 | |
| 499678 | Dissolved oxygen (DO) | 3/27/2002 | 10.88 | mg/l | 10.88 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Dissolved oxygen (DO) | 4/30/2002 | 9.48 | mg/l | 9.48 | |
| 499678 | Dissolved oxygen (DO) | 5/29/2002 | 8.94 | mg/l | 8.94 | |
| 499678 | Dissolved oxygen (DO) | 6/25/2002 | 8.56 | mg/l | 8.56 | |
| 499678 | Dissolved oxygen (DO) | 7/30/2002 | 8.88 | mg/l | 8.88 | |
| 499678 | Dissolved oxygen (DO) | 8/20/2002 | 8.33 | mg/l | 8.33 | |
| 499678 | Dissolved oxygen (DO) | 9/18/2002 | 9.28 | mg/l | 9.28 | |
| 499678 | Dissolved oxygen (DO) | 10/22/2002 | 9.87 | mg/l | 9.87 | |
| 499678 | Dissolved oxygen (DO) | 11/21/2002 | 10.3 | mg/l | 10.3 | |
| 499678 | Dissolved oxygen (DO) | 12/18/2002 | 11.2 | mg/l | 11.2 | |
| 499678 | Dissolved Solids | 1/16/1990 | 272 | mg/l | 272 | |
| 499678 | Dissolved Solids | 3/8/1990 | 304 | mg/l | 304 | |
| 499678 | Dissolved Solids | 4/25/1990 | 272 | mg/l | 272 | |
| 499678 | Dissolved Solids | 5/9/1990 | 294 | mg/l | 294 | |
| 499678 | Dissolved Solids | 5/30/1990 | 274 | mg/l | 274 | |
| 499678 | Dissolved Solids | 6/13/1990 | 240 | mg/l | 240 | |
| 499678 | Dissolved Solids | 7/11/1990 | 258 | mg/l | 258 | |
| 499678 | Dissolved Solids | 8/8/1990 | 232 | mg/l | 232 | |
| 499678 | Dissolved Solids | 9/12/1990 | 766 | mg/l | 766 | |
| 499678 | Dissolved Solids | 10/11/1990 | 228 | mg/l | 228 | |
| 499678 | Dissolved Solids | 11/7/1990 | 240 | mg/l | 240 | |
| 499678 | Dissolved Solids | 2/13/1991 | 276 | mg/l | 276 | |
| 499678 | Dissolved Solids | 3/13/1991 | 308 | mg/l | 308 | |
| 499678 | Dissolved Solids | 5/2/1991 | 266 | mg/l | 266 | |
| 499678 | Dissolved Solids | 5/16/1991 | 238 | mg/l | 238 | |
| 499678 | Dissolved Solids | 5/30/1991 | 266 | mg/l | 266 | |
| 499678 | Dissolved Solids | 6/13/1991 | 226 | mg/l | 226 | |
| 499678 | Dissolved Solids | 7/15/1991 | 234 | mg/l | 234 | |
| 499678 | Dissolved Solids | 8/14/1991 | 208 | mg/l | 208 | |
| 499678 | Dissolved Solids | 9/18/1991 | 212 | mg/l | 212 | |
| 499678 | Dissolved Solids | 10/16/1991 | 232 | mg/l | 232 | |
| 499678 | Dissolved Solids | 11/19/1991 | 236 | mg/l | 236 | |
| 499678 | Dissolved Solids | 4/14/1992 | 248 | mg/l | 248 | |
| 499678 | Dissolved Solids | 3/16/1994 | 246 | mg/l | 246 | |
| 499678 | Dissolved Solids | 3/29/1994 | 260 | mg/l | 260 | |
| 499678 | Dissolved Solids | 4/12/1994 | 244 | mg/l | 244 | |
| 499678 | Dissolved Solids | 4/27/1994 | 262 | mg/l | 262 | |
| 499678 | Dissolved Solids | 5/11/1994 | 268 | mg/l | 268 | |
| 499678 | Dissolved Solids | 5/25/1994 | 264 | mg/l | 264 | |
| 499678 | Dissolved Solids | 6/7/1994 | 262 | mg/l | 262 | |
| 499678 | Dissolved Solids | 7/13/1994 | 242 | mg/l | 242 | |
| 499678 | Dissolved Solids | 8/15/1994 | 240 | mg/l | 240 | |
| 499678 | Dissolved Solids | 9/20/1994 | 238 | mg/l | 238 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Dissolved Solids | 10/27/1994 | 240 | mg/l | 240 | |
| 499678 | Dissolved Solids | 11/15/1994 | 252 | mg/l | 252 | |
| 499678 | Dissolved Solids | 1/23/1995 | 272 | mg/l | 272 | |
| 499678 | Dissolved Solids | 3/14/1995 | 302 | mg/l | 302 | |
| 499678 | Dissolved Solids | 4/3/1995 | 242 | mg/l | 242 | |
| 499678 | Dissolved Solids | 4/18/1995 | 240 | mg/l | 240 | |
| 499678 | Dissolved Solids | 5/2/1995 | 270 | mg/l | 270 | |
| 499678 | Dissolved Solids | 5/15/1995 | 238 | mg/l | 238 | |
| 499678 | Dissolved Solids | 5/30/1995 | 296 | mg/l | 296 | |
| 499678 | Dissolved Solids | 6/13/1995 | 264 | mg/l | 264 | |
| 499678 | Dissolved Solids | 1/12/1999 | 220 | mg/l | 220 | |
| 499678 | Dissolved Solids | 3/9/1999 | 222 | mg/l | 222 | |
| 499678 | Dissolved Solids | 4/21/1999 | 222 | mg/l | 222 | |
| 499678 | Dissolved Solids | 5/25/1999 | 238 | mg/l | 238 | |
| 499678 | Dissolved Solids | 6/29/1999 | 214 | mg/l | 214 | |
| 499678 | Dissolved Solids | 7/28/1999 | 206 | mg/l | 206 | |
| 499678 | Dissolved Solids | 8/19/1999 | 204 | mg/l | 204 | |
| 499678 | Dissolved Solids | 9/16/1999 | 210 | mg/l | 210 | |
| 499678 | Dissolved Solids | 10/21/1999 | 150 | mg/l | 150 | |
| 499678 | Dissolved Solids | 11/23/1999 | 208 | mg/l | 208 | |
| 499678 | Dissolved Solids | 1/26/2000 | 226 | mg/l | 226 | |
| 499678 | Dissolved Solids | 2/23/2000 | 224 | mg/l | 224 | |
| 499678 | Dissolved Solids | 3/30/2000 | 210 | mg/l | 210 | |
| 499678 | Dissolved Solids | 4/12/2000 | 198 | mg/l | 198 | |
| 499678 | Dissolved Solids | 4/27/2000 | 232 | mg/l | 232 | |
| 499678 | Dissolved Solids | 7/11/2000 | 216 | mg/l | 216 | |
| 499678 | Dissolved Solids | 5/10/2000 | 248 | mg/l | 248 | |
| 499678 | Dissolved Solids | 6/7/2000 | 228 | mg/l | 228 | |
| 499678 | Dissolved Solids | 8/9/2000 | 202 | mg/l | 202 | |
| 499678 | Dissolved Solids | 9/21/2000 | 218 | mg/l | 218 | |
| 499678 | Dissolved Solids | 10/17/2000 | 216 | mg/l | 216 | |
| 499678 | Dissolved Solids | 1/23/2001 | 226 | mg/l | 226 | |
| 499678 | Dissolved Solids | 3/20/2001 | 228 | mg/l | 228 | |
| 499678 | Dissolved Solids | 5/17/2001 | 214 | mg/l | 214 | |
| 499678 | Dissolved Solids | 6/21/2001 | 234 | mg/l | 234 | |
| 499678 | Dissolved Solids | 7/18/2001 | 226 | mg/l | 226 | |
| 499678 | Dissolved Solids | 8/22/2001 | 240 | mg/l | 240 | |
| 499678 | Dissolved Solids | 9/20/2001 | 226 | mg/l | 226 | |
| 499678 | Dissolved Solids | 10/16/2001 | 222 | mg/l | 222 | |
| 499678 | Dissolved Solids | 11/20/2001 | 244 | mg/l | 244 | |
| 499678 | Dissolved Solids | 3/27/2002 | 388 | mg/l | 388 | |
| 499678 | Dissolved Solids | 4/30/2002 | 242 | mg/l | 242 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Dissolved Solids | 5/29/2002 | 252 | mg/l | 252 | |
| 499678 | Dissolved Solids | 7/30/2002 | 244 | mg/l | 244 | |
| 499678 | Dissolved Solids | 8/20/2002 | 250 | mg/l | 250 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/16/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/8/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/25/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/9/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/30/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/13/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/11/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/8/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/12/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 10/11/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/7/1990 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 2/13/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/13/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/2/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/16/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/30/1991 | 0.07 | mg/l | 0.07 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/13/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/15/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/14/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/18/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 10/16/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/19/1991 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/15/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/16/1992 | 0.26 | mg/l | 0.26 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/17/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/14/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/16/1992 | 0.082 | mg/l | 0.082 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/27/1992 | 0.316 | mg/l | 0.316 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/11/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/27/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/10/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/13/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/14/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/11/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/17/1992 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 2/9/1993 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/17/1993 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/14/1993 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/18/1993 | 0 | mg/l | 0.025 | 0.05 |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/15/1993 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/29/1993 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/24/1993 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/30/1993 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/2/1993 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/19/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/16/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/29/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/12/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/27/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/11/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/25/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/7/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/13/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/15/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/20/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 10/27/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/15/1994 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/23/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/14/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/3/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/18/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/2/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/15/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/30/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/13/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/12/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/15/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/19/1995 | 0.059 | mg/l | 0.059 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/1/1995 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/9/1996 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/13/1996 | 0.101 | mg/l | 0.101 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/22/1996 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/23/1996 | 0.096 | mg/l | 0.096 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/19/1996 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/16/1996 | 0.067 | mg/l | 0.067 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/20/1996 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/24/1996 | 0.066 | mg/l | 0.066 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 10/17/1996 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/20/1996 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/30/1997 | 0.065 | mg/l | 0.065 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/25/1997 | 0 | mg/l | 0.025 | 0.05 |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/30/1997 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/27/1997 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/26/1997 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/28/1997 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/26/1997 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/30/1997 | 0.065 | mg/l | 0.065 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 10/29/1997 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/17/1997 | 0.061 | mg/l | 0.061 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/21/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 2/23/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/19/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/28/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/28/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/24/1998 | 0.07 | mg/l | 0.07 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/22/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/19/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/9/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/19/1998 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/12/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/9/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/21/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/25/1999 | 0.0776 | mg/l | 0.0776 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/29/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/28/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/19/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/16/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 10/21/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/23/1999 | 0 | mg/l | 0.025 | 0.05 |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/26/2000 | 0 | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 2/23/2000 | 0 | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/30/2000 | | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/12/2000 | | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/27/2000 | | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/10/2000 | | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/7/2000 | | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/11/2000 | | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/9/2000 | | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/21/2000 | | mg/l | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 10/17/2000 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 1/23/2001 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/20/2001 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/17/2001 | | | 0 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 6/21/2001 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/18/2001 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/22/2001 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 9/20/2001 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 10/16/2001 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 11/20/2001 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 3/27/2002 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 4/30/2002 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 5/29/2002 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 7/30/2002 | | | 0 | |
| 499678 | Nitrogen, ammonia (NH3) as NH3 | 8/20/2002 | 0 | | 0 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 1/16/1990 | 0.25 | mg/l | 0.25 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 3/8/1990 | 0.23 | mg/l | 0.23 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 5/30/1990 | 0.16 | mg/l | 0.16 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 6/13/1990 | 0.17 | mg/l | 0.17 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 7/11/1990 | 0.18 | mg/l | 0.18 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 8/8/1990 | 0.25 | mg/l | 0.25 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 9/12/1990 | 0.1 | mg/l | 0.1 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 10/11/1990 | 0.11 | mg/l | 0.11 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 11/7/1990 | 0.11 | mg/l | 0.11 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 2/13/1991 | 0.372 | mg/l | 0.372 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 3/13/1991 | 0.41 | mg/l | 0.41 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 5/2/1991 | 0.242 | mg/l | 0.242 | |
| 499678 | Nitrogen, Nitrate (NO3) as NO3 | 10/16/1991 | 0.164 | mg/l | 0.164 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/16/1991 | 0.107 | mg/l | 0.107 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/30/1991 | 0.229 | mg/l | 0.229 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/13/1991 | 0.159 | mg/l | 0.159 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/15/1991 | 0.18 | mg/l | 0.18 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/14/1991 | 0.27 | mg/l | 0.27 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/18/1991 | 0.299 | mg/l | 0.299 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/16/1991 | 0.111 | mg/l | 0.111 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/19/1991 | 0.234 | mg/l | 0.234 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/15/1992 | 0.251 | mg/l | 0.251 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/16/1992 | 0.338 | mg/l | 0.338 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/17/1992 | 0.323 | mg/l | 0.323 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/14/1992 | 0.216 | mg/l | 0.216 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/27/1992 | 0.16 | mg/l | 0.16 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/11/1992 | 0.108 | mg/l | 0.108 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/27/1992 | 0.145 | mg/l | 0.145 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/10/1992 | 0.188 | mg/l | 0.188 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/13/1992 | 0.265 | mg/l | 0.265 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/14/1992 | 0.113 | mg/l | 0.113 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/11/1992 | 0.08 | mg/l | 0.08 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/17/1992 | 0.207 | mg/l | 0.207 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/9/1993 | 0.321 | mg/l | 0.321 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/17/1993 | 0.44 | mg/l | 0.44 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/14/1993 | 0.258 | mg/l | 0.258 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/18/1993 | 1.253 | mg/l | 1.253 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/15/1993 | 0.416 | mg/l | 0.416 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/29/1993 | 0.309 | mg/l | 0.309 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/24/1993 | 0.302 | mg/l | 0.302 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/30/1993 | 0.255 | mg/l | 0.255 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/2/1993 | 0.26 | mg/l | 0.26 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/19/1994 | 0.286 | mg/l | 0.286 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/16/1994 | 0.2 | mg/l | 0.2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/29/1994 | 0.176 | mg/l | 0.176 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/12/1994 | 0.202 | mg/l | 0.202 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/27/1994 | 0.024 | mg/l | 0.024 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/11/1994 | 0.284 | mg/l | 0.284 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/25/1994 | 0.31 | mg/l | 0.31 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/7/1994 | 0.203 | mg/l | 0.203 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/13/1994 | 0.238 | mg/l | 0.238 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/15/1994 | 0.24 | mg/l | 0.24 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/20/1994 | 0.134 | mg/l | 0.134 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/27/1994 | 0.132 | mg/l | 0.132 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/15/1994 | 0.205 | mg/l | 0.205 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/23/1995 | 0.557 | mg/l | 0.557 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/14/1995 | 0.298 | mg/l | 0.298 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/3/1995 | 0.229 | mg/l | 0.229 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/18/1995 | 0.115 | mg/l | 0.115 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/2/1995 | 0.33 | mg/l | 0.33 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/15/1995 | 0.32 | mg/l | 0.32 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/30/1995 | 0.36 | mg/l | 0.36 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/13/1995 | 0.17 | mg/l | 0.17 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/12/1995 | 0.25 | mg/l | 0.25 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/15/1995 | 0.25 | mg/l | 0.25 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/19/1995 | 0.33 | mg/l | 0.33 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/1/1995 | 0.31 | mg/l | 0.31 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/9/1996 | 0.31 | mg/l | 0.31 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/13/1996 | 0.23 | mg/l | 0.23 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/22/1996 | 0.1 | mg/l | 0.1 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/23/1996 | 2.82 | mg/l | 2.82 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/19/1996 | 0.18 | mg/l | 0.18 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/16/1996 | 0.23 | mg/l | 0.23 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/20/1996 | 0.32 | mg/l | 0.32 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/24/1996 | 2 | mg/l | 2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/17/1996 | 0.23 | mg/l | 0.23 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/20/1996 | 0.23 | mg/l | 0.23 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/30/1997 | 0.36 | mg/l | 0.36 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/25/1997 | 0.18 | mg/l | 0.18 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/30/1997 | 0.17 | mg/l | 0.17 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/27/1997 | 0.24 | mg/l | 0.24 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/26/1997 | 0.19 | mg/l | 0.19 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/28/1997 | 0.25 | mg/l | 0.25 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/26/1997 | 0.4 | mg/l | 0.4 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/30/1997 | 0.32 | mg/l | 0.32 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/29/1997 | 0.24 | mg/l | 0.24 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/17/1997 | 0.15 | mg/l | 0.15 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/21/1998 | 0.6 | mg/l | 0.6 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/23/1998 | 0.25 | mg/l | 0.25 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/19/1998 | 0.12 | mg/l | 0.12 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/28/1998 | 0.22 | mg/l | 0.22 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/28/1998 | 0.26 | mg/l | 0.26 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/24/1998 | 0.27 | mg/l | 0.27 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/22/1998 | 0.23 | mg/l | 0.23 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/19/1998 | 1.06 | mg/l | 1.06 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/9/1998 | 0.31 | mg/l | 0.31 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/19/1998 | 0.22 | mg/l | 0.22 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/12/1999 | 0.70861 | mg/l | 0.70861 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/9/1999 | 0.12764 | mg/l | 0.12764 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/21/1999 | 0.141 | mg/l | 0.141 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/25/1999 | 0.17789 | mg/l | 0.17789 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/29/1999 | 0.18778 | mg/l | 0.18778 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/28/1999 | 0.2 | mg/l | 0.2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/19/1999 | 0.2 | mg/l | 0.2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/16/1999 | 0.24 | mg/l | 0.24 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/21/1999 | 0.1 | mg/l | 0.1 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/23/1999 | 0.2 | mg/l | 0.2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/26/2000 | 0.3 | mg/l | 0.3 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/23/2000 | 0.2 | mg/l | 0.2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/30/2000 | 0.1 | mg/l | 0.1 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/12/2000 | 0.2 | mg/l | 0.2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/27/2000 | 0.2 | mg/l | 0.2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/11/2000 | 0.2 | mg/l | 0.2 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/10/2000 | 0.1 | mg/l | 0.1 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/7/2000 | 0.1 | mg/l | 0.1 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/9/2000 | 0.22 | mg/l | 0.22 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/21/2000 | 0.3 | mg/l | 0.3 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/17/2000 | 0.3 | mg/l | 0.3 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/23/2001 | 0.61 | mg/l | 0.61 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/20/2001 | 0.16 | mg/l | 0.16 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/17/2001 | 0.14 | mg/l | 0.14 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/21/2001 | 0.26 | mg/l | 0.26 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/18/2001 | 0.23 | mg/l | 0.23 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/22/2001 | 0.28 | mg/l | 0.28 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/20/2001 | 0.1693 | mg/l | 0.1693 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/16/2001 | 0.42 | mg/l | 0.42 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/20/2001 | 0.58 | mg/l | 0.58 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/27/2002 | | | 0 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/30/2002 | 0.26 | mg/l | 0.26 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/29/2002 | | | 0 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/30/2002 | 0.1 | mg/l | 0.1 | |
| 499678 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/20/2002 | 0 | | 0 | |
| 499678 | pH | 1/16/1990 | 8.6 | None | 8.6 | |
| 499678 | pH | 3/8/1990 | 8.7 | None | 8.7 | |
| 499678 | pH | 4/25/1990 | 8.5 | None | 8.5 | |
| 499678 | pH | 5/9/1990 | 8.2 | None | 8.2 | |
| 499678 | pH | 5/30/1990 | 8.4 | None | 8.4 | |
| 499678 | pH | 6/13/1990 | 8.4 | None | 8.4 | |
| 499678 | pH | 7/11/1990 | 8.5 | None | 8.5 | |
| 499678 | pH | 8/8/1990 | 8 | None | 8 | |
| 499678 | pH | 9/12/1990 | 8.1 | None | 8.1 | |
| 499678 | pH | 10/11/1990 | 8.8 | None | 8.8 | |
| 499678 | pH | 11/7/1990 | 8.2 | None | 8.2 | |
| 499678 | pH | 2/13/1991 | 8.8 | None | 8.8 | |
| 499678 | pH | 3/13/1991 | 8.4 | None | 8.4 | |
| 499678 | pH | 5/2/1991 | 7.9 | None | 7.9 | |
| 499678 | pH | 5/30/1991 | 7.7 | None | 7.7 | |
| 499678 | pH | 7/15/1991 | 8.8 | None | 8.8 | |
| 499678 | pH | 8/14/1991 | 8.4 | None | 8.4 | |
| 499678 | pH | 9/18/1991 | 8.2 | None | 8.2 | |
| 499678 | pH | 10/16/1991 | 8.2 | None | 8.2 | |
| 499678 | pH | 11/19/1991 | 7.6 | None | 7.6 | |
| 499678 | pH | 1/15/1992 | 8.1 | None | 8.1 | |
| 499678 | pH | 3/16/1992 | 7.9 | None | 7.9 | |
| 499678 | pH | 3/17/1992 | 8.1 | None | 8.1 | |
| 499678 | pH | 4/14/1992 | 8.1 | None | 8.1 | |
| 499678 | pH | 4/16/1992 | 8.2 | None | 8.2 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | pH | 4/27/1992 | 8.1 | None | 8.1 | |
| 499678 | pH | 5/11/1992 | 8.5 | None | 8.5 | |
| 499678 | pH | 5/27/1992 | 8.8 | None | 8.8 | |
| 499678 | pH | 6/10/1992 | 8.6 | None | 8.6 | |
| 499678 | pH | 7/13/1992 | 7.9 | None | 7.9 | |
| 499678 | pH | 8/14/1992 | 7.7 | None | 7.7 | |
| 499678 | pH | 9/11/1992 | 8.4 | None | 8.4 | |
| 499678 | pH | 11/17/1992 | 8.3 | None | 8.3 | |
| 499678 | pH | 2/9/1993 | 8.4 | None | 8.4 | |
| 499678 | pH | 3/17/1993 | 8.5 | None | 8.5 | |
| 499678 | pH | 4/14/1993 | 8.3 | None | 8.3 | |
| 499678 | pH | 5/18/1993 | 8.3 | None | 8.3 | |
| 499678 | pH | 6/15/1993 | 8.2 | None | 8.2 | |
| 499678 | pH | 7/29/1993 | 8.3 | None | 8.3 | |
| 499678 | pH | 8/24/1993 | 8.1 | None | 8.1 | |
| 499678 | pH | 9/30/1993 | 8.2 | None | 8.2 | |
| 499678 | pH | 11/2/1993 | 8.2 | None | 8.2 | |
| 499678 | pH | 1/19/1994 | 8.5 | None | 8.5 | |
| 499678 | pH | 3/16/1994 | 7.3 | None | 7.3 | |
| 499678 | pH | 3/16/1994 | 8.8 | None | 8.8 | |
| 499678 | pH | 3/29/1994 | 8 | None | 8 | |
| 499678 | pH | 3/29/1994 | 8.5 | None | 8.5 | |
| 499678 | pH | 4/12/1994 | 8.1 | None | 8.1 | |
| 499678 | pH | 4/12/1994 | 8 | None | 8 | |
| 499678 | pH | 4/27/1994 | 7.3 | None | 7.3 | |
| 499678 | pH | 4/27/1994 | 7.8 | None | 7.8 | |
| 499678 | pH | 5/11/1994 | 8.8 | None | 8.8 | |
| 499678 | pH | 5/11/1994 | 7.7 | None | 7.7 | |
| 499678 | pH | 5/25/1994 | 8.5 | None | 8.5 | |
| 499678 | pH | 5/25/1994 | 7.7 | None | 7.7 | |
| 499678 | pH | 6/7/1994 | 7.9 | None | 7.9 | |
| 499678 | pH | 6/7/1994 | 7.5 | None | 7.5 | |
| 499678 | pH | 7/13/1994 | 8.3 | None | 8.3 | |
| 499678 | pH | 7/13/1994 | 8.1 | None | 8.1 | |
| 499678 | pH | 8/15/1994 | 8 | None | 8 | |
| 499678 | pH | 8/15/1994 | 8.3 | None | 8.3 | |
| 499678 | pH | 9/20/1994 | 8 | None | 8 | |
| 499678 | pH | 9/20/1994 | 8 | None | 8 | |
| 499678 | pH | 10/27/1994 | 8.4 | None | 8.4 | |
| 499678 | pH | 10/27/1994 | 7.8 | None | 7.8 | |
| 499678 | pH | 11/15/1994 | 8.5 | None | 8.5 | |
| 499678 | pH | 11/15/1994 | 8.2 | None | 8.2 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | pH | 1/23/1995 | 8.6 | None | 8.6 | |
| 499678 | pH | 3/14/1995 | 8.3 | None | 8.3 | |
| 499678 | pH | 3/14/1995 | 8.6 | None | 8.6 | |
| 499678 | pH | 4/3/1995 | 8.6 | None | 8.6 | |
| 499678 | pH | 4/3/1995 | 8.5 | None | 8.5 | |
| 499678 | pH | 4/18/1995 | 8.7 | None | 8.7 | |
| 499678 | pH | 4/18/1995 | 8.5 | None | 8.5 | |
| 499678 | pH | 5/2/1995 | 8.1 | None | 8.1 | |
| 499678 | pH | 5/2/1995 | 8.39 | None | 8.39 | |
| 499678 | pH | 5/15/1995 | 8.4 | None | 8.4 | |
| 499678 | pH | 5/15/1995 | 8.56 | None | 8.56 | |
| 499678 | pH | 5/30/1995 | 8.38 | None | 8.38 | |
| 499678 | pH | 5/30/1995 | 8.3 | None | 8.3 | |
| 499678 | pH | 6/13/1995 | 8.2 | None | 8.2 | |
| 499678 | pH | 6/13/1995 | 8.58 | None | 8.58 | |
| 499678 | pH | 7/12/1995 | 8.1 | None | 8.1 | |
| 499678 | pH | 8/15/1995 | 8.4 | None | 8.4 | |
| 499678 | pH | 9/19/1995 | 8.4 | None | 8.4 | |
| 499678 | pH | 11/1/1995 | 8.57 | None | 8.57 | |
| 499678 | pH | 11/1/1995 | 8.2 | None | 8.2 | |
| 499678 | pH | 1/9/1996 | 8.43 | None | 8.43 | |
| 499678 | pH | 1/9/1996 | 7.6 | None | 7.6 | |
| 499678 | pH | 3/13/1996 | 8.6 | None | 8.6 | |
| 499678 | pH | 3/13/1996 | 8.6 | None | 8.6 | |
| 499678 | pH | 4/22/1996 | 8.6 | None | 8.6 | |
| 499678 | pH | 4/22/1996 | 8.4 | None | 8.4 | |
| 499678 | pH | 5/23/1996 | 8.3 | None | 8.3 | |
| 499678 | pH | 5/23/1996 | 8.38 | None | 8.38 | |
| 499678 | pH | 6/19/1996 | 8.5 | None | 8.5 | |
| 499678 | pH | 6/19/1996 | 8.64 | None | 8.64 | |
| 499678 | pH | 7/16/1996 | 8.6 | None | 8.6 | |
| 499678 | pH | 7/16/1996 | 8.4 | None | 8.4 | |
| 499678 | pH | 8/20/1996 | 8.3 | None | 8.3 | |
| 499678 | pH | 8/20/1996 | 8.48 | None | 8.48 | |
| 499678 | pH | 9/24/1996 | 8.3 | None | 8.3 | |
| 499678 | pH | 9/24/1996 | 8.7 | None | 8.7 | |
| 499678 | pH | 10/17/1996 | 8.8 | None | 8.8 | |
| 499678 | pH | 10/17/1996 | 8.41 | None | 8.41 | |
| 499678 | pH | 11/20/1996 | 8.6 | None | 8.6 | |
| 499678 | pH | 11/20/1996 | 8.61 | None | 8.61 | |
| 499678 | pH | 1/30/1997 | 8.4 | None | 8.4 | |
| 499678 | pH | 1/30/1997 | 8.27 | None | 8.27 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | pH | 3/25/1997 | 8.88 | None | 8.88 | |
| 499678 | pH | 3/25/1997 | 8.9 | None | 8.9 | |
| 499678 | pH | 4/30/1997 | 8.7 | None | 8.7 | |
| 499678 | pH | 4/30/1997 | 8.32 | None | 8.32 | |
| 499678 | pH | 5/27/1997 | 8.3 | None | 8.3 | |
| 499678 | pH | 5/27/1997 | 8.14 | None | 8.14 | |
| 499678 | pH | 6/26/1997 | 8.4 | None | 8.4 | |
| 499678 | pH | 6/26/1997 | 8.6 | None | 8.6 | |
| 499678 | pH | 7/28/1997 | 8.3 | None | 8.3 | |
| 499678 | pH | 7/28/1997 | 8.32 | None | 8.32 | |
| 499678 | pH | 8/26/1997 | 8.42 | None | 8.42 | |
| 499678 | pH | 8/26/1997 | 8.1 | None | 8.1 | |
| 499678 | pH | 9/30/1997 | 8.7 | None | 8.7 | |
| 499678 | pH | 9/30/1997 | 8.28 | None | 8.28 | |
| 499678 | pH | 10/29/1997 | 8.4 | None | 8.4 | |
| 499678 | pH | 10/29/1997 | 8.44 | None | 8.44 | |
| 499678 | pH | 11/17/1997 | 8.5 | None | 8.5 | |
| 499678 | pH | 11/17/1997 | 8.6 | None | 8.6 | |
| 499678 | pH | 1/21/1998 | 8.3 | None | 8.3 | |
| 499678 | pH | 1/21/1998 | 8.29 | None | 8.29 | |
| 499678 | pH | 2/23/1998 | 8.29 | None | 8.29 | |
| 499678 | pH | 2/23/1998 | 8.3 | None | 8.3 | |
| 499678 | pH | 3/19/1998 | 8.55 | None | 8.55 | |
| 499678 | pH | 3/19/1998 | 8.8 | None | 8.8 | |
| 499678 | pH | 4/28/1998 | 8.46 | None | 8.46 | |
| 499678 | pH | 4/28/1998 | 8.3 | None | 8.3 | |
| 499678 | pH | 5/28/1998 | 8.44 | None | 8.44 | |
| 499678 | pH | 5/28/1998 | 8.4 | None | 8.4 | |
| 499678 | pH | 6/24/1998 | 8.3 | None | 8.3 | |
| 499678 | pH | 6/24/1998 | 8.35 | None | 8.35 | |
| 499678 | pH | 7/22/1998 | 8.36 | None | 8.36 | |
| 499678 | pH | 7/22/1998 | 8.3 | None | 8.3 | |
| 499678 | pH | 8/19/1998 | 8.44 | None | 8.44 | |
| 499678 | pH | 8/19/1998 | 8.3 | None | 8.3 | |
| 499678 | pH | 9/9/1998 | 8.29 | None | 8.29 | |
| 499678 | pH | 9/9/1998 | 8.1 | None | 8.1 | |
| 499678 | pH | 10/14/1998 | 8.53 | None | 8.53 | |
| 499678 | pH | 10/14/1998 | 8.5 | None | 8.5 | |
| 499678 | pH | 11/19/1998 | 8.65 | None | 8.65 | |
| 499678 | pH | 11/19/1998 | 8.5 | None | 8.5 | |
| 499678 | pH | 1/12/1999 | 8.74 | None | 8.74 | |
| 499678 | pH | 1/12/1999 | 8.6 | None | 8.6 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | pH | 3/9/1999 | 8.6 | None | 8.6 | |
| 499678 | pH | 3/9/1999 | 8.47 | None | 8.47 | |
| 499678 | pH | 4/21/1999 | 8.6 | None | 8.6 | |
| 499678 | pH | 4/21/1999 | 8.54 | None | 8.54 | |
| 499678 | pH | 5/25/1999 | 8.4 | None | 8.4 | |
| 499678 | pH | 5/25/1999 | 8.5 | None | 8.5 | |
| 499678 | pH | 6/29/1999 | 8.28 | None | 8.28 | |
| 499678 | pH | 6/29/1999 | 8.2 | None | 8.2 | |
| 499678 | pH | 7/28/1999 | 8.46 | None | 8.46 | |
| 499678 | pH | 7/28/1999 | 8.2 | None | 8.2 | |
| 499678 | pH | 8/19/1999 | 7.7 | None | 7.7 | |
| 499678 | pH | 8/19/1999 | 8.42 | None | 8.42 | |
| 499678 | pH | 9/16/1999 | 8.1 | None | 8.1 | |
| 499678 | pH | 9/16/1999 | 8.32 | None | 8.32 | |
| 499678 | pH | 10/21/1999 | 8.58 | None | 8.58 | |
| 499678 | pH | 10/21/1999 | 8.5 | None | 8.5 | |
| 499678 | pH | 11/23/1999 | 8.09 | None | 8.09 | |
| 499678 | pH | 11/23/1999 | 8.7 | None | 8.7 | |
| 499678 | pH | 1/26/2000 | 8.65 | None | 8.65 | |
| 499678 | pH | 1/26/2000 | 8.62 | None | 8.62 | |
| 499678 | pH | 2/23/2000 | 8.66 | None | 8.66 | |
| 499678 | pH | 2/23/2000 | 7.78 | None | 7.78 | |
| 499678 | pH | 3/30/2000 | 8.72 | None | 8.72 | |
| 499678 | pH | 3/30/2000 | 8.67 | None | 8.67 | |
| 499678 | pH | 4/12/2000 | 8.76 | None | 8.76 | |
| 499678 | pH | 4/12/2000 | 8.42 | None | 8.42 | |
| 499678 | pH | 4/27/2000 | 8.44 | None | 8.44 | |
| 499678 | pH | 4/27/2000 | 8.44 | None | 8.44 | |
| 499678 | pH | 5/10/2000 | 8.47 | None | 8.47 | |
| 499678 | pH | 5/10/2000 | 8.41 | None | 8.41 | |
| 499678 | pH | 7/11/2000 | 8.62 | None | 8.62 | |
| 499678 | pH | 6/7/2000 | 8.65 | None | 8.65 | |
| 499678 | pH | 6/7/2000 | 8.63 | None | 8.63 | |
| 499678 | pH | 7/11/2000 | 8.72 | None | 8.72 | |
| 499678 | pH | 8/9/2000 | 8.82 | None | 8.82 | |
| 499678 | pH | 8/9/2000 | 8.76 | None | 8.76 | |
| 499678 | pH | 9/21/2000 | 8.42 | None | 8.42 | |
| 499678 | pH | 9/21/2000 | 8.46 | None | 8.46 | |
| 499678 | pH | 10/17/2000 | 8.46 | None | 8.46 | |
| 499678 | pH | 10/17/2000 | 8.53 | None | 8.53 | |
| 499678 | pH | 1/23/2001 | 8.69 | None | 8.69 | |
| 499678 | pH | 1/23/2001 | 8.41 | None | 8.41 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | pH | 3/20/2001 | 8.92 | None | 8.92 | |
| 499678 | pH | 3/20/2001 | 8.52 | None | 8.52 | |
| 499678 | pH | 5/17/2001 | 8.91 | None | 8.91 | |
| 499678 | pH | 5/17/2001 | 8.58 | None | 8.58 | |
| 499678 | pH | 6/21/2001 | 8.83 | None | 8.83 | |
| 499678 | pH | 6/21/2001 | 8.64 | None | 8.64 | |
| 499678 | pH | 7/18/2001 | 8.92 | None | 8.92 | |
| 499678 | pH | 7/18/2001 | 8.68 | None | 8.68 | |
| 499678 | pH | 8/22/2001 | 8.71 | None | 8.71 | |
| 499678 | pH | 8/22/2001 | 8.68 | None | 8.68 | |
| 499678 | pH | 9/20/2001 | 8.53 | None | 8.53 | |
| 499678 | pH | 9/20/2001 | 8.6 | None | 8.6 | |
| 499678 | pH | 10/16/2001 | 8.49 | None | 8.49 | |
| 499678 | pH | 10/16/2001 | 8.61 | None | 8.61 | |
| 499678 | pH | 11/20/2001 | 8.94 | None | 8.94 | |
| 499678 | pH | 11/20/2001 | 8.61 | None | 8.61 | |
| 499678 | pH | 3/27/2002 | 9 | None | 9 | |
| 499678 | pH | 3/27/2002 | 8.39 | None | 8.39 | |
| 499678 | pH | 4/30/2002 | 8.78 | None | 8.78 | |
| 499678 | pH | 4/30/2002 | 8.6 | None | 8.6 | |
| 499678 | pH | 5/29/2002 | 8.85 | None | 8.85 | |
| 499678 | pH | 5/29/2002 | 8.5 | None | 8.5 | |
| 499678 | pH | 6/25/2002 | 8.72 | None | 8.72 | |
| 499678 | pH | 7/30/2002 | 8.58 | None | 8.58 | |
| 499678 | pH | 7/30/2002 | 8.78 | None | 8.78 | |
| 499678 | pH | 8/20/2002 | 8.85 | None | 8.85 | |
| 499678 | pH | 8/20/2002 | 8.72 | None | 8.72 | |
| 499678 | pH | 9/18/2002 | 8.8 | None | 8.8 | |
| 499678 | pH | 10/22/2002 | 8.93 | None | 8.93 | |
| 499678 | pH | 11/21/2002 | 7.46 | None | 7.46 | |
| 499678 | pH | 12/18/2002 | 8.87 | None | 8.87 | |
| 499678 | Phosphorus as P | 1/16/1990 | 0.021 | mg/l | 0.021 | |
| 499678 | Phosphorus as P | 3/8/1990 | 0.049 | mg/l | 0.049 | |
| 499678 | Phosphorus as P | 4/25/1990 | 0.048 | mg/l | 0.048 | |
| 499678 | Phosphorus as P | 5/9/1990 | 0.033 | mg/l | 0.033 | |
| 499678 | Phosphorus as P | 5/30/1990 | 0.074 | mg/l | 0.074 | |
| 499678 | Phosphorus as P | 6/13/1990 | 0.097 | mg/l | 0.097 | |
| 499678 | Phosphorus as P | 7/11/1990 | 0.16 | mg/l | 0.16 | |
| 499678 | Phosphorus as P | 8/8/1990 | 0.044 | mg/l | 0.044 | |
| 499678 | Phosphorus as P | 8/8/1990 | 0.028 | mg/l | 0.028 | |
| 499678 | Phosphorus as P | 10/11/1990 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 10/11/1990 | 0.024 | mg/l | 0.024 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Phosphorus as P | 11/7/1990 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 2/13/1991 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 2/13/1991 | 0.015 | mg/l | 0.015 | |
| 499678 | Phosphorus as P | 3/13/1991 | 0.026 | mg/l | 0.026 | |
| 499678 | Phosphorus as P | 3/13/1991 | 0.019 | mg/l | 0.019 | |
| 499678 | Phosphorus as P | 5/2/1991 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 5/2/1991 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 5/16/1991 | 0.017 | mg/l | 0.017 | |
| 499678 | Phosphorus as P | 5/16/1991 | 0.019 | mg/l | 0.019 | |
| 499678 | Phosphorus as P | 5/30/1991 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 5/30/1991 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 6/13/1991 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 6/13/1991 | 0.019 | mg/l | 0.019 | |
| 499678 | Phosphorus as P | 7/15/1991 | 0.015 | mg/l | 0.015 | |
| 499678 | Phosphorus as P | 7/15/1991 | 0.021 | mg/l | 0.021 | |
| 499678 | Phosphorus as P | 8/14/1991 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 8/14/1991 | 0.035 | mg/l | 0.035 | |
| 499678 | Phosphorus as P | 9/18/1991 | 0.046 | mg/l | 0.046 | |
| 499678 | Phosphorus as P | 9/18/1991 | 0.04 | mg/l | 0.04 | |
| 499678 | Phosphorus as P | 10/16/1991 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 10/16/1991 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 11/19/1991 | 0.08 | mg/l | 0.08 | |
| 499678 | Phosphorus as P | 11/19/1991 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 1/15/1992 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 1/15/1992 | 0.025 | mg/l | 0.025 | |
| 499678 | Phosphorus as P | 3/16/1992 | 0.107 | mg/l | 0.107 | |
| 499678 | Phosphorus as P | 3/16/1992 | 0.029 | mg/l | 0.029 | |
| 499678 | Phosphorus as P | 3/17/1992 | 0.064 | mg/l | 0.064 | |
| 499678 | Phosphorus as P | 3/17/1992 | 0.017 | mg/l | 0.017 | |
| 499678 | Phosphorus as P | 4/14/1992 | 0.012 | mg/l | 0.012 | |
| 499678 | Phosphorus as P | 4/14/1992 | 0.015 | mg/l | 0.015 | |
| 499678 | Phosphorus as P | 4/16/1992 | 0.042 | mg/l | 0.042 | |
| 499678 | Phosphorus as P | 4/16/1992 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 4/27/1992 | 0.022 | mg/l | 0.022 | |
| 499678 | Phosphorus as P | 4/27/1992 | 0.042 | mg/l | 0.042 | |
| 499678 | Phosphorus as P | 5/11/1992 | 0.017 | mg/l | 0.017 | |
| 499678 | Phosphorus as P | 5/11/1992 | 0.011 | mg/l | 0.011 | |
| 499678 | Phosphorus as P | 5/27/1992 | 0.034 | mg/l | 0.034 | |
| 499678 | Phosphorus as P | 5/27/1992 | 0.026 | mg/l | 0.026 | |
| 499678 | Phosphorus as P | 6/10/1992 | 0.028 | mg/l | 0.028 | |
| 499678 | Phosphorus as P | 6/10/1992 | 0.039 | mg/l | 0.039 | |
| 499678 | Phosphorus as P | 7/13/1992 | 0.054 | mg/l | 0.054 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Phosphorus as P | 7/13/1992 | 0.08 | mg/l | 0.08 | |
| 499678 | Phosphorus as P | 8/14/1992 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 8/14/1992 | 0.038 | mg/l | 0.038 | |
| 499678 | Phosphorus as P | 9/11/1992 | 0.022 | mg/l | 0.022 | |
| 499678 | Phosphorus as P | 9/11/1992 | 0.034 | mg/l | 0.034 | |
| 499678 | Phosphorus as P | 11/17/1992 | 0.015 | mg/l | 0.015 | |
| 499678 | Phosphorus as P | 11/17/1992 | 0.022 | mg/l | 0.022 | |
| 499678 | Phosphorus as P | 2/9/1993 | 0 | mg/l | 0.015 | 0.03 |
| 499678 | Phosphorus as P | 2/9/1993 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 3/17/1993 | 0.013 | mg/l | 0.013 | |
| 499678 | Phosphorus as P | 3/17/1993 | 0.015 | mg/l | 0.015 | |
| 499678 | Phosphorus as P | 4/14/1993 | 0.015 | mg/l | 0.015 | |
| 499678 | Phosphorus as P | 4/14/1993 | 0.027 | mg/l | 0.027 | |
| 499678 | Phosphorus as P | 5/18/1993 | 0.016 | mg/l | 0.016 | |
| 499678 | Phosphorus as P | 5/18/1993 | 0.074 | mg/l | 0.074 | |
| 499678 | Phosphorus as P | 6/15/1993 | 0.029 | mg/l | 0.029 | |
| 499678 | Phosphorus as P | 6/15/1993 | 0.016 | mg/l | 0.016 | |
| 499678 | Phosphorus as P | 7/29/1993 | 0.037 | mg/l | 0.037 | |
| 499678 | Phosphorus as P | 7/29/1993 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 8/24/1993 | 0.038 | mg/l | 0.038 | |
| 499678 | Phosphorus as P | 8/24/1993 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 9/30/1993 | 0.045 | mg/l | 0.045 | |
| 499678 | Phosphorus as P | 9/30/1993 | 0.022 | mg/l | 0.022 | |
| 499678 | Phosphorus as P | 11/2/1993 | 0.012 | mg/l | 0.012 | |
| 499678 | Phosphorus as P | 11/2/1993 | 0.022 | mg/l | 0.022 | |
| 499678 | Phosphorus as P | 1/19/1994 | 0.019 | mg/l | 0.019 | |
| 499678 | Phosphorus as P | 1/19/1994 | 0.011 | mg/l | 0.011 | |
| 499678 | Phosphorus as P | 3/16/1994 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 3/16/1994 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 3/29/1994 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 3/29/1994 | 0.013 | mg/l | 0.013 | |
| 499678 | Phosphorus as P | 4/12/1994 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 4/12/1994 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 4/27/1994 | 0.028 | mg/l | 0.028 | |
| 499678 | Phosphorus as P | 4/27/1994 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 5/11/1994 | 0.035 | mg/l | 0.035 | |
| 499678 | Phosphorus as P | 5/11/1994 | 0.017 | mg/l | 0.017 | |
| 499678 | Phosphorus as P | 5/25/1994 | 0.024 | mg/l | 0.024 | |
| 499678 | Phosphorus as P | 5/25/1994 | 0.032 | mg/l | 0.032 | |
| 499678 | Phosphorus as P | 6/7/1994 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 6/7/1994 | 0.039 | mg/l | 0.039 | |
| 499678 | Phosphorus as P | 7/13/1994 | 0.032 | mg/l | 0.032 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Phosphorus as P | 7/13/1994 | 0.035 | mg/l | 0.035 | |
| 499678 | Phosphorus as P | 8/15/1994 | 0.057 | mg/l | 0.057 | |
| 499678 | Phosphorus as P | 8/15/1994 | 0.065 | mg/l | 0.065 | |
| 499678 | Phosphorus as P | 9/20/1994 | 0.033 | mg/l | 0.033 | |
| 499678 | Phosphorus as P | 9/20/1994 | 0.026 | mg/l | 0.026 | |
| 499678 | Phosphorus as P | 10/27/1994 | 0.017 | mg/l | 0.017 | |
| 499678 | Phosphorus as P | 10/27/1994 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 11/15/1994 | 0.014 | mg/l | 0.014 | |
| 499678 | Phosphorus as P | 11/15/1994 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 1/23/1995 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 1/23/1995 | 0.017 | mg/l | 0.017 | |
| 499678 | Phosphorus as P | 3/14/1995 | 0.032 | mg/l | 0.032 | |
| 499678 | Phosphorus as P | 3/14/1995 | 0.022 | mg/l | 0.022 | |
| 499678 | Phosphorus as P | 4/3/1995 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 4/3/1995 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 4/18/1995 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 4/18/1995 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 5/2/1995 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 5/2/1995 | 0.032 | mg/l | 0.032 | |
| 499678 | Phosphorus as P | 5/15/1995 | 0.012 | mg/l | 0.012 | |
| 499678 | Phosphorus as P | 5/15/1995 | 0.018 | mg/l | 0.018 | |
| 499678 | Phosphorus as P | 5/30/1995 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 5/30/1995 | 0.025 | mg/l | 0.025 | |
| 499678 | Phosphorus as P | 6/13/1995 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 6/13/1995 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 7/12/1995 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 7/12/1995 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 8/15/1995 | 0.04 | mg/l | 0.04 | |
| 499678 | Phosphorus as P | 8/15/1995 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 9/19/1995 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 9/19/1995 | 0.04 | mg/l | 0.04 | |
| 499678 | Phosphorus as P | 11/1/1995 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 11/1/1995 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 1/9/1996 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 1/9/1996 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 3/13/1996 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 3/13/1996 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 4/22/1996 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 4/22/1996 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 5/23/1996 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 5/23/1996 | 0.01 | mg/l | 0.01 | |
| 499678 | Phosphorus as P | 6/19/1996 | 0.02 | mg/l | 0.02 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Phosphorus as P | 6/19/1996 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 7/16/1996 | 0.05 | mg/l | 0.05 | |
| 499678 | Phosphorus as P | 7/16/1996 | 0.04 | mg/l | 0.04 | |
| 499678 | Phosphorus as P | 8/20/1996 | 0.04 | mg/l | 0.04 | |
| 499678 | Phosphorus as P | 8/20/1996 | 0.05 | mg/l | 0.05 | |
| 499678 | Phosphorus as P | 9/24/1996 | 0.03 | mg/l | 0.03 | |
| 499678 | Phosphorus as P | 9/24/1996 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 10/17/1996 | 0.02218 | mg/l | 0.02218 | |
| 499678 | Phosphorus as P | 10/17/1996 | 0.01997 | mg/l | 0.01997 | |
| 499678 | Phosphorus as P | 11/20/1996 | 0.02253 | mg/l | 0.02253 | |
| 499678 | Phosphorus as P | 11/20/1996 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 1/30/1997 | 0.02417 | mg/l | 0.02417 | |
| 499678 | Phosphorus as P | 1/30/1997 | 0.06811 | mg/l | 0.06811 | |
| 499678 | Phosphorus as P | 3/25/1997 | 0.02506 | mg/l | 0.02506 | |
| 499678 | Phosphorus as P | 3/25/1997 | 0.02766 | mg/l | 0.02766 | |
| 499678 | Phosphorus as P | 11/17/1997 | 0.03329 | mg/l | 0.03329 | |
| 499678 | Phosphorus as P | 1/21/1998 | 0.0213 | mg/l | 0.0213 | |
| 499678 | Phosphorus as P | 1/21/1998 | 0.019 | mg/l | 0.019 | |
| 499678 | Phosphorus as P | 2/23/1998 | 0.011 | mg/l | 0.011 | |
| 499678 | Phosphorus as P | 2/23/1998 | 0 | mg/l | 0.0075 | 0.015 |
| 499678 | Phosphorus as P | 3/19/1998 | 0 | mg/l | 0.0075 | 0.015 |
| 499678 | Phosphorus as P | 3/19/1998 | 0 | mg/l | 0.005 | 0.01 |
| 499678 | Phosphorus as P | 4/28/1998 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 4/28/1998 | 0.011 | mg/l | 0.011 | |
| 499678 | Phosphorus as P | 5/28/1998 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 5/28/1998 | 0.043 | mg/l | 0.043 | |
| 499678 | Phosphorus as P | 6/24/1998 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 6/24/1998 | 0.029 | mg/l | 0.029 | |
| 499678 | Phosphorus as P | 7/22/1998 | 0.027 | mg/l | 0.027 | |
| 499678 | Phosphorus as P | 7/22/1998 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 8/19/1998 | 0.032 | mg/l | 0.032 | |
| 499678 | Phosphorus as P | 8/19/1998 | 0.039 | mg/l | 0.039 | |
| 499678 | Phosphorus as P | 9/9/1998 | 0.022 | mg/l | 0.022 | |
| 499678 | Phosphorus as P | 9/9/1998 | 0.025 | mg/l | 0.025 | |
| 499678 | Phosphorus as P | 11/19/1998 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 11/19/1998 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 1/12/1999 | 0.028 | mg/l | 0.028 | |
| 499678 | Phosphorus as P | 1/12/1999 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 3/9/1999 | 0.026 | mg/l | 0.026 | |
| 499678 | Phosphorus as P | 3/9/1999 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 4/21/1999 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 4/21/1999 | 0.023 | mg/l | 0.023 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Phosphorus as P | 5/25/1999 | 0.024 | mg/l | 0.024 | |
| 499678 | Phosphorus as P | 5/25/1999 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 6/29/1999 | 0.024 | mg/l | 0.024 | |
| 499678 | Phosphorus as P | 6/29/1999 | 0.033 | mg/l | 0.033 | |
| 499678 | Phosphorus as P | 7/28/1999 | 0.025 | mg/l | 0.025 | |
| 499678 | Phosphorus as P | 7/28/1999 | 0.024 | mg/l | 0.024 | |
| 499678 | Phosphorus as P | 8/19/1999 | 0.039 | mg/l | 0.039 | |
| 499678 | Phosphorus as P | 8/19/1999 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 9/16/1999 | 0.043 | mg/l | 0.043 | |
| 499678 | Phosphorus as P | 9/16/1999 | 0.043 | mg/l | 0.043 | |
| 499678 | Phosphorus as P | 10/21/1999 | 0.024 | mg/l | 0.024 | |
| 499678 | Phosphorus as P | 10/21/1999 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 11/23/1999 | 0 | mg/l | 0.01 | 0.02 |
| 499678 | Phosphorus as P | 11/23/1999 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 1/26/2000 | 0 | mg/l | 0 | |
| 499678 | Phosphorus as P | 1/26/2000 | 0 | mg/l | 0 | |
| 499678 | Phosphorus as P | 2/23/2000 | 0 | mg/l | 0 | |
| 499678 | Phosphorus as P | 2/23/2000 | 0 | mg/l | 0 | |
| 499678 | Phosphorus as P | 3/30/2000 | | mg/l | 0 | |
| 499678 | Phosphorus as P | 3/30/2000 | | mg/l | 0 | |
| 499678 | Phosphorus as P | 4/12/2000 | | mg/l | 0 | |
| 499678 | Phosphorus as P | 4/12/2000 | | mg/l | 0 | |
| 499678 | Phosphorus as P | 4/27/2000 | | mg/l | 0 | |
| 499678 | Phosphorus as P | 4/27/2000 | 0.025 | mg/l | 0.025 | |
| 499678 | Phosphorus as P | 5/10/2000 | 0.025 | mg/l | 0.025 | |
| 499678 | Phosphorus as P | 7/11/2000 | 0.028 | mg/l | 0.028 | |
| 499678 | Phosphorus as P | 5/10/2000 | | mg/l | 0 | |
| 499678 | Phosphorus as P | 6/7/2000 | | mg/l | 0 | |
| 499678 | Phosphorus as P | 6/7/2000 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 7/11/2000 | 0.034 | mg/l | 0.034 | |
| 499678 | Phosphorus as P | 8/9/2000 | 0.097 | mg/l | 0.097 | |
| 499678 | Phosphorus as P | 8/9/2000 | 0.08 | mg/l | 0.08 | |
| 499678 | Phosphorus as P | 9/21/2000 | 0.022 | mg/l | 0.022 | |
| 499678 | Phosphorus as P | 1/23/2001 | | | 0 | |
| 499678 | Phosphorus as P | 1/23/2001 | 0.02 | mg/l | 0.02 | |
| 499678 | Phosphorus as P | 3/20/2001 | 0.023 | mg/l | 0.023 | |
| 499678 | Phosphorus as P | 3/20/2001 | | | 0 | |
| 499678 | Phosphorus as P | 5/17/2001 | | | 0 | |
| 499678 | Phosphorus as P | 5/17/2001 | 0.021 | mg/l | 0.021 | |
| 499678 | Phosphorus as P | 6/21/2001 | | | 0 | |
| 499678 | Phosphorus as P | 6/21/2001 | | | 0 | |
| 499678 | Phosphorus as P | 7/18/2001 | 0.021 | mg/l | 0.021 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Phosphorus as P | 7/18/2001 | | | 0 | |
| 499678 | Phosphorus as P | 8/22/2001 | 0.027 | mg/l | 0.027 | |
| 499678 | Phosphorus as P | 8/22/2001 | 0.034 | mg/l | 0.034 | |
| 499678 | Phosphorus as P | 9/20/2001 | 0.029 | mg/l | 0.029 | |
| 499678 | Phosphorus as P | 9/20/2001 | | | 0 | |
| 499678 | Phosphorus as P | 10/16/2001 | 0.024 | mg/l | 0.024 | |
| 499678 | Phosphorus as P | 11/20/2001 | | | 0 | |
| 499678 | Phosphorus as P | 11/20/2001 | 0.024 | mg/l | 0.024 | |
| 499678 | Phosphorus as P | 3/27/2002 | | | 0 | |
| 499678 | Phosphorus as P | 3/27/2002 | | | 0 | |
| 499678 | Phosphorus as P | 4/30/2002 | | | 0 | |
| 499678 | Phosphorus as P | 4/30/2002 | | | 0 | |
| 499678 | Phosphorus as P | 5/29/2002 | | | 0 | |
| 499678 | Phosphorus as P | 5/29/2002 | | | 0 | |
| 499678 | Phosphorus as P | 7/30/2002 | | | 0 | |
| 499678 | Phosphorus as P | 7/30/2002 | 0.042 | mg/l | 0.042 | |
| 499678 | Phosphorus as P | 8/20/2002 | 0.046 | mg/l | 0.046 | |
| 499678 | Phosphorus as P | 8/20/2002 | 0.031 | mg/l | 0.031 | |
| 499678 | Selenium | 3/8/1990 | 0 | ug/l | 0.25 | 0.5 |
| 499678 | Selenium | 5/30/1990 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 9/12/1990 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 5/2/1991 | 0 | ug/l | 2.5 | 5.0 |
| 499678 | Selenium | 5/30/1991 | 0 | ug/l | 2.5 | 5.0 |
| 499678 | Selenium | 9/18/1991 | 0 | ug/l | 2.5 | 5.0 |
| 499678 | Selenium | 3/17/1992 | 0 | ug/l | 2.5 | 5.0 |
| 499678 | Selenium | 3/16/1994 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 5/25/1994 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 7/13/1994 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 1/23/1995 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 5/30/1995 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 11/1/1995 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 5/23/1996 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 9/24/1996 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 1/30/1997 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 5/27/1997 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 8/26/1997 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 10/29/1997 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 1/21/1998 | 1.1 | ug/l | 1.1 | |
| 499678 | Selenium | 8/19/1998 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 10/14/1998 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 5/25/1999 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 6/29/1999 | 0 | ug/l | 0.5 | 1.0 |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Selenium | 8/19/1999 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 10/21/1999 | 0 | ug/l | 0.5 | 1.0 |
| 499678 | Selenium | 1/26/2000 | 0 | ug/l | 0 | |
| 499678 | Selenium | 6/7/2000 | | ug/l | 0 | |
| 499678 | Selenium | 8/9/2000 | | ug/l | 0 | |
| 499678 | Selenium | 10/17/2000 | | | 0 | |
| 499678 | Selenium | 1/23/2001 | | | 0 | |
| 499678 | Selenium | 5/17/2001 | | | 0 | |
| 499678 | Selenium | 8/22/2001 | | | 0 | |
| 499678 | Selenium | 5/29/2002 | | | 0 | |
| 499678 | Selenium | 8/20/2002 | 0 | | 0 | |
| 499678 | Temperature, water | 1/16/1990 | 3.6 | deg C | 3.6 | |
| 499678 | Temperature, water | 3/8/1990 | 6.5 | deg C | 6.5 | |
| 499678 | Temperature, water | 4/25/1990 | 8.9 | deg C | 8.9 | |
| 499678 | Temperature, water | 5/9/1990 | 5.2 | deg C | 5.2 | |
| 499678 | Temperature, water | 5/30/1990 | 8 | deg C | 8 | |
| 499678 | Temperature, water | 6/13/1990 | 14.2 | deg C | 14.2 | |
| 499678 | Temperature, water | 7/11/1990 | 11.5 | deg C | 11.5 | |
| 499678 | Temperature, water | 8/8/1990 | 13.1 | deg C | 13.1 | |
| 499678 | Temperature, water | 9/12/1990 | 13.5 | deg C | 13.5 | |
| 499678 | Temperature, water | 10/11/1990 | 15 | deg C | 15 | |
| 499678 | Temperature, water | 11/7/1990 | 6.1 | deg C | 6.1 | |
| 499678 | Temperature, water | 2/13/1991 | 3.9 | deg C | 3.9 | |
| 499678 | Temperature, water | 3/13/1991 | 3.1 | deg C | 3.1 | |
| 499678 | Temperature, water | 5/2/1991 | 2.4 | deg C | 2.4 | |
| 499678 | Temperature, water | 5/16/1991 | 15.6 | deg C | 15.6 | |
| 499678 | Temperature, water | 5/30/1991 | 9.9 | deg C | 9.9 | |
| 499678 | Temperature, water | 6/13/1991 | 15.5 | deg C | 15.5 | |
| 499678 | Temperature, water | 7/15/1991 | 13.1 | deg C | 13.1 | |
| 499678 | Temperature, water | 8/14/1991 | 13.2 | deg C | 13.2 | |
| 499678 | Temperature, water | 9/18/1991 | 11.5 | deg C | 11.5 | |
| 499678 | Temperature, water | 10/16/1991 | 9.3 | deg C | 9.3 | |
| 499678 | Temperature, water | 11/19/1991 | 5 | deg C | 5 | |
| 499678 | Temperature, water | 1/15/1992 | 2.8 | deg C | 2.8 | |
| 499678 | Temperature, water | 3/16/1992 | 5.8 | deg C | 5.8 | |
| 499678 | Temperature, water | 3/17/1992 | 5.2 | deg C | 5.2 | |
| 499678 | Temperature, water | 4/14/1992 | 7.2 | deg C | 7.2 | |
| 499678 | Temperature, water | 4/16/1992 | 9.3 | deg C | 9.3 | |
| 499678 | Temperature, water | 4/27/1992 | 9.2 | deg C | 9.2 | |
| 499678 | Temperature, water | 5/11/1992 | 8.4 | deg C | 8.4 | |
| 499678 | Temperature, water | 5/27/1992 | 12.8 | deg C | 12.8 | |
| 499678 | Temperature, water | 6/10/1992 | 13.6 | deg C | 13.6 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Temperature, water | 7/13/1992 | 10.8 | deg C | 10.8 | |
| 499678 | Temperature, water | 8/14/1992 | 14 | deg C | 14 | |
| 499678 | Temperature, water | 9/11/1992 | 15 | deg C | 15 | |
| 499678 | Temperature, water | 11/17/1992 | 7 | deg C | 7 | |
| 499678 | Temperature, water | 2/9/1993 | 3.9 | deg C | 3.9 | |
| 499678 | Temperature, water | 3/17/1993 | 5.8 | deg C | 5.8 | |
| 499678 | Temperature, water | 4/14/1993 | 7.5 | deg C | 7.5 | |
| 499678 | Temperature, water | 5/18/1993 | 11.9 | deg C | 11.9 | |
| 499678 | Temperature, water | 6/15/1993 | 12.2 | deg C | 12.2 | |
| 499678 | Temperature, water | 7/29/1993 | 13.5 | deg C | 13.5 | |
| 499678 | Temperature, water | 8/24/1993 | 15.7 | deg C | 15.7 | |
| 499678 | Temperature, water | 9/30/1993 | 14.7 | deg C | 14.7 | |
| 499678 | Temperature, water | 11/2/1993 | 7 | deg C | 7 | |
| 499678 | Temperature, water | 1/19/1994 | 3.4 | deg C | 3.4 | |
| 499678 | Temperature, water | 3/16/1994 | 8.2 | deg C | 8.2 | |
| 499678 | Temperature, water | 3/29/1994 | 8 | deg C | 8 | |
| 499678 | Temperature, water | 4/12/1994 | 8.5 | deg C | 8.5 | |
| 499678 | Temperature, water | 4/27/1994 | 7.3 | deg C | 7.3 | |
| 499678 | Temperature, water | 5/11/1994 | 10.9 | deg C | 10.9 | |
| 499678 | Temperature, water | 5/25/1994 | 11.6 | deg C | 11.6 | |
| 499678 | Temperature, water | 6/7/1994 | 12.2 | deg C | 12.2 | |
| 499678 | Temperature, water | 7/13/1994 | 15.9 | deg C | 15.9 | |
| 499678 | Temperature, water | 8/15/1994 | 17.9 | deg C | 17.9 | |
| 499678 | Temperature, water | 9/20/1994 | 12.9 | deg C | 12.9 | |
| 499678 | Temperature, water | 10/27/1994 | 9.2 | deg C | 9.2 | |
| 499678 | Temperature, water | 11/15/1994 | 3.9 | deg C | 3.9 | |
| 499678 | Temperature, water | 1/23/1995 | 0.5 | deg C | 0.5 | |
| 499678 | Temperature, water | 3/14/1995 | 7.2 | deg C | 7.2 | |
| 499678 | Temperature, water | 4/3/1995 | 8.4 | deg C | 8.4 | |
| 499678 | Temperature, water | 4/18/1995 | 7.3 | deg C | 7.3 | |
| 499678 | Temperature, water | 5/2/1995 | 7.5 | deg C | 7.5 | |
| 499678 | Temperature, water | 5/15/1995 | 11.2 | deg C | 11.2 | |
| 499678 | Temperature, water | 5/30/1995 | 10.9 | deg C | 10.9 | |
| 499678 | Temperature, water | 6/13/1995 | 12.7 | deg C | 12.7 | |
| 499678 | Temperature, water | 7/12/1995 | 12.9 | deg C | 12.9 | |
| 499678 | Temperature, water | 8/15/1995 | 14.4 | deg C | 14.4 | |
| 499678 | Temperature, water | 9/19/1995 | 13.2 | deg C | 13.2 | |
| 499678 | Temperature, water | 11/1/1995 | 7.8 | deg C | 7.8 | |
| 499678 | Temperature, water | 1/9/1996 | 4.2 | deg C | 4.2 | |
| 499678 | Temperature, water | 3/13/1996 | 4.8 | deg C | 4.8 | |
| 499678 | Temperature, water | 4/22/1996 | 7.9 | deg C | 7.9 | |
| 499678 | Temperature, water | 5/23/1996 | 10 | deg C | 10 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Temperature, water | 6/19/1996 | 13.8 | deg C | 13.8 | |
| 499678 | Temperature, water | 7/16/1996 | 15.3 | deg C | 15.3 | |
| 499678 | Temperature, water | 8/20/1996 | 15.1 | deg C | 15.1 | |
| 499678 | Temperature, water | 9/24/1996 | 14.5 | deg C | 14.5 | |
| 499678 | Temperature, water | 10/17/1996 | 7.1 | deg C | 7.1 | |
| 499678 | Temperature, water | 11/20/1996 | 8 | deg C | 8 | |
| 499678 | Temperature, water | 1/30/1997 | 2.4 | deg C | 2.4 | |
| 499678 | Temperature, water | 3/25/1997 | 6 | deg C | 6 | |
| 499678 | Temperature, water | 4/30/1997 | 8.2 | deg C | 8.2 | |
| 499678 | Temperature, water | 5/27/1997 | 11.6 | deg C | 11.6 | |
| 499678 | Temperature, water | 6/26/1997 | 13.1 | deg C | 13.1 | |
| 499678 | Temperature, water | 7/28/1997 | 12 | deg C | 12 | |
| 499678 | Temperature, water | 8/26/1997 | 14.5 | deg C | 14.5 | |
| 499678 | Temperature, water | 9/30/1997 | 11.3 | deg C | 11.3 | |
| 499678 | Temperature, water | 10/29/1997 | 8.6 | deg C | 8.6 | |
| 499678 | Temperature, water | 11/17/1997 | 5.4 | deg C | 5.4 | |
| 499678 | Temperature, water | 1/21/1998 | 2.1 | deg C | 2.1 | |
| 499678 | Temperature, water | 2/23/1998 | 3.4 | deg C | 3.4 | |
| 499678 | Temperature, water | 3/19/1998 | 7.3 | deg C | 7.3 | |
| 499678 | Temperature, water | 4/28/1998 | 9.3 | deg C | 9.3 | |
| 499678 | Temperature, water | 5/28/1998 | 12.3 | deg C | 12.3 | |
| 499678 | Temperature, water | 6/24/1998 | 13.8 | deg C | 13.8 | |
| 499678 | Temperature, water | 7/22/1998 | 13 | deg C | 13 | |
| 499678 | Temperature, water | 8/19/1998 | 14.6 | deg C | 14.6 | |
| 499678 | Temperature, water | 9/9/1998 | 13.2 | deg C | 13.2 | |
| 499678 | Temperature, water | 10/14/1998 | 11.8 | deg C | 11.8 | |
| 499678 | Temperature, water | 11/19/1998 | 6.7 | deg C | 6.7 | |
| 499678 | Temperature, water | 1/12/1999 | 4.7 | deg C | 4.7 | |
| 499678 | Temperature, water | 3/9/1999 | 4.9 | deg C | 4.9 | |
| 499678 | Temperature, water | 4/21/1999 | 7.2 | deg C | 7.2 | |
| 499678 | Temperature, water | 5/25/1999 | 12.6 | deg C | 12.6 | |
| 499678 | Temperature, water | 6/29/1999 | 10 | deg C | 10 | |
| 499678 | Temperature, water | 7/28/1999 | 14.7 | deg C | 14.7 | |
| 499678 | Temperature, water | 8/19/1999 | 13 | deg C | 13 | |
| 499678 | Temperature, water | 9/16/1999 | 12.8 | deg C | 12.8 | |
| 499678 | Temperature, water | 10/21/1999 | 9.2 | deg C | 9.2 | |
| 499678 | Temperature, water | 11/23/1999 | 4.5 | deg C | 4.5 | |
| 499678 | Temperature, water | 1/26/2000 | 5.54 | deg C | 5.54 | |
| 499678 | Temperature, water | 2/23/2000 | 4.9 | deg C | 4.9 | |
| 499678 | Temperature, water | 3/30/2000 | 5.35 | deg C | 5.35 | |
| 499678 | Temperature, water | 4/12/2000 | 10.11 | deg C | 10.11 | |
| 499678 | Temperature, water | 4/27/2000 | 10.06 | deg C | 10.06 | |

**Table A-1**
**Provo River at Murdock Diversion**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 499678 | Temperature, water | 5/10/2000 | 9.62 | deg C | 9.62 | |
| 499678 | Temperature, water | 7/11/2000 | 16.67 | deg C | 16.67 | |
| 499678 | Temperature, water | 6/7/2000 | 14.2 | deg C | 14.2 | |
| 499678 | Temperature, water | 8/9/2000 | 17.46 | deg C | 17.46 | |
| 499678 | Temperature, water | 9/21/2000 | 14 | deg C | 14 | |
| 499678 | Temperature, water | 10/17/2000 | 10.03 | deg C | 10.03 | |
| 499678 | Temperature, water | 1/23/2001 | 4.22 | deg C | 4.22 | |
| 499678 | Temperature, water | 3/20/2001 | 9.29 | deg C | 9.29 | |
| 499678 | Temperature, water | 5/17/2001 | 14.77 | deg C | 14.77 | |
| 499678 | Temperature, water | 6/21/2001 | 14.98 | deg C | 14.98 | |
| 499678 | Temperature, water | 7/18/2001 | 16.68 | deg C | 16.68 | |
| 499678 | Temperature, water | 8/22/2001 | 17.28 | deg C | 17.28 | |
| 499678 | Temperature, water | 9/20/2001 | 15.95 | deg C | 15.95 | |
| 499678 | Temperature, water | 10/16/2001 | 10.74 | deg C | 10.74 | |
| 499678 | Temperature, water | 11/20/2001 | 6.98 | deg C | 6.98 | |
| 499678 | Temperature, water | 3/27/2002 | 8.99 | deg C | 8.99 | |
| 499678 | Temperature, water | 4/30/2002 | 13.07 | deg C | 13.07 | |
| 499678 | Temperature, water | 5/29/2002 | 15.02 | deg C | 15.02 | |
| 499678 | Temperature, water | 6/25/2002 | 15.59 | deg C | 15.59 | |
| 499678 | Temperature, water | 7/30/2002 | 17.65 | deg C | 17.65 | |
| 499678 | Temperature, water | 8/20/2002 | 18.86 | deg C | 18.86 | |
| 499678 | Temperature, water | 9/18/2002 | 13.76 | deg C | 13.76 | |
| 499678 | Temperature, water | 10/22/2002 | 11.09 | deg C | 11.09 | |
| 499678 | Temperature, water | 11/21/2002 | 5.76 | deg C | 5.76 | |
| 499678 | Temperature, water | 12/18/2002 | 3.39 | deg C | 3.39 | |

Note:
DL = Detection Limit

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Dissolved oxygen (DO) | 01-Feb-90 | 11.4 | mg/l | 11.4 | |
| 499669 | Dissolved oxygen (DO) | 20-Mar-90 | 11.3 | mg/l | 11.3 | |
| 499669 | Dissolved oxygen (DO) | 25-Apr-90 | 11.2 | mg/l | 11.2 | |
| 499669 | Dissolved oxygen (DO) | 24-May-90 | 11.9 | mg/l | 11.9 | |
| 499669 | Dissolved oxygen (DO) | 11-Jul-90 | 10.7 | mg/l | 10.7 | |
| 499669 | Dissolved oxygen (DO) | 26-Jul-90 | 9.8 | mg/l | 9.8 | |
| 499669 | Dissolved oxygen (DO) | 21-Aug-90 | 9.2 | mg/l | 9.2 | |
| 499669 | Dissolved oxygen (DO) | 03-Oct-90 | 10.2 | mg/l | 10.2 | |
| 499669 | Dissolved oxygen (DO) | 26-Oct-90 | 8.5 | mg/l | 8.5 | |
| 499669 | Dissolved oxygen (DO) | 29-Jan-91 | 7.9 | mg/l | 7.9 | |
| 499669 | Dissolved oxygen (DO) | 13-Feb-91 | 10.9 | mg/l | 10.9 | |
| 499669 | Dissolved oxygen (DO) | 26-Feb-91 | 11.1 | mg/l | 11.1 | |
| 499669 | Dissolved oxygen (DO) | 27-Mar-91 | 12 | mg/l | 12 | |
| 499669 | Dissolved oxygen (DO) | 28-Mar-91 | 9.7 | mg/l | 9.7 | |
| 499669 | Dissolved oxygen (DO) | 08-May-91 | 7 | mg/l | 7 | |
| 499669 | Dissolved oxygen (DO) | 12-Jun-91 | 8.7 | mg/l | 8.7 | |
| 499669 | Dissolved oxygen (DO) | 10-Jul-91 | 9.8 | mg/l | 9.8 | |
| 499669 | Dissolved oxygen (DO) | 16-Jul-91 | 9.6 | mg/l | 9.6 | |
| 499669 | Dissolved oxygen (DO) | 23-Jul-91 | 9.8 | mg/l | 9.8 | |
| 499669 | Dissolved oxygen (DO) | 15-Aug-91 | 12.1 | mg/l | 12.1 | |
| 499669 | Dissolved oxygen (DO) | 28-Aug-91 | 7.4 | mg/l | 7.4 | |
| 499669 | Dissolved oxygen (DO) | 04-Oct-91 | 9.7 | mg/l | 9.7 | |
| 499669 | Dissolved oxygen (DO) | 16-Oct-91 | 8.8 | mg/l | 8.8 | |
| 499669 | Dissolved oxygen (DO) | 31-Oct-91 | 11.4 | mg/l | 11.4 | |
| 499669 | Dissolved oxygen (DO) | 04-Dec-91 | 12.8 | mg/l | 12.8 | |
| 499669 | Dissolved oxygen (DO) | 06-Feb-92 | 13.5 | mg/l | 13.5 | |
| 499669 | Dissolved oxygen (DO) | 12-Feb-92 | 10.2 | mg/l | 10.2 | |
| 499669 | Dissolved oxygen (DO) | 17-Mar-92 | 9.3 | mg/l | 9.3 | |
| 499669 | Dissolved oxygen (DO) | 31-Mar-92 | 9.9 | mg/l | 9.9 | |
| 499669 | Dissolved oxygen (DO) | 14-Apr-92 | 9.4 | mg/l | 9.4 | |
| 499669 | Dissolved oxygen (DO) | 28-Apr-92 | 6.6 | mg/l | 6.6 | |
| 499669 | Dissolved oxygen (DO) | 12-May-92 | 14.1 | mg/l | 14.1 | |
| 499669 | Dissolved oxygen (DO) | 27-May-92 | 11.8 | mg/l | 11.8 | |
| 499669 | Dissolved oxygen (DO) | 10-Jun-92 | 6.8 | mg/l | 6.8 | |
| 499669 | Dissolved oxygen (DO) | 21-Jul-92 | 11.8 | mg/l | 11.8 | |
| 499669 | Dissolved oxygen (DO) | 13-Aug-92 | 8 | mg/l | 8 | |
| 499669 | Dissolved oxygen (DO) | 25-Aug-92 | 8.8 | mg/l | 8.8 | |
| 499669 | Dissolved oxygen (DO) | 09-Sep-92 | 11.7 | mg/l | 11.7 | |
| 499669 | Dissolved oxygen (DO) | 22-Sep-92 | 9.6 | mg/l | 9.6 | |
| 499669 | Dissolved oxygen (DO) | 30-Sep-92 | 8.8 | mg/l | 8.8 | |
| 499669 | Dissolved oxygen (DO) | 21-Oct-92 | 8.9 | mg/l | 8.9 | |
| 499669 | Dissolved oxygen (DO) | 17-Nov-92 | 11.1 | mg/l | 11.1 | |
| 499669 | Dissolved oxygen (DO) | 27-Jan-93 | 11.8 | mg/l | 11.8 | |
| 499669 | Dissolved oxygen (DO) | 22-Mar-93 | 10.7 | mg/l | 10.7 | |
| 499669 | Dissolved oxygen (DO) | 14-Apr-93 | 10.9 | mg/l | 10.9 | |
| 499669 | Dissolved oxygen (DO) | 27-Jul-93 | 9.1 | mg/l | 9.1 | |
| 499669 | Dissolved oxygen (DO) | 02-Sep-93 | 8.4 | mg/l | 8.4 | |
| 499669 | Dissolved oxygen (DO) | 02-Nov-93 | 10.6 | mg/l | 10.6 | |
| 499669 | Dissolved oxygen (DO) | 08-Feb-94 | 10 | mg/l | 10 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Dissolved oxygen (DO) | 17-Mar-94 | 11.5 | mg/l | 11.5 | |
| 499669 | Dissolved oxygen (DO) | 30-Mar-94 | 11.1 | mg/l | 11.1 | |
| 499669 | Dissolved oxygen (DO) | 07-Apr-94 | 9 | mg/l | 9 | |
| 499669 | Dissolved oxygen (DO) | 13-Apr-94 | 9.9 | mg/l | 9.9 | |
| 499669 | Dissolved oxygen (DO) | 27-Apr-94 | 10.2 | mg/l | 10.2 | |
| 499669 | Dissolved oxygen (DO) | 27-Apr-94 | 10.2 | mg/l | 10.2 | |
| 499669 | Dissolved oxygen (DO) | 10-May-94 | 7.9 | mg/l | 7.9 | |
| 499669 | Dissolved oxygen (DO) | 25-May-94 | 10.2 | mg/l | 10.2 | |
| 499669 | Dissolved oxygen (DO) | 08-Jun-94 | 10.1 | mg/l | 10.1 | |
| 499669 | Dissolved oxygen (DO) | 12-Jul-94 | 8.5 | mg/l | 8.5 | |
| 499669 | Dissolved oxygen (DO) | 16-Aug-94 | 9.2 | mg/l | 9.2 | |
| 499669 | Dissolved oxygen (DO) | 14-Sep-94 | 7.2 | mg/l | 7.2 | |
| 499669 | Dissolved oxygen (DO) | 12-Oct-94 | 8.2 | mg/l | 8.2 | |
| 499669 | Dissolved oxygen (DO) | 25-Oct-94 | 8.3 | mg/l | 8.3 | |
| 499669 | Dissolved oxygen (DO) | 22-Nov-94 | 12.1 | mg/l | 12.1 | |
| 499669 | Dissolved oxygen (DO) | 09-Dec-94 | 9.9 | mg/l | 9.9 | |
| 499669 | Dissolved oxygen (DO) | 19-Jan-95 | 9.9 | mg/l | 9.9 | |
| 499669 | Dissolved oxygen (DO) | 23-Feb-95 | 10.4 | mg/l | 10.4 | |
| 499669 | Dissolved oxygen (DO) | 09-Mar-95 | 10.7 | mg/l | 10.7 | |
| 499669 | Dissolved oxygen (DO) | 23-Mar-95 | 11.7 | mg/l | 11.7 | |
| 499669 | Dissolved oxygen (DO) | 05-Apr-95 | 11.8 | mg/l | 11.8 | |
| 499669 | Dissolved oxygen (DO) | 19-Apr-95 | 10.1 | mg/l | 10.1 | |
| 499669 | Dissolved oxygen (DO) | 18-May-95 | 10.1 | mg/l | 10.1 | |
| 499669 | Dissolved oxygen (DO) | 31-May-95 | 8.2 | mg/l | 8.2 | |
| 499669 | Dissolved oxygen (DO) | 25-Jul-95 | 11.3 | mg/l | 11.3 | |
| 499669 | Dissolved oxygen (DO) | 07-Sep-95 | 12.2 | mg/l | 12.2 | |
| 499669 | Dissolved oxygen (DO) | 12-Oct-95 | 9.3 | mg/l | 9.3 | |
| 499669 | Dissolved oxygen (DO) | 08-Nov-95 | 9.9 | mg/l | 9.9 | |
| 499669 | Dissolved oxygen (DO) | 10-Jan-96 | 11.44 | mg/l | 11.44 | |
| 499669 | Dissolved oxygen (DO) | 21-Feb-96 | 9.1 | mg/l | 9.1 | |
| 499669 | Dissolved oxygen (DO) | 10-Apr-96 | 11.8 | mg/l | 11.8 | |
| 499669 | Dissolved oxygen (DO) | 01-May-96 | 10.6 | mg/l | 10.6 | |
| 499669 | Dissolved oxygen (DO) | 25-Jul-96 | 12 | mg/l | 12 | |
| 499669 | Dissolved oxygen (DO) | 05-Sep-96 | 8.7 | mg/l | 8.7 | |
| 499669 | Dissolved oxygen (DO) | 09-Oct-96 | 9.4 | mg/l | 9.4 | |
| 499669 | Dissolved oxygen (DO) | 19-Nov-96 | 10.1 | mg/l | 10.1 | |
| 499669 | Dissolved oxygen (DO) | 22-Jan-97 | 8.5 | mg/l | 8.5 | |
| 499669 | Dissolved oxygen (DO) | 13-Mar-97 | 11.85 | mg/l | 11.85 | |
| 499669 | Dissolved oxygen (DO) | 29-Apr-97 | 8.95 | mg/l | 8.95 | |
| 499669 | Dissolved oxygen (DO) | 18-Jun-97 | 11.4 | mg/l | 11.4 | |
| 499669 | Dissolved oxygen (DO) | 15-Jul-97 | 13.19 | mg/l | 13.19 | |
| 499669 | Dissolved oxygen (DO) | 29-Jul-97 | 9.24 | mg/l | 9.24 | |
| 499669 | Dissolved oxygen (DO) | 11-Sep-97 | 7.7 | mg/l | 7.7 | |
| 499669 | Dissolved oxygen (DO) | 16-Oct-97 | 10.28 | mg/l | 10.28 | |
| 499669 | Dissolved oxygen (DO) | 02-Dec-97 | 11.98 | mg/l | 11.98 | |
| 499669 | Dissolved oxygen (DO) | 05-Feb-98 | 10.52 | mg/l | 10.52 | |
| 499669 | Dissolved oxygen (DO) | 19-Mar-98 | 10.74 | mg/l | 10.74 | |
| 499669 | Dissolved oxygen (DO) | 27-May-98 | 9.84 | mg/l | 9.84 | |
| 499669 | Dissolved oxygen (DO) | 11-Aug-98 | 8.84 | mg/l | 8.84 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Dissolved oxygen (DO) | 14-Oct-98 | 9.21 | mg/l | 9.21 | |
| 499669 | Dissolved oxygen (DO) | 01-Dec-98 | 10.03 | mg/l | 10.03 | |
| 499669 | Dissolved oxygen (DO) | 14-Jan-99 | 12.8 | mg/l | 12.8 | |
| 499669 | Dissolved oxygen (DO) | 17-Mar-99 | 11.4 | mg/l | 11.4 | |
| 499669 | Dissolved oxygen (DO) | 04-May-99 | 10.95 | mg/l | 10.95 | |
| 499669 | Dissolved oxygen (DO) | 13-Jul-99 | 9.7 | mg/l | 9.7 | |
| 499669 | Dissolved oxygen (DO) | 19-Aug-99 | 11.2 | mg/l | 11.2 | |
| 499669 | Dissolved oxygen (DO) | 25-Aug-99 | 7.9 | mg/l | 7.9 | |
| 499669 | Dissolved oxygen (DO) | 05-Oct-99 | 10 | mg/l | 10 | |
| 499669 | Dissolved oxygen (DO) | 02-Dec-99 | 12.4 | mg/l | 12.4 | |
| 499669 | Dissolved oxygen (DO) | 11-Jan-00 | 9.62 | mg/l | 9.62 | |
| 499669 | Dissolved oxygen (DO) | 29-Feb-00 | 11.31 | mg/l | 11.31 | |
| 499669 | Dissolved oxygen (DO) | 07-Apr-00 | 11.05 | mg/l | 11.05 | |
| 499669 | Dissolved oxygen (DO) | 18-Apr-00 | 10.81 | mg/l | 10.81 | |
| 499669 | Dissolved oxygen (DO) | 09-May-00 | 9.96 | mg/l | 9.96 | |
| 499669 | Dissolved oxygen (DO) | 26-May-00 | 8.2 | mg/l | 8.2 | |
| 499669 | Dissolved oxygen (DO) | 08-Jun-00 | 11.17 | mg/l | 11.17 | |
| 499669 | Dissolved oxygen (DO) | 28-Jun-00 | 10.46 | mg/l | 10.46 | |
| 499669 | Dissolved oxygen (DO) | 30-Aug-00 | 7.1 | mg/l | 7.1 | |
| 499669 | Dissolved oxygen (DO) | 31-Aug-00 | 7.87 | mg/l | 7.87 | |
| 499669 | Dissolved oxygen (DO) | 01-Sep-00 | 7.4 | mg/l | 7.4 | |
| 499669 | Dissolved oxygen (DO) | 01-Sep-00 | 8 | mg/l | 8 | |
| 499669 | Dissolved oxygen (DO) | 04-Oct-00 | 7.86 | mg/l | 7.86 | |
| 499669 | Dissolved oxygen (DO) | 14-Nov-00 | 11.71 | mg/l | 11.71 | |
| 499669 | Dissolved oxygen (DO) | 13-Feb-01 | 12.84 | mg/l | 12.84 | |
| 499669 | Dissolved oxygen (DO) | 10-May-01 | 10.13 | mg/l | 10.13 | |
| 499669 | Dissolved oxygen (DO) | 07-Aug-01 | 11.75 | mg/l | 11.75 | |
| 499669 | Dissolved oxygen (DO) | 28-Nov-01 | 11.49 | mg/l | 11.49 | |
| 499669 | Dissolved oxygen (DO) | 23-Jan-02 | 11.09 | mg/l | 11.09 | |
| 499669 | Dissolved oxygen (DO) | 05-Mar-02 | 12.61 | mg/l | 12.61 | |
| 499669 | Dissolved oxygen (DO) | 17-Apr-02 | 8.17 | mg/l | 8.17 | |
| 499669 | Dissolved oxygen (DO) | 23-May-02 | 9.16 | mg/l | 9.16 | |
| 499669 | Dissolved oxygen (DO) | 09-Jul-02 | 10.2 | mg/l | 10.2 | |
| 499669 | Dissolved oxygen (DO) | 22-Oct-02 | 9.76 | mg/l | 9.76 | |
| 499669 | Dissolved oxygen (DO) | 07-Jan-03 | 13.24 | mg/l | 13.24 | |
| 499669 | Dissolved Solids | 01-Feb-90 | 304 | mg/l | 304 | |
| 499669 | Dissolved Solids | 20-Mar-90 | 300 | mg/l | 300 | |
| 499669 | Dissolved Solids | 25-Apr-90 | 324 | mg/l | 324 | |
| 499669 | Dissolved Solids | 24-May-90 | 310 | mg/l | 310 | |
| 499669 | Dissolved Solids | 11-Jul-90 | 278 | mg/l | 278 | |
| 499669 | Dissolved Solids | 26-Jul-90 | 302 | mg/l | 302 | |
| 499669 | Dissolved Solids | 21-Aug-90 | 296 | mg/l | 296 | |
| 499669 | Dissolved Solids | 03-Oct-90 | 308 | mg/l | 308 | |
| 499669 | Dissolved Solids | 26-Oct-90 | 328 | mg/l | 328 | |
| 499669 | Dissolved Solids | 29-Jan-91 | 306 | mg/l | 306 | |
| 499669 | Dissolved Solids | 13-Feb-91 | 300 | mg/l | 300 | |
| 499669 | Dissolved Solids | 26-Feb-91 | 306 | mg/l | 306 | |
| 499669 | Dissolved Solids | 27-Mar-91 | 318 | mg/l | 318 | |
| 499669 | Dissolved Solids | 28-Mar-91 | 302 | mg/l | 302 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Dissolved Solids | 24-Apr-91 | 298 | mg/l | 298 | |
| 499669 | Dissolved Solids | 08-May-91 | 282 | mg/l | 282 | |
| 499669 | Dissolved Solids | 12-Jun-91 | 248 | mg/l | 248 | |
| 499669 | Dissolved Solids | 10-Jul-91 | 306 | mg/l | 306 | |
| 499669 | Dissolved Solids | 16-Jul-91 | 300 | mg/l | 300 | |
| 499669 | Dissolved Solids | 23-Jul-91 | 294 | mg/l | 294 | |
| 499669 | Dissolved Solids | 15-Aug-91 | 256 | mg/l | 256 | |
| 499669 | Dissolved Solids | 28-Aug-91 | 242 | mg/l | 242 | |
| 499669 | Dissolved Solids | 04-Oct-91 | 262 | mg/l | 262 | |
| 499669 | Dissolved Solids | 16-Oct-91 | 292 | mg/l | 292 | |
| 499669 | Dissolved Solids | 31-Oct-91 | 260 | mg/l | 260 | |
| 499669 | Dissolved Solids | 04-Dec-91 | 276 | mg/l | 276 | |
| 499669 | Dissolved Solids | 31-Mar-92 | 290 | mg/l | 290 | |
| 499669 | Dissolved Solids | 14-Apr-92 | 266 | mg/l | 266 | |
| 499669 | Dissolved Solids | 28-Apr-92 | 336 | mg/l | 336 | |
| 499669 | Dissolved Solids | 12-May-92 | 280 | mg/l | 280 | |
| 499669 | Dissolved Solids | 27-May-92 | 286 | mg/l | 286 | |
| 499669 | Dissolved Solids | 10-Jun-92 | 324 | mg/l | 324 | |
| 499669 | Dissolved Solids | 21-Jul-92 | 326 | mg/l | 326 | |
| 499669 | Dissolved Solids | 13-Aug-92 | 342 | mg/l | 342 | |
| 499669 | Dissolved Solids | 09-Sep-92 | 320 | mg/l | 320 | |
| 499669 | Dissolved Solids | 22-Sep-92 | 320 | mg/l | 320 | |
| 499669 | Dissolved Solids | 30-Sep-92 | 392 | mg/l | 392 | |
| 499669 | Dissolved Solids | 21-Oct-92 | 326 | mg/l | 326 | |
| 499669 | Dissolved Solids | 17-Nov-92 | 284 | mg/l | 284 | |
| 499669 | Dissolved Solids | 27-Jan-93 | 334 | mg/l | 334 | |
| 499669 | Dissolved Solids | 22-Mar-93 | 346 | mg/l | 346 | |
| 499669 | Dissolved Solids | 14-Apr-93 | 304 | mg/l | 304 | |
| 499669 | Dissolved Solids | 27-Jul-93 | 242 | mg/l | 242 | |
| 499669 | Dissolved Solids | 02-Sep-93 | 214 | mg/l | 214 | |
| 499669 | Dissolved Solids | 02-Nov-93 | 244 | mg/l | 244 | |
| 499669 | Dissolved Solids | 08-Feb-94 | 262 | mg/l | 262 | |
| 499669 | Dissolved Solids | 17-Mar-94 | 290 | mg/l | 290 | |
| 499669 | Dissolved Solids | 30-Mar-94 | 240 | mg/l | 240 | |
| 499669 | Dissolved Solids | 07-Apr-94 | 270 | mg/l | 270 | |
| 499669 | Dissolved Solids | 13-Apr-94 | 278 | mg/l | 278 | |
| 499669 | Dissolved Solids | 27-Apr-94 | 272 | mg/l | 272 | |
| 499669 | Dissolved Solids | 27-Apr-94 | 274 | mg/l | 274 | |
| 499669 | Dissolved Solids | 10-May-94 | 294 | mg/l | 294 | |
| 499669 | Dissolved Solids | 25-May-94 | 278 | mg/l | 278 | |
| 499669 | Dissolved Solids | 08-Jun-94 | 276 | mg/l | 276 | |
| 499669 | Dissolved Solids | 12-Jul-94 | 300 | mg/l | 300 | |
| 499669 | Dissolved Solids | 16-Aug-94 | 294 | mg/l | 294 | |
| 499669 | Dissolved Solids | 14-Sep-94 | 300 | mg/l | 300 | |
| 499669 | Dissolved Solids | 12-Oct-94 | 294 | mg/l | 294 | |
| 499669 | Dissolved Solids | 25-Oct-94 | 294 | mg/l | 294 | |
| 499669 | Dissolved Solids | 22-Nov-94 | 282 | mg/l | 282 | |
| 499669 | Dissolved Solids | 09-Dec-94 | 306 | mg/l | 306 | |
| 499669 | Dissolved Solids | 19-Jan-95 | 330 | mg/l | 330 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Dissolved Solids | 23-Feb-95 | 292 | mg/l | 292 | |
| 499669 | Dissolved Solids | 09-Mar-95 | 318 | mg/l | 318 | |
| 499669 | Dissolved Solids | 23-Mar-95 | 288 | mg/l | 288 | |
| 499669 | Dissolved Solids | 05-Apr-95 | 272 | mg/l | 272 | |
| 499669 | Dissolved Solids | 19-Apr-95 | 280 | mg/l | 280 | |
| 499669 | Dissolved Solids | 18-May-95 | 256 | mg/l | 256 | |
| 499669 | Dissolved Solids | 31-May-95 | 308 | mg/l | 308 | |
| 499669 | Dissolved Solids | 25-Jul-95 | 250 | mg/l | 250 | |
| 499669 | Dissolved Solids | 07-Sep-95 | 288 | mg/l | 288 | |
| 499669 | Dissolved Solids | 12-Oct-95 | 258 | mg/l | 258 | |
| 499669 | Dissolved Solids | 08-Nov-95 | 254 | mg/l | 254 | |
| 499669 | Dissolved Solids | 10-Jan-96 | 272 | mg/l | 272 | |
| 499669 | Dissolved Solids | 21-Feb-96 | 286 | mg/l | 286 | |
| 499669 | Dissolved Solids | 10-Apr-96 | 272 | mg/l | 272 | |
| 499669 | Dissolved Solids | 01-May-96 | 286 | mg/l | 286 | |
| 499669 | Dissolved Solids | 25-Jul-96 | 282 | mg/l | 282 | |
| 499669 | Dissolved Solids | 05-Sep-96 | 252 | mg/l | 252 | |
| 499669 | Dissolved Solids | 09-Oct-96 | 276 | mg/l | 276 | |
| 499669 | Dissolved Solids | 19-Nov-96 | 280 | mg/l | 280 | |
| 499669 | Dissolved Solids | 22-Jan-97 | 270 | mg/l | 270 | |
| 499669 | Dissolved Solids | 13-Mar-97 | 256 | mg/l | 256 | |
| 499669 | Dissolved Solids | 29-Apr-97 | 218 | mg/l | 218 | |
| 499669 | Dissolved Solids | 18-Jun-97 | 206 | mg/l | 206 | |
| 499669 | Dissolved Solids | 15-Jul-97 | 210 | mg/l | 210 | |
| 499669 | Dissolved Solids | 29-Jul-97 | 276 | mg/l | 276 | |
| 499669 | Dissolved Solids | 11-Sep-97 | 230 | mg/l | 230 | |
| 499669 | Dissolved Solids | 16-Oct-97 | 240 | mg/l | 240 | |
| 499669 | Dissolved Solids | 02-Dec-97 | 244 | mg/l | 244 | |
| 499669 | Dissolved Solids | 05-Feb-98 | 250 | mg/l | 250 | |
| 499669 | Dissolved Solids | 19-Mar-98 | 276 | mg/l | 276 | |
| 499669 | Dissolved Solids | 27-May-98 | 234 | mg/l | 234 | |
| 499669 | Dissolved Solids | 11-Aug-98 | 252 | mg/l | 252 | |
| 499669 | Dissolved Solids | 14-Oct-98 | 234 | mg/l | 234 | |
| 499669 | Dissolved Solids | 01-Dec-98 | 232 | mg/l | 232 | |
| 499669 | Dissolved Solids | 14-Jan-99 | 236 | mg/l | 236 | |
| 499669 | Dissolved Solids | 17-Mar-99 | 248 | mg/l | 248 | |
| 499669 | Dissolved Solids | 04-May-99 | 246 | mg/l | 246 | |
| 499669 | Dissolved Solids | 13-Jul-99 | 242 | mg/l | 242 | |
| 499669 | Dissolved Solids | 19-Aug-99 | 224 | mg/l | 224 | |
| 499669 | Dissolved Solids | 25-Aug-99 | 238 | mg/l | 238 | |
| 499669 | Dissolved Solids | 05-Oct-99 | 248 | mg/l | 248 | |
| 499669 | Dissolved Solids | 02-Dec-99 | 244 | mg/l | 244 | |
| 499669 | Dissolved Solids | 11-Jan-00 | 252 | mg/l | 252 | |
| 499669 | Dissolved Solids | 29-Feb-00 | 250 | mg/l | 250 | |
| 499669 | Dissolved Solids | 07-Apr-00 | 260 | mg/l | 260 | |
| 499669 | Dissolved Solids | 18-Apr-00 | 236 | mg/l | 236 | |
| 499669 | Dissolved Solids | 09-May-00 | 240 | mg/l | 240 | |
| 499669 | Dissolved Solids | 26-May-00 | 242 | mg/l | 242 | |
| 499669 | Dissolved Solids | 08-Jun-00 | 254 | mg/l | 254 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Dissolved Solids | 28-Jun-00 | 300 | mg/l | 300 | |
| 499669 | Dissolved Solids | 04-Oct-00 | 258 | mg/l | 258 | |
| 499669 | Dissolved Solids | 14-Nov-00 | 248 | mg/l | 248 | |
| 499669 | Dissolved Solids | 13-Feb-01 | 262 | mg/l | 262 | |
| 499669 | Dissolved Solids | 10-May-01 | 270 | mg/l | 270 | |
| 499669 | Dissolved Solids | 07-Aug-01 | 302 | mg/l | 302 | |
| 499669 | Dissolved Solids | 10-Oct-01 | 428 | mg/l | 428 | |
| 499669 | Dissolved Solids | 28-Nov-01 | 268 | mg/l | 268 | |
| 499669 | Dissolved Solids | 23-Jan-02 | 278 | mg/l | 278 | |
| 499669 | Dissolved Solids | 05-Mar-02 | 248 | mg/l | 248 | |
| 499669 | Dissolved Solids | 17-Apr-02 | 408 | mg/l | 408 | |
| 499669 | Dissolved Solids | 23-May-02 | 280 | mg/l | 280 | |
| 499669 | Dissolved Solids | 09-Jul-02 | 328 | mg/l | 328 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 01-Feb-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 20-Mar-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 25-Apr-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 24-May-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 11-Jul-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 26-Jul-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 21-Aug-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 03-Oct-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 26-Oct-90 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 29-Jan-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 13-Feb-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 26-Feb-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 27-Mar-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 28-Mar-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 24-Apr-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 08-May-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 12-Jun-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 10-Jul-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 16-Jul-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 23-Jul-91 | 0.05 | mg/l | 0.05 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 15-Aug-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 28-Aug-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 04-Oct-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 16-Oct-91 | 0.05 | mg/l | 0.05 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 31-Oct-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 04-Dec-91 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 06-Feb-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 12-Feb-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 17-Mar-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 31-Mar-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 14-Apr-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 28-Apr-92 | 0.062 | mg/l | 0.062 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 12-May-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 27-May-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 10-Jun-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 21-Jul-92 | 0 | mg/l | 0.025 | 0.05 |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 13-Aug-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 09-Sep-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 22-Sep-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 30-Sep-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 21-Oct-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 17-Nov-92 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 27-Jan-93 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 22-Mar-93 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 14-Apr-93 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 27-Jul-93 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 02-Sep-93 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 02-Nov-93 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 08-Feb-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 17-Mar-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 30-Mar-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 07-Apr-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 13-Apr-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 27-Apr-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 27-Apr-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 10-May-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 25-May-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 08-Jun-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 12-Jul-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 16-Aug-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 14-Sep-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 12-Oct-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 25-Oct-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 22-Nov-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 09-Dec-94 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 19-Jan-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 23-Feb-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 09-Mar-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 23-Mar-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 05-Apr-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 19-Apr-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 18-May-95 | 0.05 | mg/l | 0.05 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 31-May-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 25-Jul-95 | 0.073 | mg/l | 0.073 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 07-Sep-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 12-Oct-95 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 08-Nov-95 | 0.062 | mg/l | 0.062 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 10-Jan-96 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 21-Feb-96 | 0.079 | mg/l | 0.079 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 10-Apr-96 | 0.104 | mg/l | 0.104 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 01-May-96 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 05-Sep-96 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 09-Oct-96 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 19-Nov-96 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 22-Jan-97 | 0.597 | mg/l | 0.597 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 13-Mar-97 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 29-Apr-97 | 0.15 | mg/l | 0.15 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 18-Jun-97 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 15-Jul-97 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 29-Jul-97 | 0.113 | mg/l | 0.113 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 11-Sep-97 | 0.064 | mg/l | 0.064 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 16-Oct-97 | 0.112 | mg/l | 0.112 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 02-Dec-97 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 05-Feb-98 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 19-Mar-98 | 0.64 | mg/l | 0.64 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 27-May-98 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 11-Aug-98 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 14-Oct-98 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 01-Dec-98 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 14-Jan-99 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 17-Mar-99 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 04-May-99 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 13-Jul-99 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 19-Aug-99 | 0.0905 | mg/l | 0.0905 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 25-Aug-99 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 05-Oct-99 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 02-Dec-99 | 0 | mg/l | 0.025 | 0.05 |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 11-Jan-00 | 0 | mg/l | 0 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 29-Feb-00 | 0 | mg/l | 0 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 07-Apr-00 | | mg/l | 0 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 18-Apr-00 | | mg/l | 0 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 09-May-00 | | mg/l | 0 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 26-May-00 | | mg/l | 0 | |
| 499669 | Nitrogen, ammonia (NH3) as NH3 | 08-Jun-00 | | mg/l | 0 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Jan-91 | 0.58 | mg/l | 0.58 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Feb-91 | 0.43 | mg/l | 0.43 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 26-Feb-91 | 0.45 | mg/l | 0.45 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Mar-91 | 0.585 | mg/l | 0.585 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Mar-91 | 0.44 | mg/l | 0.44 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 24-Apr-91 | 0.244 | mg/l | 0.244 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-May-91 | 0.197 | mg/l | 0.197 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Jun-91 | 0.257 | mg/l | 0.257 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jul-91 | 0.381 | mg/l | 0.381 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Jul-91 | 0.527 | mg/l | 0.527 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-Jul-91 | 0.401 | mg/l | 0.401 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 15-Aug-91 | 0.237 | mg/l | 0.237 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Aug-91 | 0.812 | mg/l | 0.812 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Oct-91 | 0.202 | mg/l | 0.202 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Oct-91 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Oct-91 | 0.21 | mg/l | 0.21 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Oct-91 | 1.11 | mg/l | 1.11 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 31-Oct-91 | 0.235 | mg/l | 0.235 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 31-Oct-91 | 0.229 | mg/l | 0.229 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Dec-91 | 0.324 | mg/l | 0.324 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Dec-91 | 0.284 | mg/l | 0.284 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 06-Feb-92 | 0.693 | mg/l | 0.693 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Feb-92 | 0.502 | mg/l | 0.502 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Mar-92 | 0.336 | mg/l | 0.336 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 31-Mar-92 | 0.205 | mg/l | 0.205 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Apr-92 | 0.262 | mg/l | 0.262 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Apr-92 | 0.633 | mg/l | 0.633 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-May-92 | 0.092 | mg/l | 0.092 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-May-92 | 0.264 | mg/l | 0.264 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jun-92 | 0.428 | mg/l | 0.428 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 21-Jul-92 | 0.166 | mg/l | 0.166 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Aug-92 | 0.199 | mg/l | 0.199 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Sep-92 | 0.048 | mg/l | 0.048 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 22-Sep-92 | 0.219 | mg/l | 0.219 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 30-Sep-92 | 0.34 | mg/l | 0.34 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 21-Oct-92 | 0.256 | mg/l | 0.256 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Nov-92 | 0.085 | mg/l | 0.085 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Jan-93 | 0.625 | mg/l | 0.625 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 22-Mar-93 | 0.65 | mg/l | 0.65 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Apr-93 | 1.12 | mg/l | 1.12 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Jul-93 | 0.408 | mg/l | 0.408 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Sep-93 | 0.38 | mg/l | 0.38 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Nov-93 | 0.568 | mg/l | 0.568 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Feb-94 | 0.463 | mg/l | 0.463 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Mar-94 | 0.317 | mg/l | 0.317 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 30-Mar-94 | 0.146 | mg/l | 0.146 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Apr-94 | 0.252 | mg/l | 0.252 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Apr-94 | 0.249 | mg/l | 0.249 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Apr-94 | 0.646 | mg/l | 0.646 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Apr-94 | 0.381 | mg/l | 0.381 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-May-94 | 0.39 | mg/l | 0.39 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 25-May-94 | 0.509 | mg/l | 0.509 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Jun-94 | 0.42 | mg/l | 0.42 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Jul-94 | 0.147 | mg/l | 0.147 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Aug-94 | 0.226 | mg/l | 0.226 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Sep-94 | 0.486 | mg/l | 0.486 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Oct-94 | 0.338 | mg/l | 0.338 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 25-Oct-94 | 0.304 | mg/l | 0.304 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 22-Nov-94 | 0.183 | mg/l | 0.183 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Dec-94 | 0.393 | mg/l | 0.393 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Jan-95 | 0.413 | mg/l | 0.413 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-Feb-95 | 0.233 | mg/l | 0.233 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Mar-95 | 0.377 | mg/l | 0.377 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-Mar-95 | 0.343 | mg/l | 0.343 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Apr-95 | 0.306 | mg/l | 0.306 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Apr-95 | 0.32 | mg/l | 0.32 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 18-May-95 | 0.24 | mg/l | 0.24 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 31-May-95 | 0.41 | mg/l | 0.41 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 25-Jul-95 | 0.24 | mg/l | 0.24 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Sep-95 | 0.19 | mg/l | 0.19 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Oct-95 | 1.85 | mg/l | 1.85 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Nov-95 | 0.63 | mg/l | 0.63 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jan-96 | 0.3 | mg/l | 0.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 21-Feb-96 | 0.48 | mg/l | 0.48 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Apr-96 | 0.15 | mg/l | 0.15 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 01-May-96 | 0.27 | mg/l | 0.27 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Sep-96 | 0.24 | mg/l | 0.24 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Oct-96 | 0.32 | mg/l | 0.32 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Nov-96 | 0.32 | mg/l | 0.32 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 22-Jan-97 | 0.31 | mg/l | 0.31 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Mar-97 | 0.31 | mg/l | 0.31 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Apr-97 | 0.25 | mg/l | 0.25 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 18-Jun-97 | 0.04 | mg/l | 0.04 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 15-Jul-97 | 0.23 | mg/l | 0.23 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Jul-97 | 1.71 | mg/l | 1.71 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-Sep-97 | 0.3 | mg/l | 0.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Oct-97 | 0.25 | mg/l | 0.25 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Dec-97 | 0.34 | mg/l | 0.34 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Feb-98 | 0.35 | mg/l | 0.35 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Mar-98 | 0.18 | mg/l | 0.18 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-May-98 | 0.28 | mg/l | 0.28 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-Aug-98 | 0 | mg/l | 0.05 | 0.1 |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Oct-98 | 0.23 | mg/l | 0.23 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 01-Dec-98 | 0.26 | mg/l | 0.26 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Jan-99 | 0.23624 | mg/l | 0.23624 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Mar-99 | 0.166 | mg/l | 0.166 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-May-99 | 0.19155 | mg/l | 0.19155 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Jul-99 | 0.3 | mg/l | 0.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Aug-99 | 0 | mg/l | 0.05 | 0.1 |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 25-Aug-99 | 0.3 | mg/l | 0.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Oct-99 | 0.2 | mg/l | 0.2 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Dec-99 | 0.3 | mg/l | 0.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-Jan-00 | 0.4 | mg/l | 0.4 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Feb-00 | 1.3 | mg/l | 1.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Apr-00 | 0.2 | mg/l | 0.2 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 18-Apr-00 | 0.2 | mg/l | 0.2 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-May-00 | 0.2 | mg/l | 0.2 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 26-May-00 | 0.2 | mg/l | 0.2 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Jun-00 | 0.3 | mg/l | 0.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Jun-00 | 0.5 | mg/l | 0.5 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Oct-00 | 0.3 | mg/l | 0.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Nov-00 | 0.23 | mg/l | 0.23 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Feb-01 | 0.36 | mg/l | 0.36 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-May-01 | 0.28 | mg/l | 0.28 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Aug-01 | 0.3 | mg/l | 0.3 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Oct-01 | 0.54 | mg/l | 0.54 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Nov-01 | 0.21 | mg/l | 0.21 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-Jan-02 | 0.24 | mg/l | 0.24 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Mar-02 | 6.61 | mg/l | 6.61 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Apr-02 | 0.23 | mg/l | 0.23 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-May-02 | 0.21 | mg/l | 0.21 | |
| 499669 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Jul-02 | 0.24 | mg/l | 0.24 | |
| 499669 | pH | 01-Feb-90 | 8.1 | None | 8.1 | |
| 499669 | pH | 01-Feb-90 | 7.9 | None | 7.9 | |
| 499669 | pH | 20-Mar-90 | 8.2 | None | 8.2 | |
| 499669 | pH | 20-Mar-90 | 8.6 | None | 8.6 | |
| 499669 | pH | 25-Apr-90 | 8.4 | None | 8.4 | |
| 499669 | pH | 25-Apr-90 | 8.1 | None | 8.1 | |
| 499669 | pH | 24-May-90 | 8.4 | None | 8.4 | |
| 499669 | pH | 24-May-90 | 8.1 | None | 8.1 | |
| 499669 | pH | 11-Jul-90 | 8.6 | None | 8.6 | |
| 499669 | pH | 11-Jul-90 | 8.2 | None | 8.2 | |
| 499669 | pH | 26-Jul-90 | 8.2 | None | 8.2 | |
| 499669 | pH | 26-Jul-90 | 8.6 | None | 8.6 | |
| 499669 | pH | 21-Aug-90 | 8 | None | 8 | |
| 499669 | pH | 21-Aug-90 | 7.6 | None | 7.6 | |
| 499669 | pH | 03-Oct-90 | 8.2 | None | 8.2 | |
| 499669 | pH | 03-Oct-90 | 8.2 | None | 8.2 | |
| 499669 | pH | 26-Oct-90 | 8 | None | 8 | |
| 499669 | pH | 26-Oct-90 | 7.8 | None | 7.8 | |
| 499669 | pH | 29-Jan-91 | 8.1 | None | 8.1 | |
| 499669 | pH | 29-Jan-91 | 8.1 | None | 8.1 | |
| 499669 | pH | 13-Feb-91 | 7.9 | None | 7.9 | |
| 499669 | pH | 13-Feb-91 | 7.9 | None | 7.9 | |
| 499669 | pH | 26-Feb-91 | 8.2 | None | 8.2 | |
| 499669 | pH | 26-Feb-91 | 8.2 | None | 8.2 | |
| 499669 | pH | 27-Mar-91 | 8.6 | None | 8.6 | |
| 499669 | pH | 27-Mar-91 | 8.1 | None | 8.1 | |
| 499669 | pH | 28-Mar-91 | 8.1 | None | 8.1 | |
| 499669 | pH | 28-Mar-91 | 8.2 | None | 8.2 | |
| 499669 | pH | 24-Apr-91 | 8 | None | 8 | |
| 499669 | pH | 08-May-91 | 8 | None | 8 | |
| 499669 | pH | 08-May-91 | 9.1 | None | 9.1 | |
| 499669 | pH | 12-Jun-91 | 8.1 | None | 8.1 | |
| 499669 | pH | 12-Jun-91 | 8.3 | None | 8.3 | |
| 499669 | pH | 10-Jul-91 | 8.3 | None | 8.3 | |
| 499669 | pH | 10-Jul-91 | 6.2 | None | 6.2 | |
| 499669 | pH | 16-Jul-91 | 8 | None | 8 | |
| 499669 | pH | 16-Jul-91 | 8.3 | None | 8.3 | |
| 499669 | pH | 23-Jul-91 | 8.1 | None | 8.1 | |
| 499669 | pH | 23-Jul-91 | 8.5 | None | 8.5 | |
| 499669 | pH | 15-Aug-91 | 8.3 | None | 8.3 | |
| 499669 | pH | 15-Aug-91 | 8.6 | None | 8.6 | |
| 499669 | pH | 28-Aug-91 | 7.7 | None | 7.7 | |
| 499669 | pH | 28-Aug-91 | 7.9 | None | 7.9 | |
| 499669 | pH | 04-Oct-91 | 7.9 | None | 7.9 | |
| 499669 | pH | 04-Oct-91 | 8 | None | 8 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | pH | 16-Oct-91 | 8 | None | 8 | |
| 499669 | pH | 16-Oct-91 | 8.3 | None | 8.3 | |
| 499669 | pH | 31-Oct-91 | 8.2 | None | 8.2 | |
| 499669 | pH | 31-Oct-91 | 8.5 | None | 8.5 | |
| 499669 | pH | 04-Dec-91 | 8.1 | None | 8.1 | |
| 499669 | pH | 04-Dec-91 | 8.4 | None | 8.4 | |
| 499669 | pH | 06-Feb-92 | 9 | None | 9 | |
| 499669 | pH | 12-Feb-92 | 8.3 | None | 8.3 | |
| 499669 | pH | 17-Mar-92 | 8.1 | None | 8.1 | |
| 499669 | pH | 31-Mar-92 | 8.3 | None | 8.3 | |
| 499669 | pH | 31-Mar-92 | 7.7 | None | 7.7 | |
| 499669 | pH | 14-Apr-92 | 8.1 | None | 8.1 | |
| 499669 | pH | 28-Apr-92 | 7.8 | None | 7.8 | |
| 499669 | pH | 12-May-92 | 8.8 | None | 8.8 | |
| 499669 | pH | 27-May-92 | 8.6 | None | 8.6 | |
| 499669 | pH | 10-Jun-92 | 7.7 | None | 7.7 | |
| 499669 | pH | 21-Jul-92 | 8.4 | None | 8.4 | |
| 499669 | pH | 13-Aug-92 | 7.9 | None | 7.9 | |
| 499669 | pH | 25-Aug-92 | 8 | None | 8 | |
| 499669 | pH | 09-Sep-92 | 8.4 | None | 8.4 | |
| 499669 | pH | 22-Sep-92 | 8.4 | None | 8.4 | |
| 499669 | pH | 30-Sep-92 | 8 | None | 8 | |
| 499669 | pH | 30-Sep-92 | 8.2 | None | 8.2 | |
| 499669 | pH | 21-Oct-92 | 7.8 | None | 7.8 | |
| 499669 | pH | 21-Oct-92 | 8.1 | None | 8.1 | |
| 499669 | pH | 17-Nov-92 | 8.5 | None | 8.5 | |
| 499669 | pH | 27-Jan-93 | 7.6 | None | 7.6 | |
| 499669 | pH | 27-Jan-93 | 7.8 | None | 7.8 | |
| 499669 | pH | 22-Mar-93 | 8.2 | None | 8.2 | |
| 499669 | pH | 22-Mar-93 | 8.1 | None | 8.1 | |
| 499669 | pH | 14-Apr-93 | 8.1 | None | 8.1 | |
| 499669 | pH | 14-Apr-93 | 8.2 | None | 8.2 | |
| 499669 | pH | 27-Jul-93 | 7.9 | None | 7.9 | |
| 499669 | pH | 27-Jul-93 | 8.1 | None | 8.1 | |
| 499669 | pH | 02-Sep-93 | 7.9 | None | 7.9 | |
| 499669 | pH | 02-Sep-93 | 8.2 | None | 8.2 | |
| 499669 | pH | 02-Nov-93 | 8.2 | None | 8.2 | |
| 499669 | pH | 02-Nov-93 | 8.2 | None | 8.2 | |
| 499669 | pH | 08-Feb-94 | 8.3 | None | 8.3 | |
| 499669 | pH | 08-Feb-94 | 8.5 | None | 8.5 | |
| 499669 | pH | 17-Mar-94 | 7.4 | None | 7.4 | |
| 499669 | pH | 17-Mar-94 | 8.8 | None | 8.8 | |
| 499669 | pH | 30-Mar-94 | 7.9 | None | 7.9 | |
| 499669 | pH | 30-Mar-94 | 9 | None | 9 | |
| 499669 | pH | 07-Apr-94 | 7.6 | None | 7.6 | |
| 499669 | pH | 07-Apr-94 | 8.4 | None | 8.4 | |
| 499669 | pH | 13-Apr-94 | 6.9 | None | 6.9 | |
| 499669 | pH | 13-Apr-94 | 8.3 | None | 8.3 | |
| 499669 | pH | 27-Apr-94 | 7.5 | None | 7.5 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | pH | 27-Apr-94 | 8.1 | None | 8.1 | |
| 499669 | pH | 27-Apr-94 | 7.9 | None | 7.9 | |
| 499669 | pH | 27-Apr-94 | 8.6 | None | 8.6 | |
| 499669 | pH | 10-May-94 | 7.4 | None | 7.4 | |
| 499669 | pH | 10-May-94 | 8.6 | None | 8.6 | |
| 499669 | pH | 25-May-94 | 7.5 | None | 7.5 | |
| 499669 | pH | 25-May-94 | 8.3 | None | 8.3 | |
| 499669 | pH | 08-Jun-94 | 7.3 | None | 7.3 | |
| 499669 | pH | 08-Jun-94 | 8.3 | None | 8.3 | |
| 499669 | pH | 12-Jul-94 | 8.4 | None | 8.4 | |
| 499669 | pH | 12-Jul-94 | 7.9 | None | 7.9 | |
| 499669 | pH | 16-Aug-94 | 7.7 | None | 7.7 | |
| 499669 | pH | 16-Aug-94 | 8.6 | None | 8.6 | |
| 499669 | pH | 14-Sep-94 | 8 | None | 8 | |
| 499669 | pH | 14-Sep-94 | 8.3 | None | 8.3 | |
| 499669 | pH | 12-Oct-94 | 7.5 | None | 7.5 | |
| 499669 | pH | 12-Oct-94 | 8.7 | None | 8.7 | |
| 499669 | pH | 25-Oct-94 | 7.7 | None | 7.7 | |
| 499669 | pH | 25-Oct-94 | 8.4 | None | 8.4 | |
| 499669 | pH | 22-Nov-94 | 8.5 | None | 8.5 | |
| 499669 | pH | 22-Nov-94 | 8.7 | None | 8.7 | |
| 499669 | pH | 09-Dec-94 | 8.3 | None | 8.3 | |
| 499669 | pH | 09-Dec-94 | 8.8 | None | 8.8 | |
| 499669 | pH | 19-Jan-95 | 8.3 | None | 8.3 | |
| 499669 | pH | 19-Jan-95 | 8.3 | None | 8.3 | |
| 499669 | pH | 23-Feb-95 | 8.4 | None | 8.4 | |
| 499669 | pH | 23-Feb-95 | 8.9 | None | 8.9 | |
| 499669 | pH | 09-Mar-95 | 7.6 | None | 7.6 | |
| 499669 | pH | 23-Mar-95 | 8.6 | None | 8.6 | |
| 499669 | pH | 23-Mar-95 | 8.8 | None | 8.8 | |
| 499669 | pH | 05-Apr-95 | 8.4 | None | 8.4 | |
| 499669 | pH | 05-Apr-95 | 8.4 | None | 8.4 | |
| 499669 | pH | 19-Apr-95 | 8.4 | None | 8.4 | |
| 499669 | pH | 19-Apr-95 | 8.5 | None | 8.5 | |
| 499669 | pH | 18-May-95 | 8.4 | None | 8.4 | |
| 499669 | pH | 18-May-95 | 8.7 | None | 8.7 | |
| 499669 | pH | 31-May-95 | 8.25 | None | 8.25 | |
| 499669 | pH | 31-May-95 | 8.3 | None | 8.3 | |
| 499669 | pH | 25-Jul-95 | 9.1 | None | 9.1 | |
| 499669 | pH | 25-Jul-95 | 8.49 | None | 8.49 | |
| 499669 | pH | 07-Sep-95 | 8.44 | None | 8.44 | |
| 499669 | pH | 07-Sep-95 | 7.2 | None | 7.2 | |
| 499669 | pH | 12-Oct-95 | 8.34 | None | 8.34 | |
| 499669 | pH | 12-Oct-95 | 8.2 | None | 8.2 | |
| 499669 | pH | 08-Nov-95 | 8.23 | None | 8.23 | |
| 499669 | pH | 08-Nov-95 | 8.3 | None | 8.3 | |
| 499669 | pH | 10-Jan-96 | 8.56 | None | 8.56 | |
| 499669 | pH | 10-Jan-96 | 8.57 | None | 8.57 | |
| 499669 | pH | 21-Feb-96 | 8.15 | None | 8.15 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | pH | 21-Feb-96 | 8.2 | None | 8.2 | |
| 499669 | pH | 10-Apr-96 | 8.57 | None | 8.57 | |
| 499669 | pH | 10-Apr-96 | 9.3 | None | 9.3 | |
| 499669 | pH | 01-May-96 | 8.35 | None | 8.35 | |
| 499669 | pH | 01-May-96 | 9.1 | None | 9.1 | |
| 499669 | pH | 25-Jul-96 | 8.51 | None | 8.51 | |
| 499669 | pH | 25-Jul-96 | 8.6 | None | 8.6 | |
| 499669 | pH | 05-Sep-96 | 8.38 | None | 8.38 | |
| 499669 | pH | 05-Sep-96 | 8.1 | None | 8.1 | |
| 499669 | pH | 09-Oct-96 | 8.4 | None | 8.4 | |
| 499669 | pH | 09-Oct-96 | 8.2 | None | 8.2 | |
| 499669 | pH | 19-Nov-96 | 8.4 | None | 8.4 | |
| 499669 | pH | 19-Nov-96 | 8.79 | None | 8.79 | |
| 499669 | pH | 22-Jan-97 | 8.28 | None | 8.28 | |
| 499669 | pH | 22-Jan-97 | 8.2 | None | 8.2 | |
| 499669 | pH | 13-Mar-97 | 8.25 | None | 8.25 | |
| 499669 | pH | 13-Mar-97 | 9.14 | None | 9.14 | |
| 499669 | pH | 29-Apr-97 | 7.9 | None | 7.9 | |
| 499669 | pH | 29-Apr-97 | 8.33 | None | 8.33 | |
| 499669 | pH | 18-Jun-97 | 8.67 | None | 8.67 | |
| 499669 | pH | 18-Jun-97 | 8.6 | None | 8.6 | |
| 499669 | pH | 15-Jul-97 | 8.78 | None | 8.78 | |
| 499669 | pH | 29-Jul-97 | 8.3 | None | 8.3 | |
| 499669 | pH | 29-Jul-97 | 8.23 | None | 8.23 | |
| 499669 | pH | 11-Sep-97 | 8.22 | None | 8.22 | |
| 499669 | pH | 11-Sep-97 | 8.21 | None | 8.21 | |
| 499669 | pH | 16-Oct-97 | 8.27 | None | 8.27 | |
| 499669 | pH | 16-Oct-97 | 8.29 | None | 8.29 | |
| 499669 | pH | 02-Dec-97 | 8.28 | None | 8.28 | |
| 499669 | pH | 02-Dec-97 | 8.25 | None | 8.25 | |
| 499669 | pH | 05-Feb-98 | 8.23 | None | 8.23 | |
| 499669 | pH | 05-Feb-98 | 8.37 | None | 8.37 | |
| 499669 | pH | 19-Mar-98 | 8.13 | None | 8.13 | |
| 499669 | pH | 19-Mar-98 | 8.51 | None | 8.51 | |
| 499669 | pH | 27-May-98 | 8.38 | None | 8.38 | |
| 499669 | pH | 27-May-98 | 9.29 | None | 9.29 | |
| 499669 | pH | 11-Aug-98 | 8.28 | None | 8.28 | |
| 499669 | pH | 11-Aug-98 | 8.24 | None | 8.24 | |
| 499669 | pH | 14-Oct-98 | 8.18 | None | 8.18 | |
| 499669 | pH | 14-Oct-98 | 8.17 | None | 8.17 | |
| 499669 | pH | 01-Dec-98 | 8.43 | None | 8.43 | |
| 499669 | pH | 01-Dec-98 | 8.87 | None | 8.87 | |
| 499669 | pH | 14-Jan-99 | 8.46 | None | 8.46 | |
| 499669 | pH | 14-Jan-99 | 8.6 | None | 8.6 | |
| 499669 | pH | 17-Mar-99 | 8.23 | None | 8.23 | |
| 499669 | pH | 17-Mar-99 | 8.6 | None | 8.6 | |
| 499669 | pH | 04-May-99 | 8.23 | None | 8.23 | |
| 499669 | pH | 04-May-99 | 8.44 | None | 8.44 | |
| 499669 | pH | 13-Jul-99 | 8.16 | None | 8.16 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | pH | 13-Jul-99 | 8.3 | None | 8.3 | |
| 499669 | pH | 19-Aug-99 | 8.8 | None | 8.8 | |
| 499669 | pH | 25-Aug-99 | 8.9 | None | 8.9 | |
| 499669 | pH | 25-Aug-99 | 8.75 | None | 8.75 | |
| 499669 | pH | 05-Oct-99 | 8.11 | None | 8.11 | |
| 499669 | pH | 05-Oct-99 | 8.3 | None | 8.3 | |
| 499669 | pH | 02-Dec-99 | 7.86 | None | 7.86 | |
| 499669 | pH | 02-Dec-99 | 8.6 | None | 8.6 | |
| 499669 | pH | 11-Jan-00 | 8.38 | None | 8.38 | |
| 499669 | pH | 11-Jan-00 | 7.83 | None | 7.83 | |
| 499669 | pH | 29-Feb-00 | 8.42 | None | 8.42 | |
| 499669 | pH | 29-Feb-00 | 7.88 | None | 7.88 | |
| 499669 | pH | 07-Apr-00 | 8.37 | None | 8.37 | |
| 499669 | pH | 07-Apr-00 | 8.49 | None | 8.49 | |
| 499669 | pH | 18-Apr-00 | 8.55 | None | 8.55 | |
| 499669 | pH | 18-Apr-00 | 8.31 | None | 8.31 | |
| 499669 | pH | 09-May-00 | 8.58 | None | 8.58 | |
| 499669 | pH | 09-May-00 | 8.5 | None | 8.5 | |
| 499669 | pH | 26-May-00 | 8.18 | None | 8.18 | |
| 499669 | pH | 26-May-00 | 8.7 | None | 8.7 | |
| 499669 | pH | 08-Jun-00 | 8.55 | None | 8.55 | |
| 499669 | pH | 08-Jun-00 | 8.4 | None | 8.4 | |
| 499669 | pH | 28-Jun-00 | 8.64 | None | 8.64 | |
| 499669 | pH | 28-Jun-00 | 8.72 | None | 8.72 | |
| 499669 | pH | 30-Aug-00 | 8.3 | None | 8.3 | |
| 499669 | pH | 31-Aug-00 | 7.93 | None | 7.93 | |
| 499669 | pH | 01-Sep-00 | 8.4 | None | 8.4 | |
| 499669 | pH | 01-Sep-00 | 8.8 | None | 8.8 | |
| 499669 | pH | 04-Oct-00 | 8.6 | None | 8.6 | |
| 499669 | pH | 04-Oct-00 | 8.49 | None | 8.49 | |
| 499669 | pH | 14-Nov-00 | 8.63 | None | 8.63 | |
| 499669 | pH | 14-Nov-00 | 8.54 | None | 8.54 | |
| 499669 | pH | 13-Feb-01 | 8.5 | None | 8.5 | |
| 499669 | pH | 13-Feb-01 | 8.36 | None | 8.36 | |
| 499669 | pH | 10-May-01 | 8.08 | None | 8.08 | |
| 499669 | pH | 10-May-01 | 8.17 | None | 8.17 | |
| 499669 | pH | 07-Aug-01 | 8.47 | None | 8.47 | |
| 499669 | pH | 07-Aug-01 | 8.85 | None | 8.85 | |
| 499669 | pH | 10-Oct-01 | 8.17 | None | 8.17 | |
| 499669 | pH | 28-Nov-01 | 7.46 | None | 7.46 | |
| 499669 | pH | 28-Nov-01 | 8.72 | None | 8.72 | |
| 499669 | pH | 23-Jan-02 | 8.8 | None | 8.8 | |
| 499669 | pH | 23-Jan-02 | 8.36 | None | 8.36 | |
| 499669 | pH | 05-Mar-02 | 8.82 | None | 8.82 | |
| 499669 | pH | 05-Mar-02 | 8.36 | None | 8.36 | |
| 499669 | pH | 17-Apr-02 | 8.3 | None | 8.3 | |
| 499669 | pH | 17-Apr-02 | 8.69 | None | 8.69 | |
| 499669 | pH | 23-May-02 | 8.34 | None | 8.34 | |
| 499669 | pH | 23-May-02 | 8.3 | None | 8.3 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | pH | 09-Jul-02 | 8.76 | None | 8.76 | |
| 499669 | pH | 09-Jul-02 | 8.8 | None | 8.8 | |
| 499669 | pH | 22-Oct-02 | 8.31 | None | 8.31 | |
| 499669 | pH | 07-Jan-03 | 8.48 | None | 8.48 | |
| 499669 | Phosphorus as P | 01-Feb-90 | 0.029 | mg/l | 0.029 | |
| 499669 | Phosphorus as P | 20-Mar-90 | 0.05 | mg/l | 0.05 | |
| 499669 | Phosphorus as P | 25-Apr-90 | 0.019 | mg/l | 0.019 | |
| 499669 | Phosphorus as P | 24-May-90 | 0.04 | mg/l | 0.04 | |
| 499669 | Phosphorus as P | 11-Jul-90 | 0.029 | mg/l | 0.029 | |
| 499669 | Phosphorus as P | 21-Aug-90 | 0.03 | mg/l | 0.03 | |
| 499669 | Phosphorus as P | 21-Aug-90 | 0.044 | mg/l | 0.044 | |
| 499669 | Phosphorus as P | 03-Oct-90 | 0.01 | mg/l | 0.01 | |
| 499669 | Phosphorus as P | 03-Oct-90 | 0.016 | mg/l | 0.016 | |
| 499669 | Phosphorus as P | 26-Oct-90 | 0.01 | mg/l | 0.01 | |
| 499669 | Phosphorus as P | 26-Oct-90 | 0.01 | mg/l | 0.01 | |
| 499669 | Phosphorus as P | 29-Jan-91 | 0.05 | mg/l | 0.05 | |
| 499669 | Phosphorus as P | 29-Jan-91 | 0.06 | mg/l | 0.06 | |
| 499669 | Phosphorus as P | 13-Feb-91 | 0.031 | mg/l | 0.031 | |
| 499669 | Phosphorus as P | 13-Feb-91 | 0.014 | mg/l | 0.014 | |
| 499669 | Phosphorus as P | 26-Feb-91 | 0.053 | mg/l | 0.053 | |
| 499669 | Phosphorus as P | 26-Feb-91 | 0.053 | mg/l | 0.053 | |
| 499669 | Phosphorus as P | 27-Mar-91 | 0.015 | mg/l | 0.015 | |
| 499669 | Phosphorus as P | 27-Mar-91 | 0.02 | mg/l | 0.02 | |
| 499669 | Phosphorus as P | 28-Mar-91 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 28-Mar-91 | 0.013 | mg/l | 0.013 | |
| 499669 | Phosphorus as P | 24-Apr-91 | 0.011 | mg/l | 0.011 | |
| 499669 | Phosphorus as P | 24-Apr-91 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 08-May-91 | 3.511 | mg/l | 3.511 | |
| 499669 | Phosphorus as P | 08-May-91 | 0.051 | mg/l | 0.051 | |
| 499669 | Phosphorus as P | 12-Jun-91 | 0.018 | mg/l | 0.018 | |
| 499669 | Phosphorus as P | 12-Jun-91 | 0.013 | mg/l | 0.013 | |
| 499669 | Phosphorus as P | 10-Jul-91 | 0.034 | mg/l | 0.034 | |
| 499669 | Phosphorus as P | 10-Jul-91 | 0.018 | mg/l | 0.018 | |
| 499669 | Phosphorus as P | 16-Jul-91 | 0.013 | mg/l | 0.013 | |
| 499669 | Phosphorus as P | 16-Jul-91 | 0.015 | mg/l | 0.015 | |
| 499669 | Phosphorus as P | 23-Jul-91 | 0.032 | mg/l | 0.032 | |
| 499669 | Phosphorus as P | 23-Jul-91 | 0.067 | mg/l | 0.067 | |
| 499669 | Phosphorus as P | 15-Aug-91 | 0.016 | mg/l | 0.016 | |
| 499669 | Phosphorus as P | 15-Aug-91 | 0.01 | mg/l | 0.01 | |
| 499669 | Phosphorus as P | 28-Aug-91 | 0.064 | mg/l | 0.064 | |
| 499669 | Phosphorus as P | 28-Aug-91 | 0.06 | mg/l | 0.06 | |
| 499669 | Phosphorus as P | 04-Oct-91 | 0.019 | mg/l | 0.019 | |
| 499669 | Phosphorus as P | 04-Oct-91 | 0.067 | mg/l | 0.067 | |
| 499669 | Phosphorus as P | 16-Oct-91 | 0.037 | mg/l | 0.037 | |
| 499669 | Phosphorus as P | 16-Oct-91 | 0.091 | mg/l | 0.091 | |
| 499669 | Phosphorus as P | 31-Oct-91 | 0.017 | mg/l | 0.017 | |
| 499669 | Phosphorus as P | 31-Oct-91 | 0.045 | mg/l | 0.045 | |
| 499669 | Phosphorus as P | 04-Dec-91 | 0.019 | mg/l | 0.019 | |
| 499669 | Phosphorus as P | 04-Dec-91 | 0.019 | mg/l | 0.019 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Phosphorus as P | 06-Feb-92 | 0.028 | mg/l | 0.028 | |
| 499669 | Phosphorus as P | 06-Feb-92 | 0.018 | mg/l | 0.018 | |
| 499669 | Phosphorus as P | 12-Feb-92 | 0.02 | mg/l | 0.02 | |
| 499669 | Phosphorus as P | 12-Feb-92 | 0.052 | mg/l | 0.052 | |
| 499669 | Phosphorus as P | 17-Mar-92 | 0.054 | mg/l | 0.054 | |
| 499669 | Phosphorus as P | 17-Mar-92 | 0.016 | mg/l | 0.016 | |
| 499669 | Phosphorus as P | 31-Mar-92 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 31-Mar-92 | 0.012 | mg/l | 0.012 | |
| 499669 | Phosphorus as P | 14-Apr-92 | 0.019 | mg/l | 0.019 | |
| 499669 | Phosphorus as P | 14-Apr-92 | 0.038 | mg/l | 0.038 | |
| 499669 | Phosphorus as P | 28-Apr-92 | 0.022 | mg/l | 0.022 | |
| 499669 | Phosphorus as P | 28-Apr-92 | 0.023 | mg/l | 0.023 | |
| 499669 | Phosphorus as P | 12-May-92 | 0.022 | mg/l | 0.022 | |
| 499669 | Phosphorus as P | 12-May-92 | 0.029 | mg/l | 0.029 | |
| 499669 | Phosphorus as P | 27-May-92 | 0.032 | mg/l | 0.032 | |
| 499669 | Phosphorus as P | 27-May-92 | 0.025 | mg/l | 0.025 | |
| 499669 | Phosphorus as P | 10-Jun-92 | 0.017 | mg/l | 0.017 | |
| 499669 | Phosphorus as P | 10-Jun-92 | 0.011 | mg/l | 0.011 | |
| 499669 | Phosphorus as P | 21-Jul-92 | 0.028 | mg/l | 0.028 | |
| 499669 | Phosphorus as P | 21-Jul-92 | 0.065 | mg/l | 0.065 | |
| 499669 | Phosphorus as P | 13-Aug-92 | 0.06 | mg/l | 0.06 | |
| 499669 | Phosphorus as P | 13-Aug-92 | 0.016 | mg/l | 0.016 | |
| 499669 | Phosphorus as P | 09-Sep-92 | 0.049 | mg/l | 0.049 | |
| 499669 | Phosphorus as P | 09-Sep-92 | 0.029 | mg/l | 0.029 | |
| 499669 | Phosphorus as P | 22-Sep-92 | 0.024 | mg/l | 0.024 | |
| 499669 | Phosphorus as P | 22-Sep-92 | 0.063 | mg/l | 0.063 | |
| 499669 | Phosphorus as P | 30-Sep-92 | 0.041 | mg/l | 0.041 | |
| 499669 | Phosphorus as P | 30-Sep-92 | 0.029 | mg/l | 0.029 | |
| 499669 | Phosphorus as P | 21-Oct-92 | 0.062 | mg/l | 0.062 | |
| 499669 | Phosphorus as P | 21-Oct-92 | 0.026 | mg/l | 0.026 | |
| 499669 | Phosphorus as P | 17-Nov-92 | 0.035 | mg/l | 0.035 | |
| 499669 | Phosphorus as P | 17-Nov-92 | 0.031 | mg/l | 0.031 | |
| 499669 | Phosphorus as P | 27-Jan-93 | 0.019 | mg/l | 0.019 | |
| 499669 | Phosphorus as P | 27-Jan-93 | 0.03 | mg/l | 0.03 | |
| 499669 | Phosphorus as P | 22-Mar-93 | 0.012 | mg/l | 0.012 | |
| 499669 | Phosphorus as P | 22-Mar-93 | 0.051 | mg/l | 0.051 | |
| 499669 | Phosphorus as P | 14-Apr-93 | 0.033 | mg/l | 0.033 | |
| 499669 | Phosphorus as P | 14-Apr-93 | 0.019 | mg/l | 0.019 | |
| 499669 | Phosphorus as P | 27-Jul-93 | 0.042 | mg/l | 0.042 | |
| 499669 | Phosphorus as P | 02-Sep-93 | 0.025 | mg/l | 0.025 | |
| 499669 | Phosphorus as P | 02-Sep-93 | 0.034 | mg/l | 0.034 | |
| 499669 | Phosphorus as P | 02-Nov-93 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 02-Nov-93 | 0.015 | mg/l | 0.015 | |
| 499669 | Phosphorus as P | 08-Feb-94 | 0.023 | mg/l | 0.023 | |
| 499669 | Phosphorus as P | 17-Mar-94 | 0.014 | mg/l | 0.014 | |
| 499669 | Phosphorus as P | 17-Mar-94 | 0.024 | mg/l | 0.024 | |
| 499669 | Phosphorus as P | 30-Mar-94 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 30-Mar-94 | 0.017 | mg/l | 0.017 | |
| 499669 | Phosphorus as P | 07-Apr-94 | 0 | mg/l | 0.005 | 0.01 |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Phosphorus as P | 07-Apr-94 | 0.012 | mg/l | 0.012 | |
| 499669 | Phosphorus as P | 13-Apr-94 | 0.011 | mg/l | 0.011 | |
| 499669 | Phosphorus as P | 13-Apr-94 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 27-Apr-94 | 0.011 | mg/l | 0.011 | |
| 499669 | Phosphorus as P | 27-Apr-94 | 0.01 | mg/l | 0.01 | |
| 499669 | Phosphorus as P | 27-Apr-94 | 0.03 | mg/l | 0.03 | |
| 499669 | Phosphorus as P | 10-May-94 | 0.037 | mg/l | 0.037 | |
| 499669 | Phosphorus as P | 10-May-94 | 0.013 | mg/l | 0.013 | |
| 499669 | Phosphorus as P | 25-May-94 | 0.021 | mg/l | 0.021 | |
| 499669 | Phosphorus as P | 25-May-94 | 0.041 | mg/l | 0.041 | |
| 499669 | Phosphorus as P | 08-Jun-94 | 0.022 | mg/l | 0.022 | |
| 499669 | Phosphorus as P | 08-Jun-94 | 0.031 | mg/l | 0.031 | |
| 499669 | Phosphorus as P | 12-Jul-94 | 0.016 | mg/l | 0.016 | |
| 499669 | Phosphorus as P | 12-Jul-94 | 0.013 | mg/l | 0.013 | |
| 499669 | Phosphorus as P | 16-Aug-94 | 0.038 | mg/l | 0.038 | |
| 499669 | Phosphorus as P | 16-Aug-94 | 0.027 | mg/l | 0.027 | |
| 499669 | Phosphorus as P | 14-Sep-94 | 0.055 | mg/l | 0.055 | |
| 499669 | Phosphorus as P | 14-Sep-94 | 0.036 | mg/l | 0.036 | |
| 499669 | Phosphorus as P | 12-Oct-94 | 0.03 | mg/l | 0.03 | |
| 499669 | Phosphorus as P | 12-Oct-94 | 0.016 | mg/l | 0.016 | |
| 499669 | Phosphorus as P | 25-Oct-94 | 0.025 | mg/l | 0.025 | |
| 499669 | Phosphorus as P | 22-Nov-94 | 0.032 | mg/l | 0.032 | |
| 499669 | Phosphorus as P | 22-Nov-94 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 09-Dec-94 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 09-Dec-94 | 0.037 | mg/l | 0.037 | |
| 499669 | Phosphorus as P | 19-Jan-95 | 0.012 | mg/l | 0.012 | |
| 499669 | Phosphorus as P | 19-Jan-95 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 23-Feb-95 | 0.024 | mg/l | 0.024 | |
| 499669 | Phosphorus as P | 23-Feb-95 | 0.01 | mg/l | 0.01 | |
| 499669 | Phosphorus as P | 09-Mar-95 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 09-Mar-95 | 0.025 | mg/l | 0.025 | |
| 499669 | Phosphorus as P | 23-Mar-95 | 0.018 | mg/l | 0.018 | |
| 499669 | Phosphorus as P | 23-Mar-95 | 0.028 | mg/l | 0.028 | |
| 499669 | Phosphorus as P | 05-Apr-95 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 05-Apr-95 | 0.025 | mg/l | 0.025 | |
| 499669 | Phosphorus as P | 19-Apr-95 | 0.012 | mg/l | 0.012 | |
| 499669 | Phosphorus as P | 19-Apr-95 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 18-May-95 | 0.024 | mg/l | 0.024 | |
| 499669 | Phosphorus as P | 18-May-95 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 31-May-95 | 0.04 | mg/l | 0.04 | |
| 499669 | Phosphorus as P | 31-May-95 | 0.02 | mg/l | 0.02 | |
| 499669 | Phosphorus as P | 25-Jul-95 | 0.05 | mg/l | 0.05 | |
| 499669 | Phosphorus as P | 07-Sep-95 | 0.71 | mg/l | 0.71 | |
| 499669 | Phosphorus as P | 12-Oct-95 | 0.01 | mg/l | 0.01 | |
| 499669 | Phosphorus as P | 12-Oct-95 | 0.02 | mg/l | 0.02 | |
| 499669 | Phosphorus as P | 08-Nov-95 | 0.03 | mg/l | 0.03 | |
| 499669 | Phosphorus as P | 10-Jan-96 | 0.02 | mg/l | 0.02 | |
| 499669 | Phosphorus as P | 21-Feb-96 | 0.03 | mg/l | 0.03 | |
| 499669 | Phosphorus as P | 10-Apr-96 | 0.02 | mg/l | 0.02 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Phosphorus as P | 01-May-96 | 0.03 | mg/l | 0.03 | |
| 499669 | Phosphorus as P | 05-Sep-96 | 0.04 | mg/l | 0.04 | |
| 499669 | Phosphorus as P | 09-Oct-96 | 0.01671 | mg/l | 0.01671 | |
| 499669 | Phosphorus as P | 19-Nov-96 | 0.02812 | mg/l | 0.02812 | |
| 499669 | Phosphorus as P | 13-Mar-97 | 0.03804 | mg/l | 0.03804 | |
| 499669 | Phosphorus as P | 13-Mar-97 | 0 | mg/l | 0.005 | 0.01 |
| 499669 | Phosphorus as P | 18-Jun-97 | 0.039 | mg/l | 0.039 | |
| 499669 | Phosphorus as P | 15-Jul-97 | 0.07847 | mg/l | 0.07847 | |
| 499669 | Phosphorus as P | 29-Jul-97 | 0.14145 | mg/l | 0.14145 | |
| 499669 | Phosphorus as P | 11-Sep-97 | 0.09153 | mg/l | 0.09153 | |
| 499669 | Phosphorus as P | 02-Dec-97 | 0.05666 | mg/l | 0.05666 | |
| 499669 | Phosphorus as P | 05-Feb-98 | 0.03346 | mg/l | 0.03346 | |
| 499669 | Phosphorus as P | 19-Mar-98 | 0.019 | mg/l | 0.019 | |
| 499669 | Phosphorus as P | 19-Mar-98 | 0.015 | mg/l | 0.015 | |
| 499669 | Phosphorus as P | 27-May-98 | 0 | mg/l | 0.01 | 0.02 |
| 499669 | Phosphorus as P | 27-May-98 | 0.043 | mg/l | 0.043 | |
| 499669 | Phosphorus as P | 11-Aug-98 | 0.054 | mg/l | 0.054 | |
| 499669 | Phosphorus as P | 14-Oct-98 | 0.032 | mg/l | 0.032 | |
| 499669 | Phosphorus as P | 01-Dec-98 | 0 | mg/l | 0.01 | 0.02 |
| 499669 | Phosphorus as P | 01-Dec-98 | 0 | mg/l | 0.01 | 0.02 |
| 499669 | Phosphorus as P | 14-Jan-99 | 0.02 | mg/l | 0.02 | |
| 499669 | Phosphorus as P | 14-Jan-99 | 0.041 | mg/l | 0.041 | |
| 499669 | Phosphorus as P | 17-Mar-99 | 0.021 | mg/l | 0.021 | |
| 499669 | Phosphorus as P | 17-Mar-99 | 0.022 | mg/l | 0.022 | |
| 499669 | Phosphorus as P | 04-May-99 | 0 | mg/l | 0.01 | 0.02 |
| 499669 | Phosphorus as P | 04-May-99 | 0 | mg/l | 0.01 | 0.02 |
| 499669 | Phosphorus as P | 13-Jul-99 | 0 | mg/l | 0.01 | 0.02 |
| 499669 | Phosphorus as P | 13-Jul-99 | 0.021 | mg/l | 0.021 | |
| 499669 | Phosphorus as P | 19-Aug-99 | 0.022 | mg/l | 0.022 | |
| 499669 | Phosphorus as P | 19-Aug-99 | 0.038 | mg/l | 0.038 | |
| 499669 | Phosphorus as P | 25-Aug-99 | 0.041 | mg/l | 0.041 | |
| 499669 | Phosphorus as P | 25-Aug-99 | 0.036 | mg/l | 0.036 | |
| 499669 | Phosphorus as P | 05-Oct-99 | 0.029 | mg/l | 0.029 | |
| 499669 | Phosphorus as P | 05-Oct-99 | 0.029 | mg/l | 0.029 | |
| 499669 | Phosphorus as P | 02-Dec-99 | 0 | mg/l | 0.01 | 0.02 |
| 499669 | Phosphorus as P | 02-Dec-99 | 0 | mg/l | 0.01 | 0.02 |
| 499669 | Phosphorus as P | 11-Jan-00 | 0 | mg/l | 0 | |
| 499669 | Phosphorus as P | 11-Jan-00 | 0 | mg/l | 0 | |
| 499669 | Phosphorus as P | 29-Feb-00 | 0 | mg/l | 0 | |
| 499669 | Phosphorus as P | 29-Feb-00 | 0.02 | mg/l | 0.02 | |
| 499669 | Phosphorus as P | 07-Apr-00 | 0.054 | mg/l | 0.054 | |
| 499669 | Phosphorus as P | 07-Apr-00 | 0.034 | mg/l | 0.034 | |
| 499669 | Phosphorus as P | 18-Apr-00 | | mg/l | 0 | |
| 499669 | Phosphorus as P | 18-Apr-00 | 0.022 | mg/l | 0.022 | |
| 499669 | Phosphorus as P | 09-May-00 | 0.033 | mg/l | 0.033 | |
| 499669 | Phosphorus as P | 09-May-00 | 0.058 | mg/l | 0.058 | |
| 499669 | Phosphorus as P | 26-May-00 | 0.051 | mg/l | 0.051 | |
| 499669 | Phosphorus as P | 26-May-00 | | mg/l | 0 | |
| 499669 | Phosphorus as P | 08-Jun-00 | | mg/l | 0 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Phosphorus as P | 08-Jun-00 | | mg/l | 0 | |
| 499669 | Phosphorus as P | 28-Jun-00 | 0.034 | mg/l | 0.034 | |
| 499669 | Phosphorus as P | 13-Feb-01 | 0.024 | mg/l | 0.024 | |
| 499669 | Phosphorus as P | 10-May-01 | 0.033 | mg/l | 0.033 | |
| 499669 | Phosphorus as P | 07-Aug-01 | 0.044 | mg/l | 0.044 | |
| 499669 | Phosphorus as P | 10-Oct-01 | 0.04 | mg/l | 0.04 | |
| 499669 | Phosphorus as P | 28-Nov-01 | | | 0 | |
| 499669 | Phosphorus as P | 23-Jan-02 | | | 0 | |
| 499669 | Phosphorus as P | 05-Mar-02 | | | 0 | |
| 499669 | Phosphorus as P | 17-Apr-02 | 0.023 | mg/l | 0.023 | |
| 499669 | Phosphorus as P | 23-May-02 | | | 0 | |
| 499669 | Phosphorus as P | 09-Jul-02 | 0.02 | mg/l | 0.02 | |
| 499669 | Selenium | 01-Feb-90 | 0 | ug/l | 0.25 | 0.5 |
| 499669 | Selenium | 20-Mar-90 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 25-Apr-90 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 24-May-90 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 11-Jul-90 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 26-Jul-90 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 21-Aug-90 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 03-Oct-90 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 26-Oct-90 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 29-Jan-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 13-Feb-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 26-Feb-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 27-Mar-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 28-Mar-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 24-Apr-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 08-May-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 12-Jun-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 10-Jul-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 16-Jul-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 23-Jul-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 15-Aug-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 28-Aug-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 04-Oct-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 16-Oct-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 31-Oct-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 04-Dec-91 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 06-Feb-92 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 12-Feb-92 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 17-Mar-92 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 31-Mar-92 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 30-Sep-92 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 21-Oct-92 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 27-Jan-93 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 22-Mar-93 | 0 | ug/l | 2.5 | 5.0 |
| 499669 | Selenium | 14-Apr-93 | 0 | ug/l | 1.5 | 3.0 |
| 499669 | Selenium | 27-Jul-93 | 0 | ug/l | 1 | 2.0 |
| 499669 | Selenium | 02-Sep-93 | 0 | ug/l | 0.5 | 1.0 |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Selenium | 02-Nov-93 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 17-Mar-94 | 1 | ug/l | 1 | |
| 499669 | Selenium | 07-Apr-94 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 27-Apr-94 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 27-Apr-94 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 25-May-94 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 12-Jul-94 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 12-Oct-94 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 25-Oct-94 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 19-Jan-95 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 31-May-95 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 25-Jul-95 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 07-Sep-95 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 12-Oct-95 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 08-Nov-95 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 10-Jan-96 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 01-May-96 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 05-Sep-96 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 09-Oct-96 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 22-Jan-97 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 29-Apr-97 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 18-Jun-97 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 29-Jul-97 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 16-Oct-97 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 05-Feb-98 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 27-May-98 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 11-Aug-98 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 14-Oct-98 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 14-Jan-99 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 04-May-99 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 13-Jul-99 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 05-Oct-99 | 0 | ug/l | 0.5 | 1.0 |
| 499669 | Selenium | 29-Feb-00 | 0 | ug/l | 0 | |
| 499669 | Selenium | 18-Apr-00 | | ug/l | 0 | |
| 499669 | Selenium | 30-Aug-00 | | ug/l | 0 | |
| 499669 | Selenium | 01-Sep-00 | | ug/l | 0 | |
| 499669 | Selenium | 01-Sep-00 | | ug/l | 0 | |
| 499669 | Selenium | 04-Oct-00 | | | 0 | |
| 499669 | Selenium | 13-Feb-01 | | | 0 | |
| 499669 | Selenium | 10-May-01 | | | 0 | |
| 499669 | Selenium | 14-Jul-01 | | | 0 | |
| 499669 | Selenium | 07-Aug-01 | 1 | ug/l | 1 | |
| 499669 | Selenium | 05-Oct-01 | | | 0 | |
| 499669 | Selenium | 10-Oct-01 | | | 0 | |
| 499669 | Selenium | 23-Jan-02 | | | 0 | |
| 499669 | Selenium | 17-Apr-02 | | | 0 | |
| 499669 | Selenium | 09-Jul-02 | 1.2 | ug/l | 1.2 | |
| 499669 | Temperature, water | 01-Feb-90 | 2.2 | deg C | 2.2 | |
| 499669 | Temperature, water | 20-Mar-90 | 7.4 | deg C | 7.4 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Temperature, water | 25-Apr-90 | 10.5 | deg C | 10.5 | |
| 499669 | Temperature, water | 24-May-90 | 13.1 | deg C | 13.1 | |
| 499669 | Temperature, water | 11-Jul-90 | 17.3 | deg C | 17.3 | |
| 499669 | Temperature, water | 26-Jul-90 | 18.7 | deg C | 18.7 | |
| 499669 | Temperature, water | 21-Aug-90 | 16.2 | deg C | 16.2 | |
| 499669 | Temperature, water | 03-Oct-90 | 12.6 | deg C | 12.6 | |
| 499669 | Temperature, water | 26-Oct-90 | 10.5 | deg C | 10.5 | |
| 499669 | Temperature, water | 29-Jan-91 | 0.9 | deg C | 0.9 | |
| 499669 | Temperature, water | 13-Feb-91 | 4 | deg C | 4 | |
| 499669 | Temperature, water | 26-Feb-91 | 5.1 | deg C | 5.1 | |
| 499669 | Temperature, water | 27-Mar-91 | 4.4 | deg C | 4.4 | |
| 499669 | Temperature, water | 28-Mar-91 | 10.7 | deg C | 10.7 | |
| 499669 | Temperature, water | 08-May-91 | 15.2 | deg C | 15.2 | |
| 499669 | Temperature, water | 12-Jun-91 | 13.3 | deg C | 13.3 | |
| 499669 | Temperature, water | 10-Jul-91 | 14.1 | deg C | 14.1 | |
| 499669 | Temperature, water | 16-Jul-91 | 16.7 | deg C | 16.7 | |
| 499669 | Temperature, water | 23-Jul-91 | 14.8 | deg C | 14.8 | |
| 499669 | Temperature, water | 15-Aug-91 | 17.9 | deg C | 17.9 | |
| 499669 | Temperature, water | 28-Aug-91 | 16.1 | deg C | 16.1 | |
| 499669 | Temperature, water | 04-Oct-91 | 12.6 | deg C | 12.6 | |
| 499669 | Temperature, water | 16-Oct-91 | 11.6 | deg C | 11.6 | |
| 499669 | Temperature, water | 31-Oct-91 | 5.3 | deg C | 5.3 | |
| 499669 | Temperature, water | 04-Dec-91 | 2.3 | deg C | 2.3 | |
| 499669 | Temperature, water | 06-Feb-92 | 3.3 | deg C | 3.3 | |
| 499669 | Temperature, water | 12-Feb-92 | 4.5 | deg C | 4.5 | |
| 499669 | Temperature, water | 17-Mar-92 | 6 | deg C | 6 | |
| 499669 | Temperature, water | 31-Mar-92 | 8.8 | deg C | 8.8 | |
| 499669 | Temperature, water | 14-Apr-92 | 9.5 | deg C | 9.5 | |
| 499669 | Temperature, water | 28-Apr-92 | 11.5 | deg C | 11.5 | |
| 499669 | Temperature, water | 12-May-92 | 18.6 | deg C | 18.6 | |
| 499669 | Temperature, water | 27-May-92 | 17.5 | deg C | 17.5 | |
| 499669 | Temperature, water | 10-Jun-92 | 12.8 | deg C | 12.8 | |
| 499669 | Temperature, water | 21-Jul-92 | 21.9 | deg C | 21.9 | |
| 499669 | Temperature, water | 13-Aug-92 | 17.6 | deg C | 17.6 | |
| 499669 | Temperature, water | 25-Aug-92 | 17.8 | deg C | 17.8 | |
| 499669 | Temperature, water | 09-Sep-92 | 19.9 | deg C | 19.9 | |
| 499669 | Temperature, water | 22-Sep-92 | 20.5 | deg C | 20.5 | |
| 499669 | Temperature, water | 30-Sep-92 | 13.3 | deg C | 13.3 | |
| 499669 | Temperature, water | 21-Oct-92 | 11.2 | deg C | 11.2 | |
| 499669 | Temperature, water | 17-Nov-92 | 8.3 | deg C | 8.3 | |
| 499669 | Temperature, water | 27-Jan-93 | 0.5 | deg C | 0.5 | |
| 499669 | Temperature, water | 22-Mar-93 | 5.6 | deg C | 5.6 | |
| 499669 | Temperature, water | 14-Apr-93 | 4.4 | deg C | 4.4 | |
| 499669 | Temperature, water | 27-Jul-93 | 11.7 | deg C | 11.7 | |
| 499669 | Temperature, water | 02-Sep-93 | 14.6 | deg C | 14.6 | |
| 499669 | Temperature, water | 02-Nov-93 | 6.8 | deg C | 6.8 | |
| 499669 | Temperature, water | 08-Feb-94 | 4.1 | deg C | 4.1 | |
| 499669 | Temperature, water | 17-Mar-94 | 8.8 | deg C | 8.8 | |
| 499669 | Temperature, water | 30-Mar-94 | 11.3 | deg C | 11.3 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Temperature, water | 07-Apr-94 | 8.6 | deg C | 8.6 | |
| 499669 | Temperature, water | 13-Apr-94 | 7.6 | deg C | 7.6 | |
| 499669 | Temperature, water | 27-Apr-94 | 6.7 | deg C | 6.7 | |
| 499669 | Temperature, water | 27-Apr-94 | 7.5 | deg C | 7.5 | |
| 499669 | Temperature, water | 10-May-94 | 11.9 | deg C | 11.9 | |
| 499669 | Temperature, water | 25-May-94 | 10.9 | deg C | 10.9 | |
| 499669 | Temperature, water | 08-Jun-94 | 11.4 | deg C | 11.4 | |
| 499669 | Temperature, water | 12-Jul-94 | 15.9 | deg C | 15.9 | |
| 499669 | Temperature, water | 16-Aug-94 | 22.4 | deg C | 22.4 | |
| 499669 | Temperature, water | 14-Sep-94 | 14.9 | deg C | 14.9 | |
| 499669 | Temperature, water | 12-Oct-94 | 11.1 | deg C | 11.1 | |
| 499669 | Temperature, water | 25-Oct-94 | 9.2 | deg C | 9.2 | |
| 499669 | Temperature, water | 22-Nov-94 | 3.5 | deg C | 3.5 | |
| 499669 | Temperature, water | 09-Dec-94 | 0.8 | deg C | 0.8 | |
| 499669 | Temperature, water | 19-Jan-95 | 2.2 | deg C | 2.2 | |
| 499669 | Temperature, water | 23-Feb-95 | 8.6 | deg C | 8.6 | |
| 499669 | Temperature, water | 09-Mar-95 | 4.4 | deg C | 4.4 | |
| 499669 | Temperature, water | 23-Mar-95 | 7.4 | deg C | 7.4 | |
| 499669 | Temperature, water | 05-Apr-95 | 7.9 | deg C | 7.9 | |
| 499669 | Temperature, water | 19-Apr-95 | 7 | deg C | 7 | |
| 499669 | Temperature, water | 18-May-95 | 9.7 | deg C | 9.7 | |
| 499669 | Temperature, water | 31-May-95 | 10.2 | deg C | 10.2 | |
| 499669 | Temperature, water | 25-Jul-95 | 17.2 | deg C | 17.2 | |
| 499669 | Temperature, water | 07-Sep-95 | 18.7 | deg C | 18.7 | |
| 499669 | Temperature, water | 12-Oct-95 | 12.7 | deg C | 12.7 | |
| 499669 | Temperature, water | 08-Nov-95 | 7 | deg C | 7 | |
| 499669 | Temperature, water | 10-Jan-96 | 5.52 | deg C | 5.52 | |
| 499669 | Temperature, water | 21-Feb-96 | 4.3 | deg C | 4.3 | |
| 499669 | Temperature, water | 10-Apr-96 | 8.4 | deg C | 8.4 | |
| 499669 | Temperature, water | 01-May-96 | 7.76 | deg C | 7.76 | |
| 499669 | Temperature, water | 25-Jul-96 | 16.6 | deg C | 16.6 | |
| 499669 | Temperature, water | 05-Sep-96 | 16.1 | deg C | 16.1 | |
| 499669 | Temperature, water | 09-Oct-96 | 13.3 | deg C | 13.3 | |
| 499669 | Temperature, water | 19-Nov-96 | 7.9 | deg C | 7.9 | |
| 499669 | Temperature, water | 22-Jan-97 | 3.3 | deg C | 3.3 | |
| 499669 | Temperature, water | 13-Mar-97 | 3.48 | deg C | 3.48 | |
| 499669 | Temperature, water | 29-Apr-97 | 7.32 | deg C | 7.32 | |
| 499669 | Temperature, water | 18-Jun-97 | 11.2 | deg C | 11.2 | |
| 499669 | Temperature, water | 15-Jul-97 | 14.27 | deg C | 14.27 | |
| 499669 | Temperature, water | 29-Jul-97 | 15.47 | deg C | 15.47 | |
| 499669 | Temperature, water | 11-Sep-97 | 14.9 | deg C | 14.9 | |
| 499669 | Temperature, water | 16-Oct-97 | 10.24 | deg C | 10.24 | |
| 499669 | Temperature, water | 02-Dec-97 | 5.56 | deg C | 5.56 | |
| 499669 | Temperature, water | 05-Feb-98 | 4.12 | deg C | 4.12 | |
| 499669 | Temperature, water | 19-Mar-98 | 5.2 | deg C | 5.2 | |
| 499669 | Temperature, water | 27-May-98 | 9.16 | deg C | 9.16 | |
| 499669 | Temperature, water | 11-Aug-98 | 13.62 | deg C | 13.62 | |
| 499669 | Temperature, water | 14-Oct-98 | 11.56 | deg C | 11.56 | |
| 499669 | Temperature, water | 01-Dec-98 | 7.3 | deg C | 7.3 | |

**Table A-2**
**Provo River at U114 Crossing**



| Station ID | Constituent | Date | Value | Unit | Result | DL |
|---|---|---|---|---|---|---|
| 499669 | Temperature, water | 14-Jan-99 | 3 | deg C | 3 | |
| 499669 | Temperature, water | 17-Mar-99 | 4.1 | deg C | 4.1 | |
| 499669 | Temperature, water | 04-May-99 | 6.1 | deg C | 6.1 | |
| 499669 | Temperature, water | 13-Jul-99 | 12.7 | deg C | 12.7 | |
| 499669 | Temperature, water | 19-Aug-99 | 19.2 | deg C | 19.2 | |
| 499669 | Temperature, water | 25-Aug-99 | 21.2 | deg C | 21.2 | |
| 499669 | Temperature, water | 05-Oct-99 | 12.2 | deg C | 12.2 | |
| 499669 | Temperature, water | 02-Dec-99 | 5.6 | deg C | 5.6 | |
| 499669 | Temperature, water | 11-Jan-00 | 5.4 | deg C | 5.4 | |
| 499669 | Temperature, water | 29-Feb-00 | 2.81 | deg C | 2.81 | |
| 499669 | Temperature, water | 07-Apr-00 | 6.26 | deg C | 6.26 | |
| 499669 | Temperature, water | 18-Apr-00 | 7.21 | deg C | 7.21 | |
| 499669 | Temperature, water | 09-May-00 | 9.83 | deg C | 9.83 | |
| 499669 | Temperature, water | 26-May-00 | 12.8 | deg C | 12.8 | |
| 499669 | Temperature, water | 08-Jun-00 | 14.24 | deg C | 14.24 | |
| 499669 | Temperature, water | 28-Jun-00 | 18.43 | deg C | 18.43 | |
| 499669 | Temperature, water | 30-Aug-00 | 18 | deg C | 18 | |
| 499669 | Temperature, water | 31-Aug-00 | 16.68 | deg C | 16.68 | |
| 499669 | Temperature, water | 01-Sep-00 | 17 | deg C | 17 | |
| 499669 | Temperature, water | 01-Sep-00 | 18 | deg C | 18 | |
| 499669 | Temperature, water | 04-Oct-00 | 13.05 | deg C | 13.05 | |
| 499669 | Temperature, water | 14-Nov-00 | 5.36 | deg C | 5.36 | |
| 499669 | Temperature, water | 13-Feb-01 | 4.19 | deg C | 4.19 | |
| 499669 | Temperature, water | 10-May-01 | 8.58 | deg C | 8.58 | |
| 499669 | Temperature, water | 07-Aug-01 | 21.5 | deg C | 21.5 | |
| 499669 | Temperature, water | 28-Nov-01 | 4.61 | deg C | 4.61 | |
| 499669 | Temperature, water | 23-Jan-02 | 0.84 | deg C | 0.84 | |
| 499669 | Temperature, water | 05-Mar-02 | 4.56 | deg C | 4.56 | |
| 499669 | Temperature, water | 17-Apr-02 | 7.18 | deg C | 7.18 | |
| 499669 | Temperature, water | 23-May-02 | 8.51 | deg C | 8.51 | |
| 499669 | Temperature, water | 09-Jul-02 | 22.63 | deg C | 22.63 | |
| 499669 | Temperature, water | 22-Oct-02 | 10.59 | deg C | 10.59 | |
| 499669 | Temperature, water | 07-Jan-03 | 1.9 | deg C | 1.9 | |

Note:
DL = Detection Limit

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Dissolved oxygen (DO) | 1/16/1990 | 9.6 | mg/l | 9.6 | |
| 591321 | Dissolved oxygen (DO) | 3/8/1990 | 7.4 | mg/l | 7.4 | |
| 591321 | Dissolved oxygen (DO) | 4/25/1990 | 7.4 | mg/l | 7.4 | |
| 591321 | Dissolved oxygen (DO) | 5/9/1990 | 7.6 | mg/l | 7.6 | |
| 591321 | Dissolved oxygen (DO) | 5/30/1990 | 6 | mg/l | 6 | |
| 591321 | Dissolved oxygen (DO) | 6/13/1990 | 8.7 | mg/l | 8.7 | |
| 591321 | Dissolved oxygen (DO) | 7/11/1990 | 4 | mg/l | 4 | |
| 591321 | Dissolved oxygen (DO) | 8/8/1990 | 2.4 | mg/l | 2.4 | |
| 591321 | Dissolved oxygen (DO) | 9/12/1990 | 1 | mg/l | 1 | |
| 591321 | Dissolved oxygen (DO) | 10/11/1990 | 5 | mg/l | 5 | |
| 591321 | Dissolved oxygen (DO) | 11/7/1990 | 7.9 | mg/l | 7.9 | |
| 591321 | Dissolved oxygen (DO) | 2/13/1991 | 9.7 | mg/l | 9.7 | |
| 591321 | Dissolved oxygen (DO) | 3/13/1991 | 9.7 | mg/l | 9.7 | |
| 591321 | Dissolved oxygen (DO) | 5/2/1991 | 10.6 | mg/l | 10.6 | |
| 591321 | Dissolved oxygen (DO) | 7/15/1991 | 10 | mg/l | 10 | |
| 591321 | Dissolved oxygen (DO) | 8/14/1991 | 8.2 | mg/l | 8.2 | |
| 591321 | Dissolved oxygen (DO) | 9/18/1991 | 6.8 | mg/l | 6.8 | |
| 591321 | Dissolved oxygen (DO) | 10/16/1991 | 7.6 | mg/l | 7.6 | |
| 591321 | Dissolved oxygen (DO) | 11/19/1991 | 8.4 | mg/l | 8.4 | |
| 591321 | Dissolved oxygen (DO) | 1/15/1992 | 10.8 | mg/l | 10.8 | |
| 591321 | Dissolved oxygen (DO) | 3/16/1992 | 9.9 | mg/l | 9.9 | |
| 591321 | Dissolved oxygen (DO) | 4/16/1992 | 9.9 | mg/l | 9.9 | |
| 591321 | Dissolved oxygen (DO) | 4/27/1992 | 9.4 | mg/l | 9.4 | |
| 591321 | Dissolved oxygen (DO) | 5/11/1992 | 8.8 | mg/l | 8.8 | |
| 591321 | Dissolved oxygen (DO) | 5/27/1992 | 7.3 | mg/l | 7.3 | |
| 591321 | Dissolved oxygen (DO) | 6/10/1992 | 5.3 | mg/l | 5.3 | |
| 591321 | Dissolved oxygen (DO) | 7/13/1992 | 3.3 | mg/l | 3.3 | |
| 591321 | Dissolved oxygen (DO) | 8/14/1992 | 2.7 | mg/l | 2.7 | |
| 591321 | Dissolved oxygen (DO) | 9/11/1992 | 6.2 | mg/l | 6.2 | |
| 591321 | Dissolved oxygen (DO) | 10/14/1992 | 8.1 | mg/l | 8.1 | |
| 591321 | Dissolved oxygen (DO) | 11/17/1992 | 8.8 | mg/l | 8.8 | |
| 591321 | Dissolved oxygen (DO) | 2/9/1993 | 5.3 | mg/l | 5.3 | |
| 591321 | Dissolved oxygen (DO) | 3/17/1993 | 6.9 | mg/l | 6.9 | |
| 591321 | Dissolved oxygen (DO) | 4/14/1993 | 10.5 | mg/l | 10.5 | |
| 591321 | Dissolved oxygen (DO) | 5/4/1993 | 8.9 | mg/l | 8.9 | |
| 591321 | Dissolved oxygen (DO) | 5/11/1993 | 7.5 | mg/l | 7.5 | |
| 591321 | Dissolved oxygen (DO) | 5/18/1993 | 8.5 | mg/l | 8.5 | |
| 591321 | Dissolved oxygen (DO) | 6/1/1993 | 9.3 | mg/l | 9.3 | |
| 591321 | Dissolved oxygen (DO) | 6/15/1993 | 6.6 | mg/l | 6.6 | |
| 591321 | Dissolved oxygen (DO) | 7/1/1993 | 8.8 | mg/l | 8.8 | |
| 591321 | Dissolved oxygen (DO) | 7/29/1993 | 4.3 | mg/l | 4.3 | |
| 591321 | Dissolved oxygen (DO) | 8/24/1993 | 8.3 | mg/l | 8.3 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Dissolved oxygen (DO) | 9/30/1993 | 8.9 | mg/l | 8.9 | |
| 591321 | Dissolved oxygen (DO) | 11/2/1993 | 8.4 | mg/l | 8.4 | |
| 591321 | Dissolved oxygen (DO) | 1/19/1994 | 9.1 | mg/l | 9.1 | |
| 591321 | Dissolved oxygen (DO) | 3/16/1994 | 8.4 | mg/l | 8.4 | |
| 591321 | Dissolved oxygen (DO) | 3/29/1994 | 10.5 | mg/l | 10.5 | |
| 591321 | Dissolved oxygen (DO) | 4/12/1994 | 11 | mg/l | 11 | |
| 591321 | Dissolved oxygen (DO) | 4/27/1994 | 9 | mg/l | 9 | |
| 591321 | Dissolved oxygen (DO) | 5/11/1994 | 8.2 | mg/l | 8.2 | |
| 591321 | Dissolved oxygen (DO) | 5/25/1994 | 8.6 | mg/l | 8.6 | |
| 591321 | Dissolved oxygen (DO) | 6/7/1994 | 6.4 | mg/l | 6.4 | |
| 591321 | Dissolved oxygen (DO) | 7/13/1994 | 3.9 | mg/l | 3.9 | |
| 591321 | Dissolved oxygen (DO) | 8/15/1994 | 2 | mg/l | 2 | |
| 591321 | Dissolved oxygen (DO) | 9/20/1994 | 5 | mg/l | 5 | |
| 591321 | Dissolved oxygen (DO) | 10/27/1994 | 6.9 | mg/l | 6.9 | |
| 591321 | Dissolved oxygen (DO) | 11/15/1994 | 8.4 | mg/l | 8.4 | |
| 591321 | Dissolved oxygen (DO) | 1/23/1995 | 9.6 | mg/l | 9.6 | |
| 591321 | Dissolved oxygen (DO) | 3/14/1995 | 10.8 | mg/l | 10.8 | |
| 591321 | Dissolved oxygen (DO) | 4/3/1995 | 9.8 | mg/l | 9.8 | |
| 591321 | Dissolved oxygen (DO) | 4/18/1995 | 9.8 | mg/l | 9.8 | |
| 591321 | Dissolved oxygen (DO) | 5/2/1995 | 8.2 | mg/l | 8.2 | |
| 591321 | Dissolved oxygen (DO) | 5/15/1995 | 8.2 | mg/l | 8.2 | |
| 591321 | Dissolved oxygen (DO) | 5/30/1995 | 7.2 | mg/l | 7.2 | |
| 591321 | Dissolved oxygen (DO) | 6/13/1995 | 7.8 | mg/l | 7.8 | |
| 591321 | Dissolved oxygen (DO) | 7/12/1995 | 4.5 | mg/l | 4.5 | |
| 591321 | Dissolved oxygen (DO) | 8/15/1995 | 4.1 | mg/l | 4.1 | |
| 591321 | Dissolved oxygen (DO) | 9/19/1995 | 2.4 | mg/l | 2.4 | |
| 591321 | Dissolved oxygen (DO) | 11/1/1995 | 7.5 | mg/l | 7.5 | |
| 591321 | Dissolved oxygen (DO) | 1/9/1996 | 10.3 | mg/l | 10.3 | |
| 591321 | Dissolved oxygen (DO) | 3/13/1996 | 10.7 | mg/l | 10.7 | |
| 591321 | Dissolved oxygen (DO) | 4/3/1996 | 10.2 | mg/l | 10.2 | |
| 591321 | Dissolved oxygen (DO) | 4/22/1996 | 10.2 | mg/l | 10.2 | |
| 591321 | Dissolved oxygen (DO) | 5/6/1996 | 9.2 | mg/l | 9.2 | |
| 591321 | Dissolved oxygen (DO) | 5/23/1996 | 9 | mg/l | 9 | |
| 591321 | Dissolved oxygen (DO) | 6/19/1996 | 7.9 | mg/l | 7.9 | |
| 591321 | Dissolved oxygen (DO) | 7/16/1996 | 7 | mg/l | 7 | |
| 591321 | Dissolved oxygen (DO) | 8/20/1996 | 6.8 | mg/l | 6.8 | |
| 591321 | Dissolved oxygen (DO) | 9/24/1996 | 5.7 | mg/l | 5.7 | |
| 591321 | Dissolved oxygen (DO) | 10/17/1996 | 7.1 | mg/l | 7.1 | |
| 591321 | Dissolved oxygen (DO) | 1/28/1997 | 10.1 | mg/l | 10.1 | |
| 591321 | Dissolved oxygen (DO) | 1/30/1997 | 9.1 | mg/l | 9.1 | |
| 591321 | Dissolved oxygen (DO) | 3/25/1997 | 9.5 | mg/l | 9.5 | |
| 591321 | Dissolved oxygen (DO) | 4/30/1997 | 10.8 | mg/l | 10.8 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Dissolved oxygen (DO) | 5/13/1997 | 9.8 | mg/l | 9.8 | |
| 591321 | Dissolved oxygen (DO) | 5/27/1997 | 7.4 | mg/l | 7.4 | |
| 591321 | Dissolved oxygen (DO) | 6/26/1997 | 8.3 | mg/l | 8.3 | |
| 591321 | Dissolved oxygen (DO) | 7/28/1997 | 7.2 | mg/l | 7.2 | |
| 591321 | Dissolved oxygen (DO) | 8/26/1997 | 7.9 | mg/l | 7.9 | |
| 591321 | Dissolved oxygen (DO) | 9/30/1997 | 4.5 | mg/l | 4.5 | |
| 591321 | Dissolved oxygen (DO) | 10/29/1997 | 8.1 | mg/l | 8.1 | |
| 591321 | Dissolved oxygen (DO) | 11/17/1997 | 9.9 | mg/l | 9.9 | |
| 591321 | Dissolved oxygen (DO) | 1/21/1998 | 10.1 | mg/l | 10.1 | |
| 591321 | Dissolved oxygen (DO) | 2/23/1998 | 11.1 | mg/l | 11.1 | |
| 591321 | Dissolved oxygen (DO) | 2/23/1998 | 11.1 | mg/l | 11.1 | |
| 591321 | Dissolved oxygen (DO) | 3/19/1998 | 11.7 | mg/l | 11.7 | |
| 591321 | Dissolved oxygen (DO) | 4/14/1998 | 10.2 | mg/l | 10.2 | |
| 591321 | Dissolved oxygen (DO) | 4/28/1998 | 9 | mg/l | 9 | |
| 591321 | Dissolved oxygen (DO) | 5/14/1998 | 8.4 | mg/l | 8.4 | |
| 591321 | Dissolved oxygen (DO) | 5/28/1998 | 9 | mg/l | 9 | |
| 591321 | Dissolved oxygen (DO) | 6/8/1998 | 9.2 | mg/l | 9.2 | |
| 591321 | Dissolved oxygen (DO) | 6/24/1998 | 8.9 | mg/l | 8.9 | |
| 591321 | Dissolved oxygen (DO) | 7/22/1998 | 7.5 | mg/l | 7.5 | |
| 591321 | Dissolved oxygen (DO) | 8/19/1998 | 7.7 | mg/l | 7.7 | |
| 591321 | Dissolved oxygen (DO) | 8/24/1998 | 4.9 | mg/l | 4.9 | |
| 591321 | Dissolved oxygen (DO) | 9/9/1998 | 5.5 | mg/l | 5.5 | |
| 591321 | Dissolved oxygen (DO) | 10/14/1998 | 7.1 | mg/l | 7.1 | |
| 591321 | Dissolved oxygen (DO) | 11/19/1998 | 9.1 | mg/l | 9.1 | |
| 591321 | Dissolved oxygen (DO) | 11/30/1998 | 7.7 | mg/l | 7.7 | |
| 591321 | Dissolved oxygen (DO) | 1/12/1999 | 10.2 | mg/l | 10.2 | |
| 591321 | Dissolved oxygen (DO) | 3/9/1999 | 11.4 | mg/l | 11.4 | |
| 591321 | Dissolved oxygen (DO) | 4/7/1999 | 10.8 | mg/l | 10.8 | |
| 591321 | Dissolved oxygen (DO) | 4/21/1999 | 10.4 | mg/l | 10.4 | |
| 591321 | Dissolved oxygen (DO) | 5/4/1999 | 8.7 | mg/l | 8.7 | |
| 591321 | Dissolved oxygen (DO) | 5/25/1999 | 8.3 | mg/l | 8.3 | |
| 591321 | Dissolved oxygen (DO) | 6/8/1999 | 9.2 | mg/l | 9.2 | |
| 591321 | Dissolved oxygen (DO) | 6/29/1999 | 8.5 | mg/l | 8.5 | |
| 591321 | Dissolved oxygen (DO) | 7/28/1999 | 8.3 | mg/l | 8.3 | |
| 591321 | Dissolved oxygen (DO) | 8/19/1999 | 5.3 | mg/l | 5.3 | |
| 591321 | Dissolved oxygen (DO) | 9/16/1999 | 2 | mg/l | 2 | |
| 591321 | Dissolved oxygen (DO) | 10/21/1999 | 7.1 | mg/l | 7.1 | |
| 591321 | Dissolved oxygen (DO) | 11/23/1999 | 9.8 | mg/l | 9.8 | |
| 591321 | Dissolved oxygen (DO) | 1/26/2000 | 10.14 | mg/l | 10.14 | |
| 591321 | Dissolved oxygen (DO) | 2/23/2000 | 10.48 | mg/l | 10.48 | |
| 591321 | Dissolved oxygen (DO) | 3/30/2000 | 10.18 | mg/l | 10.18 | |
| 591321 | Dissolved oxygen (DO) | 4/12/2000 | 10.07 | mg/l | 10.07 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Dissolved oxygen (DO) | 4/27/2000 | 9.3 | mg/l | 9.3 | |
| 591321 | Dissolved oxygen (DO) | 5/10/2000 | 9.4 | mg/l | 9.4 | |
| 591321 | Dissolved oxygen (DO) | 6/7/2000 | 6.66 | mg/l | 6.66 | |
| 591321 | Dissolved oxygen (DO) | 7/11/2000 | 5.83 | mg/l | 5.83 | |
| 591321 | Dissolved oxygen (DO) | 8/9/2000 | 4.45 | mg/l | 4.45 | |
| 591321 | Dissolved oxygen (DO) | 9/21/2000 | 5.84 | mg/l | 5.84 | |
| 591321 | Dissolved oxygen (DO) | 10/17/2000 | 7.34 | mg/l | 7.34 | |
| 591321 | Dissolved oxygen (DO) | 1/23/2001 | 7.99 | mg/l | 7.99 | |
| 591321 | Dissolved oxygen (DO) | 3/20/2001 | 9.08 | mg/l | 9.08 | |
| 591321 | Dissolved oxygen (DO) | 4/11/2001 | 9.13 | mg/l | 9.13 | |
| 591321 | Dissolved oxygen (DO) | 5/17/2001 | 8.21 | mg/l | 8.21 | |
| 591321 | Dissolved oxygen (DO) | 6/21/2001 | 5.85 | mg/l | 5.85 | |
| 591321 | Dissolved oxygen (DO) | 7/18/2001 | 5.19 | mg/l | 5.19 | |
| 591321 | Dissolved oxygen (DO) | 8/22/2001 | 2.88 | mg/l | 2.88 | |
| 591321 | Dissolved oxygen (DO) | 9/20/2001 | 6.71 | mg/l | 6.71 | |
| 591321 | Dissolved oxygen (DO) | 10/16/2001 | 8.61 | mg/l | 8.61 | |
| 591321 | Dissolved oxygen (DO) | 11/20/2001 | 8.29 | mg/l | 8.29 | |
| 591321 | Dissolved oxygen (DO) | 1/24/2002 | 9.99 | mg/l | 9.99 | |
| 591321 | Dissolved oxygen (DO) | 3/27/2002 | 9.33 | mg/l | 9.33 | |
| 591321 | Dissolved oxygen (DO) | 4/30/2002 | 9.32 | mg/l | 9.32 | |
| 591321 | Dissolved oxygen (DO) | 5/29/2002 | 9.32 | mg/l | 9.32 | |
| 591321 | Dissolved oxygen (DO) | 6/12/2002 | 7 | mg/l | 7 | |
| 591321 | Dissolved oxygen (DO) | 6/25/2002 | 5.87 | mg/l | 5.87 | |
| 591321 | Dissolved oxygen (DO) | 7/30/2002 | 3.71 | mg/l | 3.71 | |
| 591321 | Dissolved oxygen (DO) | 8/20/2002 | 3.12 | mg/l | 3.12 | |
| 591321 | Dissolved oxygen (DO) | 9/18/2002 | 6.35 | mg/l | 6.35 | |
| 591321 | Dissolved oxygen (DO) | 9/19/2002 | 3.17 | mg/l | 3.17 | |
| 591321 | Dissolved oxygen (DO) | 10/22/2002 | 8.07 | mg/l | 8.07 | |
| 591321 | Dissolved oxygen (DO) | 11/21/2002 | 8.85 | mg/l | 8.85 | |
| 591321 | Dissolved oxygen (DO) | 12/18/2002 | 10.45 | mg/l | 10.45 | |
| 591321 | Dissolved Solids | 1/16/1990 | 340 | mg/l | 340 | |
| 591321 | Dissolved Solids | 3/8/1990 | 314 | mg/l | 314 | |
| 591321 | Dissolved Solids | 4/25/1990 | 306 | mg/l | 306 | |
| 591321 | Dissolved Solids | 5/9/1990 | 282 | mg/l | 282 | |
| 591321 | Dissolved Solids | 5/30/1990 | 288 | mg/l | 288 | |
| 591321 | Dissolved Solids | 6/13/1990 | 220 | mg/l | 220 | |
| 591321 | Dissolved Solids | 7/11/1990 | 266 | mg/l | 266 | |
| 591321 | Dissolved Solids | 8/8/1990 | 236 | mg/l | 236 | |
| 591321 | Dissolved Solids | 9/12/1990 | 174 | mg/l | 174 | |
| 591321 | Dissolved Solids | 10/11/1990 | 264 | mg/l | 264 | |
| 591321 | Dissolved Solids | 11/7/1990 | 274 | mg/l | 274 | |
| 591321 | Dissolved Solids | 2/13/1991 | 344 | mg/l | 344 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Dissolved Solids | 3/13/1991 | 340 | mg/l | 340 | |
| 591321 | Dissolved Solids | 5/2/1991 | 312 | mg/l | 312 | |
| 591321 | Dissolved Solids | 5/16/1991 | 296 | mg/l | 296 | |
| 591321 | Dissolved Solids | 5/30/1991 | 222 | mg/l | 222 | |
| 591321 | Dissolved Solids | 6/13/1991 | 192 | mg/l | 192 | |
| 591321 | Dissolved Solids | 7/15/1991 | 272 | mg/l | 272 | |
| 591321 | Dissolved Solids | 8/14/1991 | 216 | mg/l | 216 | |
| 591321 | Dissolved Solids | 9/18/1991 | 214 | mg/l | 214 | |
| 591321 | Dissolved Solids | 10/16/1991 | 286 | mg/l | 286 | |
| 591321 | Dissolved Solids | 11/19/1991 | 274 | mg/l | 274 | |
| 591321 | Dissolved Solids | 3/16/1994 | 318 | mg/l | 318 | |
| 591321 | Dissolved Solids | 3/29/1994 | 294 | mg/l | 294 | |
| 591321 | Dissolved Solids | 4/12/1994 | 280 | mg/l | 280 | |
| 591321 | Dissolved Solids | 4/27/1994 | 276 | mg/l | 276 | |
| 591321 | Dissolved Solids | 5/11/1994 | 310 | mg/l | 310 | |
| 591321 | Dissolved Solids | 5/25/1994 | 280 | mg/l | 280 | |
| 591321 | Dissolved Solids | 6/7/1994 | 278 | mg/l | 278 | |
| 591321 | Dissolved Solids | 7/13/1994 | 260 | mg/l | 260 | |
| 591321 | Dissolved Solids | 8/15/1994 | 256 | mg/l | 256 | |
| 591321 | Dissolved Solids | 9/20/1994 | 270 | mg/l | 270 | |
| 591321 | Dissolved Solids | 10/27/1994 | 300 | mg/l | 300 | |
| 591321 | Dissolved Solids | 11/15/1994 | 312 | mg/l | 312 | |
| 591321 | Dissolved Solids | 1/23/1995 | 342 | mg/l | 342 | |
| 591321 | Dissolved Solids | 3/14/1995 | 328 | mg/l | 328 | |
| 591321 | Dissolved Solids | 4/3/1995 | 318 | mg/l | 318 | |
| 591321 | Dissolved Solids | 4/18/1995 | 304 | mg/l | 304 | |
| 591321 | Dissolved Solids | 5/2/1995 | 316 | mg/l | 316 | |
| 591321 | Dissolved Solids | 5/15/1995 | 320 | mg/l | 320 | |
| 591321 | Dissolved Solids | 5/30/1995 | 292 | mg/l | 292 | |
| 591321 | Dissolved Solids | 6/13/1995 | 250 | mg/l | 250 | |
| 591321 | Dissolved Solids | 1/12/1999 | 240 | mg/l | 240 | |
| 591321 | Dissolved Solids | 3/9/1999 | 238 | mg/l | 238 | |
| 591321 | Dissolved Solids | 4/7/1999 | 230 | mg/l | 230 | |
| 591321 | Dissolved Solids | 4/21/1999 | 244 | mg/l | 244 | |
| 591321 | Dissolved Solids | 5/4/1999 | 244 | mg/l | 244 | |
| 591321 | Dissolved Solids | 5/25/1999 | 242 | mg/l | 242 | |
| 591321 | Dissolved Solids | 6/8/1999 | 194 | mg/l | 194 | |
| 591321 | Dissolved Solids | 6/29/1999 | 220 | mg/l | 220 | |
| 591321 | Dissolved Solids | 7/28/1999 | 202 | mg/l | 202 | |
| 591321 | Dissolved Solids | 8/19/1999 | 200 | mg/l | 200 | |
| 591321 | Dissolved Solids | 9/16/1999 | 206 | mg/l | 206 | |
| 591321 | Dissolved Solids | 10/21/1999 | 222 | mg/l | 222 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Dissolved Solids | 11/23/1999 | 230 | mg/l | 230 | |
| 591321 | Dissolved Solids | 1/26/2000 | 242 | mg/l | 242 | |
| 591321 | Dissolved Solids | 2/23/2000 | 242 | mg/l | 242 | |
| 591321 | Dissolved Solids | 3/30/2000 | 236 | mg/l | 236 | |
| 591321 | Dissolved Solids | 4/12/2000 | 230 | mg/l | 230 | |
| 591321 | Dissolved Solids | 4/27/2000 | 246 | mg/l | 246 | |
| 591321 | Dissolved Solids | 5/10/2000 | 234 | mg/l | 234 | |
| 591321 | Dissolved Solids | 6/7/2000 | 252 | mg/l | 252 | |
| 591321 | Dissolved Solids | 7/11/2000 | 232 | mg/l | 232 | |
| 591321 | Dissolved Solids | 8/9/2000 | 244 | mg/l | 244 | |
| 591321 | Dissolved Solids | 9/21/2000 | 236 | mg/l | 236 | |
| 591321 | Dissolved Solids | 10/17/2000 | 240 | mg/l | 240 | |
| 591321 | Dissolved Solids | 1/23/2001 | 256 | mg/l | 256 | |
| 591321 | Dissolved Solids | 3/20/2001 | 262 | mg/l | 262 | |
| 591321 | Dissolved Solids | 4/11/2001 | 254 | mg/l | 254 | |
| 591321 | Dissolved Solids | 5/17/2001 | 250 | mg/l | 250 | |
| 591321 | Dissolved Solids | 6/21/2001 | 256 | mg/l | 256 | |
| 591321 | Dissolved Solids | 7/18/2001 | 262 | mg/l | 262 | |
| 591321 | Dissolved Solids | 8/22/2001 | 256 | mg/l | 256 | |
| 591321 | Dissolved Solids | 9/20/2001 | 246 | mg/l | 246 | |
| 591321 | Dissolved Solids | 10/16/2001 | 248 | mg/l | 248 | |
| 591321 | Dissolved Solids | 11/20/2001 | 268 | mg/l | 268 | |
| 591321 | Dissolved Solids | 1/24/2002 | 272 | mg/l | 272 | |
| 591321 | Dissolved Solids | 3/27/2002 | 322 | mg/l | 322 | |
| 591321 | Dissolved Solids | 4/10/2002 | 326 | mg/l | 326 | |
| 591321 | Dissolved Solids | 4/30/2002 | 272 | mg/l | 272 | |
| 591321 | Dissolved Solids | 5/9/2002 | 280 | mg/l | 280 | |
| 591321 | Dissolved Solids | 5/29/2002 | 272 | mg/l | 272 | |
| 591321 | Dissolved Solids | 6/12/2002 | 266 | mg/l | 266 | |
| 591321 | Dissolved Solids | 6/25/2002 | 268 | mg/l | 268 | |
| 591321 | Dissolved Solids | 7/30/2002 | 272 | mg/l | 272 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/16/1990 | 0.18 | mg/l | 0.18 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/8/1990 | 0.1 | mg/l | 0.1 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/25/1990 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/9/1990 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/30/1990 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/13/1990 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/11/1990 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/8/1990 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/12/1990 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/11/1990 | 0.1 | mg/l | 0.1 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/7/1990 | 0.07 | mg/l | 0.07 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 2/13/1991 | 0.05 | mg/l | 0.05 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/13/1991 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/2/1991 | 0.05 | mg/l | 0.05 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/16/1991 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/30/1991 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/13/1991 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/15/1991 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/14/1991 | 0.06 | mg/l | 0.06 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/18/1991 | 0.09 | mg/l | 0.09 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/16/1991 | 0.09 | mg/l | 0.09 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/19/1991 | 0.06 | mg/l | 0.06 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/15/1992 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/16/1992 | 0.07 | mg/l | 0.07 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/16/1992 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/27/1992 | 0.331 | mg/l | 0.331 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/11/1992 | 0.054 | mg/l | 0.054 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/27/1992 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/10/1992 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/13/1992 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/14/1992 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/11/1992 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/14/1992 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/17/1992 | 0.083 | mg/l | 0.083 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 2/9/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/17/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/14/1993 | 0.052 | mg/l | 0.052 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/4/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/11/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/18/1993 | 0.136 | mg/l | 0.136 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/1/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/15/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/1/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/29/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/24/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/30/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/2/1993 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/19/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/16/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/29/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/12/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/27/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/11/1994 | 0 | mg/l | 0.025 | 0.05 |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/25/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/7/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/13/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/15/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/20/1994 | 0.059 | mg/l | 0.059 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/27/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/15/1994 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/23/1995 | 0.105 | mg/l | 0.105 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/14/1995 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/3/1995 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/18/1995 | 0.05 | mg/l | 0.05 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/2/1995 | 0.036 | mg/l | 0.036 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/15/1995 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/30/1995 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/13/1995 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/12/1995 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/15/1995 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/19/1995 | 0.068 | mg/l | 0.068 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/1/1995 | 0.051 | mg/l | 0.051 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/9/1996 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/13/1996 | 0.139 | mg/l | 0.139 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/3/1996 | 0.098 | mg/l | 0.098 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/22/1996 | 0.093 | mg/l | 0.093 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/6/1996 | 0.062 | mg/l | 0.062 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/23/1996 | 0.055 | mg/l | 0.055 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/19/1996 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/16/1996 | 0.092 | mg/l | 0.092 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/20/1996 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/24/1996 | 0.084 | mg/l | 0.084 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/17/1996 | 0.052 | mg/l | 0.052 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/20/1996 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/28/1997 | 0.061 | mg/l | 0.061 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/30/1997 | 0.093 | mg/l | 0.093 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/25/1997 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/30/1997 | 0.056 | mg/l | 0.056 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/13/1997 | 0.065 | mg/l | 0.065 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/27/1997 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/26/1997 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/28/1997 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/26/1997 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/30/1997 | 0.086 | mg/l | 0.086 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/29/1997 | 0 | mg/l | 0.025 | 0.05 |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/17/1997 | 0.072 | mg/l | 0.072 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/21/1998 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 2/23/1998 | 0.055 | mg/l | 0.055 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/19/1998 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/14/1998 | 0.05 | mg/l | 0.05 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/28/1998 | 0.05 | mg/l | 0.05 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/14/1998 | 0.06 | mg/l | 0.06 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/28/1998 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/8/1998 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/24/1998 | 0.08 | mg/l | 0.08 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/22/1998 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/19/1998 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/9/1998 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/19/1998 | 0.0662 | mg/l | 0.0662 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/12/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/9/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/7/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/21/1999 | 0.08 | mg/l | 0.08 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/4/1999 | 0.12 | mg/l | 0.12 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/25/1999 | 0.0518 | mg/l | 0.0518 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/8/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/29/1999 | 0.127 | mg/l | 0.127 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/28/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/19/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/16/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/21/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/23/1999 | 0 | mg/l | 0.025 | 0.05 |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/26/2000 | 0.117 | mg/l | 0.117 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 2/23/2000 | 0.108 | mg/l | 0.108 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/30/2000 | 0.101 | mg/l | 0.101 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/12/2000 | 0.108 | mg/l | 0.108 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/27/2000 | | mg/l | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/10/2000 | | mg/l | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/7/2000 | 0.103 | mg/l | 0.103 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/11/2000 | | mg/l | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/9/2000 | 0.107 | mg/l | 0.107 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/21/2000 | 0.101 | mg/l | 0.101 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/17/2000 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/23/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/20/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/11/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/17/2001 | | | 0 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/21/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/18/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/22/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 9/20/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 10/16/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 11/20/2001 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 1/24/2002 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 3/27/2002 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/10/2002 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 4/30/2002 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/9/2002 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 5/29/2002 | 0 | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/12/2002 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 6/25/2002 | 0 | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 7/30/2002 | | | 0 | |
| 591321 | Nitrogen, ammonia (NH3) as NH3 | 8/20/2002 | 0 | | 0 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 1/16/1990 | 0.31 | mg/l | 0.31 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 3/8/1990 | 0.28 | mg/l | 0.28 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 5/30/1990 | 0.16 | mg/l | 0.16 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 6/13/1990 | 0.1 | mg/l | 0.1 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 7/11/1990 | 0.33 | mg/l | 0.33 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 8/8/1990 | 0.32 | mg/l | 0.32 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 9/12/1990 | 0.38 | mg/l | 0.38 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 10/11/1990 | 0.07 | mg/l | 0.07 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 11/7/1990 | 0.14 | mg/l | 0.14 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 2/13/1991 | 0.5 | mg/l | 0.5 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 3/13/1991 | 0.506 | mg/l | 0.506 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 6/13/1991 | 0.139 | mg/l | 0.139 | |
| 591321 | Nitrogen, Nitrate (NO3) as NO3 | 11/19/1991 | 0 | mg/l | 0.005 | 0.01 |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/2/1991 | 0.385 | mg/l | 0.385 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/16/1991 | 0.247 | mg/l | 0.247 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/30/1991 | 0.179 | mg/l | 0.179 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/13/1991 | 0.139 | mg/l | 0.139 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/15/1991 | 0.244 | mg/l | 0.244 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/14/1991 | 0.345 | mg/l | 0.345 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/18/1991 | 0.308 | mg/l | 0.308 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/16/1991 | 0.129 | mg/l | 0.129 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/19/1991 | 0.269 | mg/l | 0.269 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/15/1992 | 0.33 | mg/l | 0.33 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/16/1992 | 0.34 | mg/l | 0.34 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/16/1992 | 0.3 | mg/l | 0.3 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/27/1992 | 0.364 | mg/l | 0.364 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/11/1992 | 0.203 | mg/l | 0.203 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/27/1992 | 0.332 | mg/l | 0.332 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/10/1992 | 0.328 | mg/l | 0.328 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/13/1992 | 0.301 | mg/l | 0.301 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/14/1992 | 0.16 | mg/l | 0.16 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/11/1992 | 0.058 | mg/l | 0.058 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/14/1992 | 0.063 | mg/l | 0.063 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/17/1992 | 0.167 | mg/l | 0.167 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/9/1993 | 0.367 | mg/l | 0.367 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/17/1993 | 0.5 | mg/l | 0.5 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/14/1993 | 0.503 | mg/l | 0.503 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/4/1993 | 0.402 | mg/l | 0.402 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/11/1993 | 0.459 | mg/l | 0.459 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/18/1993 | 0.294 | mg/l | 0.294 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/1/1993 | 0.28 | mg/l | 0.28 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/15/1993 | 0.508 | mg/l | 0.508 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/1/1993 | 0.227 | mg/l | 0.227 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/29/1993 | 0.453 | mg/l | 0.453 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/24/1993 | 0.292 | mg/l | 0.292 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/30/1993 | 0.23 | mg/l | 0.23 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/2/1993 | 0.32 | mg/l | 0.32 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/19/1994 | 0.469 | mg/l | 0.469 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/16/1994 | 0.467 | mg/l | 0.467 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/29/1994 | 0.316 | mg/l | 0.316 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/12/1994 | 0.316 | mg/l | 0.316 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/27/1994 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/11/1994 | 0.344 | mg/l | 0.344 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/25/1994 | 0.678 | mg/l | 0.678 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/7/1994 | 0.417 | mg/l | 0.417 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/13/1994 | 0.377 | mg/l | 0.377 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/15/1994 | 0.301 | mg/l | 0.301 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/20/1994 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/27/1994 | 0.126 | mg/l | 0.126 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/15/1994 | 0.236 | mg/l | 0.236 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/23/1995 | 0.345 | mg/l | 0.345 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/14/1995 | 0.22 | mg/l | 0.22 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/3/1995 | 0.198 | mg/l | 0.198 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/18/1995 | 0.262 | mg/l | 0.262 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/2/1995 | 0.3 | mg/l | 0.3 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/15/1995 | 0.33 | mg/l | 0.33 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/30/1995 | 0.37 | mg/l | 0.37 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/13/1995 | 0.22 | mg/l | 0.22 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/12/1995 | 0.37 | mg/l | 0.37 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/15/1995 | 0.33 | mg/l | 0.33 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/19/1995 | 0.37 | mg/l | 0.37 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/1/1995 | 0.21 | mg/l | 0.21 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/9/1996 | 0.34 | mg/l | 0.34 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/13/1996 | 0.26 | mg/l | 0.26 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/3/1996 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/22/1996 | 0.23 | mg/l | 0.23 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/6/1996 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/23/1996 | 0.4 | mg/l | 0.4 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/19/1996 | 0.18 | mg/l | 0.18 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/16/1996 | 0.12 | mg/l | 0.12 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/20/1996 | 0.38 | mg/l | 0.38 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/24/1996 | 0.48 | mg/l | 0.48 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/17/1996 | 0.17 | mg/l | 0.17 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/20/1996 | 0.21 | mg/l | 0.21 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/28/1997 | 0.32 | mg/l | 0.32 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/30/1997 | 0.36 | mg/l | 0.36 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/25/1997 | 0.4 | mg/l | 0.4 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/30/1997 | 0.14 | mg/l | 0.14 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/13/1997 | 0.172 | mg/l | 0.172 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/27/1997 | 0.14 | mg/l | 0.14 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/26/1997 | 0.26 | mg/l | 0.26 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/28/1997 | 0.29 | mg/l | 0.29 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/26/1997 | 0.57 | mg/l | 0.57 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/30/1997 | 0.22 | mg/l | 0.22 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/29/1997 | 0.28 | mg/l | 0.28 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/17/1997 | 0.26 | mg/l | 0.26 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/21/1998 | 0.5 | mg/l | 0.5 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/23/1998 | 0.23 | mg/l | 0.23 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/19/1998 | 0.17 | mg/l | 0.17 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/14/1998 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/28/1998 | 0.18 | mg/l | 0.18 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/14/1998 | 0.22 | mg/l | 0.22 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/28/1998 | 0.32 | mg/l | 0.32 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/8/1998 | 0.22 | mg/l | 0.22 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/24/1998 | 0.32 | mg/l | 0.32 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/22/1998 | 0.28 | mg/l | 0.28 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/19/1998 | 0.71 | mg/l | 0.71 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/9/1998 | 0.31 | mg/l | 0.31 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/19/1998 | 0.17 | mg/l | 0.17 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/12/1999 | 0.28425 | mg/l | 0.28425 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/9/1999 | 0.20106 | mg/l | 0.20106 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/7/1999 | 0.12668 | mg/l | 0.12668 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/21/1999 | 0.11199 | mg/l | 0.11199 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/4/1999 | 0 | mg/l | 0.05 | 0.1 |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/25/1999 | 1.0319 | mg/l | 1.0319 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/8/1999 | 0.1 | mg/l | 0.1 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/29/1999 | 0.14055 | mg/l | 0.14055 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/28/1999 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/19/1999 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/16/1999 | 0.21 | mg/l | 0.21 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/21/1999 | 0.1 | mg/l | 0.1 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/23/1999 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/26/2000 | 0.9 | mg/l | 0.9 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/23/2000 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/30/2000 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/12/2000 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/27/2000 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/10/2000 | 0.1 | mg/l | 0.1 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/7/2000 | 0.8 | mg/l | 0.8 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/11/2000 | 0.3 | mg/l | 0.3 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/9/2000 | 0.26 | mg/l | 0.26 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/21/2000 | 0.1 | mg/l | 0.1 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/17/2000 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/23/2001 | 0.36 | mg/l | 0.36 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/20/2001 | 0.28 | mg/l | 0.28 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/11/2001 | 0.18 | mg/l | 0.18 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/17/2001 | 0.16 | mg/l | 0.16 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/21/2001 | 0.24 | mg/l | 0.24 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/18/2001 | 0.3 | mg/l | 0.3 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/22/2001 | 0.29 | mg/l | 0.29 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/20/2001 | 0.16763 | mg/l | 0.16763 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/16/2001 | 0.12 | mg/l | 0.12 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/20/2001 | 0.21 | mg/l | 0.21 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/24/2002 | 0.15 | mg/l | 0.15 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/27/2002 | 0.21 | mg/l | 0.21 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/10/2002 | 0.23 | mg/l | 0.23 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/30/2002 | 0.22 | mg/l | 0.22 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/9/2002 | 0.24 | mg/l | 0.24 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/29/2002 | 0.2 | mg/l | 0.2 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/12/2002 | 0.23 | mg/l | 0.23 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/25/2002 | 0.24 | mg/l | 0.24 | |
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/30/2002 | 0.19 | mg/l | 0.19 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/20/2002 | 0 | | 0 | |
| 591321 | pH | 1/16/1990 | 8 | None | 8 | |
| 591321 | pH | 3/8/1990 | 7.9 | None | 7.9 | |
| 591321 | pH | 4/25/1990 | 7.8 | None | 7.8 | |
| 591321 | pH | 5/9/1990 | 7.7 | None | 7.7 | |
| 591321 | pH | 5/30/1990 | 8 | None | 8 | |
| 591321 | pH | 6/13/1990 | 8.1 | None | 8.1 | |
| 591321 | pH | 7/11/1990 | 7.8 | None | 7.8 | |
| 591321 | pH | 8/8/1990 | 7.7 | None | 7.7 | |
| 591321 | pH | 9/12/1990 | 7.3 | None | 7.3 | |
| 591321 | pH | 10/11/1990 | 8 | None | 8 | |
| 591321 | pH | 11/7/1990 | 8 | None | 8 | |
| 591321 | pH | 2/13/1991 | 8 | None | 8 | |
| 591321 | pH | 3/13/1991 | 8.3 | None | 8.3 | |
| 591321 | pH | 5/2/1991 | 7.9 | None | 7.9 | |
| 591321 | pH | 5/30/1991 | 8 | None | 8 | |
| 591321 | pH | 7/15/1991 | 8.1 | None | 8.1 | |
| 591321 | pH | 8/14/1991 | 7.7 | None | 7.7 | |
| 591321 | pH | 9/18/1991 | 7.2 | None | 7.2 | |
| 591321 | pH | 10/16/1991 | 7.9 | None | 7.9 | |
| 591321 | pH | 11/19/1991 | 7.5 | None | 7.5 | |
| 591321 | pH | 1/15/1992 | 7.3 | None | 7.3 | |
| 591321 | pH | 3/16/1992 | 7.4 | None | 7.4 | |
| 591321 | pH | 4/16/1992 | 7.6 | None | 7.6 | |
| 591321 | pH | 4/27/1992 | 7.6 | None | 7.6 | |
| 591321 | pH | 5/11/1992 | 8.1 | None | 8.1 | |
| 591321 | pH | 5/27/1992 | 7.9 | None | 7.9 | |
| 591321 | pH | 6/10/1992 | 7.8 | None | 7.8 | |
| 591321 | pH | 7/13/1992 | 7.5 | None | 7.5 | |
| 591321 | pH | 8/14/1992 | 7.1 | None | 7.1 | |
| 591321 | pH | 9/11/1992 | 7.8 | None | 7.8 | |
| 591321 | pH | 10/14/1992 | 7.6 | None | 7.6 | |
| 591321 | pH | 11/17/1992 | 7.9 | None | 7.9 | |
| 591321 | pH | 2/9/1993 | 7.7 | None | 7.7 | |
| 591321 | pH | 3/17/1993 | 7.8 | None | 7.8 | |
| 591321 | pH | 4/14/1993 | 7.8 | None | 7.8 | |
| 591321 | pH | 5/4/1993 | 8.3 | None | 8.3 | |
| 591321 | pH | 5/11/1993 | 7.7 | None | 7.7 | |
| 591321 | pH | 5/18/1993 | 8.2 | None | 8.2 | |
| 591321 | pH | 6/1/1993 | 8.1 | None | 8.1 | |
| 591321 | pH | 6/15/1993 | 8.4 | None | 8.4 | |
| 591321 | pH | 7/1/1993 | 8.1 | None | 8.1 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | pH | 7/29/1993 | 7.8 | None | 7.8 | |
| 591321 | pH | 8/24/1993 | 8 | None | 8 | |
| 591321 | pH | 9/30/1993 | 8.1 | None | 8.1 | |
| 591321 | pH | 11/2/1993 | 7.7 | None | 7.7 | |
| 591321 | pH | 1/19/1994 | 8.1 | None | 8.1 | |
| 591321 | pH | 3/16/1994 | 7.1 | None | 7.1 | |
| 591321 | pH | 3/16/1994 | 7.4 | None | 7.4 | |
| 591321 | pH | 3/29/1994 | 7.7 | None | 7.7 | |
| 591321 | pH | 3/29/1994 | 8 | None | 8 | |
| 591321 | pH | 4/12/1994 | 7.7 | None | 7.7 | |
| 591321 | pH | 4/12/1994 | 7.8 | None | 7.8 | |
| 591321 | pH | 4/27/1994 | 7.7 | None | 7.7 | |
| 591321 | pH | 4/27/1994 | 7.3 | None | 7.3 | |
| 591321 | pH | 5/11/1994 | 7.5 | None | 7.5 | |
| 591321 | pH | 5/11/1994 | 8.7 | None | 8.7 | |
| 591321 | pH | 5/25/1994 | 7.4 | None | 7.4 | |
| 591321 | pH | 5/25/1994 | 8.3 | None | 8.3 | |
| 591321 | pH | 6/7/1994 | 7.1 | None | 7.1 | |
| 591321 | pH | 6/7/1994 | 7.9 | None | 7.9 | |
| 591321 | pH | 7/13/1994 | 7.7 | None | 7.7 | |
| 591321 | pH | 7/13/1994 | 7.5 | None | 7.5 | |
| 591321 | pH | 8/15/1994 | 7.4 | None | 7.4 | |
| 591321 | pH | 8/15/1994 | 7.5 | None | 7.5 | |
| 591321 | pH | 9/20/1994 | 7.7 | None | 7.7 | |
| 591321 | pH | 9/20/1994 | 7.5 | None | 7.5 | |
| 591321 | pH | 10/27/1994 | 7.5 | None | 7.5 | |
| 591321 | pH | 10/27/1994 | 7.8 | None | 7.8 | |
| 591321 | pH | 11/15/1994 | 8.6 | None | 8.6 | |
| 591321 | pH | 11/15/1994 | 7.9 | None | 7.9 | |
| 591321 | pH | 1/23/1995 | 8.1 | None | 8.1 | |
| 591321 | pH | 1/23/1995 | 6.5 | None | 6.5 | |
| 591321 | pH | 3/14/1995 | 8.3 | None | 8.3 | |
| 591321 | pH | 3/14/1995 | 8.1 | None | 8.1 | |
| 591321 | pH | 4/3/1995 | 8.4 | None | 8.4 | |
| 591321 | pH | 4/3/1995 | 8.2 | None | 8.2 | |
| 591321 | pH | 4/18/1995 | 8.3 | None | 8.3 | |
| 591321 | pH | 4/18/1995 | 8.1 | None | 8.1 | |
| 591321 | pH | 5/2/1995 | 8.5 | None | 8.5 | |
| 591321 | pH | 5/2/1995 | 8.3 | None | 8.3 | |
| 591321 | pH | 5/15/1995 | 8.3 | None | 8.3 | |
| 591321 | pH | 5/15/1995 | 7.9 | None | 7.9 | |
| 591321 | pH | 5/30/1995 | 8.31 | None | 8.31 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | pH | 5/30/1995 | 8.1 | None | 8.1 | |
| 591321 | pH | 6/13/1995 | 8.3 | None | 8.3 | |
| 591321 | pH | 6/13/1995 | 8.34 | None | 8.34 | |
| 591321 | pH | 7/12/1995 | 7.4 | None | 7.4 | |
| 591321 | pH | 8/15/1995 | 8 | None | 8 | |
| 591321 | pH | 9/19/1995 | 8 | None | 8 | |
| 591321 | pH | 11/1/1995 | 7.9 | None | 7.9 | |
| 591321 | pH | 11/1/1995 | 8.57 | None | 8.57 | |
| 591321 | pH | 1/9/1996 | 7.5 | None | 7.5 | |
| 591321 | pH | 1/9/1996 | 8.22 | None | 8.22 | |
| 591321 | pH | 3/13/1996 | 8.27 | None | 8.27 | |
| 591321 | pH | 3/13/1996 | 8.2 | None | 8.2 | |
| 591321 | pH | 4/3/1996 | 7.8 | None | 7.8 | |
| 591321 | pH | 4/3/1996 | 8.36 | None | 8.36 | |
| 591321 | pH | 4/22/1996 | 8.1 | None | 8.1 | |
| 591321 | pH | 4/22/1996 | 8.46 | None | 8.46 | |
| 591321 | pH | 5/6/1996 | 8.46 | None | 8.46 | |
| 591321 | pH | 5/6/1996 | 8.3 | None | 8.3 | |
| 591321 | pH | 5/23/1996 | 8.3 | None | 8.3 | |
| 591321 | pH | 5/23/1996 | 8.36 | None | 8.36 | |
| 591321 | pH | 6/19/1996 | 8.33 | None | 8.33 | |
| 591321 | pH | 6/19/1996 | 8.1 | None | 8.1 | |
| 591321 | pH | 7/16/1996 | 8.24 | None | 8.24 | |
| 591321 | pH | 7/16/1996 | 8.1 | None | 8.1 | |
| 591321 | pH | 8/20/1996 | 7.6 | None | 7.6 | |
| 591321 | pH | 8/20/1996 | 8 | None | 8 | |
| 591321 | pH | 9/24/1996 | 7.9 | None | 7.9 | |
| 591321 | pH | 9/24/1996 | 8.28 | None | 8.28 | |
| 591321 | pH | 10/17/1996 | 8.31 | None | 8.31 | |
| 591321 | pH | 10/17/1996 | 8 | None | 8 | |
| 591321 | pH | 11/20/1996 | 8.2 | None | 8.2 | |
| 591321 | pH | 11/20/1996 | 8.34 | None | 8.34 | |
| 591321 | pH | 1/28/1997 | 8.13 | None | 8.13 | |
| 591321 | pH | 1/28/1997 | 7.9 | None | 7.9 | |
| 591321 | pH | 1/30/1997 | 8.2 | None | 8.2 | |
| 591321 | pH | 1/30/1997 | 7.9 | None | 7.9 | |
| 591321 | pH | 3/25/1997 | 8 | None | 8 | |
| 591321 | pH | 3/25/1997 | 8.2 | None | 8.2 | |
| 591321 | pH | 4/30/1997 | 7.94 | None | 7.94 | |
| 591321 | pH | 4/30/1997 | 8.2 | None | 8.2 | |
| 591321 | pH | 5/13/1997 | 8.2 | None | 8.2 | |
| 591321 | pH | 5/13/1997 | 8.03 | None | 8.03 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | pH | 5/27/1997 | 8.13 | None | 8.13 | |
| 591321 | pH | 5/27/1997 | 8.3 | None | 8.3 | |
| 591321 | pH | 6/26/1997 | 8.3 | None | 8.3 | |
| 591321 | pH | 6/26/1997 | 8.08 | None | 8.08 | |
| 591321 | pH | 7/28/1997 | 8.1 | None | 8.1 | |
| 591321 | pH | 7/28/1997 | 7.96 | None | 7.96 | |
| 591321 | pH | 8/26/1997 | 8.21 | None | 8.21 | |
| 591321 | pH | 8/26/1997 | 7.6 | None | 7.6 | |
| 591321 | pH | 9/30/1997 | 7.91 | None | 7.91 | |
| 591321 | pH | 9/30/1997 | 7.8 | None | 7.8 | |
| 591321 | pH | 10/29/1997 | 8.18 | None | 8.18 | |
| 591321 | pH | 10/29/1997 | 7.9 | None | 7.9 | |
| 591321 | pH | 11/17/1997 | 8.03 | None | 8.03 | |
| 591321 | pH | 11/17/1997 | 8.1 | None | 8.1 | |
| 591321 | pH | 1/21/1998 | 7.9 | None | 7.9 | |
| 591321 | pH | 1/21/1998 | 7.98 | None | 7.98 | |
| 591321 | pH | 2/23/1998 | 8.1 | None | 8.1 | |
| 591321 | pH | 2/23/1998 | 8 | None | 8 | |
| 591321 | pH | 2/23/1998 | 8 | None | 8 | |
| 591321 | pH | 3/19/1998 | 8.2 | None | 8.2 | |
| 591321 | pH | 3/19/1998 | 8.2 | None | 8.2 | |
| 591321 | pH | 4/14/1998 | 8.29 | None | 8.29 | |
| 591321 | pH | 4/14/1998 | 8.2 | None | 8.2 | |
| 591321 | pH | 4/28/1998 | 8.23 | None | 8.23 | |
| 591321 | pH | 4/28/1998 | 8 | None | 8 | |
| 591321 | pH | 5/14/1998 | 8.07 | None | 8.07 | |
| 591321 | pH | 5/14/1998 | 7.8 | None | 7.8 | |
| 591321 | pH | 5/28/1998 | 8.21 | None | 8.21 | |
| 591321 | pH | 5/28/1998 | 8.2 | None | 8.2 | |
| 591321 | pH | 6/8/1998 | 8.28 | None | 8.28 | |
| 591321 | pH | 6/8/1998 | 8.3 | None | 8.3 | |
| 591321 | pH | 6/24/1998 | 8.16 | None | 8.16 | |
| 591321 | pH | 6/24/1998 | 8 | None | 8 | |
| 591321 | pH | 7/22/1998 | 8.05 | None | 8.05 | |
| 591321 | pH | 7/22/1998 | 7.7 | None | 7.7 | |
| 591321 | pH | 8/19/1998 | 8.03 | None | 8.03 | |
| 591321 | pH | 8/19/1998 | 7.8 | None | 7.8 | |
| 591321 | pH | 8/24/1998 | 7.4 | None | 7.4 | |
| 591321 | pH | 9/9/1998 | 7.94 | None | 7.94 | |
| 591321 | pH | 9/9/1998 | 7.6 | None | 7.6 | |
| 591321 | pH | 10/14/1998 | 8.17 | None | 8.17 | |
| 591321 | pH | 10/14/1998 | 8.1 | None | 8.1 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | pH | 11/19/1998 | 8.18 | None | 8.18 | |
| 591321 | pH | 11/19/1998 | 8.3 | None | 8.3 | |
| 591321 | pH | 11/30/1998 | 7.7 | None | 7.7 | |
| 591321 | pH | 1/12/1999 | 8.21 | None | 8.21 | |
| 591321 | pH | 1/12/1999 | 7.9 | None | 7.9 | |
| 591321 | pH | 3/9/1999 | 8.15 | None | 8.15 | |
| 591321 | pH | 3/9/1999 | 8.2 | None | 8.2 | |
| 591321 | pH | 4/7/1999 | 8.42 | None | 8.42 | |
| 591321 | pH | 4/7/1999 | 8.1 | None | 8.1 | |
| 591321 | pH | 4/21/1999 | 8.34 | None | 8.34 | |
| 591321 | pH | 4/21/1999 | 8.3 | None | 8.3 | |
| 591321 | pH | 5/4/1999 | 8.24 | None | 8.24 | |
| 591321 | pH | 5/4/1999 | 8.1 | None | 8.1 | |
| 591321 | pH | 5/25/1999 | 8.5 | None | 8.5 | |
| 591321 | pH | 5/25/1999 | 8.5 | None | 8.5 | |
| 591321 | pH | 6/8/1999 | 8.21 | None | 8.21 | |
| 591321 | pH | 6/8/1999 | 8.2 | None | 8.2 | |
| 591321 | pH | 6/22/1999 | 8.61 | None | 8.61 | |
| 591321 | pH | 6/29/1999 | 8.16 | None | 8.16 | |
| 591321 | pH | 6/29/1999 | 8 | None | 8 | |
| 591321 | pH | 7/28/1999 | 8.08 | None | 8.08 | |
| 591321 | pH | 7/28/1999 | 7.3 | None | 7.3 | |
| 591321 | pH | 8/19/1999 | 7.4 | None | 7.4 | |
| 591321 | pH | 8/19/1999 | 7.94 | None | 7.94 | |
| 591321 | pH | 9/16/1999 | 7.75 | None | 7.75 | |
| 591321 | pH | 9/16/1999 | 7.4 | None | 7.4 | |
| 591321 | pH | 10/21/1999 | 7.8 | None | 7.8 | |
| 591321 | pH | 10/21/1999 | 8.16 | None | 8.16 | |
| 591321 | pH | 11/23/1999 | 8.2 | None | 8.2 | |
| 591321 | pH | 11/23/1999 | 7.65 | None | 7.65 | |
| 591321 | pH | 1/26/2000 | 8.05 | None | 8.05 | |
| 591321 | pH | 1/26/2000 | 8.16 | None | 8.16 | |
| 591321 | pH | 2/23/2000 | 8.26 | None | 8.26 | |
| 591321 | pH | 2/23/2000 | 7.42 | None | 7.42 | |
| 591321 | pH | 3/30/2000 | 8.22 | None | 8.22 | |
| 591321 | pH | 3/30/2000 | 8.35 | None | 8.35 | |
| 591321 | pH | 4/12/2000 | 8.24 | None | 8.24 | |
| 591321 | pH | 4/12/2000 | 8.28 | None | 8.28 | |
| 591321 | pH | 4/27/2000 | 8.15 | None | 8.15 | |
| 591321 | pH | 4/27/2000 | 8.3 | None | 8.3 | |
| 591321 | pH | 5/10/2000 | 8.08 | None | 8.08 | |
| 591321 | pH | 5/10/2000 | 8.32 | None | 8.32 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | pH | 6/7/2000 | 8.18 | None | 8.18 | |
| 591321 | pH | 6/7/2000 | 7.87 | None | 7.87 | |
| 591321 | pH | 7/11/2000 | 7.8 | None | 7.8 | |
| 591321 | pH | 7/11/2000 | 7.89 | None | 7.89 | |
| 591321 | pH | 8/9/2000 | 7.88 | None | 7.88 | |
| 591321 | pH | 8/9/2000 | 7.86 | None | 7.86 | |
| 591321 | pH | 9/21/2000 | 7.91 | None | 7.91 | |
| 591321 | pH | 9/21/2000 | 8.01 | None | 8.01 | |
| 591321 | pH | 10/17/2000 | 8.21 | None | 8.21 | |
| 591321 | pH | 10/17/2000 | 8.34 | None | 8.34 | |
| 591321 | pH | 1/23/2001 | 8.42 | None | 8.42 | |
| 591321 | pH | 1/23/2001 | 8.15 | None | 8.15 | |
| 591321 | pH | 3/20/2001 | 8.12 | None | 8.12 | |
| 591321 | pH | 3/20/2001 | 7.99 | None | 7.99 | |
| 591321 | pH | 4/11/2001 | 8.04 | None | 8.04 | |
| 591321 | pH | 4/11/2001 | 8.1 | None | 8.1 | |
| 591321 | pH | 5/17/2001 | 8.16 | None | 8.16 | |
| 591321 | pH | 5/17/2001 | 8.02 | None | 8.02 | |
| 591321 | pH | 6/21/2001 | 7.8 | None | 7.8 | |
| 591321 | pH | 6/21/2001 | 8.1 | None | 8.1 | |
| 591321 | pH | 7/18/2001 | 7.89 | None | 7.89 | |
| 591321 | pH | 7/18/2001 | 7.79 | None | 7.79 | |
| 591321 | pH | 8/22/2001 | 7.95 | None | 7.95 | |
| 591321 | pH | 8/22/2001 | 7.84 | None | 7.84 | |
| 591321 | pH | 9/20/2001 | 8.21 | None | 8.21 | |
| 591321 | pH | 9/20/2001 | 8.27 | None | 8.27 | |
| 591321 | pH | 10/16/2001 | 8.37 | None | 8.37 | |
| 591321 | pH | 10/16/2001 | 8.43 | None | 8.43 | |
| 591321 | pH | 11/20/2001 | 8.68 | None | 8.68 | |
| 591321 | pH | 11/20/2001 | 8.32 | None | 8.32 | |
| 591321 | pH | 1/24/2002 | 8.13 | None | 8.13 | |
| 591321 | pH | 1/24/2002 | 8.11 | None | 8.11 | |
| 591321 | pH | 3/27/2002 | 8.15 | None | 8.15 | |
| 591321 | pH | 3/27/2002 | 8.1 | None | 8.1 | |
| 591321 | pH | 4/10/2002 | 8.2 | None | 8.2 | |
| 591321 | pH | 4/30/2002 | 8.24 | None | 8.24 | |
| 591321 | pH | 4/30/2002 | 8.1 | None | 8.1 | |
| 591321 | pH | 5/9/2002 | 8.4 | None | 8.4 | |
| 591321 | pH | 5/29/2002 | 8.2 | None | 8.2 | |
| 591321 | pH | 5/29/2002 | 8.11 | None | 8.11 | |
| 591321 | pH | 6/12/2002 | 8.3 | None | 8.3 | |
| 591321 | pH | 6/12/2002 | 8.3 | None | 8.3 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | pH | 6/25/2002 | 8.1 | None | 8.1 | |
| 591321 | pH | 6/25/2002 | 7.79 | None | 7.79 | |
| 591321 | pH | 7/30/2002 | 7.39 | None | 7.39 | |
| 591321 | pH | 7/30/2002 | 7.96 | None | 7.96 | |
| 591321 | pH | 8/20/2002 | 7.97 | None | 7.97 | |
| 591321 | pH | 8/20/2002 | 7.74 | None | 7.74 | |
| 591321 | pH | 9/18/2002 | 8.13 | None | 8.13 | |
| 591321 | pH | 9/19/2002 | 7.64 | None | 7.64 | |
| 591321 | pH | 10/22/2002 | 8.36 | None | 8.36 | |
| 591321 | pH | 11/21/2002 | 7.45 | None | 7.45 | |
| 591321 | pH | 12/18/2002 | 8.7 | None | 8.7 | |
| 591321 | Phosphorus as P | 1/16/1990 | 0.085 | mg/l | 0.085 | |
| 591321 | Phosphorus as P | 3/8/1990 | 0.048 | mg/l | 0.048 | |
| 591321 | Phosphorus as P | 4/25/1990 | 0.021 | mg/l | 0.021 | |
| 591321 | Phosphorus as P | 5/9/1990 | 0.075 | mg/l | 0.075 | |
| 591321 | Phosphorus as P | 5/30/1990 | 0.085 | mg/l | 0.085 | |
| 591321 | Phosphorus as P | 6/13/1990 | 0.017 | mg/l | 0.017 | |
| 591321 | Phosphorus as P | 7/11/1990 | 0.044 | mg/l | 0.044 | |
| 591321 | Phosphorus as P | 8/8/1990 | 0.065 | mg/l | 0.065 | |
| 591321 | Phosphorus as P | 8/8/1990 | 0.034 | mg/l | 0.034 | |
| 591321 | Phosphorus as P | 10/11/1990 | 0.035 | mg/l | 0.035 | |
| 591321 | Phosphorus as P | 10/11/1990 | 0.05 | mg/l | 0.05 | |
| 591321 | Phosphorus as P | 11/7/1990 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 2/13/1991 | 0.033 | mg/l | 0.033 | |
| 591321 | Phosphorus as P | 2/13/1991 | 0.037 | mg/l | 0.037 | |
| 591321 | Phosphorus as P | 3/13/1991 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 3/13/1991 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 5/2/1991 | 0.027 | mg/l | 0.027 | |
| 591321 | Phosphorus as P | 5/2/1991 | 0.029 | mg/l | 0.029 | |
| 591321 | Phosphorus as P | 5/16/1991 | 0.015 | mg/l | 0.015 | |
| 591321 | Phosphorus as P | 5/16/1991 | 0.014 | mg/l | 0.014 | |
| 591321 | Phosphorus as P | 5/30/1991 | 0.015 | mg/l | 0.015 | |
| 591321 | Phosphorus as P | 5/30/1991 | 0.015 | mg/l | 0.015 | |
| 591321 | Phosphorus as P | 6/13/1991 | 0.013 | mg/l | 0.013 | |
| 591321 | Phosphorus as P | 6/13/1991 | 0 | mg/l | 0.005 | 0.01 |
| 591321 | Phosphorus as P | 7/15/1991 | 0.024 | mg/l | 0.024 | |
| 591321 | Phosphorus as P | 7/15/1991 | 0.055 | mg/l | 0.055 | |
| 591321 | Phosphorus as P | 8/14/1991 | 0.045 | mg/l | 0.045 | |
| 591321 | Phosphorus as P | 8/14/1991 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 9/18/1991 | 0.101 | mg/l | 0.101 | |
| 591321 | Phosphorus as P | 9/18/1991 | 0.083 | mg/l | 0.083 | |
| 591321 | Phosphorus as P | 10/16/1991 | 0.027 | mg/l | 0.027 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Phosphorus as P | 10/16/1991 | 0.022 | mg/l | 0.022 | |
| 591321 | Phosphorus as P | 11/19/1991 | 0.029 | mg/l | 0.029 | |
| 591321 | Phosphorus as P | 11/19/1991 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 1/15/1992 | 0.032 | mg/l | 0.032 | |
| 591321 | Phosphorus as P | 1/15/1992 | 0.026 | mg/l | 0.026 | |
| 591321 | Phosphorus as P | 3/16/1992 | 0.033 | mg/l | 0.033 | |
| 591321 | Phosphorus as P | 3/16/1992 | 0.046 | mg/l | 0.046 | |
| 591321 | Phosphorus as P | 4/16/1992 | 0 | mg/l | 0.005 | 0.01 |
| 591321 | Phosphorus as P | 4/16/1992 | 0.029 | mg/l | 0.029 | |
| 591321 | Phosphorus as P | 4/27/1992 | 0.059 | mg/l | 0.059 | |
| 591321 | Phosphorus as P | 4/27/1992 | 0.033 | mg/l | 0.033 | |
| 591321 | Phosphorus as P | 5/11/1992 | 0.035 | mg/l | 0.035 | |
| 591321 | Phosphorus as P | 5/11/1992 | 0.038 | mg/l | 0.038 | |
| 591321 | Phosphorus as P | 5/27/1992 | 0.049 | mg/l | 0.049 | |
| 591321 | Phosphorus as P | 5/27/1992 | 0.053 | mg/l | 0.053 | |
| 591321 | Phosphorus as P | 6/10/1992 | 0.067 | mg/l | 0.067 | |
| 591321 | Phosphorus as P | 6/10/1992 | 0.051 | mg/l | 0.051 | |
| 591321 | Phosphorus as P | 7/13/1992 | 0.06 | mg/l | 0.06 | |
| 591321 | Phosphorus as P | 7/13/1992 | 0.034 | mg/l | 0.034 | |
| 591321 | Phosphorus as P | 8/14/1992 | 0.084 | mg/l | 0.084 | |
| 591321 | Phosphorus as P | 8/14/1992 | 0.055 | mg/l | 0.055 | |
| 591321 | Phosphorus as P | 9/11/1992 | 0.037 | mg/l | 0.037 | |
| 591321 | Phosphorus as P | 9/11/1992 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 10/14/1992 | 0.045 | mg/l | 0.045 | |
| 591321 | Phosphorus as P | 10/14/1992 | 0.034 | mg/l | 0.034 | |
| 591321 | Phosphorus as P | 11/17/1992 | 0.028 | mg/l | 0.028 | |
| 591321 | Phosphorus as P | 11/17/1992 | 0.039 | mg/l | 0.039 | |
| 591321 | Phosphorus as P | 2/9/1993 | 0.098 | mg/l | 0.098 | |
| 591321 | Phosphorus as P | 2/9/1993 | 0.066 | mg/l | 0.066 | |
| 591321 | Phosphorus as P | 3/17/1993 | 0.052 | mg/l | 0.052 | |
| 591321 | Phosphorus as P | 3/17/1993 | 0.052 | mg/l | 0.052 | |
| 591321 | Phosphorus as P | 4/14/1993 | 0.081 | mg/l | 0.081 | |
| 591321 | Phosphorus as P | 4/14/1993 | 0.046 | mg/l | 0.046 | |
| 591321 | Phosphorus as P | 5/4/1993 | 0.035 | mg/l | 0.035 | |
| 591321 | Phosphorus as P | 5/4/1993 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 5/11/1993 | 0.019 | mg/l | 0.019 | |
| 591321 | Phosphorus as P | 5/11/1993 | 0.026 | mg/l | 0.026 | |
| 591321 | Phosphorus as P | 5/18/1993 | 0 | mg/l | 0.005 | 0.01 |
| 591321 | Phosphorus as P | 5/18/1993 | 0 | mg/l | 0.005 | 0.01 |
| 591321 | Phosphorus as P | 6/1/1993 | 0.016 | mg/l | 0.016 | |
| 591321 | Phosphorus as P | 6/1/1993 | 0.056 | mg/l | 0.056 | |
| 591321 | Phosphorus as P | 6/15/1993 | 0.03 | mg/l | 0.03 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Phosphorus as P | 6/15/1993 | 0.046 | mg/l | 0.046 | |
| 591321 | Phosphorus as P | 7/1/1993 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 7/1/1993 | 0.023 | mg/l | 0.023 | |
| 591321 | Phosphorus as P | 7/29/1993 | 0.069 | mg/l | 0.069 | |
| 591321 | Phosphorus as P | 7/29/1993 | 0.036 | mg/l | 0.036 | |
| 591321 | Phosphorus as P | 8/24/1993 | 0.018 | mg/l | 0.018 | |
| 591321 | Phosphorus as P | 8/24/1993 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 9/30/1993 | 0.058 | mg/l | 0.058 | |
| 591321 | Phosphorus as P | 9/30/1993 | 0.034 | mg/l | 0.034 | |
| 591321 | Phosphorus as P | 11/2/1993 | 0.036 | mg/l | 0.036 | |
| 591321 | Phosphorus as P | 11/2/1993 | 0.018 | mg/l | 0.018 | |
| 591321 | Phosphorus as P | 1/19/1994 | 0.033 | mg/l | 0.033 | |
| 591321 | Phosphorus as P | 1/19/1994 | 0.029 | mg/l | 0.029 | |
| 591321 | Phosphorus as P | 3/16/1994 | 0.037 | mg/l | 0.037 | |
| 591321 | Phosphorus as P | 3/16/1994 | 0.038 | mg/l | 0.038 | |
| 591321 | Phosphorus as P | 3/29/1994 | 0.011 | mg/l | 0.011 | |
| 591321 | Phosphorus as P | 3/29/1994 | 0.015 | mg/l | 0.015 | |
| 591321 | Phosphorus as P | 4/12/1994 | 0 | mg/l | 0.005 | 0.01 |
| 591321 | Phosphorus as P | 4/12/1994 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 4/27/1994 | 0.016 | mg/l | 0.016 | |
| 591321 | Phosphorus as P | 4/27/1994 | 0.027 | mg/l | 0.027 | |
| 591321 | Phosphorus as P | 5/11/1994 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 5/11/1994 | 0.028 | mg/l | 0.028 | |
| 591321 | Phosphorus as P | 5/25/1994 | 0.032 | mg/l | 0.032 | |
| 591321 | Phosphorus as P | 5/25/1994 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 6/7/1994 | 0.043 | mg/l | 0.043 | |
| 591321 | Phosphorus as P | 6/7/1994 | 0.043 | mg/l | 0.043 | |
| 591321 | Phosphorus as P | 7/13/1994 | 0.059 | mg/l | 0.059 | |
| 591321 | Phosphorus as P | 7/13/1994 | 0.048 | mg/l | 0.048 | |
| 591321 | Phosphorus as P | 8/15/1994 | 0.103 | mg/l | 0.103 | |
| 591321 | Phosphorus as P | 8/15/1994 | 0.116 | mg/l | 0.116 | |
| 591321 | Phosphorus as P | 9/20/1994 | 0.044 | mg/l | 0.044 | |
| 591321 | Phosphorus as P | 9/20/1994 | 0.081 | mg/l | 0.081 | |
| 591321 | Phosphorus as P | 10/27/1994 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 10/27/1994 | 0.045 | mg/l | 0.045 | |
| 591321 | Phosphorus as P | 11/15/1994 | 0.048 | mg/l | 0.048 | |
| 591321 | Phosphorus as P | 11/15/1994 | 0.025 | mg/l | 0.025 | |
| 591321 | Phosphorus as P | 1/23/1995 | 0.038 | mg/l | 0.038 | |
| 591321 | Phosphorus as P | 1/23/1995 | 0.041 | mg/l | 0.041 | |
| 591321 | Phosphorus as P | 3/14/1995 | 0.021 | mg/l | 0.021 | |
| 591321 | Phosphorus as P | 3/14/1995 | 0.027 | mg/l | 0.027 | |
| 591321 | Phosphorus as P | 4/3/1995 | 0.016 | mg/l | 0.016 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Phosphorus as P | 4/3/1995 | 0 | mg/l | 0.005 | 0.01 |
| 591321 | Phosphorus as P | 4/18/1995 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 4/18/1995 | 0.026 | mg/l | 0.026 | |
| 591321 | Phosphorus as P | 5/2/1995 | 0.024 | mg/l | 0.024 | |
| 591321 | Phosphorus as P | 5/2/1995 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 5/15/1995 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 5/15/1995 | 0.035 | mg/l | 0.035 | |
| 591321 | Phosphorus as P | 5/30/1995 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 5/30/1995 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 6/13/1995 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 6/13/1995 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 7/12/1995 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 7/12/1995 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 8/15/1995 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 8/15/1995 | 0.05 | mg/l | 0.05 | |
| 591321 | Phosphorus as P | 9/19/1995 | 0.06 | mg/l | 0.06 | |
| 591321 | Phosphorus as P | 9/19/1995 | 0.05 | mg/l | 0.05 | |
| 591321 | Phosphorus as P | 11/1/1995 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 11/1/1995 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 1/9/1996 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 1/9/1996 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 3/13/1996 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 3/13/1996 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 4/3/1996 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 4/3/1996 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 4/22/1996 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 4/22/1996 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 5/6/1996 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 5/6/1996 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 5/23/1996 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 5/23/1996 | 0.01 | mg/l | 0.01 | |
| 591321 | Phosphorus as P | 6/19/1996 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 6/19/1996 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 7/16/1996 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 7/16/1996 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 8/20/1996 | 0.04 | mg/l | 0.04 | |
| 591321 | Phosphorus as P | 8/20/1996 | 0.06 | mg/l | 0.06 | |
| 591321 | Phosphorus as P | 9/24/1996 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 9/24/1996 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 10/17/1996 | 0.03515 | mg/l | 0.03515 | |
| 591321 | Phosphorus as P | 10/17/1996 | 0.02623 | mg/l | 0.02623 | |
| 591321 | Phosphorus as P | 11/20/1996 | 0 | mg/l | 0.005 | 0.01 |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Phosphorus as P | 11/20/1996 | 0.02816 | mg/l | 0.02816 | |
| 591321 | Phosphorus as P | 1/28/1997 | 0.02113 | mg/l | 0.02113 | |
| 591321 | Phosphorus as P | 1/30/1997 | 0.07896 | mg/l | 0.07896 | |
| 591321 | Phosphorus as P | 1/30/1997 | 0.03361 | mg/l | 0.03361 | |
| 591321 | Phosphorus as P | 3/25/1997 | 0.03802 | mg/l | 0.03802 | |
| 591321 | Phosphorus as P | 3/25/1997 | 0.03777 | mg/l | 0.03777 | |
| 591321 | Phosphorus as P | 5/13/1997 | 0.05792 | mg/l | 0.05792 | |
| 591321 | Phosphorus as P | 5/13/1997 | 0.05773 | mg/l | 0.05773 | |
| 591321 | Phosphorus as P | 5/27/1997 | 0.10399 | mg/l | 0.10399 | |
| 591321 | Phosphorus as P | 11/17/1997 | 0.04201 | mg/l | 0.04201 | |
| 591321 | Phosphorus as P | 1/21/1998 | 0.023 | mg/l | 0.023 | |
| 591321 | Phosphorus as P | 1/21/1998 | 0.0232 | mg/l | 0.0232 | |
| 591321 | Phosphorus as P | 2/23/1998 | 0.015 | mg/l | 0.015 | |
| 591321 | Phosphorus as P | 2/23/1998 | 0.025 | mg/l | 0.025 | |
| 591321 | Phosphorus as P | 3/19/1998 | 0 | mg/l | 0.0075 | 0.015 |
| 591321 | Phosphorus as P | 3/19/1998 | 0 | mg/l | 0.005 | 0.01 |
| 591321 | Phosphorus as P | 4/14/1998 | 0 | mg/l | 0.0075 | 0.015 |
| 591321 | Phosphorus as P | 4/14/1998 | 0.012 | mg/l | 0.012 | |
| 591321 | Phosphorus as P | 4/28/1998 | 0.019 | mg/l | 0.019 | |
| 591321 | Phosphorus as P | 4/28/1998 | 0.014 | mg/l | 0.014 | |
| 591321 | Phosphorus as P | 5/14/1998 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 5/14/1998 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 5/28/1998 | 0.036 | mg/l | 0.036 | |
| 591321 | Phosphorus as P | 5/28/1998 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 6/8/1998 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 6/8/1998 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 6/24/1998 | 0.029 | mg/l | 0.029 | |
| 591321 | Phosphorus as P | 6/24/1998 | 0.026 | mg/l | 0.026 | |
| 591321 | Phosphorus as P | 7/22/1998 | 0.038 | mg/l | 0.038 | |
| 591321 | Phosphorus as P | 7/22/1998 | 0.032 | mg/l | 0.032 | |
| 591321 | Phosphorus as P | 8/19/1998 | 0.035 | mg/l | 0.035 | |
| 591321 | Phosphorus as P | 8/19/1998 | 0.056 | mg/l | 0.056 | |
| 591321 | Phosphorus as P | 9/9/1998 | 0.038 | mg/l | 0.038 | |
| 591321 | Phosphorus as P | 9/9/1998 | 0.054 | mg/l | 0.054 | |
| 591321 | Phosphorus as P | 11/19/1998 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 1/12/1999 | 0.02 | mg/l | 0.02 | |
| 591321 | Phosphorus as P | 1/12/1999 | 0.039 | mg/l | 0.039 | |
| 591321 | Phosphorus as P | 3/9/1999 | 0.024 | mg/l | 0.024 | |
| 591321 | Phosphorus as P | 3/9/1999 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 4/7/1999 | 0.037 | mg/l | 0.037 | |
| 591321 | Phosphorus as P | 4/7/1999 | 0.038 | mg/l | 0.038 | |
| 591321 | Phosphorus as P | 4/21/1999 | 0.027 | mg/l | 0.027 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Phosphorus as P | 4/21/1999 | 0.024 | mg/l | 0.024 | |
| 591321 | Phosphorus as P | 5/4/1999 | 0.049 | mg/l | 0.049 | |
| 591321 | Phosphorus as P | 5/4/1999 | 0.023 | mg/l | 0.023 | |
| 591321 | Phosphorus as P | 5/25/1999 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 5/25/1999 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 6/8/1999 | 0 | mg/l | 0.01 | 0.02 |
| 591321 | Phosphorus as P | 6/8/1999 | 0.022 | mg/l | 0.022 | |
| 591321 | Phosphorus as P | 6/29/1999 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 6/29/1999 | 0.037 | mg/l | 0.037 | |
| 591321 | Phosphorus as P | 7/28/1999 | 0.024 | mg/l | 0.024 | |
| 591321 | Phosphorus as P | 7/28/1999 | 0.064 | mg/l | 0.064 | |
| 591321 | Phosphorus as P | 8/19/1999 | 0.038 | mg/l | 0.038 | |
| 591321 | Phosphorus as P | 8/19/1999 | 0.048 | mg/l | 0.048 | |
| 591321 | Phosphorus as P | 9/16/1999 | 0.054 | mg/l | 0.054 | |
| 591321 | Phosphorus as P | 9/16/1999 | 0.051 | mg/l | 0.051 | |
| 591321 | Phosphorus as P | 10/21/1999 | 0.052 | mg/l | 0.052 | |
| 591321 | Phosphorus as P | 10/21/1999 | 0.027 | mg/l | 0.027 | |
| 591321 | Phosphorus as P | 11/23/1999 | 0.026 | mg/l | 0.026 | |
| 591321 | Phosphorus as P | 11/23/1999 | 0.022 | mg/l | 0.022 | |
| 591321 | Phosphorus as P | 1/26/2000 | 0.027 | mg/l | 0.027 | |
| 591321 | Phosphorus as P | 1/26/2000 | 0.043 | mg/l | 0.043 | |
| 591321 | Phosphorus as P | 2/23/2000 | 0 | mg/l | 0 | |
| 591321 | Phosphorus as P | 2/23/2000 | 0 | mg/l | 0 | |
| 591321 | Phosphorus as P | 3/30/2000 | 0.036 | mg/l | 0.036 | |
| 591321 | Phosphorus as P | 3/30/2000 | | mg/l | 0 | |
| 591321 | Phosphorus as P | 4/12/2000 | | mg/l | 0 | |
| 591321 | Phosphorus as P | 4/12/2000 | | mg/l | 0 | |
| 591321 | Phosphorus as P | 4/27/2000 | | mg/l | 0 | |
| 591321 | Phosphorus as P | 4/27/2000 | 0.028 | mg/l | 0.028 | |
| 591321 | Phosphorus as P | 5/10/2000 | | mg/l | 0 | |
| 591321 | Phosphorus as P | 5/10/2000 | 0.149 | mg/l | 0.149 | |
| 591321 | Phosphorus as P | 6/7/2000 | | mg/l | 0 | |
| 591321 | Phosphorus as P | 6/7/2000 | 0.023 | mg/l | 0.023 | |
| 591321 | Phosphorus as P | 7/11/2000 | 0.041 | mg/l | 0.041 | |
| 591321 | Phosphorus as P | 7/11/2000 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 8/9/2000 | 0.145 | mg/l | 0.145 | |
| 591321 | Phosphorus as P | 8/9/2000 | 0.133 | mg/l | 0.133 | |
| 591321 | Phosphorus as P | 9/21/2000 | | mg/l | 0 | |
| 591321 | Phosphorus as P | 1/23/2001 | 0.026 | mg/l | 0.026 | |
| 591321 | Phosphorus as P | 1/23/2001 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 3/20/2001 | 0.034 | mg/l | 0.034 | |
| 591321 | Phosphorus as P | 3/20/2001 | 0.022 | mg/l | 0.022 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Phosphorus as P | 4/11/2001 | | | 0 | |
| 591321 | Phosphorus as P | 4/11/2001 | | | 0 | |
| 591321 | Phosphorus as P | 5/17/2001 | 0.022 | mg/l | 0.022 | |
| 591321 | Phosphorus as P | 5/17/2001 | 0.027 | mg/l | 0.027 | |
| 591321 | Phosphorus as P | 6/21/2001 | 0.031 | mg/l | 0.031 | |
| 591321 | Phosphorus as P | 6/21/2001 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 7/18/2001 | 0.024 | mg/l | 0.024 | |
| 591321 | Phosphorus as P | 7/18/2001 | 0.032 | mg/l | 0.032 | |
| 591321 | Phosphorus as P | 8/22/2001 | 0.048 | mg/l | 0.048 | |
| 591321 | Phosphorus as P | 8/22/2001 | 0.037 | mg/l | 0.037 | |
| 591321 | Phosphorus as P | 9/20/2001 | | | 0 | |
| 591321 | Phosphorus as P | 9/20/2001 | 0.033 | mg/l | 0.033 | |
| 591321 | Phosphorus as P | 10/16/2001 | 0.028 | mg/l | 0.028 | |
| 591321 | Phosphorus as P | 11/20/2001 | | | 0 | |
| 591321 | Phosphorus as P | 11/20/2001 | 0.03 | mg/l | 0.03 | |
| 591321 | Phosphorus as P | 1/24/2002 | | | 0 | |
| 591321 | Phosphorus as P | 1/24/2002 | 0.022 | mg/l | 0.022 | |
| 591321 | Phosphorus as P | 3/27/2002 | 0.021 | mg/l | 0.021 | |
| 591321 | Phosphorus as P | 3/27/2002 | 0.033 | mg/l | 0.033 | |
| 591321 | Phosphorus as P | 4/10/2002 | | | 0 | |
| 591321 | Phosphorus as P | 4/10/2002 | | | 0 | |
| 591321 | Phosphorus as P | 4/30/2002 | | | 0 | |
| 591321 | Phosphorus as P | 4/30/2002 | | | 0 | |
| 591321 | Phosphorus as P | 5/9/2002 | | | 0 | |
| 591321 | Phosphorus as P | 5/9/2002 | | | 0 | |
| 591321 | Phosphorus as P | 5/29/2002 | 0 | | 0 | |
| 591321 | Phosphorus as P | 5/29/2002 | 0.021 | mg/l | 0.021 | |
| 591321 | Phosphorus as P | 6/12/2002 | 0.024 | mg/l | 0.024 | |
| 591321 | Phosphorus as P | 6/12/2002 | | | 0 | |
| 591321 | Phosphorus as P | 6/25/2002 | 0.026 | mg/l | 0.026 | |
| 591321 | Phosphorus as P | 7/30/2002 | 0.063 | mg/l | 0.063 | |
| 591321 | Phosphorus as P | 7/30/2002 | 0.029 | mg/l | 0.029 | |
| 591321 | Phosphorus as P | 8/20/2002 | 0.075 | mg/l | 0.075 | |
| 591321 | Phosphorus as P | 8/20/2002 | 0.093 | mg/l | 0.093 | |
| 591321 | Selenium | 3/8/1990 | 0 | ug/l | 0.25 | 0.5 |
| 591321 | Selenium | 5/30/1990 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 9/12/1990 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 5/2/1991 | 0 | ug/l | 2.5 | 5.0 |
| 591321 | Selenium | 5/30/1991 | 0 | ug/l | 2.5 | 5.0 |
| 591321 | Selenium | 9/18/1991 | 0 | ug/l | 2.5 | 5.0 |
| 591321 | Selenium | 5/27/1992 | 0 | ug/l | 2.5 | 5.0 |
| 591321 | Selenium | 5/18/1993 | 0 | ug/l | 1 | 2.0 |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Selenium | 3/16/1994 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 5/25/1994 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 7/13/1994 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 1/23/1995 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 5/30/1995 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 11/1/1995 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 5/23/1996 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 9/24/1996 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 10/17/1996 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 1/30/1997 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 5/27/1997 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 8/26/1997 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 10/29/1997 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 1/21/1998 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 5/28/1998 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 8/19/1998 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 10/14/1998 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 1/12/1999 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 3/9/1999 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 5/25/1999 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 8/19/1999 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 10/21/1999 | 0 | ug/l | 0.5 | 1.0 |
| 591321 | Selenium | 1/26/2000 | 0 | ug/l | 0 | |
| 591321 | Selenium | 6/7/2000 | | ug/l | 0 | |
| 591321 | Selenium | 8/9/2000 | | ug/l | 0 | |
| 591321 | Selenium | 10/17/2000 | | | 0 | |
| 591321 | Selenium | 1/23/2001 | | | 0 | |
| 591321 | Selenium | 5/17/2001 | | | 0 | |
| 591321 | Selenium | 8/22/2001 | | | 0 | |
| 591321 | Selenium | 10/16/2001 | | | 0 | |
| 591321 | Selenium | 1/24/2002 | | | 0 | |
| 591321 | Selenium | 5/29/2002 | 0 | | 0 | |
| 591321 | Selenium | 6/12/2002 | | | 0 | |
| 591321 | Selenium | 8/20/2002 | 0 | | 0 | |
| 591321 | Temperature, water | 1/16/1990 | 3.7 | deg C | 3.7 | |
| 591321 | Temperature, water | 3/8/1990 | 4.1 | deg C | 4.1 | |
| 591321 | Temperature, water | 4/25/1990 | 5.6 | deg C | 5.6 | |
| 591321 | Temperature, water | 5/9/1990 | 5.5 | deg C | 5.5 | |
| 591321 | Temperature, water | 5/30/1990 | 7.8 | deg C | 7.8 | |
| 591321 | Temperature, water | 6/13/1990 | 16 | deg C | 16 | |
| 591321 | Temperature, water | 7/11/1990 | 10.7 | deg C | 10.7 | |
| 591321 | Temperature, water | 8/8/1990 | 12.7 | deg C | 12.7 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Temperature, water | 9/12/1990 | 15 | deg C | 15 | |
| 591321 | Temperature, water | 10/11/1990 | 15.2 | deg C | 15.2 | |
| 591321 | Temperature, water | 11/7/1990 | 9.4 | deg C | 9.4 | |
| 591321 | Temperature, water | 2/13/1991 | 3.8 | deg C | 3.8 | |
| 591321 | Temperature, water | 3/13/1991 | 3.9 | deg C | 3.9 | |
| 591321 | Temperature, water | 5/2/1991 | 5.2 | deg C | 5.2 | |
| 591321 | Temperature, water | 5/16/1991 | 9.4 | deg C | 9.4 | |
| 591321 | Temperature, water | 5/30/1991 | 11.1 | deg C | 11.1 | |
| 591321 | Temperature, water | 6/13/1991 | 17 | deg C | 17 | |
| 591321 | Temperature, water | 7/15/1991 | 10.4 | deg C | 10.4 | |
| 591321 | Temperature, water | 8/14/1991 | 12.6 | deg C | 12.6 | |
| 591321 | Temperature, water | 9/18/1991 | 14.8 | deg C | 14.8 | |
| 591321 | Temperature, water | 10/16/1991 | 14.3 | deg C | 14.3 | |
| 591321 | Temperature, water | 11/19/1991 | 7.2 | deg C | 7.2 | |
| 591321 | Temperature, water | 1/15/1992 | 3.7 | deg C | 3.7 | |
| 591321 | Temperature, water | 3/16/1992 | 5.1 | deg C | 5.1 | |
| 591321 | Temperature, water | 4/16/1992 | 6.2 | deg C | 6.2 | |
| 591321 | Temperature, water | 4/27/1992 | 7 | deg C | 7 | |
| 591321 | Temperature, water | 5/11/1992 | 7.4 | deg C | 7.4 | |
| 591321 | Temperature, water | 5/27/1992 | 8.4 | deg C | 8.4 | |
| 591321 | Temperature, water | 6/10/1992 | 9.1 | deg C | 9.1 | |
| 591321 | Temperature, water | 7/13/1992 | 11.1 | deg C | 11.1 | |
| 591321 | Temperature, water | 8/14/1992 | 14.9 | deg C | 14.9 | |
| 591321 | Temperature, water | 9/11/1992 | 17.5 | deg C | 17.5 | |
| 591321 | Temperature, water | 10/14/1992 | 13.9 | deg C | 13.9 | |
| 591321 | Temperature, water | 11/17/1992 | 8.4 | deg C | 8.4 | |
| 591321 | Temperature, water | 2/9/1993 | 4.4 | deg C | 4.4 | |
| 591321 | Temperature, water | 3/17/1993 | 4 | deg C | 4 | |
| 591321 | Temperature, water | 4/14/1993 | 4.1 | deg C | 4.1 | |
| 591321 | Temperature, water | 5/4/1993 | 5.4 | deg C | 5.4 | |
| 591321 | Temperature, water | 5/11/1993 | 5.8 | deg C | 5.8 | |
| 591321 | Temperature, water | 5/18/1993 | 15.2 | deg C | 15.2 | |
| 591321 | Temperature, water | 6/1/1993 | 15.3 | deg C | 15.3 | |
| 591321 | Temperature, water | 6/15/1993 | 9.3 | deg C | 9.3 | |
| 591321 | Temperature, water | 7/1/1993 | 18.2 | deg C | 18.2 | |
| 591321 | Temperature, water | 7/29/1993 | 11.7 | deg C | 11.7 | |
| 591321 | Temperature, water | 8/24/1993 | 17.7 | deg C | 17.7 | |
| 591321 | Temperature, water | 9/30/1993 | 15.4 | deg C | 15.4 | |
| 591321 | Temperature, water | 11/2/1993 | 11.1 | deg C | 11.1 | |
| 591321 | Temperature, water | 1/19/1994 | 3.6 | deg C | 3.6 | |
| 591321 | Temperature, water | 3/16/1994 | 4.8 | deg C | 4.8 | |
| 591321 | Temperature, water | 3/29/1994 | 7.5 | deg C | 7.5 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Temperature, water | 4/12/1994 | 6.7 | deg C | 6.7 | |
| 591321 | Temperature, water | 4/27/1994 | 7.3 | deg C | 7.3 | |
| 591321 | Temperature, water | 5/11/1994 | 8.6 | deg C | 8.6 | |
| 591321 | Temperature, water | 5/25/1994 | 11.8 | deg C | 11.8 | |
| 591321 | Temperature, water | 6/7/1994 | 10.1 | deg C | 10.1 | |
| 591321 | Temperature, water | 7/13/1994 | 13 | deg C | 13 | |
| 591321 | Temperature, water | 8/15/1994 | 15.4 | deg C | 15.4 | |
| 591321 | Temperature, water | 9/20/1994 | 16.9 | deg C | 16.9 | |
| 591321 | Temperature, water | 10/27/1994 | 11.6 | deg C | 11.6 | |
| 591321 | Temperature, water | 11/15/1994 | 7.5 | deg C | 7.5 | |
| 591321 | Temperature, water | 1/23/1995 | 2.4 | deg C | 2.4 | |
| 591321 | Temperature, water | 3/14/1995 | 5.4 | deg C | 5.4 | |
| 591321 | Temperature, water | 4/3/1995 | 6.8 | deg C | 6.8 | |
| 591321 | Temperature, water | 4/18/1995 | 6.6 | deg C | 6.6 | |
| 591321 | Temperature, water | 5/2/1995 | 7.3 | deg C | 7.3 | |
| 591321 | Temperature, water | 5/15/1995 | 8.8 | deg C | 8.8 | |
| 591321 | Temperature, water | 5/30/1995 | 11.4 | deg C | 11.4 | |
| 591321 | Temperature, water | 6/13/1995 | 14.8 | deg C | 14.8 | |
| 591321 | Temperature, water | 7/12/1995 | 10.9 | deg C | 10.9 | |
| 591321 | Temperature, water | 8/15/1995 | 12.2 | deg C | 12.2 | |
| 591321 | Temperature, water | 9/19/1995 | 14 | deg C | 14 | |
| 591321 | Temperature, water | 11/1/1995 | 11 | deg C | 11 | |
| 591321 | Temperature, water | 1/9/1996 | 4.4 | deg C | 4.4 | |
| 591321 | Temperature, water | 3/13/1996 | 3.4 | deg C | 3.4 | |
| 591321 | Temperature, water | 4/3/1996 | 5.2 | deg C | 5.2 | |
| 591321 | Temperature, water | 4/22/1996 | 6 | deg C | 6 | |
| 591321 | Temperature, water | 5/6/1996 | 9.1 | deg C | 9.1 | |
| 591321 | Temperature, water | 5/23/1996 | 10.9 | deg C | 10.9 | |
| 591321 | Temperature, water | 6/19/1996 | 15.1 | deg C | 15.1 | |
| 591321 | Temperature, water | 7/16/1996 | 17 | deg C | 17 | |
| 591321 | Temperature, water | 8/20/1996 | 14.1 | deg C | 14.1 | |
| 591321 | Temperature, water | 9/24/1996 | 16.4 | deg C | 16.4 | |
| 591321 | Temperature, water | 10/17/1996 | 13.8 | deg C | 13.8 | |
| 591321 | Temperature, water | 11/20/1996 | 9 | deg C | 9 | |
| 591321 | Temperature, water | 1/28/1997 | 2.8 | deg C | 2.8 | |
| 591321 | Temperature, water | 1/30/1997 | 2.6 | deg C | 2.6 | |
| 591321 | Temperature, water | 3/25/1997 | 2.8 | deg C | 2.8 | |
| 591321 | Temperature, water | 4/30/1997 | 6.1 | deg C | 6.1 | |
| 591321 | Temperature, water | 5/13/1997 | 6.4 | deg C | 6.4 | |
| 591321 | Temperature, water | 5/27/1997 | 14.9 | deg C | 14.9 | |
| 591321 | Temperature, water | 6/26/1997 | 11.2 | deg C | 11.2 | |
| 591321 | Temperature, water | 7/28/1997 | 11.4 | deg C | 11.4 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Temperature, water | 8/26/1997 | 14.1 | deg C | 14.1 | |
| 591321 | Temperature, water | 9/30/1997 | 16.1 | deg C | 16.1 | |
| 591321 | Temperature, water | 10/29/1997 | 11 | deg C | 11 | |
| 591321 | Temperature, water | 11/17/1997 | 7.9 | deg C | 7.9 | |
| 591321 | Temperature, water | 1/21/1998 | 2.6 | deg C | 2.6 | |
| 591321 | Temperature, water | 2/23/1998 | 3.2 | deg C | 3.2 | |
| 591321 | Temperature, water | 2/23/1998 | 3.2 | deg C | 3.2 | |
| 591321 | Temperature, water | 3/19/1998 | 4.6 | deg C | 4.6 | |
| 591321 | Temperature, water | 4/14/1998 | 5.2 | deg C | 5.2 | |
| 591321 | Temperature, water | 4/28/1998 | 6.5 | deg C | 6.5 | |
| 591321 | Temperature, water | 5/14/1998 | 7.7 | deg C | 7.7 | |
| 591321 | Temperature, water | 5/28/1998 | 13.6 | deg C | 13.6 | |
| 591321 | Temperature, water | 6/8/1998 | 14.6 | deg C | 14.6 | |
| 591321 | Temperature, water | 6/24/1998 | 11.3 | deg C | 11.3 | |
| 591321 | Temperature, water | 7/22/1998 | 12.2 | deg C | 12.2 | |
| 591321 | Temperature, water | 8/19/1998 | 13.6 | deg C | 13.6 | |
| 591321 | Temperature, water | 8/24/1998 | 13.6 | deg C | 13.6 | |
| 591321 | Temperature, water | 9/9/1998 | 14.3 | deg C | 14.3 | |
| 591321 | Temperature, water | 10/14/1998 | 14.3 | deg C | 14.3 | |
| 591321 | Temperature, water | 11/19/1998 | 8.9 | deg C | 8.9 | |
| 591321 | Temperature, water | 11/30/1998 | 8.1 | deg C | 8.1 | |
| 591321 | Temperature, water | 1/12/1999 | 3.6 | deg C | 3.6 | |
| 591321 | Temperature, water | 3/9/1999 | 3.8 | deg C | 3.8 | |
| 591321 | Temperature, water | 4/7/1999 | 5.8 | deg C | 5.8 | |
| 591321 | Temperature, water | 4/21/1999 | 6.2 | deg C | 6.2 | |
| 591321 | Temperature, water | 5/4/1999 | 6.9 | deg C | 6.9 | |
| 591321 | Temperature, water | 5/25/1999 | 15.5 | deg C | 15.5 | |
| 591321 | Temperature, water | 6/8/1999 | 14 | deg C | 14 | |
| 591321 | Temperature, water | 6/22/1999 | 6.18 | deg C | 6.18 | |
| 591321 | Temperature, water | 6/29/1999 | 10.3 | deg C | 10.3 | |
| 591321 | Temperature, water | 7/28/1999 | 12.8 | deg C | 12.8 | |
| 591321 | Temperature, water | 8/19/1999 | 13.1 | deg C | 13.1 | |
| 591321 | Temperature, water | 9/16/1999 | 15.7 | deg C | 15.7 | |
| 591321 | Temperature, water | 10/21/1999 | 13 | deg C | 13 | |
| 591321 | Temperature, water | 11/23/1999 | 8.3 | deg C | 8.3 | |
| 591321 | Temperature, water | 1/26/2000 | 3.65 | deg C | 3.65 | |
| 591321 | Temperature, water | 2/23/2000 | 3.77 | deg C | 3.77 | |
| 591321 | Temperature, water | 3/30/2000 | 4.4 | deg C | 4.4 | |
| 591321 | Temperature, water | 4/12/2000 | 6.71 | deg C | 6.71 | |
| 591321 | Temperature, water | 4/27/2000 | 7.54 | deg C | 7.54 | |
| 591321 | Temperature, water | 5/10/2000 | 8.35 | deg C | 8.35 | |
| 591321 | Temperature, water | 6/7/2000 | 10.98 | deg C | 10.98 | |

**Table A-3**
**Provo River Below Deer Creek Reservoir**



| Station ID | Constituent | Act Start | Value | Units | Result | DL |
|---|---|---|---|---|---|---|
| 591321 | Temperature, water | 7/11/2000 | 12.63 | deg C | 12.63 | |
| 591321 | Temperature, water | 8/9/2000 | 15.25 | deg C | 15.25 | |
| 591321 | Temperature, water | 9/21/2000 | 17.28 | deg C | 17.28 | |
| 591321 | Temperature, water | 10/17/2000 | 13.33 | deg C | 13.33 | |
| 591321 | Temperature, water | 1/23/2001 | 3.68 | deg C | 3.68 | |
| 591321 | Temperature, water | 3/20/2001 | 5.75 | deg C | 5.75 | |
| 591321 | Temperature, water | 4/11/2001 | 5.54 | deg C | 5.54 | |
| 591321 | Temperature, water | 5/17/2001 | 9.1 | deg C | 9.1 | |
| 591321 | Temperature, water | 6/21/2001 | 10.2 | deg C | 10.2 | |
| 591321 | Temperature, water | 7/18/2001 | 11.66 | deg C | 11.66 | |
| 591321 | Temperature, water | 8/22/2001 | 16.42 | deg C | 16.42 | |
| 591321 | Temperature, water | 9/20/2001 | 17.9 | deg C | 17.9 | |
| 591321 | Temperature, water | 10/16/2001 | 14.23 | deg C | 14.23 | |
| 591321 | Temperature, water | 11/20/2001 | 9.85 | deg C | 9.85 | |
| 591321 | Temperature, water | 1/24/2002 | 2.34 | deg C | 2.34 | |
| 591321 | Temperature, water | 3/27/2002 | 4.5 | deg C | 4.5 | |
| 591321 | Temperature, water | 4/30/2002 | 5.85 | deg C | 5.85 | |
| 591321 | Temperature, water | 5/29/2002 | 9.08 | deg C | 9.08 | |
| 591321 | Temperature, water | 6/12/2002 | 10.4 | deg C | 10.4 | |
| 591321 | Temperature, water | 6/25/2002 | 10.44 | deg C | 10.44 | |
| 591321 | Temperature, water | 7/30/2002 | 15.35 | deg C | 15.35 | |
| 591321 | Temperature, water | 8/20/2002 | 17.92 | deg C | 17.92 | |
| 591321 | Temperature, water | 9/18/2002 | 17.27 | deg C | 17.27 | |
| 591321 | Temperature, water | 9/19/2002 | 16.57 | deg C | 16.57 | |
| 591321 | Temperature, water | 10/22/2002 | 11.99 | deg C | 11.99 | |
| 591321 | Temperature, water | 11/21/2002 | 7.43 | deg C | 7.43 | |
| 591321 | Temperature, water | 12/18/2002 | 4.3 | deg C | 4.3 | |

Note:
DL = Detection Limit

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Dissolved oxygen (DO) | 1/30/1990 | 9.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/20/1990 | 10.5 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/25/1990 | 9.6 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/24/1990 | 8.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 7/11/1990 | 8.6 | mg/l |
| 499610 | Dissolved oxygen (DO) | 8/21/1990 | 9.2 | mg/l |
| 499610 | Dissolved oxygen (DO) | 9/13/1990 | 7.3 | mg/l |
| 499610 | Dissolved oxygen (DO) | 10/3/1990 | 8.8 | mg/l |
| 499610 | Dissolved oxygen (DO) | 10/25/1990 | 8.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 1/29/1991 | 5.5 | mg/l |
| 499610 | Dissolved oxygen (DO) | 2/13/1991 | 10.2 | mg/l |
| 499610 | Dissolved oxygen (DO) | 2/26/1991 | 9.6 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/27/1991 | 9.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/28/1991 | 8.6 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/8/1991 | 7.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 6/12/1991 | 8.6 | mg/l |
| 499610 | Dissolved oxygen (DO) | 7/9/1991 | 10 | mg/l |
| 499610 | Dissolved oxygen (DO) | 8/28/1991 | 6.1 | mg/l |
| 499610 | Dissolved oxygen (DO) | 10/16/1991 | 8.3 | mg/l |
| 499610 | Dissolved oxygen (DO) | 12/5/1991 | 10.4 | mg/l |
| 499610 | Dissolved oxygen (DO) | 2/4/1992 | 10.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/17/1992 | 8.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/14/1992 | 7.8 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/28/1992 | 7.1 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/12/1992 | 8.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/27/1992 | 14.1 | mg/l |
| 499610 | Dissolved oxygen (DO) | 7/21/1992 | 8.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 11/17/1992 | 10.2 | mg/l |
| 499610 | Dissolved oxygen (DO) | 1/27/1993 | 10.2 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/14/1993 | 10.3 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/16/1994 | 8.1 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/30/1994 | 10.3 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/13/1994 | 8.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/26/1994 | 10.3 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/11/1994 | 5.6 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/24/1994 | 5.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 6/8/1994 | 6.4 | mg/l |
| 499610 | Dissolved oxygen (DO) | 7/12/1994 | 7.3 | mg/l |
| 499610 | Dissolved oxygen (DO) | 8/16/1994 | 6.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 9/14/1994 | 9.1 | mg/l |
| 499610 | Dissolved oxygen (DO) | 10/12/1994 | 8.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 11/22/1994 | 9.7 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Dissolved oxygen (DO) | 12/9/1994 | 8.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 1/19/1995 | 9.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 2/23/1995 | 9.2 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/7/1995 | 10.1 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/21/1995 | 9.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/4/1995 | 10.4 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/19/1995 | 9.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/3/1995 | 8.9 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/18/1995 | 8.5 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/31/1995 | 9.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 6/15/1995 | 7.5 | mg/l |
| 499610 | Dissolved oxygen (DO) | 7/15/1997 | 9.73 | mg/l |
| 499610 | Dissolved oxygen (DO) | 9/11/1997 | 7.48 | mg/l |
| 499610 | Dissolved oxygen (DO) | 7/13/1999 | 10.5 | mg/l |
| 499610 | Dissolved oxygen (DO) | 8/19/1999 | 10.3 | mg/l |
| 499610 | Dissolved oxygen (DO) | 8/24/1999 | 9.8 | mg/l |
| 499610 | Dissolved oxygen (DO) | 10/5/1999 | 9.7 | mg/l |
| 499610 | Dissolved oxygen (DO) | 12/2/1999 | 10.6 | mg/l |
| 499610 | Dissolved oxygen (DO) | 1/11/2000 | 9.62 | mg/l |
| 499610 | Dissolved oxygen (DO) | 2/29/2000 | 7.26 | mg/l |
| 499610 | Dissolved oxygen (DO) | 3/31/2000 | 8.27 | mg/l |
| 499610 | Dissolved oxygen (DO) | 4/18/2000 | 10.04 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/9/2000 | 9.74 | mg/l |
| 499610 | Dissolved oxygen (DO) | 5/26/2000 | 7.3 | mg/l |
| 499610 | Dissolved oxygen (DO) | 6/8/2000 | 8.21 | mg/l |
| 499610 | Dissolved oxygen (DO) | 8/7/2001 | 5 | mg/l |
| 499610 | Dissolved Solids | 1/30/1990 | 284 | mg/l |
| 499610 | Dissolved Solids | 3/20/1990 | 286 | mg/l |
| 499610 | Dissolved Solids | 4/25/1990 | 276 | mg/l |
| 499610 | Dissolved Solids | 5/24/1990 | 398 | mg/l |
| 499610 | Dissolved Solids | 7/11/1990 | 294 | mg/l |
| 499610 | Dissolved Solids | 8/21/1990 | 350 | mg/l |
| 499610 | Dissolved Solids | 9/13/1990 | 312 | mg/l |
| 499610 | Dissolved Solids | 10/3/1990 | 356 | mg/l |
| 499610 | Dissolved Solids | 1/29/1991 | 314 | mg/l |
| 499610 | Dissolved Solids | 2/13/1991 | 324 | mg/l |
| 499610 | Dissolved Solids | 2/26/1991 | 300 | mg/l |
| 499610 | Dissolved Solids | 3/27/1991 | 306 | mg/l |
| 499610 | Dissolved Solids | 3/28/1991 | 274 | mg/l |
| 499610 | Dissolved Solids | 5/8/1991 | 296 | mg/l |
| 499610 | Dissolved Solids | 6/12/1991 | 272 | mg/l |
| 499610 | Dissolved Solids | 7/9/1991 | 562 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Dissolved Solids | 8/28/1991 | 320 | mg/l |
| 499610 | Dissolved Solids | 10/16/1991 | 330 | mg/l |
| 499610 | Dissolved Solids | 12/5/1991 | 320 | mg/l |
| 499610 | Dissolved Solids | 4/14/1992 | 478 | mg/l |
| 499610 | Dissolved Solids | 4/28/1992 | 388 | mg/l |
| 499610 | Dissolved Solids | 5/12/1992 | 522 | mg/l |
| 499610 | Dissolved Solids | 7/21/1992 | 436 | mg/l |
| 499610 | Dissolved Solids | 11/17/1992 | 326 | mg/l |
| 499610 | Dissolved Solids | 1/27/1993 | 334 | mg/l |
| 499610 | Dissolved Solids | 4/14/1993 | 200 | mg/l |
| 499610 | Dissolved Solids | 3/16/1994 | 288 | mg/l |
| 499610 | Dissolved Solids | 3/30/1994 | 276 | mg/l |
| 499610 | Dissolved Solids | 4/13/1994 | 296 | mg/l |
| 499610 | Dissolved Solids | 4/26/1994 | 230 | mg/l |
| 499610 | Dissolved Solids | 5/11/1994 | 322 | mg/l |
| 499610 | Dissolved Solids | 5/24/1994 | 372 | mg/l |
| 499610 | Dissolved Solids | 6/8/1994 | 238 | mg/l |
| 499610 | Dissolved Solids | 7/12/1994 | 486 | mg/l |
| 499610 | Dissolved Solids | 8/16/1994 | 414 | mg/l |
| 499610 | Dissolved Solids | 9/14/1994 | 348 | mg/l |
| 499610 | Dissolved Solids | 10/12/1994 | 352 | mg/l |
| 499610 | Dissolved Solids | 11/22/1994 | 348 | mg/l |
| 499610 | Dissolved Solids | 12/9/1994 | 346 | mg/l |
| 499610 | Dissolved Solids | 1/19/1995 | 354 | mg/l |
| 499610 | Dissolved Solids | 2/23/1995 | 312 | mg/l |
| 499610 | Dissolved Solids | 3/7/1995 | 316 | mg/l |
| 499610 | Dissolved Solids | 3/21/1995 | 172 | mg/l |
| 499610 | Dissolved Solids | 4/4/1995 | 230 | mg/l |
| 499610 | Dissolved Solids | 4/19/1995 | 228 | mg/l |
| 499610 | Dissolved Solids | 5/3/1995 | 198 | mg/l |
| 499610 | Dissolved Solids | 5/18/1995 | 184 | mg/l |
| 499610 | Dissolved Solids | 5/31/1995 | 196 | mg/l |
| 499610 | Dissolved Solids | 6/15/1995 | 192 | mg/l |
| 499610 | Dissolved Solids | 7/15/1997 | 308 | mg/l |
| 499610 | Dissolved Solids | 9/11/1997 | 340 | mg/l |
| 499610 | Dissolved Solids | 7/13/1999 | 334 | mg/l |
| 499610 | Dissolved Solids | 8/19/1999 | 334 | mg/l |
| 499610 | Dissolved Solids | 8/24/1999 | 304 | mg/l |
| 499610 | Dissolved Solids | 10/5/1999 | 344 | mg/l |
| 499610 | Dissolved Solids | 12/2/1999 | 296 | mg/l |
| 499610 | Dissolved Solids | 1/11/2000 | 296 | mg/l |
| 499610 | Dissolved Solids | 2/29/2000 | 302 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Dissolved Solids | 3/31/2000 | 250 | mg/l |
| 499610 | Dissolved Solids | 4/18/2000 | 208 | mg/l |
| 499610 | Dissolved Solids | 5/9/2000 | 232 | mg/l |
| 499610 | Dissolved Solids | 5/26/2000 | 234 | mg/l |
| 499610 | Dissolved Solids | 6/8/2000 | 300 | mg/l |
| 499610 | Dissolved Solids | 8/7/2001 | 354 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 1/30/1990 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/20/1990 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/25/1990 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/24/1990 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 7/11/1990 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 8/21/1990 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 9/13/1990 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 10/3/1990 | 0.06 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 10/25/1990 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 1/29/1991 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 2/13/1991 | 0.08 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 2/26/1991 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/27/1991 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/28/1991 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/8/1991 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 6/12/1991 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 7/9/1991 | 0.54 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 8/28/1991 | 0.1 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 10/16/1991 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 12/5/1991 | 0.05 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 2/4/1992 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/17/1992 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/14/1992 | 0.108 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/28/1992 | 0.072 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/12/1992 | 0.092 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 7/21/1992 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 11/17/1992 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 1/27/1993 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/14/1993 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/16/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/30/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/13/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/26/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/11/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/24/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 6/8/1994 | 0 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 7/12/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 8/16/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 9/14/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 10/12/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 11/22/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 12/9/1994 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 1/19/1995 | 0.06 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 2/23/1995 | 0.201 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/7/1995 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/21/1995 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/4/1995 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/19/1995 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/3/1995 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/18/1995 | 0.06 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/31/1995 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 6/15/1995 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 7/15/1997 | 0.068 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 9/11/1997 | 0.069 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 7/13/1999 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 8/19/1999 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 8/24/1999 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 10/5/1999 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 12/2/1999 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 1/11/2000 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 2/29/2000 | 0 | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 3/31/2000 | | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 4/18/2000 | | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/9/2000 | | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 5/26/2000 | | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 6/8/2000 | | mg/l |
| 499610 | Nitrogen, ammonia (NH3) as NH3 | 8/7/2001 | | |
| 499610 | Nitrogen, Kjeldahl | 1/30/1990 | 0.1 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 3/20/1990 | 0.2 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 4/25/1990 | 0.4 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 5/24/1990 | 0.7 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 7/11/1990 | 0.6 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 8/21/1990 | 0.5 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 10/3/1990 | 0.2 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 10/25/1990 | 0.2 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 1/29/1991 | 0.4 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 2/13/1991 | 0.9 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 2/26/1991 | 0.2 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Nitrogen, Kjeldahl | 3/27/1991 | 0.3 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 3/28/1991 | 0.2 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 5/8/1991 | 0.2 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 6/12/1991 | 0.2 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 7/9/1991 | 0.85 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 8/28/1991 | 0.48 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 10/16/1991 | 0.25 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 12/5/1991 | 0.36 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 2/4/1992 | 0.13 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 3/17/1992 | 0.12 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 4/14/1992 | 0.48 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 4/28/1992 | 0.8 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 5/12/1992 | 0.19 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 7/21/1992 | 0.32 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 11/17/1992 | 0 | mg/l |
| 499610 | Nitrogen, Kjeldahl | 4/14/1993 | 0.54 | mg/l |
| 499610 | Nitrogen, Nitrate (NO3) as NO3 | 1/30/1990 | 0.74 | mg/l |
| 499610 | Nitrogen, Nitrate (NO3) as NO3 | 5/24/1990 | 0.03 | mg/l |
| 499610 | Nitrogen, Nitrate (NO3) as NO3 | 7/11/1990 | 0.18 | mg/l |
| 499610 | Nitrogen, Nitrate (NO3) as NO3 | 8/21/1990 | 0.08 | mg/l |
| 499610 | Nitrogen, Nitrate (NO3) as NO3 | 9/13/1990 | 0.32 | mg/l |
| 499610 | Nitrogen, Nitrate (NO3) as NO3 | 10/3/1990 | 1.38 | mg/l |
| 499610 | Nitrogen, Nitrate (NO3) as NO3 | 10/25/1990 | 1.44 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/29/1991 | 1.02 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/13/1991 | 0.826 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/26/1991 | 0.796 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/27/1991 | 0.999 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/28/1991 | 0.737 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/8/1991 | 0.394 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/12/1991 | 0.726 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/9/1991 | 4.163 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/28/1991 | 0.672 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/16/1991 | 1.426 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/16/1991 | 1.391 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12/5/1991 | 1.148 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12/5/1991 | 1.117 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/4/1992 | 0.958 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/17/1992 | 0.771 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/14/1992 | 0.463 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/28/1992 | 0.048 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/12/1992 | 0.247 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/21/1992 | 0.504 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/17/1992 | 1.281 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/27/1993 | 1.161 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/14/1993 | 0.471 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/16/1994 | 0.627 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/30/1994 | 0.623 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/13/1994 | 0.589 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/26/1994 | 0.549 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/11/1994 | 0.327 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/24/1994 | 0.215 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/8/1994 | 0.045 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/12/1994 | 0.131 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/16/1994 | 0.404 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/14/1994 | 1.125 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/12/1994 | 1.997 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/22/1994 | 1.383 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12/9/1994 | 1.351 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/19/1995 | 1.079 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/23/1995 | 0.941 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/7/1995 | 0.894 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/21/1995 | 0.413 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/4/1995 | 0.444 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/19/1995 | 0.59 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/3/1995 | 0.3 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/18/1995 | 0.28 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/31/1995 | 0.3 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/15/1995 | 0.37 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/15/1997 | 0.54 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 9/11/1997 | 0.87 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 7/13/1999 | 1.7 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/19/1999 | 0.1 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/24/1999 | 7.6 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/5/1999 | 1.9 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12/2/1999 | 0.7 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 1/11/2000 | 0.8 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 2/29/2000 | 1.9 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 3/31/2000 | 1.2 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 4/18/2000 | 0.7 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/9/2000 | 0.9 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 5/26/2000 | 0.8 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 6/8/2000 | 1 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 8/7/2001 | 0.4 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) as NO2 | 1/30/1990 | 0 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Nitrogen, Nitrite (NO2) as NO2 | 5/24/1990 | 0 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) as NO2 | 7/11/1990 | 0 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) as NO2 | 8/21/1990 | 0 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) as NO2 | 9/13/1990 | 0 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) as NO2 | 10/3/1990 | 0 | mg/l |
| 499610 | Nitrogen, Nitrite (NO2) as NO2 | 10/25/1990 | 0 | mg/l |
| 499610 | pH | 1/30/1990 | 7.8 | None |
| 499610 | pH | 1/30/1990 | 7.7 | None |
| 499610 | pH | 3/20/1990 | 8 | None |
| 499610 | pH | 3/20/1990 | 8.4 | None |
| 499610 | pH | 4/25/1990 | 8.4 | None |
| 499610 | pH | 4/25/1990 | 7.8 | None |
| 499610 | pH | 5/24/1990 | 7.9 | None |
| 499610 | pH | 5/24/1990 | 8.1 | None |
| 499610 | pH | 7/11/1990 | 8 | None |
| 499610 | pH | 7/11/1990 | 8.3 | None |
| 499610 | pH | 8/21/1990 | 7.9 | None |
| 499610 | pH | 8/21/1990 | 7.4 | None |
| 499610 | pH | 9/13/1990 | 7.6 | None |
| 499610 | pH | 9/13/1990 | 7.9 | None |
| 499610 | pH | 10/3/1990 | 8.1 | None |
| 499610 | pH | 10/3/1990 | 7.8 | None |
| 499610 | pH | 10/25/1990 | 7.8 | None |
| 499610 | pH | 10/25/1990 | 8.3 | None |
| 499610 | pH | 1/29/1991 | 7.8 | None |
| 499610 | pH | 1/29/1991 | 8.3 | None |
| 499610 | pH | 2/13/1991 | 7.9 | None |
| 499610 | pH | 2/13/1991 | 7.9 | None |
| 499610 | pH | 2/26/1991 | 7.9 | None |
| 499610 | pH | 2/26/1991 | 7.7 | None |
| 499610 | pH | 3/27/1991 | 7.8 | None |
| 499610 | pH | 3/27/1991 | 8.4 | None |
| 499610 | pH | 3/28/1991 | 7.9 | None |
| 499610 | pH | 3/28/1991 | 8 | None |
| 499610 | pH | 5/8/1991 | 8 | None |
| 499610 | pH | 5/8/1991 | 8.6 | None |
| 499610 | pH | 6/12/1991 | 8.2 | None |
| 499610 | pH | 6/12/1991 | 8.3 | None |
| 499610 | pH | 7/9/1991 | 8 | None |
| 499610 | pH | 7/9/1991 | 7.8 | None |
| 499610 | pH | 8/28/1991 | 7.9 | None |
| 499610 | pH | 8/28/1991 | 7.8 | None |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | pH | 10/16/1991 | 7.9 | None |
| 499610 | pH | 10/16/1991 | 7.8 | None |
| 499610 | pH | 12/5/1991 | 8.1 | None |
| 499610 | pH | 12/5/1991 | 7.8 | None |
| 499610 | pH | 2/4/1992 | 8.2 | None |
| 499610 | pH | 3/17/1992 | 7.9 | None |
| 499610 | pH | 4/14/1992 | 7.8 | None |
| 499610 | pH | 4/28/1992 | 7.9 | None |
| 499610 | pH | 5/12/1992 | 7.9 | None |
| 499610 | pH | 5/27/1992 | 8.6 | None |
| 499610 | pH | 7/21/1992 | 7.8 | None |
| 499610 | pH | 11/17/1992 | 8.2 | None |
| 499610 | pH | 1/27/1993 | 7.9 | None |
| 499610 | pH | 1/27/1993 | 8 | None |
| 499610 | pH | 4/14/1993 | 8.3 | None |
| 499610 | pH | 4/14/1993 | 7.9 | None |
| 499610 | pH | 3/16/1994 | 7.3 | None |
| 499610 | pH | 3/16/1994 | 8.5 | None |
| 499610 | pH | 3/30/1994 | 7.8 | None |
| 499610 | pH | 3/30/1994 | 8.7 | None |
| 499610 | pH | 4/13/1994 | 8.3 | None |
| 499610 | pH | 4/13/1994 | 7.5 | None |
| 499610 | pH | 4/26/1994 | 8.6 | None |
| 499610 | pH | 4/26/1994 | 7.7 | None |
| 499610 | pH | 5/11/1994 | 7.5 | None |
| 499610 | pH | 5/11/1994 | 7.9 | None |
| 499610 | pH | 5/24/1994 | 7.5 | None |
| 499610 | pH | 5/24/1994 | 8.1 | None |
| 499610 | pH | 6/8/1994 | 7.2 | None |
| 499610 | pH | 6/8/1994 | 8 | None |
| 499610 | pH | 7/12/1994 | 7.9 | None |
| 499610 | pH | 7/12/1994 | 7.6 | None |
| 499610 | pH | 8/16/1994 | 7.7 | None |
| 499610 | pH | 8/16/1994 | 7.5 | None |
| 499610 | pH | 9/14/1994 | 7.8 | None |
| 499610 | pH | 9/14/1994 | 8.3 | None |
| 499610 | pH | 10/12/1994 | 8.3 | None |
| 499610 | pH | 10/12/1994 | 7.7 | None |
| 499610 | pH | 11/22/1994 | 8.3 | None |
| 499610 | pH | 11/22/1994 | 8.42 | None |
| 499610 | pH | 12/9/1994 | 8.3 | None |
| 499610 | pH | 12/9/1994 | 8.4 | None |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | pH | 1/19/1995 | 8.3 | None |
| 499610 | pH | 1/19/1995 | 8.2 | None |
| 499610 | pH | 2/23/1995 | 8.3 | None |
| 499610 | pH | 2/23/1995 | 8.5 | None |
| 499610 | pH | 3/7/1995 | 8.4 | None |
| 499610 | pH | 3/7/1995 | 8.1 | None |
| 499610 | pH | 3/21/1995 | 8.2 | None |
| 499610 | pH | 3/21/1995 | 8.1 | None |
| 499610 | pH | 4/4/1995 | 8.3 | None |
| 499610 | pH | 4/4/1995 | 8.3 | None |
| 499610 | pH | 4/19/1995 | 8.3 | None |
| 499610 | pH | 4/19/1995 | 8.5 | None |
| 499610 | pH | 5/3/1995 | 8.2 | None |
| 499610 | pH | 5/3/1995 | 8.1 | None |
| 499610 | pH | 5/18/1995 | 8.1 | None |
| 499610 | pH | 5/18/1995 | 8.4 | None |
| 499610 | pH | 5/31/1995 | 8.31 | None |
| 499610 | pH | 5/31/1995 | 8.4 | None |
| 499610 | pH | 6/15/1995 | 8.5 | None |
| 499610 | pH | 6/15/1995 | 8.12 | None |
| 499610 | pH | 7/15/1997 | 8.08 | None |
| 499610 | pH | 9/11/1997 | 7.89 | None |
| 499610 | pH | 7/13/1999 | 8.3 | None |
| 499610 | pH | 7/13/1999 | 8.3 | None |
| 499610 | pH | 8/19/1999 | 8.4 | None |
| 499610 | pH | 8/24/1999 | 8.19 | None |
| 499610 | pH | 8/24/1999 | 8.5 | None |
| 499610 | pH | 10/5/1999 | 8.36 | None |
| 499610 | pH | 10/5/1999 | 8.2 | None |
| 499610 | pH | 12/2/1999 | 7.72 | None |
| 499610 | pH | 12/2/1999 | 8.3 | None |
| 499610 | pH | 1/11/2000 | 7.96 | None |
| 499610 | pH | 1/11/2000 | 8.39 | None |
| 499610 | pH | 2/29/2000 | 8.57 | None |
| 499610 | pH | 2/29/2000 | 7.87 | None |
| 499610 | pH | 3/31/2000 | 8.5 | None |
| 499610 | pH | 3/31/2000 | 8.51 | None |
| 499610 | pH | 4/18/2000 | 8.33 | None |
| 499610 | pH | 4/18/2000 | 8.25 | None |
| 499610 | pH | 5/9/2000 | 8.39 | None |
| 499610 | pH | 5/9/2000 | 8.31 | None |
| 499610 | pH | 5/26/2000 | 8.4 | None |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | pH | 5/26/2000 | 8.16 | None |
| 499610 | pH | 6/8/2000 | 8.1 | None |
| 499610 | pH | 6/8/2000 | 8.15 | None |
| 499610 | pH | 8/7/2001 | 7.97 | None |
| 499610 | Phosphorus as P | 1/30/1990 | 0.033 | mg/l |
| 499610 | Phosphorus as P | 3/20/1990 | 0.015 | mg/l |
| 499610 | Phosphorus as P | 4/25/1990 | 0.045 | mg/l |
| 499610 | Phosphorus as P | 5/24/1990 | 0.077 | mg/l |
| 499610 | Phosphorus as P | 7/11/1990 | 0.044 | mg/l |
| 499610 | Phosphorus as P | 8/21/1990 | 0.026 | mg/l |
| 499610 | Phosphorus as P | 8/21/1990 | 0.04 | mg/l |
| 499610 | Phosphorus as P | 9/13/1990 | 0.005 | mg/l |
| 499610 | Phosphorus as P | 9/13/1990 | 0.027 | mg/l |
| 499610 | Phosphorus as P | 10/3/1990 | 0.07 | mg/l |
| 499610 | Phosphorus as P | 10/3/1990 | 0.028 | mg/l |
| 499610 | Phosphorus as P | 10/25/1990 | 0.02 | mg/l |
| 499610 | Phosphorus as P | 10/25/1990 | 0.009 | mg/l |
| 499610 | Phosphorus as P | 1/29/1991 | 0.05 | mg/l |
| 499610 | Phosphorus as P | 1/29/1991 | 0.02 | mg/l |
| 499610 | Phosphorus as P | 2/13/1991 | 0.03 | mg/l |
| 499610 | Phosphorus as P | 2/13/1991 | 0.065 | mg/l |
| 499610 | Phosphorus as P | 2/26/1991 | 0.016 | mg/l |
| 499610 | Phosphorus as P | 2/26/1991 | 0.02 | mg/l |
| 499610 | Phosphorus as P | 3/27/1991 | 0.012 | mg/l |
| 499610 | Phosphorus as P | 3/27/1991 | 0.042 | mg/l |
| 499610 | Phosphorus as P | 3/28/1991 | 0.054 | mg/l |
| 499610 | Phosphorus as P | 3/28/1991 | 0.064 | mg/l |
| 499610 | Phosphorus as P | 5/8/1991 | 0.014 | mg/l |
| 499610 | Phosphorus as P | 5/8/1991 | 0.02 | mg/l |
| 499610 | Phosphorus as P | 6/12/1991 | 0.041 | mg/l |
| 499610 | Phosphorus as P | 6/12/1991 | 0.055 | mg/l |
| 499610 | Phosphorus as P | 7/9/1991 | 0.929 | mg/l |
| 499610 | Phosphorus as P | 7/9/1991 | 0.963 | mg/l |
| 499610 | Phosphorus as P | 8/28/1991 | 0.412 | mg/l |
| 499610 | Phosphorus as P | 8/28/1991 | 0.049 | mg/l |
| 499610 | Phosphorus as P | 10/16/1991 | 0.028 | mg/l |
| 499610 | Phosphorus as P | 10/16/1991 | 0 | mg/l |
| 499610 | Phosphorus as P | 12/5/1991 | 0.014 | mg/l |
| 499610 | Phosphorus as P | 12/5/1991 | 0.027 | mg/l |
| 499610 | Phosphorus as P | 2/4/1992 | 0.02 | mg/l |
| 499610 | Phosphorus as P | 2/4/1992 | 0.043 | mg/l |
| 499610 | Phosphorus as P | 3/17/1992 | 0 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Phosphorus as P | 3/17/1992 | 0.014 | mg/l |
| 499610 | Phosphorus as P | 4/14/1992 | 0.067 | mg/l |
| 499610 | Phosphorus as P | 4/14/1992 | 0.033 | mg/l |
| 499610 | Phosphorus as P | 4/28/1992 | 0.056 | mg/l |
| 499610 | Phosphorus as P | 4/28/1992 | 0.121 | mg/l |
| 499610 | Phosphorus as P | 5/12/1992 | 0.041 | mg/l |
| 499610 | Phosphorus as P | 5/12/1992 | 0.062 | mg/l |
| 499610 | Phosphorus as P | 7/21/1992 | 0.101 | mg/l |
| 499610 | Phosphorus as P | 7/21/1992 | 0.047 | mg/l |
| 499610 | Phosphorus as P | 11/17/1992 | 0.025 | mg/l |
| 499610 | Phosphorus as P | 11/17/1992 | 0.015 | mg/l |
| 499610 | Phosphorus as P | 1/27/1993 | 0.031 | mg/l |
| 499610 | Phosphorus as P | 1/27/1993 | 0.027 | mg/l |
| 499610 | Phosphorus as P | 4/14/1993 | 0.024 | mg/l |
| 499610 | Phosphorus as P | 4/14/1993 | 0.033 | mg/l |
| 499610 | Phosphorus as P | 3/16/1994 | 0.011 | mg/l |
| 499610 | Phosphorus as P | 3/16/1994 | 0.017 | mg/l |
| 499610 | Phosphorus as P | 3/30/1994 | 0 | mg/l |
| 499610 | Phosphorus as P | 3/30/1994 | 0.014 | mg/l |
| 499610 | Phosphorus as P | 4/13/1994 | 0.014 | mg/l |
| 499610 | Phosphorus as P | 4/13/1994 | 0.015 | mg/l |
| 499610 | Phosphorus as P | 4/26/1994 | 0.032 | mg/l |
| 499610 | Phosphorus as P | 4/26/1994 | 0.028 | mg/l |
| 499610 | Phosphorus as P | 5/11/1994 | 0.036 | mg/l |
| 499610 | Phosphorus as P | 5/11/1994 | 0.051 | mg/l |
| 499610 | Phosphorus as P | 5/24/1994 | 0.053 | mg/l |
| 499610 | Phosphorus as P | 5/24/1994 | 0.024 | mg/l |
| 499610 | Phosphorus as P | 6/8/1994 | 0.024 | mg/l |
| 499610 | Phosphorus as P | 6/8/1994 | 0.039 | mg/l |
| 499610 | Phosphorus as P | 7/12/1994 | 0.043 | mg/l |
| 499610 | Phosphorus as P | 7/12/1994 | 0.02 | mg/l |
| 499610 | Phosphorus as P | 8/16/1994 | 0.018 | mg/l |
| 499610 | Phosphorus as P | 8/16/1994 | 0.047 | mg/l |
| 499610 | Phosphorus as P | 9/14/1994 | 0.012 | mg/l |
| 499610 | Phosphorus as P | 9/14/1994 | 0.036 | mg/l |
| 499610 | Phosphorus as P | 10/12/1994 | 0.013 | mg/l |
| 499610 | Phosphorus as P | 10/12/1994 | 0.025 | mg/l |
| 499610 | Phosphorus as P | 11/22/1994 | 0.017 | mg/l |
| 499610 | Phosphorus as P | 11/22/1994 | 0.033 | mg/l |
| 499610 | Phosphorus as P | 12/9/1994 | 0 | mg/l |
| 499610 | Phosphorus as P | 12/9/1994 | 0.019 | mg/l |
| 499610 | Phosphorus as P | 1/19/1995 | 0.02 | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Phosphorus as P | 1/19/1995 | 0.013 | mg/l |
| 499610 | Phosphorus as P | 2/23/1995 | 0.021 | mg/l |
| 499610 | Phosphorus as P | 2/23/1995 | 0.012 | mg/l |
| 499610 | Phosphorus as P | 3/7/1995 | 0.013 | mg/l |
| 499610 | Phosphorus as P | 3/7/1995 | 0.011 | mg/l |
| 499610 | Phosphorus as P | 3/21/1995 | 0.036 | mg/l |
| 499610 | Phosphorus as P | 3/21/1995 | 0 | mg/l |
| 499610 | Phosphorus as P | 4/4/1995 | 0.032 | mg/l |
| 499610 | Phosphorus as P | 4/4/1995 | 0.013 | mg/l |
| 499610 | Phosphorus as P | 4/19/1995 | 0.027 | mg/l |
| 499610 | Phosphorus as P | 4/19/1995 | 0 | mg/l |
| 499610 | Phosphorus as P | 5/3/1995 | 0.035 | mg/l |
| 499610 | Phosphorus as P | 5/3/1995 | 0.143 | mg/l |
| 499610 | Phosphorus as P | 5/18/1995 | 0.019 | mg/l |
| 499610 | Phosphorus as P | 5/18/1995 | 0.068 | mg/l |
| 499610 | Phosphorus as P | 5/31/1995 | 0.06 | mg/l |
| 499610 | Phosphorus as P | 5/31/1995 | 0.028 | mg/l |
| 499610 | Phosphorus as P | 6/15/1995 | 0.01 | mg/l |
| 499610 | Phosphorus as P | 6/15/1995 | 0.04 | mg/l |
| 499610 | Phosphorus as P | 7/15/1997 | 0.06452 | mg/l |
| 499610 | Phosphorus as P | 9/11/1997 | 0.09749 | mg/l |
| 499610 | Phosphorus as P | 7/13/1999 | 0 | mg/l |
| 499610 | Phosphorus as P | 7/13/1999 | 0 | mg/l |
| 499610 | Phosphorus as P | 8/19/1999 | 0.035 | mg/l |
| 499610 | Phosphorus as P | 8/19/1999 | 0 | mg/l |
| 499610 | Phosphorus as P | 8/24/1999 | 0.02 | mg/l |
| 499610 | Phosphorus as P | 8/24/1999 | 0 | mg/l |
| 499610 | Phosphorus as P | 10/5/1999 | 0 | mg/l |
| 499610 | Phosphorus as P | 10/5/1999 | 0 | mg/l |
| 499610 | Phosphorus as P | 12/2/1999 | 0 | mg/l |
| 499610 | Phosphorus as P | 12/2/1999 | 0 | mg/l |
| 499610 | Phosphorus as P | 1/11/2000 | 0.032 | mg/l |
| 499610 | Phosphorus as P | 1/11/2000 | 0.053 | mg/l |
| 499610 | Phosphorus as P | 2/29/2000 | 0.02 | mg/l |
| 499610 | Phosphorus as P | 2/29/2000 | 0.027 | mg/l |
| 499610 | Phosphorus as P | 3/31/2000 | 0.023 | mg/l |
| 499610 | Phosphorus as P | 3/31/2000 | 0.033 | mg/l |
| 499610 | Phosphorus as P | 4/18/2000 | 0.024 | mg/l |
| 499610 | Phosphorus as P | 4/18/2000 | 0.023 | mg/l |
| 499610 | Phosphorus as P | 5/9/2000 | 0.031 | mg/l |
| 499610 | Phosphorus as P | 5/9/2000 | 0.036 | mg/l |
| 499610 | Phosphorus as P | 5/26/2000 | | mg/l |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Phosphorus as P | 5/26/2000 | 0.058 | mg/l |
| 499610 | Phosphorus as P | 6/8/2000 | 0.04 | mg/l |
| 499610 | Phosphorus as P | 6/8/2000 | 0.023 | mg/l |
| 499610 | Phosphorus as P | 8/7/2001 | 0.04 | mg/l |
| 499610 | Phosphorus as P | 8/7/2001 | 0.083 | mg/l |
| 499610 | Selenium | 1/30/1990 | 0 | ug/l |
| 499610 | Selenium | 3/20/1990 | 0 | ug/l |
| 499610 | Selenium | 4/25/1990 | 0 | ug/l |
| 499610 | Selenium | 5/24/1990 | 0 | ug/l |
| 499610 | Selenium | 7/11/1990 | 0 | ug/l |
| 499610 | Selenium | 8/21/1990 | 0 | ug/l |
| 499610 | Selenium | 9/13/1990 | 0 | ug/l |
| 499610 | Selenium | 10/3/1990 | 0 | ug/l |
| 499610 | Selenium | 10/25/1990 | 0 | ug/l |
| 499610 | Selenium | 1/29/1991 | 0 | ug/l |
| 499610 | Selenium | 2/13/1991 | 0 | ug/l |
| 499610 | Selenium | 2/26/1991 | 0 | ug/l |
| 499610 | Selenium | 3/27/1991 | 0 | ug/l |
| 499610 | Selenium | 3/28/1991 | 0 | ug/l |
| 499610 | Selenium | 5/8/1991 | 0 | ug/l |
| 499610 | Selenium | 6/12/1991 | 0 | ug/l |
| 499610 | Selenium | 7/9/1991 | 0 | ug/l |
| 499610 | Selenium | 8/28/1991 | 0 | ug/l |
| 499610 | Selenium | 10/16/1991 | 0 | ug/l |
| 499610 | Selenium | 12/5/1991 | 0 | ug/l |
| 499610 | Selenium | 2/4/1992 | 0 | ug/l |
| 499610 | Selenium | 3/17/1992 | 0 | ug/l |
| 499610 | Selenium | 1/27/1993 | 0 | ug/l |
| 499610 | Selenium | 4/14/1993 | 0 | ug/l |
| 499610 | Selenium | 3/16/1994 | 1 | ug/l |
| 499610 | Selenium | 4/26/1994 | 0 | ug/l |
| 499610 | Selenium | 5/24/1994 | 0 | ug/l |
| 499610 | Selenium | 7/12/1994 | 0 | ug/l |
| 499610 | Selenium | 10/12/1994 | 0 | ug/l |
| 499610 | Selenium | 1/19/1995 | 0 | ug/l |
| 499610 | Selenium | 5/31/1995 | 0 | ug/l |
| 499610 | Selenium | 7/13/1999 | 1.3 | ug/l |
| 499610 | Selenium | 10/5/1999 | 1.4 | ug/l |
| 499610 | Selenium | 2/29/2000 | 1.2 | ug/l |
| 499610 | Selenium | 4/18/2000 | 1 | ug/l |
| 499610 | Temperature, water | 1/30/1990 | 5 | deg C |
| 499610 | Temperature, water | 3/20/1990 | 8.9 | deg C |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Temperature, water | 4/25/1990 | 11.7 | deg C |
| 499610 | Temperature, water | 5/24/1990 | 18.4 | deg C |
| 499610 | Temperature, water | 7/11/1990 | 26.3 | deg C |
| 499610 | Temperature, water | 8/21/1990 | 20.1 | deg C |
| 499610 | Temperature, water | 9/13/1990 | 20.3 | deg C |
| 499610 | Temperature, water | 10/3/1990 | 11.6 | deg C |
| 499610 | Temperature, water | 10/25/1990 | 10.7 | deg C |
| 499610 | Temperature, water | 1/29/1991 | 2.8 | deg C |
| 499610 | Temperature, water | 2/13/1991 | 5.6 | deg C |
| 499610 | Temperature, water | 2/26/1991 | 5.4 | deg C |
| 499610 | Temperature, water | 3/27/1991 | 5.6 | deg C |
| 499610 | Temperature, water | 3/28/1991 | 11.8 | deg C |
| 499610 | Temperature, water | 5/8/1991 | 14.2 | deg C |
| 499610 | Temperature, water | 6/12/1991 | 13.8 | deg C |
| 499610 | Temperature, water | 7/9/1991 | 22 | deg C |
| 499610 | Temperature, water | 8/28/1991 | 18.8 | deg C |
| 499610 | Temperature, water | 10/16/1991 | 11 | deg C |
| 499610 | Temperature, water | 12/5/1991 | 3.8 | deg C |
| 499610 | Temperature, water | 2/4/1992 | 7.5 | deg C |
| 499610 | Temperature, water | 3/17/1992 | 7.6 | deg C |
| 499610 | Temperature, water | 4/14/1992 | 13.1 | deg C |
| 499610 | Temperature, water | 4/28/1992 | 15.2 | deg C |
| 499610 | Temperature, water | 5/12/1992 | 19.1 | deg C |
| 499610 | Temperature, water | 5/27/1992 | 23.2 | deg C |
| 499610 | Temperature, water | 7/21/1992 | 20.2 | deg C |
| 499610 | Temperature, water | 11/17/1992 | 8.9 | deg C |
| 499610 | Temperature, water | 1/27/1993 | 3 | deg C |
| 499610 | Temperature, water | 4/14/1993 | 6 | deg C |
| 499610 | Temperature, water | 3/16/1994 | 12.1 | deg C |
| 499610 | Temperature, water | 3/30/1994 | 12.6 | deg C |
| 499610 | Temperature, water | 4/13/1994 | 7.7 | deg C |
| 499610 | Temperature, water | 4/26/1994 | 10.2 | deg C |
| 499610 | Temperature, water | 5/11/1994 | 14.5 | deg C |
| 499610 | Temperature, water | 5/24/1994 | 15.1 | deg C |
| 499610 | Temperature, water | 6/8/1994 | 6.9 | deg C |
| 499610 | Temperature, water | 7/12/1994 | 31.1 | deg C |
| 499610 | Temperature, water | 8/16/1994 | 21.9 | deg C |
| 499610 | Temperature, water | 9/14/1994 | 15.8 | deg C |
| 499610 | Temperature, water | 10/12/1994 | 10.8 | deg C |
| 499610 | Temperature, water | 11/22/1994 | 3.8 | deg C |
| 499610 | Temperature, water | 12/9/1994 | 3.1 | deg C |
| 499610 | Temperature, water | 1/19/1995 | 3.6 | deg C |

**Table A-4**
**Hobble Creek Water Quality Data at I-15 Bridge (3 mile South of Provo)**



| Station ID | Constituent | Date | Result | Unit |
|---|---|---|---|---|
| 499610 | Temperature, water | 2/23/1995 | 10.8 | deg C |
| 499610 | Temperature, water | 3/7/1995 | 4.1 | deg C |
| 499610 | Temperature, water | 3/21/1995 | 7.8 | deg C |
| 499610 | Temperature, water | 4/4/1995 | 8.8 | deg C |
| 499610 | Temperature, water | 4/19/1995 | 7.4 | deg C |
| 499610 | Temperature, water | 5/3/1995 | 7.5 | deg C |
| 499610 | Temperature, water | 5/18/1995 | 10.1 | deg C |
| 499610 | Temperature, water | 5/31/1995 | 9.6 | deg C |
| 499610 | Temperature, water | 6/15/1995 | 14 | deg C |
| 499610 | Temperature, water | 7/15/1997 | 19.3 | deg C |
| 499610 | Temperature, water | 9/11/1997 | 17.57 | deg C |
| 499610 | Temperature, water | 7/13/1999 | 20 | deg C |
| 499610 | Temperature, water | 8/19/1999 | 17.6 | deg C |
| 499610 | Temperature, water | 8/24/1999 | 15.9 | deg C |
| 499610 | Temperature, water | 10/5/1999 | 10.7 | deg C |
| 499610 | Temperature, water | 12/2/1999 | 7.2 | deg C |
| 499610 | Temperature, water | 1/11/2000 | 6.84 | deg C |
| 499610 | Temperature, water | 2/29/2000 | 9.54 | deg C |
| 499610 | Temperature, water | 3/31/2000 | 10.5 | deg C |
| 499610 | Temperature, water | 4/18/2000 | 8.7 | deg C |
| 499610 | Temperature, water | 5/9/2000 | 12.15 | deg C |
| 499610 | Temperature, water | 5/26/2000 | 16 | deg C |
| 499610 | Temperature, water | 6/8/2000 | 16.91 | deg C |
| 499610 | Temperature, water | 8/7/2001 | 23.63 | deg C |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Dissolved oxygen (DO) | 12-Feb-92 | 9.5 | mg/l |
| 499560 | Dissolved oxygen (DO) | 17-Mar-92 | 9.2 | mg/l |
| 499560 | Dissolved oxygen (DO) | 14-Apr-92 | 8.3 | mg/l |
| 499560 | Dissolved oxygen (DO) | 28-Apr-92 | 9.5 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-May-92 | 9 | mg/l |
| 499560 | Dissolved oxygen (DO) | 28-May-92 | 9.1 | mg/l |
| 499560 | Dissolved oxygen (DO) | 10-Jun-92 | 9.3 | mg/l |
| 499560 | Dissolved oxygen (DO) | 21-Jul-92 | 8.6 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-Aug-92 | 8.1 | mg/l |
| 499560 | Dissolved oxygen (DO) | 09-Sep-92 | 9.2 | mg/l |
| 499560 | Dissolved oxygen (DO) | 23-Sep-92 | 9 | mg/l |
| 499560 | Dissolved oxygen (DO) | 29-Oct-92 | 8.5 | mg/l |
| 499560 | Dissolved oxygen (DO) | 18-Nov-92 | 10.3 | mg/l |
| 499560 | Dissolved oxygen (DO) | 16-Mar-94 | 9.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 31-Mar-94 | 11.1 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-Apr-94 | 9.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 26-Apr-94 | 10 | mg/l |
| 499560 | Dissolved oxygen (DO) | 11-May-94 | 10.5 | mg/l |
| 499560 | Dissolved oxygen (DO) | 24-May-94 | 8.6 | mg/l |
| 499560 | Dissolved oxygen (DO) | 07-Jun-94 | 7.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-Jul-94 | 7.3 | mg/l |
| 499560 | Dissolved oxygen (DO) | 16-Aug-94 | 7.7 | mg/l |
| 499560 | Dissolved oxygen (DO) | 15-Sep-94 | 8 | mg/l |
| 499560 | Dissolved oxygen (DO) | 13-Oct-94 | 7.9 | mg/l |
| 499560 | Dissolved oxygen (DO) | 23-Nov-94 | 11.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 08-Dec-94 | 9.7 | mg/l |
| 499560 | Dissolved oxygen (DO) | 19-Jan-95 | 9.9 | mg/l |
| 499560 | Dissolved oxygen (DO) | 21-Feb-95 | 9.3 | mg/l |
| 499560 | Dissolved oxygen (DO) | 09-Mar-95 | 10.2 | mg/l |
| 499560 | Dissolved oxygen (DO) | 21-Mar-95 | 9 | mg/l |
| 499560 | Dissolved oxygen (DO) | 04-Apr-95 | 9.6 | mg/l |
| 499560 | Dissolved oxygen (DO) | 18-Apr-95 | 9.1 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-May-95 | 8.7 | mg/l |
| 499560 | Dissolved oxygen (DO) | 16-May-95 | 10.3 | mg/l |
| 499560 | Dissolved oxygen (DO) | 01-Jun-95 | 9.6 | mg/l |
| 499560 | Dissolved oxygen (DO) | 14-Jun-95 | 8.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 10-Jul-96 | 8.3 | mg/l |
| 499560 | Dissolved oxygen (DO) | 13-Aug-96 | 8 | mg/l |
| 499560 | Dissolved oxygen (DO) | 18-Sep-96 | 9.1 | mg/l |
| 499560 | Dissolved oxygen (DO) | 09-Oct-96 | 8.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 13-Nov-96 | 9.9 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-Jul-97 | 9.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Aug-97 | 8.7 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-Sep-97 | 8.6 | mg/l |
| 499560 | Dissolved oxygen (DO) | 17-Sep-97 | 8.9 | mg/l |
| 499560 | Dissolved oxygen (DO) | 30-Sep-97 | 8.7 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Nov-97 | 9.9 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Dissolved oxygen (DO) | 12-Mar-98 | 10.8 | mg/l |
| 499560 | Dissolved oxygen (DO) | 11-May-98 | 10.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-Jun-98 | 9.2 | mg/l |
| 499560 | Dissolved oxygen (DO) | 08-Jul-98 | 8.2 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Aug-98 | 8.2 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-Sep-98 | 8 | mg/l |
| 499560 | Dissolved oxygen (DO) | 01-Oct-98 | 8.6 | mg/l |
| 499560 | Dissolved oxygen (DO) | 04-Nov-98 | 9.58 | mg/l |
| 499560 | Dissolved oxygen (DO) | 20-Jan-99 | 10.1 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-Mar-99 | 10.44 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-Apr-99 | 10.1 | mg/l |
| 499560 | Dissolved oxygen (DO) | 04-May-99 | 10 | mg/l |
| 499560 | Dissolved oxygen (DO) | 08-Jun-99 | 8.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 08-Jul-99 | 8.6 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Aug-99 | 8.4 | mg/l |
| 499560 | Dissolved oxygen (DO) | 07-Sep-99 | 9 | mg/l |
| 499560 | Dissolved oxygen (DO) | 06-Oct-99 | 9.8 | mg/l |
| 499560 | Dissolved oxygen (DO) | 09-Nov-99 | 9.2 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-Jan-00 | 10.11 | mg/l |
| 499560 | Dissolved oxygen (DO) | 17-Feb-00 | 9.49 | mg/l |
| 499560 | Dissolved oxygen (DO) | 04-Apr-00 | 9.29 | mg/l |
| 499560 | Dissolved oxygen (DO) | 04-May-00 | 9.2 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Jun-00 | 8.89 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Jul-00 | 8.89 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Jul-00 | 8.89 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-Aug-00 | 8.13 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-Sep-00 | 8.58 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Oct-00 | 6.31 | mg/l |
| 499560 | Dissolved oxygen (DO) | 14-Nov-00 | 10.55 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-Dec-00 | 10.68 | mg/l |
| 499560 | Dissolved oxygen (DO) | 10-Jan-01 | 10.98 | mg/l |
| 499560 | Dissolved oxygen (DO) | 07-Mar-01 | 9.55 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Apr-01 | 8.95 | mg/l |
| 499560 | Dissolved oxygen (DO) | 01-May-01 | 8.14 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Jun-01 | 9.66 | mg/l |
| 499560 | Dissolved oxygen (DO) | 11-Jul-01 | 6.98 | mg/l |
| 499560 | Dissolved oxygen (DO) | 07-Aug-01 | 7.84 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Sep-01 | 8.3 | mg/l |
| 499560 | Dissolved oxygen (DO) | 03-Oct-01 | 9.69 | mg/l |
| 499560 | Dissolved oxygen (DO) | 12-Feb-02 | 10.24 | mg/l |
| 499560 | Dissolved oxygen (DO) | 20-Mar-02 | 10.83 | mg/l |
| 499560 | Dissolved oxygen (DO) | 09-Apr-02 | 9.11 | mg/l |
| 499560 | Dissolved oxygen (DO) | 05-Jun-02 | 9.25 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-Jul-02 | 7.88 | mg/l |
| 499560 | Dissolved oxygen (DO) | 06-Aug-02 | 8.72 | mg/l |
| 499560 | Dissolved oxygen (DO) | 13-Sep-02 | 7.98 | mg/l |
| 499560 | Dissolved oxygen (DO) | 24-Oct-02 | 10.24 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Dissolved oxygen (DO) | 28-Jan-03 | 10.37 | mg/l |
| 499560 | Dissolved oxygen (DO) | 10-Apr-03 | 9.49 | mg/l |
| 499560 | Dissolved oxygen (DO) | 06-May-03 | 10.1 | mg/l |
| 499560 | Dissolved oxygen (DO) | 02-Jul-03 | 9.25 | mg/l |
| 499560 | Dissolved oxygen (DO) | 19-Aug-03 | 9.06 | mg/l |
| 499560 | Dissolved oxygen (DO) | 16-Sep-03 | 8.15 | mg/l |
| 499560 | Dissolved Solids | 14-Apr-92 | 510 | mg/l |
| 499560 | Dissolved Solids | 28-Apr-92 | 252 | mg/l |
| 499560 | Dissolved Solids | 12-May-92 | 276 | mg/l |
| 499560 | Dissolved Solids | 28-May-92 | 402 | mg/l |
| 499560 | Dissolved Solids | 10-Jun-92 | 218 | mg/l |
| 499560 | Dissolved Solids | 21-Jul-92 | 244 | mg/l |
| 499560 | Dissolved Solids | 12-Aug-92 | 230 | mg/l |
| 499560 | Dissolved Solids | 09-Sep-92 | 216 | mg/l |
| 499560 | Dissolved Solids | 23-Sep-92 | 212 | mg/l |
| 499560 | Dissolved Solids | 29-Oct-92 | 534 | mg/l |
| 499560 | Dissolved Solids | 18-Nov-92 | 350 | mg/l |
| 499560 | Dissolved Solids | 16-Mar-94 | 450 | mg/l |
| 499560 | Dissolved Solids | 31-Mar-94 | 470 | mg/l |
| 499560 | Dissolved Solids | 12-Apr-94 | 486 | mg/l |
| 499560 | Dissolved Solids | 26-Apr-94 | 402 | mg/l |
| 499560 | Dissolved Solids | 11-May-94 | 294 | mg/l |
| 499560 | Dissolved Solids | 24-May-94 | 224 | mg/l |
| 499560 | Dissolved Solids | 07-Jun-94 | 202 | mg/l |
| 499560 | Dissolved Solids | 12-Jul-94 | 202 | mg/l |
| 499560 | Dissolved Solids | 16-Aug-94 | 242 | mg/l |
| 499560 | Dissolved Solids | 15-Sep-94 | 222 | mg/l |
| 499560 | Dissolved Solids | 13-Oct-94 | 530 | mg/l |
| 499560 | Dissolved Solids | 23-Nov-94 | 646 | mg/l |
| 499560 | Dissolved Solids | 08-Dec-94 | 546 | mg/l |
| 499560 | Dissolved Solids | 19-Jan-95 | 524 | mg/l |
| 499560 | Dissolved Solids | 21-Feb-95 | 464 | mg/l |
| 499560 | Dissolved Solids | 09-Mar-95 | 456 | mg/l |
| 499560 | Dissolved Solids | 21-Mar-95 | 372 | mg/l |
| 499560 | Dissolved Solids | 04-Apr-95 | 394 | mg/l |
| 499560 | Dissolved Solids | 18-Apr-95 | 388 | mg/l |
| 499560 | Dissolved Solids | 02-May-95 | 336 | mg/l |
| 499560 | Dissolved Solids | 16-May-95 | 348 | mg/l |
| 499560 | Dissolved Solids | 01-Jun-95 | 332 | mg/l |
| 499560 | Dissolved Solids | 14-Jun-95 | 318 | mg/l |
| 499560 | Dissolved Solids | 10-Jul-96 | 252 | mg/l |
| 499560 | Dissolved Solids | 13-Aug-96 | 222 | mg/l |
| 499560 | Dissolved Solids | 18-Sep-96 | 394 | mg/l |
| 499560 | Dissolved Solids | 09-Oct-96 | 492 | mg/l |
| 499560 | Dissolved Solids | 13-Nov-96 | 484 | mg/l |
| 499560 | Dissolved Solids | 02-Jul-97 | 256 | mg/l |
| 499560 | Dissolved Solids | 05-Aug-97 | 272 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Dissolved Solids | 02-Sep-97 | 264 | mg/l |
| 499560 | Dissolved Solids | 17-Sep-97 | 350 | mg/l |
| 499560 | Dissolved Solids | 30-Sep-97 | 262 | mg/l |
| 499560 | Dissolved Solids | 05-Nov-97 | 470 | mg/l |
| 499560 | Dissolved Solids | 12-Mar-98 | 520 | mg/l |
| 499560 | Dissolved Solids | 11-May-98 | 334 | mg/l |
| 499560 | Dissolved Solids | 02-Jun-98 | 352 | mg/l |
| 499560 | Dissolved Solids | 08-Jul-98 | 284 | mg/l |
| 499560 | Dissolved Solids | 05-Aug-98 | 282 | mg/l |
| 499560 | Dissolved Solids | 02-Sep-98 | 274 | mg/l |
| 499560 | Dissolved Solids | 01-Oct-98 | 342 | mg/l |
| 499560 | Dissolved Solids | 04-Nov-98 | 486 | mg/l |
| 499560 | Dissolved Solids | 20-Jan-99 | 476 | mg/l |
| 499560 | Dissolved Solids | 02-Mar-99 | 438 | mg/l |
| 499560 | Dissolved Solids | 12-Apr-99 | 138 | mg/l |
| 499560 | Dissolved Solids | 04-May-99 | 366 | mg/l |
| 499560 | Dissolved Solids | 08-Jun-99 | 344 | mg/l |
| 499560 | Dissolved Solids | 08-Jul-99 | 234 | mg/l |
| 499560 | Dissolved Solids | 05-Aug-99 | 240 | mg/l |
| 499560 | Dissolved Solids | 07-Sep-99 | 276 | mg/l |
| 499560 | Dissolved Solids | 06-Oct-99 | 468 | mg/l |
| 499560 | Dissolved Solids | 09-Nov-99 | 470 | mg/l |
| 499560 | Dissolved Solids | 12-Jan-00 | 492 | mg/l |
| 499560 | Dissolved Solids | 17-Feb-00 | 546 | mg/l |
| 499560 | Dissolved Solids | 04-Apr-00 | 446 | mg/l |
| 499560 | Dissolved Solids | 04-May-00 | 264 | mg/l |
| 499560 | Dissolved Solids | 05-Jun-00 | 262 | mg/l |
| 499560 | Dissolved Solids | 05-Jul-00 | 236 | mg/l |
| 499560 | Dissolved Solids | 02-Aug-00 | 218 | mg/l |
| 499560 | Dissolved Solids | 12-Sep-00 | 296 | mg/l |
| 499560 | Dissolved Solids | 05-Oct-00 | 528 | mg/l |
| 499560 | Dissolved Solids | 14-Nov-00 | 524 | mg/l |
| 499560 | Dissolved Solids | 12-Dec-00 | 508 | mg/l |
| 499560 | Dissolved Solids | 10-Jan-01 | 500 | mg/l |
| 499560 | Dissolved Solids | 07-Mar-01 | 508 | mg/l |
| 499560 | Dissolved Solids | 05-Apr-01 | 492 | mg/l |
| 499560 | Dissolved Solids | 01-May-01 | 320 | mg/l |
| 499560 | Dissolved Solids | 05-Jun-01 | 212 | mg/l |
| 499560 | Dissolved Solids | 11-Jul-01 | 250 | mg/l |
| 499560 | Dissolved Solids | 07-Aug-01 | 196 | mg/l |
| 499560 | Dissolved Solids | 05-Sep-01 | 238 | mg/l |
| 499560 | Dissolved Solids | 03-Oct-01 | 428 | mg/l |
| 499560 | Dissolved Solids | 06-Nov-01 | 376 | mg/l |
| 499560 | Dissolved Solids | 12-Feb-02 | 284 | mg/l |
| 499560 | Dissolved Solids | 20-Mar-02 | 360 | mg/l |
| 499560 | Dissolved Solids | 09-Apr-02 | 414 | mg/l |
| 499560 | Dissolved Solids | 05-Jun-02 | 252 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Dissolved Solids | 02-Jul-02 | 206 | mg/l |
| 499560 | Dissolved Solids | 06-Aug-02 | 210 | mg/l |
| 499560 | Dissolved Solids | 13-Sep-02 | 306 | mg/l |
| 499560 | Dissolved Solids | 24-Oct-02 | 408 | mg/l |
| 499560 | Dissolved Solids | 28-Jan-03 | 346 | mg/l |
| 499560 | Dissolved Solids | 10-Apr-03 | 366 | mg/l |
| 499560 | Dissolved Solids | 06-May-03 | 304 | mg/l |
| 499560 | Dissolved Solids | 02-Jul-03 | 226 | mg/l |
| 499560 | Dissolved Solids | 19-Aug-03 | 240 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Feb-92 | 0.363 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Mar-92 | 0.074 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Apr-92 | 0.547 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Apr-92 | 0.079 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-May-92 | 0.105 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-May-92 | 0.117 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jun-92 | 0.097 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 21-Jul-92 | 0.213 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Aug-92 | 0.118 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Sep-92 | 0.131 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-Sep-92 | 0.159 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Oct-92 | 0.232 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 18-Nov-92 | 0.074 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Mar-94 | 0.066 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 31-Mar-94 | *Non-detect | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Apr-94 | 0.039 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 26-Apr-94 | 0.064 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-May-94 | 0.066 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 24-May-94 | 0.027 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Jun-94 | 0.06 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Jul-94 | 0.02 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Aug-94 | 0.024 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 15-Sep-94 | *Non-detect | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Oct-94 | 0.025 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-Nov-94 | 0.064 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Dec-94 | 0.083 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Jan-95 | 0.823 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 21-Feb-95 | 0.022 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Mar-95 | *Non-detect | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 21-Mar-95 | 0.126 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Apr-95 | *Non-detect | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 18-Apr-95 | 0.034 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-May-95 | 0.18 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-May-95 | 0.03 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 01-Jun-95 | 0.26 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Jun-95 | 0.2 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jul-96 | 0.12 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Aug-96 | 0.18 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 18-Sep-96 | 0.14 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Oct-96 | 4.26 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Nov-96 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Jul-97 | 0.11 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Aug-97 | 0.2 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Sep-97 | 0.18 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Sep-97 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 30-Sep-97 | 0.59 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Nov-97 | 0.13 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Mar-98 | 0.26 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-May-98 | 0.24 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Jun-98 | 0.19 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Jul-98 | 0.11 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Aug-98 | 0.17 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Sep-98 | 0.18 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 01-Oct-98 | 0.11 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Nov-98 | *Non-detect | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 20-Jan-99 | 0.19636 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Mar-99 | 0.1665 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Apr-99 | 0.10249 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-May-99 | 0.29 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Jun-99 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Jul-99 | 0.2 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Aug-99 | 0.25474 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Sep-99 | 0.2 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 06-Oct-99 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Nov-99 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Jan-00 | 0.2 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Feb-00 | 0.5 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Apr-00 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-May-00 | 0.3 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Jun-00 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Jul-00 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Aug-00 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Sep-00 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Oct-00 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Nov-00 | 0.2 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Dec-00 | *Non-detect | |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jan-01 | 0.16 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Mar-01 | 0.1 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Apr-01 | *Non-detect | |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 01-May-01 | 0.28 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Jun-01 | 0.71886 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-Jul-01 | 0.58 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Aug-01 | 0.14 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Sep-01 | 0.14 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 03-Oct-01 | *Non-detect | |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 06-Nov-01 | *Non-detect | |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Feb-02 | 0.131 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 20-Mar-02 | 0.3 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Apr-02 | *Non-detect | |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Jun-02 | *Non-detect | |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Jul-02 | 0.22 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 06-Aug-02 | *Non-detect | |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Sep-02 | 0.2 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 24-Oct-02 | 0.49 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Jan-03 | 0.48 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Apr-03 | 0.2 | mg/l |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 06-May-03 | *Non-detect | |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Jul-03 | *Non-detect | |
| 499560 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Aug-03 | 0.18 | mg/l |
| 499560 | pH | 12-Feb-92 | 8.1 | None |
| 499560 | pH | 17-Mar-92 | 7.9 | None |
| 499560 | pH | 14-Apr-92 | 7.8 | None |
| 499560 | pH | 28-Apr-92 | 8 | None |
| 499560 | pH | 12-May-92 | 8.2 | None |
| 499560 | pH | 28-May-92 | 8.3 | None |
| 499560 | pH | 10-Jun-92 | 8.2 | None |
| 499560 | pH | 21-Jul-92 | 7.7 | None |
| 499560 | pH | 12-Aug-92 | 8.1 | None |
| 499560 | pH | 09-Sep-92 | 7.9 | None |
| 499560 | pH | 23-Sep-92 | 8.1 | None |
| 499560 | pH | 29-Oct-92 | 8 | None |
| 499560 | pH | 18-Nov-92 | 8 | None |
| 499560 | pH | 16-Mar-94 | 7.4 | None |
| 499560 | pH | 16-Mar-94 | 8.2 | None |
| 499560 | pH | 31-Mar-94 | 8.6 | None |
| 499560 | pH | 31-Mar-94 | 7.7 | None |
| 499560 | pH | 12-Apr-94 | 7.7 | None |
| 499560 | pH | 12-Apr-94 | 8.3 | None |
| 499560 | pH | 26-Apr-94 | 7.7 | None |
| 499560 | pH | 26-Apr-94 | 8.5 | None |
| 499560 | pH | 11-May-94 | 7.5 | None |
| 499560 | pH | 11-May-94 | 8.7 | None |
| 499560 | pH | 24-May-94 | 7 | None |
| 499560 | pH | 24-May-94 | 8.4 | None |
| 499560 | pH | 07-Jun-94 | 6.9 | None |
| 499560 | pH | 07-Jun-94 | 8.3 | None |
| 499560 | pH | 12-Jul-94 | 7.6 | None |
| 499560 | pH | 12-Jul-94 | 8.5 | None |
| 499560 | pH | 16-Aug-94 | 7.5 | None |
| 499560 | pH | 16-Aug-94 | 7.9 | None |
| 499560 | pH | 15-Sep-94 | 7.8 | None |
| 499560 | pH | 15-Sep-94 | 8.4 | None |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | pH | 13-Oct-94 | 7.9 | None |
| 499560 | pH | 13-Oct-94 | 8.4 | None |
| 499560 | pH | 23-Nov-94 | 8.21 | None |
| 499560 | pH | 23-Nov-94 | 8.2 | None |
| 499560 | pH | 08-Dec-94 | 8.4 | None |
| 499560 | pH | 08-Dec-94 | 8.4 | None |
| 499560 | pH | 19-Jan-95 | 8.2 | None |
| 499560 | pH | 19-Jan-95 | 8.2 | None |
| 499560 | pH | 21-Feb-95 | 8.3 | None |
| 499560 | pH | 21-Feb-95 | 8.4 | None |
| 499560 | pH | 09-Mar-95 | 7.8 | None |
| 499560 | pH | 21-Mar-95 | 8.5 | None |
| 499560 | pH | 21-Mar-95 | 8.3 | None |
| 499560 | pH | 04-Apr-95 | 8.5 | None |
| 499560 | pH | 04-Apr-95 | 8.3 | None |
| 499560 | pH | 18-Apr-95 | 8.5 | None |
| 499560 | pH | 18-Apr-95 | 8.5 | None |
| 499560 | pH | 02-May-95 | 8.3 | None |
| 499560 | pH | 02-May-95 | 8.4 | None |
| 499560 | pH | 16-May-95 | 8.3 | None |
| 499560 | pH | 16-May-95 | 8.2 | None |
| 499560 | pH | 01-Jun-95 | 8.39 | None |
| 499560 | pH | 01-Jun-95 | 7.9 | None |
| 499560 | pH | 14-Jun-95 | 8.35 | None |
| 499560 | pH | 14-Jun-95 | 8.2 | None |
| 499560 | pH | 10-Jul-96 | 8.3 | None |
| 499560 | pH | 13-Aug-96 | 7.8 | None |
| 499560 | pH | 13-Aug-96 | 8.32 | None |
| 499560 | pH | 18-Sep-96 | 8.37 | None |
| 499560 | pH | 18-Sep-96 | 7.5 | None |
| 499560 | pH | 09-Oct-96 | 7.8 | None |
| 499560 | pH | 09-Oct-96 | 8.29 | None |
| 499560 | pH | 13-Nov-96 | 8.33 | None |
| 499560 | pH | 13-Nov-96 | 7.6 | None |
| 499560 | pH | 02-Jul-97 | 8.3 | None |
| 499560 | pH | 02-Jul-97 | 8.2 | None |
| 499560 | pH | 05-Aug-97 | 7.7 | None |
| 499560 | pH | 05-Aug-97 | 8.29 | None |
| 499560 | pH | 02-Sep-97 | 7.3 | None |
| 499560 | pH | 02-Sep-97 | 8.2 | None |
| 499560 | pH | 17-Sep-97 | 8 | None |
| 499560 | pH | 17-Sep-97 | 8.16 | None |
| 499560 | pH | 30-Sep-97 | 8.19 | None |
| 499560 | pH | 30-Sep-97 | 7.9 | None |
| 499560 | pH | 05-Nov-97 | 8 | None |
| 499560 | pH | 05-Nov-97 | 8.29 | None |
| 499560 | pH | 12-Mar-98 | 7.78 | None |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | pH | 12-Mar-98 | 7.78 | None |
| 499560 | pH | 11-May-98 | 8.29 | None |
| 499560 | pH | 11-May-98 | 8.2 | None |
| 499560 | pH | 02-Jun-98 | 8.38 | None |
| 499560 | pH | 02-Jun-98 | 8 | None |
| 499560 | pH | 08-Jul-98 | 8.27 | None |
| 499560 | pH | 08-Jul-98 | 8 | None |
| 499560 | pH | 05-Aug-98 | 8.37 | None |
| 499560 | pH | 05-Aug-98 | 8 | None |
| 499560 | pH | 02-Sep-98 | 8.24 | None |
| 499560 | pH | 02-Sep-98 | 7.9 | None |
| 499560 | pH | 01-Oct-98 | 8.28 | None |
| 499560 | pH | 01-Oct-98 | 7.8 | None |
| 499560 | pH | 04-Nov-98 | 8.41 | None |
| 499560 | pH | 04-Nov-98 | 7.6 | None |
| 499560 | pH | 20-Jan-99 | 8.31 | None |
| 499560 | pH | 20-Jan-99 | 7.7 | None |
| 499560 | pH | 02-Mar-99 | 8.06 | None |
| 499560 | pH | 02-Mar-99 | 7.82 | None |
| 499560 | pH | 12-Apr-99 | 8.3 | None |
| 499560 | pH | 12-Apr-99 | 7.9 | None |
| 499560 | pH | 04-May-99 | 8.34 | None |
| 499560 | pH | 04-May-99 | 7.8 | None |
| 499560 | pH | 08-Jun-99 | 8.24 | None |
| 499560 | pH | 08-Jun-99 | 8.2 | None |
| 499560 | pH | 08-Jul-99 | 8.23 | None |
| 499560 | pH | 08-Jul-99 | 7.8 | None |
| 499560 | pH | 05-Aug-99 | 8.36 | None |
| 499560 | pH | 05-Aug-99 | 8.1 | None |
| 499560 | pH | 07-Sep-99 | 8 | None |
| 499560 | pH | 07-Sep-99 | 8.32 | None |
| 499560 | pH | 06-Oct-99 | 8.31 | None |
| 499560 | pH | 06-Oct-99 | 7.2 | None |
| 499560 | pH | 09-Nov-99 | 7.91 | None |
| 499560 | pH | 09-Nov-99 | 7.9 | None |
| 499560 | pH | 12-Jan-00 | 7.88 | None |
| 499560 | pH | 12-Jan-00 | 7.78 | None |
| 499560 | pH | 17-Feb-00 | 7.98 | None |
| 499560 | pH | 17-Feb-00 | 8.54 | None |
| 499560 | pH | 04-Apr-00 | 8.05 | None |
| 499560 | pH | 04-Apr-00 | 8.26 | None |
| 499560 | pH | 04-May-00 | 8.1 | None |
| 499560 | pH | 04-May-00 | 8.18 | None |
| 499560 | pH | 05-Jun-00 | 8.1 | None |
| 499560 | pH | 05-Jun-00 | 8.29 | None |
| 499560 | pH | 05-Jul-00 | 8.38 | None |
| 499560 | pH | 05-Jul-00 | 7.79 | None |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | pH | 05-Jul-00 | 7.79 | None |
| 499560 | pH | 02-Aug-00 | 7.96 | None |
| 499560 | pH | 02-Aug-00 | 8.26 | None |
| 499560 | pH | 12-Sep-00 | 7.51 | None |
| 499560 | pH | 12-Sep-00 | 8.4 | None |
| 499560 | pH | 05-Oct-00 | 7.87 | None |
| 499560 | pH | 05-Oct-00 | 8.24 | None |
| 499560 | pH | 14-Nov-00 | 7.32 | None |
| 499560 | pH | 14-Nov-00 | 8.18 | None |
| 499560 | pH | 12-Dec-00 | 8.29 | None |
| 499560 | pH | 10-Jan-01 | 8.2 | None |
| 499560 | pH | 10-Jan-01 | 8 | None |
| 499560 | pH | 07-Mar-01 | 8.05 | None |
| 499560 | pH | 07-Mar-01 | 8.1 | None |
| 499560 | pH | 05-Apr-01 | 7.97 | None |
| 499560 | pH | 05-Apr-01 | 8.11 | None |
| 499560 | pH | 01-May-01 | 8.12 | None |
| 499560 | pH | 01-May-01 | 8.05 | None |
| 499560 | pH | 05-Jun-01 | 8.1 | None |
| 499560 | pH | 05-Jun-01 | 8.05 | None |
| 499560 | pH | 11-Jul-01 | 8.31 | None |
| 499560 | pH | 11-Jul-01 | 8 | None |
| 499560 | pH | 07-Aug-01 | 8.33 | None |
| 499560 | pH | 07-Aug-01 | 8.32 | None |
| 499560 | pH | 05-Sep-01 | 8.5 | None |
| 499560 | pH | 05-Sep-01 | 8.35 | None |
| 499560 | pH | 03-Oct-01 | 6.88 | None |
| 499560 | pH | 03-Oct-01 | 8.26 | None |
| 499560 | pH | 06-Nov-01 | 6.39 | None |
| 499560 | pH | 06-Nov-01 | 8.26 | None |
| 499560 | pH | 12-Feb-02 | 7.93 | None |
| 499560 | pH | 12-Feb-02 | 8.09 | None |
| 499560 | pH | 20-Mar-02 | 8.05 | None |
| 499560 | pH | 20-Mar-02 | 7.34 | None |
| 499560 | pH | 09-Apr-02 | 8.26 | None |
| 499560 | pH | 09-Apr-02 | 8.2 | None |
| 499560 | pH | 05-Jun-02 | 8.11 | None |
| 499560 | pH | 05-Jun-02 | 8.3 | None |
| 499560 | pH | 02-Jul-02 | 8.51 | None |
| 499560 | pH | 02-Jul-02 | 8.4 | None |
| 499560 | pH | 06-Aug-02 | 8.02 | None |
| 499560 | pH | 06-Aug-02 | 8.25 | None |
| 499560 | pH | 13-Sep-02 | 7.98 | None |
| 499560 | pH | 13-Sep-02 | 8.29 | None |
| 499560 | pH | 24-Oct-02 | 8.04 | None |
| 499560 | pH | 24-Oct-02 | 8.4 | None |
| 499560 | pH | 28-Jan-03 | 8.54 | None |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | pH | 28-Jan-03 | 8.29 | None |
| 499560 | pH | 10-Apr-03 | 8.18 | None |
| 499560 | pH | 10-Apr-03 | 8.22 | None |
| 499560 | pH | 06-May-03 | 8.25 | None |
| 499560 | pH | 06-May-03 | 8.38 | None |
| 499560 | pH | 02-Jul-03 | 8.06 | None |
| 499560 | pH | 02-Jul-03 | 8.16 | None |
| 499560 | pH | 19-Aug-03 | 7.93 | None |
| 499560 | pH | 19-Aug-03 | 8.24 | None |
| 499560 | pH | 16-Sep-03 | 8.07 | None |
| 499560 | Phosphorus as P | 12-Feb-92 | 0.02 | mg/l |
| 499560 | Phosphorus as P | 12-Feb-92 | 0.046 | mg/l |
| 499560 | Phosphorus as P | 17-Mar-92 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 17-Mar-92 | 0.029 | mg/l |
| 499560 | Phosphorus as P | 14-Apr-92 | 0.066 | mg/l |
| 499560 | Phosphorus as P | 14-Apr-92 | 0.018 | mg/l |
| 499560 | Phosphorus as P | 28-Apr-92 | 0.011 | mg/l |
| 499560 | Phosphorus as P | 28-Apr-92 | 0.095 | mg/l |
| 499560 | Phosphorus as P | 12-May-92 | 0.054 | mg/l |
| 499560 | Phosphorus as P | 12-May-92 | 0.016 | mg/l |
| 499560 | Phosphorus as P | 28-May-92 | 0.021 | mg/l |
| 499560 | Phosphorus as P | 28-May-92 | 0.072 | mg/l |
| 499560 | Phosphorus as P | 10-Jun-92 | 0.085 | mg/l |
| 499560 | Phosphorus as P | 10-Jun-92 | 0.018 | mg/l |
| 499560 | Phosphorus as P | 21-Jul-92 | 0.058 | mg/l |
| 499560 | Phosphorus as P | 21-Jul-92 | 0.011 | mg/l |
| 499560 | Phosphorus as P | 12-Aug-92 | 0.11 | mg/l |
| 499560 | Phosphorus as P | 12-Aug-92 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 09-Sep-92 | 0.115 | mg/l |
| 499560 | Phosphorus as P | 09-Sep-92 | 0.053 | mg/l |
| 499560 | Phosphorus as P | 23-Sep-92 | 0.042 | mg/l |
| 499560 | Phosphorus as P | 23-Sep-92 | 0.087 | mg/l |
| 499560 | Phosphorus as P | 29-Oct-92 | 0.188 | mg/l |
| 499560 | Phosphorus as P | 29-Oct-92 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 18-Nov-92 | 0.03 | mg/l |
| 499560 | Phosphorus as P | 18-Nov-92 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 16-Mar-94 | 0.037 | mg/l |
| 499560 | Phosphorus as P | 16-Mar-94 | 0.012 | mg/l |
| 499560 | Phosphorus as P | 31-Mar-94 | 0.046 | mg/l |
| 499560 | Phosphorus as P | 31-Mar-94 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 12-Apr-94 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 12-Apr-94 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 26-Apr-94 | 0.025 | mg/l |
| 499560 | Phosphorus as P | 26-Apr-94 | 0.027 | mg/l |
| 499560 | Phosphorus as P | 11-May-94 | 0.113 | mg/l |
| 499560 | Phosphorus as P | 11-May-94 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 24-May-94 | 0.055 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Phosphorus as P | 24-May-94 | 0.013 | mg/l |
| 499560 | Phosphorus as P | 07-Jun-94 | 0.156 | mg/l |
| 499560 | Phosphorus as P | 07-Jun-94 | 0.027 | mg/l |
| 499560 | Phosphorus as P | 12-Jul-94 | 0.048 | mg/l |
| 499560 | Phosphorus as P | 12-Jul-94 | 0.013 | mg/l |
| 499560 | Phosphorus as P | 16-Aug-94 | 0.049 | mg/l |
| 499560 | Phosphorus as P | 16-Aug-94 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 15-Sep-94 | 0.043 | mg/l |
| 499560 | Phosphorus as P | 15-Sep-94 | 0.01 | mg/l |
| 499560 | Phosphorus as P | 13-Oct-94 | 0.013 | mg/l |
| 499560 | Phosphorus as P | 13-Oct-94 | 0.011 | mg/l |
| 499560 | Phosphorus as P | 23-Nov-94 | 0.025 | mg/l |
| 499560 | Phosphorus as P | 23-Nov-94 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 08-Dec-94 | 0.015 | mg/l |
| 499560 | Phosphorus as P | 08-Dec-94 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 19-Jan-95 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 19-Jan-95 | 0.015 | mg/l |
| 499560 | Phosphorus as P | 21-Feb-95 | 0.03 | mg/l |
| 499560 | Phosphorus as P | 21-Feb-95 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 09-Mar-95 | 0.057 | mg/l |
| 499560 | Phosphorus as P | 09-Mar-95 | 0.057 | mg/l |
| 499560 | Phosphorus as P | 21-Mar-95 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 21-Mar-95 | 0.015 | mg/l |
| 499560 | Phosphorus as P | 04-Apr-95 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 04-Apr-95 | 0.045 | mg/l |
| 499560 | Phosphorus as P | 18-Apr-95 | 0.034 | mg/l |
| 499560 | Phosphorus as P | 18-Apr-95 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 02-May-95 | 1.828 | mg/l |
| 499560 | Phosphorus as P | 02-May-95 | 0.047 | mg/l |
| 499560 | Phosphorus as P | 16-May-95 | 0.241 | mg/l |
| 499560 | Phosphorus as P | 16-May-95 | 0.017 | mg/l |
| 499560 | Phosphorus as P | 01-Jun-95 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 01-Jun-95 | 0.19 | mg/l |
| 499560 | Phosphorus as P | 14-Jun-95 | 0.12 | mg/l |
| 499560 | Phosphorus as P | 14-Jun-95 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 10-Jul-96 | 0.06 | mg/l |
| 499560 | Phosphorus as P | 10-Jul-96 | 0.03 | mg/l |
| 499560 | Phosphorus as P | 13-Aug-96 | 0.11 | mg/l |
| 499560 | Phosphorus as P | 13-Aug-96 | 0.04 | mg/l |
| 499560 | Phosphorus as P | 18-Sep-96 | 0.07 | mg/l |
| 499560 | Phosphorus as P | 18-Sep-96 | 0.04 | mg/l |
| 499560 | Phosphorus as P | 09-Oct-96 | 0.0264 | mg/l |
| 499560 | Phosphorus as P | 09-Oct-96 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 13-Nov-96 | 0.02429 | mg/l |
| 499560 | Phosphorus as P | 13-Nov-96 | 0.01321 | mg/l |
| 499560 | Phosphorus as P | 02-Sep-97 | 0.54568 | mg/l |
| 499560 | Phosphorus as P | 05-Nov-97 | 0.04637 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Phosphorus as P | 12-Mar-98 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 12-Mar-98 | 0.094 | mg/l |
| 499560 | Phosphorus as P | 11-May-98 | 0.202 | mg/l |
| 499560 | Phosphorus as P | 11-May-98 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 02-Jun-98 | 0.047 | mg/l |
| 499560 | Phosphorus as P | 02-Jun-98 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 08-Jul-98 | 0.065 | mg/l |
| 499560 | Phosphorus as P | 08-Jul-98 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 05-Aug-98 | 0.097 | mg/l |
| 499560 | Phosphorus as P | 02-Sep-98 | 0.109 | mg/l |
| 499560 | Phosphorus as P | 02-Sep-98 | 0.051 | mg/l |
| 499560 | Phosphorus as P | 01-Oct-98 | 0.071 | mg/l |
| 499560 | Phosphorus as P | 01-Oct-98 | 0.028 | mg/l |
| 499560 | Phosphorus as P | 04-Nov-98 | 0.021 | mg/l |
| 499560 | Phosphorus as P | 04-Nov-98 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 20-Jan-99 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 20-Jan-99 | 0.028 | mg/l |
| 499560 | Phosphorus as P | 02-Mar-99 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 02-Mar-99 | 0.09 | mg/l |
| 499560 | Phosphorus as P | 12-Apr-99 | 0.061 | mg/l |
| 499560 | Phosphorus as P | 12-Apr-99 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 04-May-99 | 0.315 | mg/l |
| 499560 | Phosphorus as P | 04-May-99 | 0.025 | mg/l |
| 499560 | Phosphorus as P | 08-Jun-99 | 0.146 | mg/l |
| 499560 | Phosphorus as P | 08-Jun-99 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 08-Jul-99 | 0.275 | mg/l |
| 499560 | Phosphorus as P | 08-Jul-99 | 0.035 | mg/l |
| 499560 | Phosphorus as P | 05-Aug-99 | 0.085 | mg/l |
| 499560 | Phosphorus as P | 05-Aug-99 | 0.033 | mg/l |
| 499560 | Phosphorus as P | 07-Sep-99 | 0.084 | mg/l |
| 499560 | Phosphorus as P | 07-Sep-99 | 0.053 | mg/l |
| 499560 | Phosphorus as P | 06-Oct-99 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 06-Oct-99 | 0.07 | mg/l |
| 499560 | Phosphorus as P | 09-Nov-99 | 0.029 | mg/l |
| 499560 | Phosphorus as P | 09-Nov-99 | 0.024 | mg/l |
| 499560 | Phosphorus as P | 12-Jan-00 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 12-Jan-00 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 17-Feb-00 | 0.043 | mg/l |
| 499560 | Phosphorus as P | 17-Feb-00 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 04-Apr-00 | 0.054 | mg/l |
| 499560 | Phosphorus as P | 04-Apr-00 | 0.061 | mg/l |
| 499560 | Phosphorus as P | 04-May-00 | 0.151 | mg/l |
| 499560 | Phosphorus as P | 04-May-00 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 05-Jun-00 | *Non-detect | mg/l |
| 499560 | Phosphorus as P | 05-Jun-00 | 0.043 | mg/l |
| 499560 | Phosphorus as P | 05-Jul-00 | 0.069 | mg/l |
| 499560 | Phosphorus as P | 05-Jul-00 | 0.027 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Phosphorus as P | 02-Aug-00 | 0.096 | mg/l |
| 499560 | Phosphorus as P | 02-Aug-00 | 0.041 | mg/l |
| 499560 | Phosphorus as P | 12-Sep-00 | 0.027 | mg/l |
| 499560 | Phosphorus as P | 12-Sep-00 | 0.042 | mg/l |
| 499560 | Phosphorus as P | 05-Oct-00 | 0.031 | mg/l |
| 499560 | Phosphorus as P | 14-Nov-00 | 0.078 | mg/l |
| 499560 | Phosphorus as P | 12-Dec-00 | *Non-detect | |
| 499560 | Phosphorus as P | 10-Jan-01 | 0.022 | mg/l |
| 499560 | Phosphorus as P | 10-Jan-01 | *Non-detect | |
| 499560 | Phosphorus as P | 07-Mar-01 | *Non-detect | |
| 499560 | Phosphorus as P | 07-Mar-01 | 0.024 | mg/l |
| 499560 | Phosphorus as P | 05-Apr-01 | 0.023 | mg/l |
| 499560 | Phosphorus as P | 05-Apr-01 | *Non-detect | |
| 499560 | Phosphorus as P | 01-May-01 | 0.232 | mg/l |
| 499560 | Phosphorus as P | 01-May-01 | *Non-detect | |
| 499560 | Phosphorus as P | 05-Jun-01 | *Non-detect | |
| 499560 | Phosphorus as P | 05-Jun-01 | 0.128 | mg/l |
| 499560 | Phosphorus as P | 11-Jul-01 | 1.43 | mg/l |
| 499560 | Phosphorus as P | 11-Jul-01 | 0.112 | mg/l |
| 499560 | Phosphorus as P | 07-Aug-01 | 0.238 | mg/l |
| 499560 | Phosphorus as P | 07-Aug-01 | 0.043 | mg/l |
| 499560 | Phosphorus as P | 05-Sep-01 | 0.069 | mg/l |
| 499560 | Phosphorus as P | 05-Sep-01 | 0.06 | mg/l |
| 499560 | Phosphorus as P | 03-Oct-01 | 0.051 | mg/l |
| 499560 | Phosphorus as P | 03-Oct-01 | 0.024 | mg/l |
| 499560 | Phosphorus as P | 06-Nov-01 | 0.063 | mg/l |
| 499560 | Phosphorus as P | 06-Nov-01 | *Non-detect | |
| 499560 | Phosphorus as P | 12-Feb-02 | 0.029 | mg/l |
| 499560 | Phosphorus as P | 12-Feb-02 | *Non-detect | |
| 499560 | Phosphorus as P | 20-Mar-02 | 0.021 | mg/l |
| 499560 | Phosphorus as P | 20-Mar-02 | *Non-detect | |
| 499560 | Phosphorus as P | 09-Apr-02 | 0.037 | mg/l |
| 499560 | Phosphorus as P | 09-Apr-02 | *Non-detect | |
| 499560 | Phosphorus as P | 05-Jun-02 | 0.052 | mg/l |
| 499560 | Phosphorus as P | 05-Jun-02 | *Non-detect | |
| 499560 | Phosphorus as P | 02-Jul-02 | 0.041 | mg/l |
| 499560 | Phosphorus as P | 02-Jul-02 | 0.053 | mg/l |
| 499560 | Phosphorus as P | 06-Aug-02 | 0.091 | mg/l |
| 499560 | Phosphorus as P | 06-Aug-02 | 0.095 | mg/l |
| 499560 | Phosphorus as P | 13-Sep-02 | 0.093 | mg/l |
| 499560 | Phosphorus as P | 13-Sep-02 | 0.04 | mg/l |
| 499560 | Phosphorus as P | 24-Oct-02 | *Non-detect | |
| 499560 | Phosphorus as P | 24-Oct-02 | 0.023 | mg/l |
| 499560 | Phosphorus as P | 28-Jan-03 | 0.041 | mg/l |
| 499560 | Phosphorus as P | 28-Jan-03 | *Non-detect | |
| 499560 | Phosphorus as P | 10-Apr-03 | *Non-detect | |
| 499560 | Phosphorus as P | 10-Apr-03 | *Non-detect | |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Phosphorus as P | 06-May-03 | *Non-detect | |
| 499560 | Phosphorus as P | 06-May-03 | 0.02 | mg/l |
| 499560 | Phosphorus as P | 02-Jul-03 | 0.05916 | mg/l |
| 499560 | Phosphorus as P | 02-Jul-03 | 0.139 | mg/l |
| 499560 | Phosphorus as P | 19-Aug-03 | 0.056 | mg/l |
| 499560 | Phosphorus as P | 19-Aug-03 | 0.073 | mg/l |
| 499560 | Selenium | 12-Feb-92 | *Non-detect | ug/l |
| 499560 | Selenium | 17-Mar-92 | *Non-detect | ug/l |
| 499560 | Selenium | 16-Mar-94 | 1 | ug/l |
| 499560 | Selenium | 26-Apr-94 | *Non-detect | ug/l |
| 499560 | Selenium | 24-May-94 | 1 | ug/l |
| 499560 | Selenium | 12-Jul-94 | *Non-detect | ug/l |
| 499560 | Selenium | 19-Jan-95 | 1 | ug/l |
| 499560 | Selenium | 01-Jun-95 | *Non-detect | ug/l |
| 499560 | Selenium | 10-Jul-96 | *Non-detect | ug/l |
| 499560 | Selenium | 09-Oct-96 | 1.1 | ug/l |
| 499560 | Selenium | 05-Aug-97 | *Non-detect | ug/l |
| 499560 | Selenium | 17-Sep-97 | 1 | ug/l |
| 499560 | Selenium | 11-May-98 | *Non-detect | ug/l |
| 499560 | Selenium | 05-Aug-98 | *Non-detect | ug/l |
| 499560 | Selenium | 01-Oct-98 | 1.1 | ug/l |
| 499560 | Selenium | 20-Jan-99 | 1.8 | ug/l |
| 499560 | Selenium | 02-Mar-99 | 1.7 | ug/l |
| 499560 | Selenium | 04-May-99 | 1.2 | ug/l |
| 499560 | Selenium | 05-Aug-99 | *Non-detect | ug/l |
| 499560 | Selenium | 06-Oct-99 | 1.3 | ug/l |
| 499560 | Selenium | 17-Feb-00 | 1.7 | ug/l |
| 499560 | Selenium | 04-May-00 | 1 | ug/l |
| 499560 | Selenium | 02-Aug-00 | *Non-detect | ug/l |
| 499560 | Selenium | 05-Oct-00 | 1 | ug/l |
| 499560 | Selenium | 10-Jan-01 | 1.6 | ug/l |
| 499560 | Selenium | 05-Jun-01 | *Non-detect | |
| 499560 | Selenium | 05-Sep-01 | *Non-detect | |
| 499560 | Selenium | 12-Feb-02 | *Non-detect | |
| 499560 | Selenium | 05-Jun-02 | *Non-detect | |
| 499560 | Selenium | 05-Jun-02 | *Non-detect | |
| 499560 | Selenium | 06-Aug-02 | *Non-detect | |
| 499560 | Selenium | 06-Aug-02 | *Non-detect | |
| 499560 | Selenium | 24-Oct-02 | *Non-detect | |
| 499560 | Selenium | 24-Oct-02 | *Non-detect | |
| 499560 | Selenium | 28-Jan-03 | 1.1 | ug/l |
| 499560 | Selenium | 28-Jan-03 | *Non-detect | |
| 499560 | Selenium | 06-May-03 | *Non-detect | |
| 499560 | Selenium | 06-May-03 | *Non-detect | |
| 499560 | Selenium | 19-Aug-03 | *Non-detect | |
| 499560 | Selenium | 19-Aug-03 | *Non-detect | |
| 499560 | Temperature, water | 12-Feb-92 | 4.9 | deg C |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Temperature, water | 17-Mar-92 | 5.8 | deg C |
| 499560 | Temperature, water | 14-Apr-92 | 12.6 | deg C |
| 499560 | Temperature, water | 28-Apr-92 | 10.9 | deg C |
| 499560 | Temperature, water | 12-May-92 | 13.1 | deg C |
| 499560 | Temperature, water | 28-May-92 | 11.6 | deg C |
| 499560 | Temperature, water | 10-Jun-92 | 15.4 | deg C |
| 499560 | Temperature, water | 21-Jul-92 | 17.8 | deg C |
| 499560 | Temperature, water | 12-Aug-92 | 23.3 | deg C |
| 499560 | Temperature, water | 09-Sep-92 | 12.9 | deg C |
| 499560 | Temperature, water | 23-Sep-92 | 12.6 | deg C |
| 499560 | Temperature, water | 29-Oct-92 | 10.6 | deg C |
| 499560 | Temperature, water | 18-Nov-92 | 5.6 | deg C |
| 499560 | Temperature, water | 16-Mar-94 | 8 | deg C |
| 499560 | Temperature, water | 31-Mar-94 | 10.9 | deg C |
| 499560 | Temperature, water | 12-Apr-94 | 14.5 | deg C |
| 499560 | Temperature, water | 26-Apr-94 | 9.9 | deg C |
| 499560 | Temperature, water | 11-May-94 | 19.1 | deg C |
| 499560 | Temperature, water | 24-May-94 | 18.1 | deg C |
| 499560 | Temperature, water | 07-Jun-94 | 15.7 | deg C |
| 499560 | Temperature, water | 12-Jul-94 | 22.4 | deg C |
| 499560 | Temperature, water | 16-Aug-94 | 16.2 | deg C |
| 499560 | Temperature, water | 15-Sep-94 | 12.8 | deg C |
| 499560 | Temperature, water | 13-Oct-94 | 14.5 | deg C |
| 499560 | Temperature, water | 23-Nov-94 | 0.7 | deg C |
| 499560 | Temperature, water | 08-Dec-94 | 2.9 | deg C |
| 499560 | Temperature, water | 19-Jan-95 | 2.6 | deg C |
| 499560 | Temperature, water | 21-Feb-95 | 7.9 | deg C |
| 499560 | Temperature, water | 09-Mar-95 | 4.1 | deg C |
| 499560 | Temperature, water | 21-Mar-95 | 10 | deg C |
| 499560 | Temperature, water | 04-Apr-95 | 13.1 | deg C |
| 499560 | Temperature, water | 18-Apr-95 | 8.8 | deg C |
| 499560 | Temperature, water | 02-May-95 | 10.2 | deg C |
| 499560 | Temperature, water | 16-May-95 | 7.8 | deg C |
| 499560 | Temperature, water | 01-Jun-95 | 9.7 | deg C |
| 499560 | Temperature, water | 14-Jun-95 | 12.4 | deg C |
| 499560 | Temperature, water | 10-Jul-96 | 17.9 | deg C |
| 499560 | Temperature, water | 13-Aug-96 | 14.1 | deg C |
| 499560 | Temperature, water | 18-Sep-96 | 7.8 | deg C |
| 499560 | Temperature, water | 09-Oct-96 | 8.9 | deg C |
| 499560 | Temperature, water | 13-Nov-96 | 5.3 | deg C |
| 499560 | Temperature, water | 02-Jul-97 | 9.3 | deg C |
| 499560 | Temperature, water | 05-Aug-97 | 12.4 | deg C |
| 499560 | Temperature, water | 02-Sep-97 | 12.9 | deg C |
| 499560 | Temperature, water | 17-Sep-97 | 10.6 | deg C |
| 499560 | Temperature, water | 30-Sep-97 | 9.3 | deg C |
| 499560 | Temperature, water | 05-Nov-97 | 4.98 | deg C |
| 499560 | Temperature, water | 12-Mar-98 | 1.94 | deg C |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Temperature, water | 11-May-98 | 6.2 | deg C |
| 499560 | Temperature, water | 02-Jun-98 | 9.6 | deg C |
| 499560 | Temperature, water | 08-Jul-98 | 12.6 | deg C |
| 499560 | Temperature, water | 05-Aug-98 | 12.4 | deg C |
| 499560 | Temperature, water | 02-Sep-98 | 11.9 | deg C |
| 499560 | Temperature, water | 01-Oct-98 | 10.1 | deg C |
| 499560 | Temperature, water | 04-Nov-98 | 4.5 | deg C |
| 499560 | Temperature, water | 20-Jan-99 | 3.8 | deg C |
| 499560 | Temperature, water | 02-Mar-99 | 3.86 | deg C |
| 499560 | Temperature, water | 12-Apr-99 | 5.9 | deg C |
| 499560 | Temperature, water | 04-May-99 | 5 | deg C |
| 499560 | Temperature, water | 08-Jun-99 | 10.4 | deg C |
| 499560 | Temperature, water | 08-Jul-99 | 12.8 | deg C |
| 499560 | Temperature, water | 05-Aug-99 | 11.9 | deg C |
| 499560 | Temperature, water | 07-Sep-99 | 10.2 | deg C |
| 499560 | Temperature, water | 06-Oct-99 | 7.6 | deg C |
| 499560 | Temperature, water | 09-Nov-99 | 6.9 | deg C |
| 499560 | Temperature, water | 12-Jan-00 | 4.32 | deg C |
| 499560 | Temperature, water | 17-Feb-00 | 5.04 | deg C |
| 499560 | Temperature, water | 04-Apr-00 | 6.29 | deg C |
| 499560 | Temperature, water | 04-May-00 | 9.33 | deg C |
| 499560 | Temperature, water | 05-Jun-00 | 11 | deg C |
| 499560 | Temperature, water | 05-Jul-00 | 10.75 | deg C |
| 499560 | Temperature, water | 05-Jul-00 | 10.75 | deg C |
| 499560 | Temperature, water | 02-Aug-00 | 13.87 | deg C |
| 499560 | Temperature, water | 12-Sep-00 | 10.68 | deg C |
| 499560 | Temperature, water | 05-Oct-00 | 8.36 | deg C |
| 499560 | Temperature, water | 14-Nov-00 | 1.49 | deg C |
| 499560 | Temperature, water | 12-Dec-00 | 2.66 | deg C |
| 499560 | Temperature, water | 10-Jan-01 | 3.74 | deg C |
| 499560 | Temperature, water | 07-Mar-01 | 6.46 | deg C |
| 499560 | Temperature, water | 05-Apr-01 | 8.25 | deg C |
| 499560 | Temperature, water | 01-May-01 | 10.35 | deg C |
| 499560 | Temperature, water | 05-Jun-01 | 7.63 | deg C |
| 499560 | Temperature, water | 11-Jul-01 | 17.82 | deg C |
| 499560 | Temperature, water | 07-Aug-01 | 18.42 | deg C |
| 499560 | Temperature, water | 05-Sep-01 | 17.41 | deg C |
| 499560 | Temperature, water | 03-Oct-01 | 8.56 | deg C |
| 499560 | Temperature, water | 06-Nov-01 | 7.54 | deg C |
| 499560 | Temperature, water | 12-Feb-02 | 0.28 | deg C |
| 499560 | Temperature, water | 20-Mar-02 | 2.59 | deg C |
| 499560 | Temperature, water | 09-Apr-02 | 6.67 | deg C |
| 499560 | Temperature, water | 05-Jun-02 | 9.7 | deg C |
| 499560 | Temperature, water | 02-Jul-02 | 18.58 | deg C |
| 499560 | Temperature, water | 06-Aug-02 | 11.17 | deg C |
| 499560 | Temperature, water | 13-Sep-02 | 13.73 | deg C |
| 499560 | Temperature, water | 24-Oct-02 | 6.32 | deg C |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Temperature, water | 28-Jan-03 | 5.68 | deg C |
| 499560 | Temperature, water | 10-Apr-03 | 5.91 | deg C |
| 499560 | Temperature, water | 06-May-03 | 5.82 | deg C |
| 499560 | Temperature, water | 02-Jul-03 | 11.36 | deg C |
| 499560 | Temperature, water | 19-Aug-03 | 11.34 | deg C |
| 499560 | Temperature, water | 16-Sep-03 | 12.13 | deg C |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Feb-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 17-Mar-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 14-Apr-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 28-Apr-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-May-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 28-May-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 10-Jun-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 21-Jul-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Aug-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 09-Sep-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 23-Sep-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 29-Oct-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 18-Nov-92 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 16-Mar-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 31-Mar-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Apr-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 26-Apr-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 11-May-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 24-May-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 07-Jun-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Jul-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 16-Aug-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 15-Sep-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 13-Oct-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 23-Nov-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 08-Dec-94 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 19-Jan-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 21-Feb-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 09-Mar-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 21-Mar-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 04-Apr-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 18-Apr-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 02-May-95 | 0.081 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 16-May-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 01-Jun-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 14-Jun-95 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 10-Jul-96 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 13-Aug-96 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 18-Sep-96 | 0.0581 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 09-Oct-96 | 0.058 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 13-Nov-96 | 0 | mg/l |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 02-Jul-97 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Aug-97 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 02-Sep-97 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 17-Sep-97 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 30-Sep-97 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Nov-97 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Mar-98 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 11-May-98 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 02-Jun-98 | 0.07 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 08-Jul-98 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Aug-98 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 02-Sep-98 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 01-Oct-98 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 04-Nov-98 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 20-Jan-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 02-Mar-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Apr-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 04-May-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 08-Jun-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 08-Jul-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Aug-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 07-Sep-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 06-Oct-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 09-Nov-99 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Jan-00 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 17-Feb-00 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 04-Apr-00 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 04-May-00 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Jun-00 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Jul-00 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 02-Aug-00 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Sep-00 | 0 | mg/l |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Oct-00 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 14-Nov-00 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Dec-00 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 10-Jan-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 07-Mar-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Apr-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 01-May-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Jun-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 11-Jul-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 07-Aug-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Sep-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 03-Oct-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 06-Nov-01 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 12-Feb-02 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 20-Mar-02 | 0 | |

**Table A-5**
**Spanish Fork River at Moark Diversion**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 09-Apr-02 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 05-Jun-02 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 02-Jul-02 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 06-Aug-02 | 0 | |
| 499560 | Nitrogen, ammonia (NH3) as NH3 | 13-Sep-02 | 0 | |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Dissolved oxygen (DO) | 30-Jan-90 | 10.7 | mg/l |
| 499558 | Dissolved oxygen (DO) | 20-Mar-90 | 10.5 | mg/l |
| 499558 | Dissolved oxygen (DO) | 25-Apr-90 | 10.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 24-May-90 | 8.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 11-Jul-90 | 6.2 | mg/l |
| 499558 | Dissolved oxygen (DO) | 21-Aug-90 | 5.8 | mg/l |
| 499558 | Dissolved oxygen (DO) | 13-Sep-90 | 7.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 03-Oct-90 | 8.8 | mg/l |
| 499558 | Dissolved oxygen (DO) | 25-Oct-90 | 9 | mg/l |
| 499558 | Dissolved oxygen (DO) | 29-Jan-91 | 12.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 13-Feb-91 | 10.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 26-Feb-91 | 2.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 27-Mar-91 | 10.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 28-Mar-91 | 8 | mg/l |
| 499558 | Dissolved oxygen (DO) | 08-May-91 | 10.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 12-Jun-91 | 6.9 | mg/l |
| 499558 | Dissolved oxygen (DO) | 10-Jul-91 | 4.7 | mg/l |
| 499558 | Dissolved oxygen (DO) | 16-Jul-91 | 5.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 15-Aug-91 | 6.1 | mg/l |
| 499558 | Dissolved oxygen (DO) | 28-Aug-91 | 5.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 16-Oct-91 | 11.1 | mg/l |
| 499558 | Dissolved oxygen (DO) | 04-Dec-91 | 10.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 04-Feb-92 | 11.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 12-Feb-92 | 9.9 | mg/l |
| 499558 | Dissolved oxygen (DO) | 17-Mar-92 | 9.7 | mg/l |
| 499558 | Dissolved oxygen (DO) | 14-Apr-92 | 1.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 28-Apr-92 | 1.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 12-May-92 | 3.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 28-May-92 | 2.2 | mg/l |
| 499558 | Dissolved oxygen (DO) | 10-Jun-92 | 2.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 21-Jul-92 | 2.1 | mg/l |
| 499558 | Dissolved oxygen (DO) | 12-Aug-92 | 0.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 09-Sep-92 | 8.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 23-Sep-92 | 8.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 30-Sep-92 | 8.5 | mg/l |
| 499558 | Dissolved oxygen (DO) | 29-Oct-92 | 8.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 18-Nov-92 | 10.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 27-Jan-93 | 11.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 14-Apr-93 | 10.2 | mg/l |
| 499558 | Dissolved oxygen (DO) | 14-Jun-95 | 6.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 27-Jul-95 | 7.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 07-Sep-95 | 5.9 | mg/l |
| 499558 | Dissolved oxygen (DO) | 08-Nov-95 | 10.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 10-Jan-96 | 10.56 | mg/l |
| 499558 | Dissolved oxygen (DO) | 21-Feb-96 | 10.15 | mg/l |
| 499558 | Dissolved oxygen (DO) | 10-Apr-96 | 10.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 01-May-96 | 9.1 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Dissolved oxygen (DO) | 25-Jul-96 | 6.2 | mg/l |
| 499558 | Dissolved oxygen (DO) | 05-Sep-96 | 6.7 | mg/l |
| 499558 | Dissolved oxygen (DO) | 09-Oct-96 | 8.8 | mg/l |
| 499558 | Dissolved oxygen (DO) | 19-Nov-96 | 9.2 | mg/l |
| 499558 | Dissolved oxygen (DO) | 22-Jan-97 | 8.9 | mg/l |
| 499558 | Dissolved oxygen (DO) | 13-Mar-97 | 9.58 | mg/l |
| 499558 | Dissolved oxygen (DO) | 29-Apr-97 | 8.55 | mg/l |
| 499558 | Dissolved oxygen (DO) | 18-Jun-97 | 8.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 15-Jul-97 | 9.28 | mg/l |
| 499558 | Dissolved oxygen (DO) | 29-Jul-97 | 7.11 | mg/l |
| 499558 | Dissolved oxygen (DO) | 11-Sep-97 | 7.06 | mg/l |
| 499558 | Dissolved oxygen (DO) | 16-Oct-97 | 9.63 | mg/l |
| 499558 | Dissolved oxygen (DO) | 02-Dec-97 | 11.01 | mg/l |
| 499558 | Dissolved oxygen (DO) | 05-Feb-98 | 10.13 | mg/l |
| 499558 | Dissolved oxygen (DO) | 19-Mar-98 | 11.1 | mg/l |
| 499558 | Dissolved oxygen (DO) | 27-May-98 | 9.78 | mg/l |
| 499558 | Dissolved oxygen (DO) | 11-Aug-98 | 7.98 | mg/l |
| 499558 | Dissolved oxygen (DO) | 13-Oct-98 | 9.82 | mg/l |
| 499558 | Dissolved oxygen (DO) | 01-Dec-98 | 10.2 | mg/l |
| 499558 | Dissolved oxygen (DO) | 14-Jan-99 | 11.9 | mg/l |
| 499558 | Dissolved oxygen (DO) | 17-Mar-99 | 9.7 | mg/l |
| 499558 | Dissolved oxygen (DO) | 04-May-99 | 10.19 | mg/l |
| 499558 | Dissolved oxygen (DO) | 13-Jul-99 | 10.2 | mg/l |
| 499558 | Dissolved oxygen (DO) | 19-Aug-99 | 7.6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 24-Aug-99 | 6.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 05-Oct-99 | 9.9 | mg/l |
| 499558 | Dissolved oxygen (DO) | 02-Dec-99 | 10.9 | mg/l |
| 499558 | Dissolved oxygen (DO) | 11-Jan-00 | 9.58 | mg/l |
| 499558 | Dissolved oxygen (DO) | 29-Feb-00 | 8.01 | mg/l |
| 499558 | Dissolved oxygen (DO) | 31-Mar-00 | 8.4 | mg/l |
| 499558 | Dissolved oxygen (DO) | 19-Apr-00 | 9.62 | mg/l |
| 499558 | Dissolved oxygen (DO) | 09-May-00 | 8.18 | mg/l |
| 499558 | Dissolved oxygen (DO) | 26-May-00 | 6 | mg/l |
| 499558 | Dissolved oxygen (DO) | 08-Jun-00 | 6.91 | mg/l |
| 499558 | Dissolved oxygen (DO) | 28-Jun-00 | 7.86 | mg/l |
| 499558 | Dissolved oxygen (DO) | 31-Aug-00 | 5.88 | mg/l |
| 499558 | Dissolved oxygen (DO) | 04-Oct-00 | 7.3 | mg/l |
| 499558 | Dissolved oxygen (DO) | 14-Nov-00 | 11.06 | mg/l |
| 499558 | Dissolved oxygen (DO) | 13-Feb-01 | 11.59 | mg/l |
| 499558 | Dissolved oxygen (DO) | 10-May-01 | 6.97 | mg/l |
| 499558 | Dissolved oxygen (DO) | 07-Aug-01 | 6.41 | mg/l |
| 499558 | Dissolved oxygen (DO) | 29-Nov-01 | 12.33 | mg/l |
| 499558 | Dissolved oxygen (DO) | 23-Jan-02 | 11.35 | mg/l |
| 499558 | Dissolved oxygen (DO) | 05-Mar-02 | 9.53 | mg/l |
| 499558 | Dissolved oxygen (DO) | 17-Apr-02 | 8.04 | mg/l |
| 499558 | Dissolved oxygen (DO) | 23-May-02 | 7.03 | mg/l |
| 499558 | Dissolved oxygen (DO) | 09-Jul-02 | 8.28 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Dissolved oxygen (DO) | 22-Oct-02 | 9.47 | mg/l |
| 499558 | Dissolved oxygen (DO) | 07-Jan-03 | 12.8 | mg/l |
| 499558 | Dissolved oxygen (DO) | 11-Feb-03 | 13.09 | mg/l |
| 499558 | Dissolved oxygen (DO) | 19-Mar-03 | 12.44 | mg/l |
| 499558 | Dissolved oxygen (DO) | 03-Jun-03 | 5.44 | mg/l |
| 499558 | Dissolved oxygen (DO) | 29-Jul-03 | 4.12 | mg/l |
| 499558 | Dissolved oxygen (DO) | 10-Sep-03 | 6.42 | mg/l |
| 499558 | Dissolved Solids | 30-Jan-90 | 362 | mg/l |
| 499558 | Dissolved Solids | 20-Mar-90 | 360 | mg/l |
| 499558 | Dissolved Solids | 25-Apr-90 | 576 | mg/l |
| 499558 | Dissolved Solids | 24-May-90 | 936 | mg/l |
| 499558 | Dissolved Solids | 11-Jul-90 | 782 | mg/l |
| 499558 | Dissolved Solids | 21-Aug-90 | 826 | mg/l |
| 499558 | Dissolved Solids | 13-Sep-90 | 868 | mg/l |
| 499558 | Dissolved Solids | 03-Oct-90 | 910 | mg/l |
| 499558 | Dissolved Solids | 29-Jan-91 | 340 | mg/l |
| 499558 | Dissolved Solids | 13-Feb-91 | 436 | mg/l |
| 499558 | Dissolved Solids | 26-Feb-91 | 368 | mg/l |
| 499558 | Dissolved Solids | 27-Mar-91 | 394 | mg/l |
| 499558 | Dissolved Solids | 28-Mar-91 | 408 | mg/l |
| 499558 | Dissolved Solids | 08-May-91 | 574 | mg/l |
| 499558 | Dissolved Solids | 12-Jun-91 | 628 | mg/l |
| 499558 | Dissolved Solids | 10-Jul-91 | 418 | mg/l |
| 499558 | Dissolved Solids | 16-Jul-91 | 690 | mg/l |
| 499558 | Dissolved Solids | 15-Aug-91 | 592 | mg/l |
| 499558 | Dissolved Solids | 28-Aug-91 | 440 | mg/l |
| 499558 | Dissolved Solids | 16-Oct-91 | 578 | mg/l |
| 499558 | Dissolved Solids | 04-Dec-91 | 358 | mg/l |
| 499558 | Dissolved Solids | 14-Apr-92 | 910 | mg/l |
| 499558 | Dissolved Solids | 28-Apr-92 | 858 | mg/l |
| 499558 | Dissolved Solids | 12-May-92 | 434 | mg/l |
| 499558 | Dissolved Solids | 28-May-92 | 632 | mg/l |
| 499558 | Dissolved Solids | 10-Jun-92 | 820 | mg/l |
| 499558 | Dissolved Solids | 21-Jul-92 | 384 | mg/l |
| 499558 | Dissolved Solids | 12-Aug-92 | 542 | mg/l |
| 499558 | Dissolved Solids | 09-Sep-92 | 260 | mg/l |
| 499558 | Dissolved Solids | 23-Sep-92 | 222 | mg/l |
| 499558 | Dissolved Solids | 30-Sep-92 | 244 | mg/l |
| 499558 | Dissolved Solids | 29-Oct-92 | 552 | mg/l |
| 499558 | Dissolved Solids | 18-Nov-92 | 370 | mg/l |
| 499558 | Dissolved Solids | 27-Jan-93 | 372 | mg/l |
| 499558 | Dissolved Solids | 14-Apr-93 | 288 | mg/l |
| 499558 | Dissolved Solids | 14-Jun-95 | 318 | mg/l |
| 499558 | Dissolved Solids | 27-Jul-95 | 434 | mg/l |
| 499558 | Dissolved Solids | 07-Sep-95 | 422 | mg/l |
| 499558 | Dissolved Solids | 08-Nov-95 | 500 | mg/l |
| 499558 | Dissolved Solids | 10-Jan-96 | 524 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Dissolved Solids | 21-Feb-96 | 408 | mg/l |
| 499558 | Dissolved Solids | 10-Apr-96 | 350 | mg/l |
| 499558 | Dissolved Solids | 01-May-96 | 352 | mg/l |
| 499558 | Dissolved Solids | 25-Jul-96 | 506 | mg/l |
| 499558 | Dissolved Solids | 05-Sep-96 | 428 | mg/l |
| 499558 | Dissolved Solids | 09-Oct-96 | 512 | mg/l |
| 499558 | Dissolved Solids | 19-Nov-96 | 584 | mg/l |
| 499558 | Dissolved Solids | 22-Jan-97 | 532 | mg/l |
| 499558 | Dissolved Solids | 13-Mar-97 | 446 | mg/l |
| 499558 | Dissolved Solids | 29-Apr-97 | 310 | mg/l |
| 499558 | Dissolved Solids | 18-Jun-97 | 388 | mg/l |
| 499558 | Dissolved Solids | 15-Jul-97 | 378 | mg/l |
| 499558 | Dissolved Solids | 29-Jul-97 | 540 | mg/l |
| 499558 | Dissolved Solids | 11-Sep-97 | 436 | mg/l |
| 499558 | Dissolved Solids | 16-Oct-97 | 498 | mg/l |
| 499558 | Dissolved Solids | 02-Dec-97 | 504 | mg/l |
| 499558 | Dissolved Solids | 05-Feb-98 | 516 | mg/l |
| 499558 | Dissolved Solids | 19-Mar-98 | 534 | mg/l |
| 499558 | Dissolved Solids | 27-May-98 | 322 | mg/l |
| 499558 | Dissolved Solids | 11-Aug-98 | 282 | mg/l |
| 499558 | Dissolved Solids | 13-Oct-98 | 484 | mg/l |
| 499558 | Dissolved Solids | 01-Dec-98 | 470 | mg/l |
| 499558 | Dissolved Solids | 14-Jan-99 | 486 | mg/l |
| 499558 | Dissolved Solids | 17-Mar-99 | 470 | mg/l |
| 499558 | Dissolved Solids | 04-May-99 | 348 | mg/l |
| 499558 | Dissolved Solids | 13-Jul-99 | 330 | mg/l |
| 499558 | Dissolved Solids | 19-Aug-99 | 274 | mg/l |
| 499558 | Dissolved Solids | 24-Aug-99 | 386 | mg/l |
| 499558 | Dissolved Solids | 05-Oct-99 | 498 | mg/l |
| 499558 | Dissolved Solids | 02-Dec-99 | 506 | mg/l |
| 499558 | Dissolved Solids | 11-Jan-00 | 512 | mg/l |
| 499558 | Dissolved Solids | 29-Feb-00 | 528 | mg/l |
| 499558 | Dissolved Solids | 31-Mar-00 | 460 | mg/l |
| 499558 | Dissolved Solids | 19-Apr-00 | 420 | mg/l |
| 499558 | Dissolved Solids | 09-May-00 | 336 | mg/l |
| 499558 | Dissolved Solids | 26-May-00 | 322 | mg/l |
| 499558 | Dissolved Solids | 08-Jun-00 | 558 | mg/l |
| 499558 | Dissolved Solids | 28-Jun-00 | 540 | mg/l |
| 499558 | Dissolved Solids | 04-Oct-00 | 526 | mg/l |
| 499558 | Dissolved Solids | 14-Nov-00 | 578 | mg/l |
| 499558 | Dissolved Solids | 13-Feb-01 | 522 | mg/l |
| 499558 | Dissolved Solids | 10-May-01 | 384 | mg/l |
| 499558 | Dissolved Solids | 07-Aug-01 | 414 | mg/l |
| 499558 | Dissolved Solids | 10-Oct-01 | 434 | mg/l |
| 499558 | Dissolved Solids | 29-Nov-01 | 362 | mg/l |
| 499558 | Dissolved Solids | 23-Jan-02 | 384 | mg/l |
| 499558 | Dissolved Solids | 05-Mar-02 | 366 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Dissolved Solids | 17-Apr-02 | 658 | mg/l |
| 499558 | Dissolved Solids | 23-May-02 | 712 | mg/l |
| 499558 | Dissolved Solids | 09-Jul-02 | 600 | mg/l |
| 499558 | Dissolved Solids | 27-Aug-02 | 702 | mg/l |
| 499558 | Dissolved Solids | 11-Feb-03 | 380 | mg/l |
| 499558 | Dissolved Solids | 19-Mar-03 | 396 | mg/l |
| 499558 | Dissolved Solids | 03-Jun-03 | 656 | mg/l |
| 499558 | Dissolved Solids | 29-Jul-03 | 454 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Jan-91 | 0.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Feb-91 | 0.432 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 26-Feb-91 | 0.2 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Mar-91 | 2.467 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Mar-91 | 0.35 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-May-91 | 0.02 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Jun-91 | 0.118 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jul-91 | 0.262 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Jul-91 | 0.131 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 15-Aug-91 | 0.127 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Aug-91 | 0.03 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Oct-91 | 0.125 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Oct-91 | 0.126 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Dec-91 | 0.272 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Dec-91 | 0.261 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Feb-92 | 0.27 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Feb-92 | 0.345 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Mar-92 | 0.049 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Apr-92 | 0.231 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Apr-92 | 0.07 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-May-92 | 0.161 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-May-92 | 0.172 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jun-92 | 0.226 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 21-Jul-92 | 0.071 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 12-Aug-92 | 0.211 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Sep-92 | 0.128 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-Sep-92 | 0.15 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 30-Sep-92 | 0.116 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Oct-92 | 0.182 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 18-Nov-92 | 0.141 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Jan-93 | 0.401 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Apr-93 | 0.299 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Jun-95 | 0.24 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Jul-95 | 0.14 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Sep-95 | 0.17 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Nov-95 | 0.39 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Jan-96 | 0.77 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 21-Feb-96 | 0.58 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Apr-96 | 0.31 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 01-May-96 | 0.1 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 25-Jul-96 | 0.35 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Sep-96 | 0.33 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Oct-96 | 0.28 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Nov-96 | 0.33 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 22-Jan-97 | 0.42 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Mar-97 | 0.32 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Apr-97 | 0.31 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 18-Jun-97 | 0.16 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 15-Jul-97 | 0.15 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Jul-97 | 0.55 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-Sep-97 | 3.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 16-Oct-97 | 0.46 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Dec-97 | 0.35 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Feb-98 | 0.34 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Mar-98 | 0.29 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-May-98 | 0.27 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-Aug-98 | 41.25 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Oct-98 | 0.23 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 01-Dec-98 | 0.36 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Jan-99 | 0.38707 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Mar-99 | 0.226 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-May-99 | 0.43 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Jul-99 | 0.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Aug-99 | 0.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 24-Aug-99 | 0.2 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Oct-99 | 0.9 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02-Dec-99 | 0.4 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-Jan-00 | 0.4 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Feb-00 | 0.4 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 31-Mar-00 | 0.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Apr-00 | 0.2 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-May-00 | 0.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 26-May-00 | 0.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08-Jun-00 | 0.2 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 28-Jun-00 | 0.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04-Oct-00 | 0.5 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 14-Nov-00 | 0.62 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 13-Feb-01 | 0.87 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-May-01 | 16.3 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Aug-01 | *Non-detect | |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10-Oct-01 | 0.41 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Nov-01 | 0.22 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-Jan-02 | 0.25 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05-Mar-02 | 15 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 17-Apr-02 | *Non-detect | |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 23-May-02 | 0.1 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09-Jul-02 | *Non-detect | |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 27-Aug-02 | *Non-detect | |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 22-Oct-02 | 0.12 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07-Jan-03 | 0.1 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11-Feb-03 | 0.1 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 19-Mar-03 | *Non-detect | |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 03-Jun-03 | 0.2 | mg/l |
| 499558 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 29-Jul-03 | 0.18 | mg/l |
| 499558 | pH | 30-Jan-90 | 7.9 | None |
| 499558 | pH | 30-Jan-90 | 8.2 | None |
| 499558 | pH | 20-Mar-90 | 8.1 | None |
| 499558 | pH | 20-Mar-90 | 8.3 | None |
| 499558 | pH | 25-Apr-90 | 8.1 | None |
| 499558 | pH | 25-Apr-90 | 8.1 | None |
| 499558 | pH | 24-May-90 | 8 | None |
| 499558 | pH | 24-May-90 | 8.1 | None |
| 499558 | pH | 11-Jul-90 | 7.9 | None |
| 499558 | pH | 11-Jul-90 | 7.9 | None |
| 499558 | pH | 21-Aug-90 | 8 | None |
| 499558 | pH | 21-Aug-90 | 7.8 | None |
| 499558 | pH | 13-Sep-90 | 8 | None |
| 499558 | pH | 13-Sep-90 | 8.3 | None |
| 499558 | pH | 03-Oct-90 | 7.9 | None |
| 499558 | pH | 03-Oct-90 | 8.1 | None |
| 499558 | pH | 25-Oct-90 | 7.8 | None |
| 499558 | pH | 25-Oct-90 | 9 | None |
| 499558 | pH | 29-Jan-91 | 8.2 | None |
| 499558 | pH | 29-Jan-91 | 7.9 | None |
| 499558 | pH | 13-Feb-91 | 7.9 | None |
| 499558 | pH | 13-Feb-91 | 8.1 | None |
| 499558 | pH | 26-Feb-91 | 8.1 | None |
| 499558 | pH | 26-Feb-91 | 7.7 | None |
| 499558 | pH | 27-Mar-91 | 7.9 | None |
| 499558 | pH | 27-Mar-91 | 8.3 | None |
| 499558 | pH | 28-Mar-91 | 8 | None |
| 499558 | pH | 28-Mar-91 | 7.9 | None |
| 499558 | pH | 08-May-91 | 7.9 | None |
| 499558 | pH | 08-May-91 | 8 | None |
| 499558 | pH | 12-Jun-91 | 8 | None |
| 499558 | pH | 12-Jun-91 | 8 | None |
| 499558 | pH | 10-Jul-91 | 8 | None |
| 499558 | pH | 10-Jul-91 | 7.7 | None |
| 499558 | pH | 16-Jul-91 | 7.9 | None |
| 499558 | pH | 16-Jul-91 | 7.8 | None |
| 499558 | pH | 15-Aug-91 | 8 | None |
| 499558 | pH | 15-Aug-91 | 7.8 | None |
| 499558 | pH | 28-Aug-91 | 8.1 | None |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | pH | 28-Aug-91 | 7.7 | None |
| 499558 | pH | 16-Oct-91 | 8.2 | None |
| 499558 | pH | 16-Oct-91 | 8.2 | None |
| 499558 | pH | 04-Dec-91 | 7.9 | None |
| 499558 | pH | 04-Dec-91 | 8.1 | None |
| 499558 | pH | 04-Feb-92 | 8.3 | None |
| 499558 | pH | 12-Feb-92 | 8.1 | None |
| 499558 | pH | 17-Mar-92 | 8 | None |
| 499558 | pH | 14-Apr-92 | 7.6 | None |
| 499558 | pH | 28-Apr-92 | 7.7 | None |
| 499558 | pH | 12-May-92 | 7.7 | None |
| 499558 | pH | 28-May-92 | 7.5 | None |
| 499558 | pH | 10-Jun-92 | 7.6 | None |
| 499558 | pH | 21-Jul-92 | 7.6 | None |
| 499558 | pH | 12-Aug-92 | 7.3 | None |
| 499558 | pH | 09-Sep-92 | 7.8 | None |
| 499558 | pH | 23-Sep-92 | 8 | None |
| 499558 | pH | 30-Sep-92 | 8.1 | None |
| 499558 | pH | 30-Sep-92 | 7.9 | None |
| 499558 | pH | 29-Oct-92 | 8.1 | None |
| 499558 | pH | 18-Nov-92 | 8.1 | None |
| 499558 | pH | 27-Jan-93 | 7.8 | None |
| 499558 | pH | 27-Jan-93 | 7.8 | None |
| 499558 | pH | 14-Apr-93 | 8.4 | None |
| 499558 | pH | 14-Apr-93 | 8.1 | None |
| 499558 | pH | 14-Jun-95 | 8.35 | None |
| 499558 | pH | 14-Jun-95 | 8.3 | None |
| 499558 | pH | 27-Jul-95 | 8.33 | None |
| 499558 | pH | 27-Jul-95 | 8.6 | None |
| 499558 | pH | 07-Sep-95 | 8.11 | None |
| 499558 | pH | 07-Sep-95 | 8.3 | None |
| 499558 | pH | 08-Nov-95 | 8.31 | None |
| 499558 | pH | 08-Nov-95 | 8.4 | None |
| 499558 | pH | 10-Jan-96 | 8.32 | None |
| 499558 | pH | 10-Jan-96 | 8.36 | None |
| 499558 | pH | 21-Feb-96 | 8 | None |
| 499558 | pH | 21-Feb-96 | 8.13 | None |
| 499558 | pH | 10-Apr-96 | 8.9 | None |
| 499558 | pH | 10-Apr-96 | 8.09 | None |
| 499558 | pH | 01-May-96 | 8.23 | None |
| 499558 | pH | 01-May-96 | 8.7 | None |
| 499558 | pH | 25-Jul-96 | 7.8 | None |
| 499558 | pH | 25-Jul-96 | 7.77 | None |
| 499558 | pH | 05-Sep-96 | 8.33 | None |
| 499558 | pH | 05-Sep-96 | 8.1 | None |
| 499558 | pH | 09-Oct-96 | 8.4 | None |
| 499558 | pH | 09-Oct-96 | 8.4 | None |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | pH | 19-Nov-96 | 8.2 | None |
| 499558 | pH | 19-Nov-96 | 8.66 | None |
| 499558 | pH | 22-Jan-97 | 8.3 | None |
| 499558 | pH | 22-Jan-97 | 8.33 | None |
| 499558 | pH | 13-Mar-97 | 8.13 | None |
| 499558 | pH | 13-Mar-97 | 8.86 | None |
| 499558 | pH | 29-Apr-97 | 8.65 | None |
| 499558 | pH | 29-Apr-97 | 8.12 | None |
| 499558 | pH | 18-Jun-97 | 8.46 | None |
| 499558 | pH | 18-Jun-97 | 8.2 | None |
| 499558 | pH | 15-Jul-97 | 7.99 | None |
| 499558 | pH | 29-Jul-97 | 8.22 | None |
| 499558 | pH | 29-Jul-97 | 8.04 | None |
| 499558 | pH | 11-Sep-97 | 8.08 | None |
| 499558 | pH | 11-Sep-97 | 8.19 | None |
| 499558 | pH | 16-Oct-97 | 8.23 | None |
| 499558 | pH | 16-Oct-97 | 8.33 | None |
| 499558 | pH | 02-Dec-97 | 8.28 | None |
| 499558 | pH | 02-Dec-97 | 8.23 | None |
| 499558 | pH | 05-Feb-98 | 8.23 | None |
| 499558 | pH | 05-Feb-98 | 8.43 | None |
| 499558 | pH | 19-Mar-98 | 8.22 | None |
| 499558 | pH | 19-Mar-98 | 8.8 | None |
| 499558 | pH | 27-May-98 | 9.16 | None |
| 499558 | pH | 27-May-98 | 8.25 | None |
| 499558 | pH | 11-Aug-98 | 8.01 | None |
| 499558 | pH | 11-Aug-98 | 8.1 | None |
| 499558 | pH | 13-Oct-98 | 8.15 | None |
| 499558 | pH | 13-Oct-98 | 8.33 | None |
| 499558 | pH | 01-Dec-98 | 8.35 | None |
| 499558 | pH | 01-Dec-98 | 8.8 | None |
| 499558 | pH | 14-Jan-99 | 8.19 | None |
| 499558 | pH | 14-Jan-99 | 8.3 | None |
| 499558 | pH | 17-Mar-99 | 8.19 | None |
| 499558 | pH | 17-Mar-99 | 8.4 | None |
| 499558 | pH | 04-May-99 | 8.22 | None |
| 499558 | pH | 04-May-99 | 8.37 | None |
| 499558 | pH | 13-Jul-99 | 8.3 | None |
| 499558 | pH | 13-Jul-99 | 8.3 | None |
| 499558 | pH | 19-Aug-99 | 7.9 | None |
| 499558 | pH | 24-Aug-99 | 8.25 | None |
| 499558 | pH | 24-Aug-99 | 8.1 | None |
| 499558 | pH | 05-Oct-99 | 8.31 | None |
| 499558 | pH | 05-Oct-99 | 8.1 | None |
| 499558 | pH | 02-Dec-99 | 7.65 | None |
| 499558 | pH | 02-Dec-99 | 8.2 | None |
| 499558 | pH | 11-Jan-00 | 7.93 | None |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | pH | 11-Jan-00 | 8.25 | None |
| 499558 | pH | 29-Feb-00 | 8.13 | None |
| 499558 | pH | 29-Feb-00 | 7.72 | None |
| 499558 | pH | 31-Mar-00 | 8.37 | None |
| 499558 | pH | 31-Mar-00 | 8.2 | None |
| 499558 | pH | 19-Apr-00 | 8.23 | None |
| 499558 | pH | 19-Apr-00 | 8.16 | None |
| 499558 | pH | 09-May-00 | 7.99 | None |
| 499558 | pH | 09-May-00 | 8.09 | None |
| 499558 | pH | 26-May-00 | 8 | None |
| 499558 | pH | 26-May-00 | 8.26 | None |
| 499558 | pH | 08-Jun-00 | 8 | None |
| 499558 | pH | 08-Jun-00 | 8.16 | None |
| 499558 | pH | 28-Jun-00 | 8.21 | None |
| 499558 | pH | 28-Jun-00 | 8.32 | None |
| 499558 | pH | 31-Aug-00 | 7.8 | None |
| 499558 | pH | 04-Oct-00 | 8.4 | None |
| 499558 | pH | 04-Oct-00 | 8.24 | None |
| 499558 | pH | 14-Nov-00 | 7.36 | None |
| 499558 | pH | 14-Nov-00 | 8.15 | None |
| 499558 | pH | 13-Feb-01 | 8.06 | None |
| 499558 | pH | 13-Feb-01 | 8.19 | None |
| 499558 | pH | 10-May-01 | 7.92 | None |
| 499558 | pH | 10-May-01 | 7.68 | None |
| 499558 | pH | 07-Aug-01 | 8.14 | None |
| 499558 | pH | 07-Aug-01 | 8.27 | None |
| 499558 | pH | 10-Oct-01 | 8.27 | None |
| 499558 | pH | 29-Nov-01 | 8.43 | None |
| 499558 | pH | 29-Nov-01 | 8.25 | None |
| 499558 | pH | 23-Jan-02 | 8.48 | None |
| 499558 | pH | 23-Jan-02 | 8.13 | None |
| 499558 | pH | 05-Mar-02 | 8.25 | None |
| 499558 | pH | 05-Mar-02 | 8.63 | None |
| 499558 | pH | 17-Apr-02 | 8.3 | None |
| 499558 | pH | 17-Apr-02 | 8.53 | None |
| 499558 | pH | 23-May-02 | 8.24 | None |
| 499558 | pH | 23-May-02 | 8.1 | None |
| 499558 | pH | 09-Jul-02 | 8.2 | None |
| 499558 | pH | 09-Jul-02 | 8.07 | None |
| 499558 | pH | 22-Oct-02 | 8.24 | None |
| 499558 | pH | 07-Jan-03 | 8.44 | None |
| 499558 | pH | 11-Feb-03 | 8.2 | None |
| 499558 | pH | 11-Feb-03 | 8.36 | None |
| 499558 | pH | 19-Mar-03 | 8.57 | None |
| 499558 | pH | 19-Mar-03 | 8.38 | None |
| 499558 | pH | 03-Jun-03 | 8.17 | None |
| 499558 | pH | 03-Jun-03 | 7.84 | None |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | pH | 29-Jul-03 | 7.99 | None |
| 499558 | pH | 29-Jul-03 | 7.99 | None |
| 499558 | pH | 10-Sep-03 | 7.81 | None |
| 499558 | Phosphorus as P | 30-Jan-90 | 0.111 | mg/l |
| 499558 | Phosphorus as P | 20-Mar-90 | 0.011 | mg/l |
| 499558 | Phosphorus as P | 25-Apr-90 | 0.035 | mg/l |
| 499558 | Phosphorus as P | 24-May-90 | 0.078 | mg/l |
| 499558 | Phosphorus as P | 11-Jul-90 | 0.138 | mg/l |
| 499558 | Phosphorus as P | 21-Aug-90 | 0.122 | mg/l |
| 499558 | Phosphorus as P | 21-Aug-90 | 0.043 | mg/l |
| 499558 | Phosphorus as P | 13-Sep-90 | 0.118 | mg/l |
| 499558 | Phosphorus as P | 13-Sep-90 | 0.049 | mg/l |
| 499558 | Phosphorus as P | 03-Oct-90 | 0.034 | mg/l |
| 499558 | Phosphorus as P | 03-Oct-90 | 0.04 | mg/l |
| 499558 | Phosphorus as P | 25-Oct-90 | 0.06 | mg/l |
| 499558 | Phosphorus as P | 25-Oct-90 | 0.024 | mg/l |
| 499558 | Phosphorus as P | 29-Jan-91 | 0.02 | mg/l |
| 499558 | Phosphorus as P | 29-Jan-91 | 0.12 | mg/l |
| 499558 | Phosphorus as P | 13-Feb-91 | 0.022 | mg/l |
| 499558 | Phosphorus as P | 13-Feb-91 | 0.088 | mg/l |
| 499558 | Phosphorus as P | 26-Feb-91 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 26-Feb-91 | 0.041 | mg/l |
| 499558 | Phosphorus as P | 27-Mar-91 | 0.056 | mg/l |
| 499558 | Phosphorus as P | 27-Mar-91 | 0.025 | mg/l |
| 499558 | Phosphorus as P | 28-Mar-91 | 0.1 | mg/l |
| 499558 | Phosphorus as P | 28-Mar-91 | 0.052 | mg/l |
| 499558 | Phosphorus as P | 08-May-91 | 0.02 | mg/l |
| 499558 | Phosphorus as P | 08-May-91 | 0.016 | mg/l |
| 499558 | Phosphorus as P | 12-Jun-91 | 0.019 | mg/l |
| 499558 | Phosphorus as P | 12-Jun-91 | 0.048 | mg/l |
| 499558 | Phosphorus as P | 10-Jul-91 | 0.18 | mg/l |
| 499558 | Phosphorus as P | 10-Jul-91 | 0.043 | mg/l |
| 499558 | Phosphorus as P | 16-Jul-91 | 0.055 | mg/l |
| 499558 | Phosphorus as P | 16-Jul-91 | 0.045 | mg/l |
| 499558 | Phosphorus as P | 15-Aug-91 | 0.067 | mg/l |
| 499558 | Phosphorus as P | 15-Aug-91 | 0.019 | mg/l |
| 499558 | Phosphorus as P | 28-Aug-91 | 0.084 | mg/l |
| 499558 | Phosphorus as P | 28-Aug-91 | 0.023 | mg/l |
| 499558 | Phosphorus as P | 16-Oct-91 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 16-Oct-91 | 0.039 | mg/l |
| 499558 | Phosphorus as P | 04-Dec-91 | 0.078 | mg/l |
| 499558 | Phosphorus as P | 04-Dec-91 | 0.094 | mg/l |
| 499558 | Phosphorus as P | 04-Feb-92 | 0.073 | mg/l |
| 499558 | Phosphorus as P | 04-Feb-92 | 0.017 | mg/l |
| 499558 | Phosphorus as P | 12-Feb-92 | 0.066 | mg/l |
| 499558 | Phosphorus as P | 12-Feb-92 | 0.026 | mg/l |
| 499558 | Phosphorus as P | 17-Mar-92 | 0.035 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Phosphorus as P | 17-Mar-92 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 14-Apr-92 | 0.098 | mg/l |
| 499558 | Phosphorus as P | 14-Apr-92 | 0.077 | mg/l |
| 499558 | Phosphorus as P | 28-Apr-92 | 0.078 | mg/l |
| 499558 | Phosphorus as P | 28-Apr-92 | 0.029 | mg/l |
| 499558 | Phosphorus as P | 12-May-92 | 0.024 | mg/l |
| 499558 | Phosphorus as P | 12-May-92 | 0.099 | mg/l |
| 499558 | Phosphorus as P | 28-May-92 | 0.105 | mg/l |
| 499558 | Phosphorus as P | 28-May-92 | 0.039 | mg/l |
| 499558 | Phosphorus as P | 10-Jun-92 | 0.124 | mg/l |
| 499558 | Phosphorus as P | 10-Jun-92 | 0.035 | mg/l |
| 499558 | Phosphorus as P | 21-Jul-92 | 0.175 | mg/l |
| 499558 | Phosphorus as P | 21-Jul-92 | 0.023 | mg/l |
| 499558 | Phosphorus as P | 12-Aug-92 | 0.112 | mg/l |
| 499558 | Phosphorus as P | 12-Aug-92 | 0.033 | mg/l |
| 499558 | Phosphorus as P | 09-Sep-92 | 0.039 | mg/l |
| 499558 | Phosphorus as P | 09-Sep-92 | 0.079 | mg/l |
| 499558 | Phosphorus as P | 23-Sep-92 | 0.1 | mg/l |
| 499558 | Phosphorus as P | 23-Sep-92 | 0.058 | mg/l |
| 499558 | Phosphorus as P | 30-Sep-92 | 0.122 | mg/l |
| 499558 | Phosphorus as P | 30-Sep-92 | 0.068 | mg/l |
| 499558 | Phosphorus as P | 29-Oct-92 | 0.23 | mg/l |
| 499558 | Phosphorus as P | 29-Oct-92 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 18-Nov-92 | 0.036 | mg/l |
| 499558 | Phosphorus as P | 18-Nov-92 | 0.016 | mg/l |
| 499558 | Phosphorus as P | 27-Jan-93 | 0.042 | mg/l |
| 499558 | Phosphorus as P | 27-Jan-93 | 0.026 | mg/l |
| 499558 | Phosphorus as P | 14-Apr-93 | 0.076 | mg/l |
| 499558 | Phosphorus as P | 14-Apr-93 | 0.083 | mg/l |
| 499558 | Phosphorus as P | 14-Jun-95 | 0.16 | mg/l |
| 499558 | Phosphorus as P | 14-Jun-95 | 0.01 | mg/l |
| 499558 | Phosphorus as P | 27-Jul-95 | 0.03 | mg/l |
| 499558 | Phosphorus as P | 27-Jul-95 | 0.01 | mg/l |
| 499558 | Phosphorus as P | 07-Sep-95 | 0.06 | mg/l |
| 499558 | Phosphorus as P | 07-Sep-95 | 0.07 | mg/l |
| 499558 | Phosphorus as P | 08-Nov-95 | 0.05 | mg/l |
| 499558 | Phosphorus as P | 10-Jan-96 | 0.01 | mg/l |
| 499558 | Phosphorus as P | 10-Jan-96 | 0.07 | mg/l |
| 499558 | Phosphorus as P | 21-Feb-96 | 0.45 | mg/l |
| 499558 | Phosphorus as P | 21-Feb-96 | 0.11 | mg/l |
| 499558 | Phosphorus as P | 10-Apr-96 | 0.61 | mg/l |
| 499558 | Phosphorus as P | 10-Apr-96 | 0.01 | mg/l |
| 499558 | Phosphorus as P | 01-May-96 | 0.15 | mg/l |
| 499558 | Phosphorus as P | 25-Jul-96 | 0.11 | mg/l |
| 499558 | Phosphorus as P | 05-Sep-96 | 0.07 | mg/l |
| 499558 | Phosphorus as P | 09-Oct-96 | 0.02518 | mg/l |
| 499558 | Phosphorus as P | 09-Oct-96 | 0.02264 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Phosphorus as P | 19-Nov-96 | 0.0465 | mg/l |
| 499558 | Phosphorus as P | 13-Mar-97 | 0.24169 | mg/l |
| 499558 | Phosphorus as P | 13-Mar-97 | 0.01001 | mg/l |
| 499558 | Phosphorus as P | 29-Apr-97 | 0.86831 | mg/l |
| 499558 | Phosphorus as P | 18-Jun-97 | 0.059 | mg/l |
| 499558 | Phosphorus as P | 15-Jul-97 | 0.05778 | mg/l |
| 499558 | Phosphorus as P | 29-Jul-97 | 0.13636 | mg/l |
| 499558 | Phosphorus as P | 11-Sep-97 | 0.09745 | mg/l |
| 499558 | Phosphorus as P | 02-Dec-97 | 0.01996 | mg/l |
| 499558 | Phosphorus as P | 05-Feb-98 | 0.11316 | mg/l |
| 499558 | Phosphorus as P | 19-Mar-98 | 0.051 | mg/l |
| 499558 | Phosphorus as P | 19-Mar-98 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 27-May-98 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 27-May-98 | 0.086 | mg/l |
| 499558 | Phosphorus as P | 11-Aug-98 | 0.593 | mg/l |
| 499558 | Phosphorus as P | 13-Oct-98 | 0.035 | mg/l |
| 499558 | Phosphorus as P | 01-Dec-98 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 01-Dec-98 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 14-Jan-99 | 0.036 | mg/l |
| 499558 | Phosphorus as P | 14-Jan-99 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 17-Mar-99 | 0.02 | mg/l |
| 499558 | Phosphorus as P | 17-Mar-99 | 0.04 | mg/l |
| 499558 | Phosphorus as P | 04-May-99 | 0.425 | mg/l |
| 499558 | Phosphorus as P | 04-May-99 | 0.029 | mg/l |
| 499558 | Phosphorus as P | 13-Jul-99 | 0.02 | mg/l |
| 499558 | Phosphorus as P | 13-Jul-99 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 19-Aug-99 | 1.463 | mg/l |
| 499558 | Phosphorus as P | 19-Aug-99 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 24-Aug-99 | 0.083 | mg/l |
| 499558 | Phosphorus as P | 24-Aug-99 | 0.026 | mg/l |
| 499558 | Phosphorus as P | 05-Oct-99 | 0.052 | mg/l |
| 499558 | Phosphorus as P | 05-Oct-99 | 0.021 | mg/l |
| 499558 | Phosphorus as P | 02-Dec-99 | 0.02 | mg/l |
| 499558 | Phosphorus as P | 02-Dec-99 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 11-Jan-00 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 11-Jan-00 | 0.023 | mg/l |
| 499558 | Phosphorus as P | 29-Feb-00 | 0.042 | mg/l |
| 499558 | Phosphorus as P | 29-Feb-00 | 0.027 | mg/l |
| 499558 | Phosphorus as P | 31-Mar-00 | 0.029 | mg/l |
| 499558 | Phosphorus as P | 31-Mar-00 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 19-Apr-00 | 0.027 | mg/l |
| 499558 | Phosphorus as P | 19-Apr-00 | *Non-detect | mg/l |
| 499558 | Phosphorus as P | 09-May-00 | 0.029 | mg/l |
| 499558 | Phosphorus as P | 09-May-00 | 0.026 | mg/l |
| 499558 | Phosphorus as P | 26-May-00 | 0.086 | mg/l |
| 499558 | Phosphorus as P | 26-May-00 | 0.1 | mg/l |
| 499558 | Phosphorus as P | 08-Jun-00 | *Non-detect | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Phosphorus as P | 08-Jun-00 | 0.023 | mg/l |
| 499558 | Phosphorus as P | 28-Jun-00 | 0.06 | mg/l |
| 499558 | Phosphorus as P | 13-Feb-01 | 0.051 | mg/l |
| 499558 | Phosphorus as P | 10-May-01 | 0.056 | mg/l |
| 499558 | Phosphorus as P | 07-Aug-01 | 0.07 | mg/l |
| 499558 | Phosphorus as P | 10-Oct-01 | 0.098 | mg/l |
| 499558 | Phosphorus as P | 29-Nov-01 | 0.058 | mg/l |
| 499558 | Phosphorus as P | 23-Jan-02 | 0.021 | mg/l |
| 499558 | Phosphorus as P | 05-Mar-02 | 0.023 | mg/l |
| 499558 | Phosphorus as P | 17-Apr-02 | 0.062 | mg/l |
| 499558 | Phosphorus as P | 23-May-02 | 0.047 | mg/l |
| 499558 | Phosphorus as P | 09-Jul-02 | 0.057 | mg/l |
| 499558 | Phosphorus as P | 27-Aug-02 | 0.039 | mg/l |
| 499558 | Phosphorus as P | 27-Aug-02 | 0.044 | mg/l |
| 499558 | Phosphorus as P | 22-Oct-02 | 0.068 | mg/l |
| 499558 | Phosphorus as P | 07-Jan-03 | *Non-detect | |
| 499558 | Phosphorus as P | 11-Feb-03 | 0.058 | mg/l |
| 499558 | Phosphorus as P | 19-Mar-03 | 0.092 | mg/l |
| 499558 | Phosphorus as P | 03-Jun-03 | 0.103 | mg/l |
| 499558 | Phosphorus as P | 29-Jul-03 | 0.095 | mg/l |
| 499558 | Selenium | 30-Jan-90 | *Non-detect | ug/l |
| 499558 | Selenium | 20-Mar-90 | *Non-detect | ug/l |
| 499558 | Selenium | 25-Apr-90 | *Non-detect | ug/l |
| 499558 | Selenium | 24-May-90 | *Non-detect | ug/l |
| 499558 | Selenium | 11-Jul-90 | *Non-detect | ug/l |
| 499558 | Selenium | 21-Aug-90 | *Non-detect | ug/l |
| 499558 | Selenium | 13-Sep-90 | *Non-detect | ug/l |
| 499558 | Selenium | 03-Oct-90 | *Non-detect | ug/l |
| 499558 | Selenium | 25-Oct-90 | *Non-detect | ug/l |
| 499558 | Selenium | 29-Jan-91 | *Non-detect | ug/l |
| 499558 | Selenium | 13-Feb-91 | *Non-detect | ug/l |
| 499558 | Selenium | 26-Feb-91 | *Non-detect | ug/l |
| 499558 | Selenium | 27-Mar-91 | *Non-detect | ug/l |
| 499558 | Selenium | 28-Mar-91 | *Non-detect | ug/l |
| 499558 | Selenium | 08-May-91 | *Non-detect | ug/l |
| 499558 | Selenium | 12-Jun-91 | *Non-detect | ug/l |
| 499558 | Selenium | 10-Jul-91 | *Non-detect | ug/l |
| 499558 | Selenium | 16-Jul-91 | *Non-detect | ug/l |
| 499558 | Selenium | 15-Aug-91 | *Non-detect | ug/l |
| 499558 | Selenium | 28-Aug-91 | *Non-detect | ug/l |
| 499558 | Selenium | 16-Oct-91 | *Non-detect | ug/l |
| 499558 | Selenium | 04-Dec-91 | *Non-detect | ug/l |
| 499558 | Selenium | 04-Feb-92 | *Non-detect | ug/l |
| 499558 | Selenium | 12-Feb-92 | *Non-detect | ug/l |
| 499558 | Selenium | 17-Mar-92 | *Non-detect | ug/l |
| 499558 | Selenium | 30-Sep-92 | *Non-detect | ug/l |
| 499558 | Selenium | 27-Jan-93 | *Non-detect | ug/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Selenium | 14-Apr-93 | *Non-detect | ug/l |
| 499558 | Selenium | 27-Jul-95 | *Non-detect | ug/l |
| 499558 | Selenium | 07-Sep-95 | *Non-detect | ug/l |
| 499558 | Selenium | 08-Nov-95 | 1 | ug/l |
| 499558 | Selenium | 10-Jan-96 | 2 | ug/l |
| 499558 | Selenium | 01-May-96 | *Non-detect | ug/l |
| 499558 | Selenium | 05-Sep-96 | *Non-detect | ug/l |
| 499558 | Selenium | 09-Oct-96 | 1.3 | ug/l |
| 499558 | Selenium | 22-Jan-97 | 1.9 | ug/l |
| 499558 | Selenium | 29-Apr-97 | 1.2 | ug/l |
| 499558 | Selenium | 29-Jul-97 | 1.1 | ug/l |
| 499558 | Selenium | 16-Oct-97 | 1.5 | ug/l |
| 499558 | Selenium | 05-Feb-98 | 1.6 | ug/l |
| 499558 | Selenium | 27-May-98 | 1.4 | ug/l |
| 499558 | Selenium | 11-Aug-98 | 1.4 | ug/l |
| 499558 | Selenium | 13-Oct-98 | 1.7 | ug/l |
| 499558 | Selenium | 14-Jan-99 | 1.6 | ug/l |
| 499558 | Selenium | 04-May-99 | 1.3 | ug/l |
| 499558 | Selenium | 13-Jul-99 | *Non-detect | ug/l |
| 499558 | Selenium | 05-Oct-99 | 1.7 | ug/l |
| 499558 | Selenium | 29-Feb-00 | 1.8 | ug/l |
| 499558 | Selenium | 19-Apr-00 | 1.4 | ug/l |
| 499558 | Selenium | 04-Oct-00 | 1.3 | ug/l |
| 499558 | Selenium | 13-Feb-01 | 2 | ug/l |
| 499558 | Selenium | 10-May-01 | 1.2 | ug/l |
| 499558 | Selenium | 07-Aug-01 | *Non-detect | |
| 499558 | Selenium | 10-Oct-01 | 1.6 | ug/l |
| 499558 | Selenium | 23-Jan-02 | *Non-detect | |
| 499558 | Selenium | 17-Apr-02 | 1.1 | ug/l |
| 499558 | Selenium | 09-Jul-02 | 1 | ug/l |
| 499558 | Selenium | 07-Jan-03 | 1.1 | ug/l |
| 499558 | Selenium | 03-Jun-03 | 1.2 | ug/l |
| 499558 | Selenium | 29-Jul-03 | *Non-detect | |
| 499558 | Temperature, water | 30-Jan-90 | 1 | deg C |
| 499558 | Temperature, water | 20-Mar-90 | 7.7 | deg C |
| 499558 | Temperature, water | 25-Apr-90 | 11.3 | deg C |
| 499558 | Temperature, water | 24-May-90 | 14.3 | deg C |
| 499558 | Temperature, water | 11-Jul-90 | 20.6 | deg C |
| 499558 | Temperature, water | 21-Aug-90 | 16.7 | deg C |
| 499558 | Temperature, water | 13-Sep-90 | 16.1 | deg C |
| 499558 | Temperature, water | 03-Oct-90 | 11.6 | deg C |
| 499558 | Temperature, water | 25-Oct-90 | 10 | deg C |
| 499558 | Temperature, water | 29-Jan-91 | 0.1 | deg C |
| 499558 | Temperature, water | 13-Feb-91 | 3.6 | deg C |
| 499558 | Temperature, water | 26-Feb-91 | 4.1 | deg C |
| 499558 | Temperature, water | 27-Mar-91 | 4.2 | deg C |
| 499558 | Temperature, water | 28-Mar-91 | 10.4 | deg C |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Temperature, water | 08-May-91 | 17.1 | deg C |
| 499558 | Temperature, water | 12-Jun-91 | 16.4 | deg C |
| 499558 | Temperature, water | 10-Jul-91 | 21.1 | deg C |
| 499558 | Temperature, water | 16-Jul-91 | 23.2 | deg C |
| 499558 | Temperature, water | 15-Aug-91 | 21.8 | deg C |
| 499558 | Temperature, water | 28-Aug-91 | 17.9 | deg C |
| 499558 | Temperature, water | 16-Oct-91 | 11.4 | deg C |
| 499558 | Temperature, water | 04-Dec-91 | 0.2 | deg C |
| 499558 | Temperature, water | 04-Feb-92 | 4.4 | deg C |
| 499558 | Temperature, water | 12-Feb-92 | 6.2 | deg C |
| 499558 | Temperature, water | 17-Mar-92 | 7 | deg C |
| 499558 | Temperature, water | 14-Apr-92 | 14.1 | deg C |
| 499558 | Temperature, water | 28-Apr-92 | 16.9 | deg C |
| 499558 | Temperature, water | 12-May-92 | 15.4 | deg C |
| 499558 | Temperature, water | 28-May-92 | 17.2 | deg C |
| 499558 | Temperature, water | 10-Jun-92 | 18.8 | deg C |
| 499558 | Temperature, water | 21-Jul-92 | 21.5 | deg C |
| 499558 | Temperature, water | 12-Aug-92 | 22.3 | deg C |
| 499558 | Temperature, water | 09-Sep-92 | 14.2 | deg C |
| 499558 | Temperature, water | 23-Sep-92 | 14.2 | deg C |
| 499558 | Temperature, water | 30-Sep-92 | 12.2 | deg C |
| 499558 | Temperature, water | 29-Oct-92 | 11.4 | deg C |
| 499558 | Temperature, water | 18-Nov-92 | 5.8 | deg C |
| 499558 | Temperature, water | 27-Jan-93 | 0.4 | deg C |
| 499558 | Temperature, water | 14-Apr-93 | 4.7 | deg C |
| 499558 | Temperature, water | 14-Jun-95 | 14.6 | deg C |
| 499558 | Temperature, water | 27-Jul-95 | 24.8 | deg C |
| 499558 | Temperature, water | 07-Sep-95 | 20.1 | deg C |
| 499558 | Temperature, water | 08-Nov-95 | 6.1 | deg C |
| 499558 | Temperature, water | 10-Jan-96 | 5.6 | deg C |
| 499558 | Temperature, water | 21-Feb-96 | 2.79 | deg C |
| 499558 | Temperature, water | 10-Apr-96 | 10.5 | deg C |
| 499558 | Temperature, water | 01-May-96 | 10.07 | deg C |
| 499558 | Temperature, water | 25-Jul-96 | 19.4 | deg C |
| 499558 | Temperature, water | 05-Sep-96 | 17.7 | deg C |
| 499558 | Temperature, water | 09-Oct-96 | 12.8 | deg C |
| 499558 | Temperature, water | 19-Nov-96 | 5.9 | deg C |
| 499558 | Temperature, water | 22-Jan-97 | 3.3 | deg C |
| 499558 | Temperature, water | 13-Mar-97 | 5.57 | deg C |
| 499558 | Temperature, water | 29-Apr-97 | 8.8 | deg C |
| 499558 | Temperature, water | 18-Jun-97 | 16.5 | deg C |
| 499558 | Temperature, water | 15-Jul-97 | 16.08 | deg C |
| 499558 | Temperature, water | 29-Jul-97 | 16.45 | deg C |
| 499558 | Temperature, water | 11-Sep-97 | 16.27 | deg C |
| 499558 | Temperature, water | 16-Oct-97 | 8.48 | deg C |
| 499558 | Temperature, water | 02-Dec-97 | 5.23 | deg C |
| 499558 | Temperature, water | 05-Feb-98 | 5.92 | deg C |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Temperature, water | 19-Mar-98 | 4.9 | deg C |
| 499558 | Temperature, water | 27-May-98 | 10.11 | deg C |
| 499558 | Temperature, water | 11-Aug-98 | 14.67 | deg C |
| 499558 | Temperature, water | 13-Oct-98 | 8.97 | deg C |
| 499558 | Temperature, water | 01-Dec-98 | 6.4 | deg C |
| 499558 | Temperature, water | 14-Jan-99 | 3.4 | deg C |
| 499558 | Temperature, water | 17-Mar-99 | 7.51 | deg C |
| 499558 | Temperature, water | 04-May-99 | 6.78 | deg C |
| 499558 | Temperature, water | 13-Jul-99 | 18.4 | deg C |
| 499558 | Temperature, water | 19-Aug-99 | 15.5 | deg C |
| 499558 | Temperature, water | 24-Aug-99 | 18.6 | deg C |
| 499558 | Temperature, water | 05-Oct-99 | 9.2 | deg C |
| 499558 | Temperature, water | 02-Dec-99 | 4.4 | deg C |
| 499558 | Temperature, water | 11-Jan-00 | 5.75 | deg C |
| 499558 | Temperature, water | 29-Feb-00 | 9.49 | deg C |
| 499558 | Temperature, water | 31-Mar-00 | 9.44 | deg C |
| 499558 | Temperature, water | 19-Apr-00 | 8.11 | deg C |
| 499558 | Temperature, water | 09-May-00 | 12.68 | deg C |
| 499558 | Temperature, water | 26-May-00 | 17.1 | deg C |
| 499558 | Temperature, water | 08-Jun-00 | 21.23 | deg C |
| 499558 | Temperature, water | 28-Jun-00 | 22.65 | deg C |
| 499558 | Temperature, water | 31-Aug-00 | 17.24 | deg C |
| 499558 | Temperature, water | 04-Oct-00 | 13.13 | deg C |
| 499558 | Temperature, water | 14-Nov-00 | 2.54 | deg C |
| 499558 | Temperature, water | 13-Feb-01 | 4.88 | deg C |
| 499558 | Temperature, water | 10-May-01 | 15.33 | deg C |
| 499558 | Temperature, water | 07-Aug-01 | 23.59 | deg C |
| 499558 | Temperature, water | 29-Nov-01 | 2.56 | deg C |
| 499558 | Temperature, water | 23-Jan-02 | 0.48 | deg C |
| 499558 | Temperature, water | 05-Mar-02 | 5.32 | deg C |
| 499558 | Temperature, water | 17-Apr-02 | 7.88 | deg C |
| 499558 | Temperature, water | 23-May-02 | 14.57 | deg C |
| 499558 | Temperature, water | 09-Jul-02 | 25.15 | deg C |
| 499558 | Temperature, water | 22-Oct-02 | 9.24 | deg C |
| 499558 | Temperature, water | 07-Jan-03 | 1.89 | deg C |
| 499558 | Temperature, water | 11-Feb-03 | 1.67 | deg C |
| 499558 | Temperature, water | 19-Mar-03 | 5.67 | deg C |
| 499558 | Temperature, water | 03-Jun-03 | 21.18 | deg C |
| 499558 | Temperature, water | 29-Jul-03 | 25.7 | deg C |
| 499558 | Temperature, water | 10-Sep-03 | 15.18 | deg C |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 30-Jan-90 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 20-Mar-90 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 25-Apr-90 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 24-May-90 | 0.36 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 11-Jul-90 | 0.31 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 21-Aug-90 | 0.33 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 13-Sep-90 | 0.22 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 03-Oct-90 | 0.18 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 25-Oct-90 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 29-Jan-91 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 13-Feb-91 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 26-Feb-91 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 27-Mar-91 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 28-Mar-91 | 0.05 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 08-May-91 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 12-Jun-91 | 0.16 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 10-Jul-91 | 0.3 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 16-Jul-91 | 0.09 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 15-Aug-91 | 0.12 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 28-Aug-91 | 0.11 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 16-Oct-91 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 04-Dec-91 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 04-Feb-92 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 12-Feb-92 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 17-Mar-92 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 14-Apr-92 | 0.551 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 28-Apr-92 | 0.406 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 12-May-92 | 0.312 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 28-May-92 | 0.375 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 10-Jun-92 | 0.27 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 21-Jul-92 | 0.087 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 12-Aug-92 | 0.191 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 09-Sep-92 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 23-Sep-92 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 30-Sep-92 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 29-Oct-92 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 18-Nov-92 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 27-Jan-93 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 14-Apr-93 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 14-Jun-95 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 27-Jul-95 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 07-Sep-95 | 0.137 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 08-Nov-95 | 0.06 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 10-Jan-96 | 0.068 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 21-Feb-96 | 0.201 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 10-Apr-96 | 0.085 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 01-May-96 | 0.074 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 25-Jul-96 | 0.177 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 05-Sep-96 | 0.082 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 09-Oct-96 | 0.053 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 19-Nov-96 | 0.098 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 22-Jan-97 | 0.066 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 13-Mar-97 | 0.776 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 29-Apr-97 | 0 | mg/l |

**Table A-6**
**Spanish Fork River Above Utah Lake (Lakeshore)**



| Station ID | Constituent | Date | Value | Units |
|---|---|---|---|---|
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 18-Jun-97 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 15-Jul-97 | 0.081 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 29-Jul-97 | 0.42 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 11-Sep-97 | 0.14 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 16-Oct-97 | 0.118 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 02-Dec-97 | 0.06 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 05-Feb-98 | 0.071 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 19-Mar-98 | 0.06 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 27-May-98 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 11-Aug-98 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 13-Oct-98 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 01-Dec-98 | 0.06 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 14-Jan-99 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 17-Mar-99 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 04-May-99 | 0.11 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 13-Jul-99 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 19-Aug-99 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 24-Aug-99 | 0.117 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 05-Oct-99 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 02-Dec-99 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 11-Jan-00 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 29-Feb-00 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 31-Mar-00 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 19-Apr-00 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 09-May-00 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 26-May-00 | 0 | mg/l |
| 499558 | Nitrogen, ammonia (NH3) as NH3 | 08-Jun-00 | 0 | mg/l |

**Table A-7**
**Syar Tunnel Outlet at Sixth Water**



| Station ID | Constituent | Date | Value | Units | Result |
|---|---|---|---|---|---|
| 499570 | Dissolved oxygen (DO) | 02/12/02 | 7.28 | mg/L | 7.3 |
| 499570 | Dissolved oxygen (DO) | 01/28/03 | 8.45 | mg/L | 8.5 |
| 499570 | Dissolved oxygen (DO) | 04/09/02 | 7.64 | mg/L | 7.6 |
| 499570 | Dissolved oxygen (DO) | 04/10/03 | 7.81 | mg/L | 7.8 |
| 499570 | Dissolved oxygen (DO) | 05/04/00 | 7.15 | mg/L | 7.2 |
| 499570 | Dissolved oxygen (DO) | 06/05/00 | 6.64 | mg/L | 6.6 |
| 499570 | Dissolved oxygen (DO) | 05/01/01 | 9.77 | mg/L | 9.8 |
| 499570 | Dissolved oxygen (DO) | 06/05/01 | 7.37 | mg/L | 7.4 |
| 499570 | Dissolved oxygen (DO) | 06/05/02 | 6.82 | mg/L | 6.8 |
| 499570 | Dissolved oxygen (DO) | 08/13/96 | 4 | mg/L | 4.0 |
| 499570 | Dissolved oxygen (DO) | 07/02/97 | 7.7 | mg/L | 7.7 |
| 499570 | Dissolved oxygen (DO) | 08/05/97 | 2.2 | mg/L | 2.2 |
| 499570 | Dissolved oxygen (DO) | 07/08/98 | 5.5 | mg/L | 5.5 |
| 499570 | Dissolved oxygen (DO) | 08/05/98 | 3.4 | mg/L | 3.4 |
| 499570 | Dissolved oxygen (DO) | 07/08/99 | 5.8 | mg/L | 5.8 |
| 499570 | Dissolved oxygen (DO) | 08/05/99 | 2.9 | mg/L | 2.9 |
| 499570 | Dissolved oxygen (DO) | 07/05/00 | 4.67 | mg/L | 4.7 |
| 499570 | Dissolved oxygen (DO) | 07/05/00 | 4.67 | mg/L | 4.7 |
| 499570 | Dissolved oxygen (DO) | 08/02/00 | 2.98 | mg/L | 3.0 |
| 499570 | Dissolved oxygen (DO) | 07/11/01 | 3.14 | mg/L | 3.1 |
| 499570 | Dissolved oxygen (DO) | 08/07/01 | 1.8 | mg/L | 1.8 |
| 499570 | Dissolved oxygen (DO) | 07/02/02 | 4.2 | mg/L | 4.2 |
| 499570 | Dissolved oxygen (DO) | 08/06/02 | 5.63 | mg/L | 5.6 |
| 499570 | Dissolved oxygen (DO) | 07/02/03 | 4.97 | mg/L | 5.0 |
| 499570 | Dissolved oxygen (DO) | 08/19/03 | 2.46 | mg/L | 2.5 |
| 499570 | Dissolved oxygen (DO) | 09/18/96 | 1.8 | mg/L | 1.8 |
| 499570 | Dissolved oxygen (DO) | 09/02/97 | 2.4 | mg/L | 2.4 |
| 499570 | Dissolved oxygen (DO) | 09/17/97 | 1.6 | mg/L | 1.6 |
| 499570 | Dissolved oxygen (DO) | 09/30/97 | 3.2 | mg/L | 3.2 |
| 499570 | Dissolved oxygen (DO) | 09/02/98 | 3 | mg/L | 3.0 |
| 499570 | Dissolved oxygen (DO) | 10/01/98 | 2 | mg/L | 2.0 |
| 499570 | Dissolved oxygen (DO) | 09/07/99 | 1.6 | mg/L | 1.6 |
| 499570 | Dissolved oxygen (DO) | 09/12/00 | 1.3 | mg/L | 1.3 |
| 499570 | Dissolved oxygen (DO) | 09/05/01 | 2.4 | mg/L | 2.4 |
| 499570 | Dissolved oxygen (DO) | 09/13/02 | 1.82 | mg/L | 1.8 |
| 499570 | Dissolved oxygen (DO) | 10/24/02 | 7.81 | mg/L | 7.8 |
| 499570 | Dissolved oxygen (DO) | 09/16/03 | 1.06 | mg/L | 1.1 |
| 499570 | Dissolved Solids | 02/12/02 | 152 | mg/L | 152 |
| 499570 | Dissolved Solids | 01/28/03 | 156 | mg/L | 156 |
| 499570 | Dissolved Solids | 04/09/02 | 210 | mg/L | 210 |
| 499570 | Dissolved Solids | 04/10/03 | 156 | mg/L | 156 |
| 499570 | Dissolved Solids | 05/04/00 | 158 | mg/L | 158 |
| 499570 | Dissolved Solids | 06/05/00 | 160 | mg/L | 160 |
| 499570 | Dissolved Solids | 05/01/01 | 150 | mg/L | 150 |
| 499570 | Dissolved Solids | 06/05/01 | 152 | mg/L | 152 |
| 499570 | Dissolved Solids | 06/05/02 | 152 | mg/L | 152 |
| 499570 | Dissolved Solids | 08/13/96 | 144 | mg/L | 144 |

**Table A-7**
**Syar Tunnel Outlet at Sixth Water**



| Station ID | Constituent | Date | Value | Units | Result |
|---|---|---|---|---|---|
| 499570 | Dissolved Solids | 07/02/97 | 242 | mg/L | 242 |
| 499570 | Dissolved Solids | 08/05/97 | 156 | mg/L | 156 |
| 499570 | Dissolved Solids | 07/08/98 | 158 | mg/L | 158 |
| 499570 | Dissolved Solids | 08/05/98 | 160 | mg/L | 160 |
| 499570 | Dissolved Solids | 07/08/99 | 158 | mg/L | 158 |
| 499570 | Dissolved Solids | 08/05/99 | 162 | mg/L | 162 |
| 499570 | Dissolved Solids | 07/05/00 | 160 | mg/L | 160 |
| 499570 | Dissolved Solids | 08/02/00 | 162 | mg/L | 162 |
| 499570 | Dissolved Solids | 07/11/01 | 148 | mg/L | 148 |
| 499570 | Dissolved Solids | 08/07/01 | 142 | mg/L | 142 |
| 499570 | Dissolved Solids | 07/02/02 | 158 | mg/L | 158 |
| 499570 | Dissolved Solids | 08/06/02 | 148 | mg/L | 148 |
| 499570 | Dissolved Solids | 07/02/03 | 154 | mg/L | 154 |
| 499570 | Dissolved Solids | 08/19/03 | 156 | mg/L | 156 |
| 499570 | Dissolved Solids | 09/18/96 | 154 | mg/L | 154 |
| 499570 | Dissolved Solids | 09/02/97 | 150 | mg/L | 150 |
| 499570 | Dissolved Solids | 09/17/97 | 154 | mg/L | 154 |
| 499570 | Dissolved Solids | 09/30/97 | 148 | mg/L | 148 |
| 499570 | Dissolved Solids | 09/02/98 | 152 | mg/L | 152 |
| 499570 | Dissolved Solids | 10/01/98 | 152 | mg/L | 152 |
| 499570 | Dissolved Solids | 09/07/99 | 162 | mg/L | 162 |
| 499570 | Dissolved Solids | 09/12/00 | 158 | mg/L | 158 |
| 499570 | Dissolved Solids | 09/05/01 | 164 | mg/L | 164 |
| 499570 | Dissolved Solids | 09/13/02 | 154 | mg/L | 154 |
| 499570 | Dissolved Solids | 10/24/02 | 166 | mg/L | 166 |
| 499570 | Dissolved Solids | 11/06/01 | *Outlier | mg/L | (318) |
| 499570 | Ammonia | 02/12/02 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 01/28/03 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 04/09/02 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 04/10/03 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 05/04/00 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 06/05/00 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 05/01/01 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 06/05/01 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 06/05/02 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 08/13/96 | 0.061 | mg/L | 0.061 |
| 499570 | Ammonia | 07/02/97 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 08/05/97 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 07/08/98 | 0.116 | mg/L | 0.116 |
| 499570 | Ammonia | 08/05/98 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 07/08/99 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 08/05/99 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 07/05/00 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 08/02/00 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 07/11/01 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 08/07/01 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 07/02/02 | *Non-detect | mg/L | 0.025 |

**Table A-7**
**Syar Tunnel Outlet at Sixth Water**



| Station ID | Constituent | Date | Value | Units | Result |
|---|---|---|---|---|---|
| 499570 | Ammonia | 08/06/02 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 07/02/03 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 08/19/03 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 09/18/96 | 0.198 | mg/L | 0.198 |
| 499570 | Ammonia | 09/02/97 | 0.052 | mg/L | 0.052 |
| 499570 | Ammonia | 09/17/97 | 0.174 | mg/L | 0.174 |
| 499570 | Ammonia | 09/30/97 | 0.128 | mg/L | 0.128 |
| 499570 | Ammonia | 09/02/98 | *Oulier | mg/L | (0.92) |
| 499570 | Ammonia | 09/07/99 | 0.176 | mg/L | 0.176 |
| 499570 | Ammonia | 09/12/00 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 09/05/01 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 09/13/02 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 10/24/02 | *Non-detect | mg/L | 0.025 |
| 499570 | Ammonia | 11/06/01 | *Non-detect | mg/L | 0.025 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 02/12/02 | 0.56736 | mg/L | 0.567 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 01/28/03 | 0.38 | mg/L | 0.380 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04/09/02 | 0.23 | mg/L | 0.230 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 04/10/03 | 0.12 | mg/L | 0.120 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05/04/00 | 0.1 | mg/L | 0.100 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 06/05/00 | 0.1 | mg/L | 0.100 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 05/01/01 | *Non-detect | mg/L | 0.050 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 06/05/01 | 0.20633 | mg/L | 0.206 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 06/05/02 | 0.15 | mg/L | 0.150 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08/13/96 | 0.14 | mg/L | 0.140 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07/02/97 | 0.05 | mg/L | 0.050 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08/05/97 | 0.25 | mg/L | 0.250 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07/08/98 | 0.11 | mg/L | 0.110 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08/05/98 | 0.57 | mg/L | 0.570 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07/08/99 | 0.1 | mg/L | 0.100 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08/05/99 | 0.35293 | mg/L | 0.353 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07/05/00 | 0.1 | mg/L | 0.100 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08/02/00 | 0.2 | mg/L | 0.200 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07/11/01 | 0.32 | mg/L | 0.320 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08/07/01 | 0.31 | mg/L | 0.310 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07/02/02 | 0.1 | mg/L | 0.100 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08/06/02 | 0.45 | mg/L | 0.450 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 07/02/03 | *Non-detect | mg/L | 0.050 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 08/19/03 | 0.11 | mg/L | 0.110 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/18/96 | 0.02 | mg/L | 0.020 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/02/97 | 0.24 | mg/L | 0.240 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/17/97 | 0.07 | mg/L | 0.070 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/30/97 | 0.09 | mg/L | 0.090 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/02/98 | 0.23 | mg/L | 0.230 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/01/98 | *Non-detect | mg/L | 0.050 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/07/99 | 0.2 | mg/L | 0.200 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/12/00 | 0.1 | mg/L | 0.100 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/05/01 | 0.1 | mg/L | 0.100 |

**Table A-7**
**Syar Tunnel Outlet at Sixth Water**



| Station ID | Constituent | Date | Value | Units | Result |
|---|---|---|---|---|---|
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 09/13/02 | 0.32 | mg/L | 0.320 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 10/24/02 | 0.15 | mg/L | 0.150 |
| 499570 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 11/06/01 | *Non-detect | mg/L | 0.050 |
| 499570 | pH | 02/17/00 | 7.5 | Units | |
| 499570 | pH | 02/12/02 | 8.42 | Units | 8.4 |
| 499570 | pH | 02/12/02 | 7.96 | Units | 8.0 |
| 499570 | pH | 01/28/03 | 8.31 | Units | 8.3 |
| 499570 | pH | 01/28/03 | 8.09 | Units | 8.1 |
| 499570 | pH | 04/09/02 | 8.23 | Units | 8.2 |
| 499570 | pH | 04/09/02 | 8 | Units | 8.0 |
| 499570 | pH | 04/10/03 | 8.21 | Units | 8.2 |
| 499570 | pH | 05/04/00 | 7.88 | Units | 7.9 |
| 499570 | pH | 05/04/00 | 8.09 | Units | 8.1 |
| 499570 | pH | 06/05/00 | 7.97 | Units | 8.0 |
| 499570 | pH | 06/05/00 | 8.25 | Units | 8.3 |
| 499570 | pH | 05/01/01 | 8.37 | Units | 8.4 |
| 499570 | pH | 05/01/01 | 8.14 | Units | 8.1 |
| 499570 | pH | 06/05/01 | 8.1 | Units | 8.1 |
| 499570 | pH | 06/05/02 | 8.34 | Units | 8.3 |
| 499570 | pH | 06/05/02 | 6.6 | Units | 6.6 |
| 499570 | pH | 08/13/96 | 8.11 | Units | 8.1 |
| 499570 | pH | 08/13/96 | 7.6 | Units | 7.6 |
| 499570 | pH | 07/02/97 | 8.4 | Units | 8.4 |
| 499570 | pH | 07/02/97 | 8.3 | Units | 8.3 |
| 499570 | pH | 08/05/97 | 7.8 | Units | 7.8 |
| 499570 | pH | 08/05/97 | 7.96 | Units | 8.0 |
| 499570 | pH | 07/08/98 | 7.7 | Units | 7.7 |
| 499570 | pH | 07/08/98 | 8.07 | Units | 8.1 |
| 499570 | pH | 08/05/98 | 7.5 | Units | 7.5 |
| 499570 | pH | 08/05/98 | 8.01 | Units | 8.0 |
| 499570 | pH | 07/08/99 | 7.4 | Units | 7.4 |
| 499570 | pH | 07/08/99 | 8.06 | Units | 8.1 |
| 499570 | pH | 08/05/99 | 7.5 | Units | 7.5 |
| 499570 | pH | 08/05/99 | 7.96 | Units | 8.0 |
| 499570 | pH | 07/05/00 | 7.63 | Units | 7.6 |
| 499570 | pH | 07/05/00 | 7.63 | Units | 7.6 |
| 499570 | pH | 07/05/00 | 8.05 | Units | 8.1 |
| 499570 | pH | 08/02/00 | 7.55 | Units | 7.6 |
| 499570 | pH | 08/02/00 | 7.9 | Units | 7.9 |
| 499570 | pH | 07/11/01 | 7.93 | Units | 7.9 |
| 499570 | pH | 07/11/01 | 8.08 | Units | 8.1 |
| 499570 | pH | 08/07/01 | 7.8 | Units | 7.8 |
| 499570 | pH | 08/07/01 | 7.15 | Units | 7.2 |
| 499570 | pH | 07/02/02 | 7.83 | Units | 7.8 |
| 499570 | pH | 07/02/02 | 8 | Units | 8.0 |
| 499570 | pH | 08/06/02 | 8.47 | Units | 8.5 |
| 499570 | pH | 08/06/02 | 8.2 | Units | 8.2 |

**Table A-7**
**Syar Tunnel Outlet at Sixth Water**



| Station ID | Constituent | Date | Value | Units | Result |
|---|---|---|---|---|---|
| 499570 | pH | 07/02/03 | 8.08 | Units | 8.1 |
| 499570 | pH | 08/19/03 | 7.61 | Units | 7.6 |
| 499570 | pH | 08/19/03 | 7.67 | Units | 7.7 |
| 499570 | pH | 09/18/96 | 7.6 | Units | 7.6 |
| 499570 | pH | 09/18/96 | 7.89 | Units | 7.9 |
| 499570 | pH | 09/02/97 | 7.3 | Units | 7.3 |
| 499570 | pH | 09/02/97 | 7.75 | Units | 7.8 |
| 499570 | pH | 09/17/97 | 7.5 | Units | 7.5 |
| 499570 | pH | 09/17/97 | 7.97 | Units | 8.0 |
| 499570 | pH | 09/30/97 | 7.6 | Units | 7.6 |
| 499570 | pH | 09/30/97 | 7.86 | Units | 7.9 |
| 499570 | pH | 09/02/98 | 7.5 | Units | 7.5 |
| 499570 | pH | 09/02/98 | 8.01 | Units | 8.0 |
| 499570 | pH | 10/01/98 | 7.92 | Units | 7.9 |
| 499570 | pH | 10/01/98 | 7.5 | Units | 7.5 |
| 499570 | pH | 09/07/99 | 7.5 | Units | 7.5 |
| 499570 | pH | 09/07/99 | 7.78 | Units | 7.8 |
| 499570 | pH | 09/12/00 | 7.23 | Units | 7.2 |
| 499570 | pH | 09/12/00 | 8.05 | Units | 8.1 |
| 499570 | pH | 09/05/01 | 7.87 | Units | 7.9 |
| 499570 | pH | 09/05/01 | 7.67 | Units | 7.7 |
| 499570 | pH | 09/13/02 | 7.67 | Units | 7.7 |
| 499570 | pH | 10/24/02 | 8.77 | Units | 8.8 |
| 499570 | pH | 10/24/02 | 8.25 | Units | 8.3 |
| 499570 | pH | 09/16/03 | 7.92 | Units | 7.9 |
| 499570 | pH | 11/06/01 | 8.12 | Units | 8.1 |
| 499570 | pH | 11/06/01 | 8.32 | Units | 8.3 |
| 499570 | Total Phosphorus | 02/12/02 | 0.045 | mg/L | 0.045 |
| 499570 | Total Phosphorus | 01/28/03 | 0.068 | mg/L | 0.068 |
| 499570 | Total Phosphorus | 04/09/02 | 0.046 | mg/L | 0.046 |
| 499570 | Total Phosphorus | 04/10/03 | 0.021 | mg/L | 0.021 |
| 499570 | Total Phosphorus | 05/04/00 | 0.059 | mg/L | 0.059 |
| 499570 | Total Phosphorus | 06/05/00 | 0.031 | mg/L | 0.031 |
| 499570 | Total Phosphorus | 05/01/01 | 0.061 | mg/L | 0.061 |
| 499570 | Total Phosphorus | 06/05/01 | 0.043 | mg/L | 0.043 |
| 499570 | Total Phosphorus | 06/05/02 | 0.03 | mg/L | 0.030 |
| 499570 | Total Phosphorus | 08/13/96 | 0.08 | mg/L | 0.080 |
| 499570 | Total Phosphorus | 07/08/98 | 0.051 | mg/L | 0.051 |
| 499570 | Total Phosphorus | 08/05/98 | 0.046 | mg/L | 0.046 |
| 499570 | Total Phosphorus | 07/08/99 | 0.054 | mg/L | 0.054 |
| 499570 | Total Phosphorus | 08/05/99 | 0.086 | mg/L | 0.086 |
| 499570 | Total Phosphorus | 07/05/00 | 0.07 | mg/L | 0.070 |
| 499570 | Total Phosphorus | 08/02/00 | 0.112 | mg/L | 0.112 |
| 499570 | Total Phosphorus | 07/11/01 | 0.052 | mg/L | 0.052 |
| 499570 | Total Phosphorus | 08/07/01 | 0.093 | mg/L | 0.093 |
| 499570 | Total Phosphorus | 07/02/02 | 0.06 | mg/L | 0.060 |
| 499570 | Total Phosphorus | 08/06/02 | 0.07 | mg/L | 0.070 |

**Table A-7**
**Syar Tunnel Outlet at Sixth Water**



| Station ID | Constituent | Date | Value | Units | Result |
|---|---|---|---|---|---|
| 499570 | Total Phosphorus | 07/02/03 | 0.033 | mg/L | 0.033 |
| 499570 | Total Phosphorus | 08/19/03 | 0.108 | mg/L | 0.108 |
| 499570 | Total Phosphorus | 09/18/96 | 0.22 | mg/L | 0.220 |
| 499570 | Total Phosphorus | 09/02/97 | 0.16049 | mg/L | 0.160 |
| 499570 | Total Phosphorus | 09/02/98 | 0.106 | mg/L | 0.106 |
| 499570 | Total Phosphorus | 10/01/98 | 0.188 | mg/L | 0.188 |
| 499570 | Total Phosphorus | 09/07/99 | 0.101 | mg/L | 0.101 |
| 499570 | Total Phosphorus | 09/12/00 | 0.052 | mg/L | 0.052 |
| 499570 | Total Phosphorus | 09/05/01 | 0.109 | mg/L | 0.109 |
| 499570 | Total Phosphorus | 09/13/02 | 0.098 | mg/L | 0.098 |
| 499570 | Total Phosphorus | 10/24/02 | 0.032 | mg/L | 0.032 |
| 499570 | Total Phosphorus | 11/06/01 | 0.058 | mg/L | 0.058 |
| 499570 | Selenium | 02/12/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 02/12/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 01/28/03 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 01/28/03 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 04/09/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 04/09/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 04/10/03 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 04/10/03 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 05/04/00 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 06/05/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 06/05/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 06/05/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/13/96 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/05/97 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/05/98 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/05/99 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/02/00 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 07/11/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 07/11/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/07/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/07/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 07/02/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 07/02/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/06/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/06/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 07/02/03 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 07/02/03 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/19/03 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 08/19/03 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 09/17/97 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 10/01/98 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 09/05/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 09/05/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 09/13/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 09/13/02 | *Non-detect | µg/L | 0.5 |

**Table A-7**
**Syar Tunnel Outlet at Sixth Water**



| Station ID | Constituent | Date | Value | Units | Result |
|---|---|---|---|---|---|
| 499570 | Selenium | 10/24/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 10/24/02 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 11/06/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Selenium | 11/06/01 | *Non-detect | µg/L | 0.5 |
| 499570 | Temperature | 02/17/00 | 10.4 | deg C | |
| 499570 | Temperature | 02/12/02 | 2.78 | deg C | 2.8 |
| 499570 | Temperature | 01/28/03 | 2.97 | deg C | 3.0 |
| 499570 | Temperature | 04/09/02 | 3.87 | deg C | 3.9 |
| 499570 | Temperature | 04/10/03 | 4.04 | deg C | 4.0 |
| 499570 | Temperature | 05/04/00 | 6.57 | deg C | 6.6 |
| 499570 | Temperature | 06/05/00 | 9.8 | deg C | 9.8 |
| 499570 | Temperature | 05/01/01 | 5.59 | deg C | 5.6 |
| 499570 | Temperature | 06/05/01 | 9.43 | deg C | 9.4 |
| 499570 | Temperature | 06/05/02 | 8.91 | deg C | 8.9 |
| 499570 | Temperature | 08/13/96 | 14.8 | deg C | 14.8 |
| 499570 | Temperature | 07/02/97 | 9.5 | deg C | 9.5 |
| 499570 | Temperature | 08/05/97 | 9.9 | deg C | 9.9 |
| 499570 | Temperature | 07/08/98 | 9.8 | deg C | 9.8 |
| 499570 | Temperature | 08/05/98 | 9.9 | deg C | 9.9 |
| 499570 | Temperature | 07/08/99 | 10.7 | deg C | 10.7 |
| 499570 | Temperature | 08/05/99 | 10.6 | deg C | 10.6 |
| 499570 | Temperature | 07/05/00 | 11.46 | deg C | 11.5 |
| 499570 | Temperature | 07/05/00 | 11.46 | deg C | 11.5 |
| 499570 | Temperature | 08/02/00 | 11.97 | deg C | 12.0 |
| 499570 | Temperature | 07/11/01 | 11.48 | deg C | 11.5 |
| 499570 | Temperature | 08/07/01 | 11.7 | deg C | 11.7 |
| 499570 | Temperature | 07/02/02 | 10.68 | deg C | 10.7 |
| 499570 | Temperature | 08/06/02 | 16.46 | deg C | 16.5 |
| 499570 | Temperature | 07/02/03 | 10.66 | deg C | 10.7 |
| 499570 | Temperature | 08/19/03 | 11.47 | deg C | 11.5 |
| 499570 | Temperature | 09/18/96 | 12 | deg C | 12.0 |
| 499570 | Temperature | 09/02/97 | 10.3 | deg C | 10.3 |
| 499570 | Temperature | 09/17/97 | 10.1 | deg C | 10.1 |
| 499570 | Temperature | 09/30/97 | 12.7 | deg C | 12.7 |
| 499570 | Temperature | 09/02/98 | 11.3 | deg C | 11.3 |
| 499570 | Temperature | 10/01/98 | 10.2 | deg C | 10.2 |
| 499570 | Temperature | 09/07/99 | 10.9 | deg C | 10.9 |
| 499570 | Temperature | 09/12/00 | 12.5 | deg C | 12.5 |
| 499570 | Temperature | 09/05/01 | 11.98 | deg C | 12.0 |
| 499570 | Temperature | 09/13/02 | 13.21 | deg C | 13.2 |
| 499570 | Temperature | 10/24/02 | 9.89 | deg C | 9.9 |
| 499570 | Temperature | 09/16/03 | 11.63 | deg C | 11.6 |
| 499570 | Temperature | 11/06/01 | 9.75 | deg C | 9.8 |

**Table A-8**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491730**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491730 | 08/14/90 | 0 | Phosphorus as P | 0.243 | mg/L |
| 491730 | 08/14/90 | NA | Dissolved Solids | 1240 | mg/L |

**Table A-9**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491731**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491731 | 10/18/90 | 0 | Phosphorus as P | 0.15 | mg/L |
| 491731 | 10/18/90 | 0.3 | Phosphorus as P | 0.16 | mg/L |
| 491731 | 11/16/90 | 0 | Phosphorus as P | 0.07 | mg/L |
| 491731 | 11/16/90 | 0 | Phosphorus as P | 0.14 | mg/L |
| 491731 | 01/22/91 | 0 | Phosphorus as P | 0.25 | mg/L |
| 491731 | 04/04/91 | 0 | Phosphorus as P | 0.072 | mg/L |
| 491731 | 04/04/91 | 0 | Phosphorus as P | 0.094 | mg/L |
| 491731 | 05/07/91 | 0 | Phosphorus as P | 0.07 | mg/L |
| 491731 | 05/07/91 | 1 | Phosphorus as P | 0.082 | mg/L |
| 491731 | 05/23/91 | 0 | Phosphorus as P | 0.108 | mg/L |
| 491731 | 06/05/91 | 0 | Phosphorus as P | 0.057 | mg/L |
| 491731 | 06/05/91 | 0 | Phosphorus as P | 0.066 | mg/L |
| 491731 | 06/19/91 | 0 | Phosphorus as P | 0.134 | mg/L |
| 491731 | 07/10/91 | 0 | Phosphorus as P | 0.051 | mg/L |
| 491731 | 07/31/91 | 0 | Phosphorus as P | 0.068 | mg/L |
| 491731 | 08/28/91 | 0 | Phosphorus as P | 0.104 | mg/L |
| 491731 | 07/02/93 | 0 | Phosphorus as P | 0.07 | mg/L |
| 491731 | 07/15/94 | 0 | Phosphorus as P | 0.071 | mg/L |
| 491731 | 07/26/95 | 0 | Phosphorus as P | 0.04 | mg/L |
| 491731 | 09/27/95 | 0 | Phosphorus as P | 0.05 | mg/L |
| 491731 | 07/15/97 | 0 | Phosphorus as P | 0.085 | mg/L |
| 491731 | 07/06/99 | 0 | Phosphorus as P | 0.03 | mg/L |
| 491731 | 08/19/99 | 0.1 | Phosphorus as P | 0.076 | mg/L |
| 491731 | 07/02/93 | NA | Dissolved Solids | 816 | mg/L |
| 491731 | 07/15/94 | NA | Dissolved Solids | 1022 | mg/L |
| 491731 | 07/26/95 | NA | Dissolved Solids | 872 | mg/L |
| 491731 | 09/27/95 | NA | Dissolved Solids | 924 | mg/L |
| 491731 | 07/15/97 | NA | Dissolved Solids | 760 | mg/L |
| 491731 | 09/11/97 | NA | Dissolved Solids | 806 | mg/L |
| 491731 | 07/06/99 | NA | Dissolved Solids | 700 | mg/L |
| 491731 | 08/19/99 | NA | Dissolved Solids | 720 | mg/L |

**Table A-10**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491732**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491732 | 10/18/90 | 0 | Phosphorus as P | 0.1 | mg/L |
| 491732 | 10/18/90 | 0.3 | Phosphorus as P | 0.09 | mg/L |
| 491732 | 11/16/90 | 0 | Phosphorus as P | 0.15 | mg/L |
| 491732 | 11/16/90 | 0 | Phosphorus as P | 0.11 | mg/L |
| 491732 | 01/22/91 | 0 | Phosphorus as P | 0.25 | mg/L |
| 491732 | 04/04/91 | 0 | Phosphorus as P | 0.066 | mg/L |
| 491732 | 04/04/91 | 0 | Phosphorus as P | 0.101 | mg/L |
| 491732 | 05/07/91 | 0 | Phosphorus as P | 0.068 | mg/L |
| 491732 | 05/23/91 | 0 | Phosphorus as P | 0.122 | mg/L |
| 491732 | 06/05/91 | 0 | Phosphorus as P | 0.068 | mg/L |
| 491732 | 06/05/91 | 0 | Phosphorus as P | 0.065 | mg/L |
| 491732 | 06/19/91 | 0 | Phosphorus as P | 0.145 | mg/L |
| 491732 | 07/10/91 | 0 | Phosphorus as P | 0.052 | mg/L |
| 491732 | 07/31/91 | 0 | Phosphorus as P | 0.082 | mg/L |
| 491732 | 08/28/91 | 0 | Phosphorus as P | 0.109 | mg/L |
| 491732 | 07/26/95 | 0 | Phosphorus as P | 0.03 | mg/L |
| 491732 | 07/15/97 | 0 | Phosphorus as P | 0.086 | mg/L |
| 491732 | 08/19/99 | 0.1 | Phosphorus as P | 0.088 | mg/L |
| 491732 | 08/14/90 | NA | Dissolved Solids | 1248 | mg/L |
| 491732 | 07/15/97 | NA | Dissolved Solids | 758 | mg/L |
| 491732 | 09/11/97 | NA | Dissolved Solids | 800 | mg/L |
| 491732 | 08/19/99 | NA | Dissolved Solids | 714 | mg/L |

**Table A-11**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491733**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491733 | 10/18/90 | 0 | Phosphorus as P | 0.09 | mg/L |
| 491733 | 11/16/90 | 0 | Phosphorus as P | 0.04 | mg/L |
| 491733 | 01/22/91 | 0 | Phosphorus as P | 0.08 | mg/L |
| 491733 | 04/04/91 | 0 | Phosphorus as P | 0.052 | mg/L |
| 491733 | 05/07/91 | 0 | Phosphorus as P | 0.047 | mg/L |
| 491733 | 05/23/91 | 0 | Phosphorus as P | 0.091 | mg/L |
| 491733 | 06/05/91 | 0 | Phosphorus as P | 0.073 | mg/L |
| 491733 | 06/19/91 | 0 | Phosphorus as P | 0.082 | mg/L |
| 491733 | 07/10/91 | 0 | Phosphorus as P | 0.045 | mg/L |
| 491733 | 07/31/91 | 0 | Phosphorus as P | 0.039 | mg/L |
| 491733 | 08/28/91 | 0 | Phosphorus as P | 0.055 | mg/L |
| 491733 | 08/14/90 | NA | Dissolved Solids | 1288 | mg/L |

**Table A-12**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491734**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491734 | 10/02/90 | 0 | Phosphorus as P | 0.36 | mg/L |
| 491734 | 10/18/90 | 0 | Phosphorus as P | 0.17 | mg/L |
| 491734 | 11/16/90 | 0 | Phosphorus as P | 0.05 | mg/L |
| 491734 | 01/22/91 | 0 | Phosphorus as P | 0.08 | mg/L |
| 491734 | 04/04/91 | 0 | Phosphorus as P | 0.054 | mg/L |
| 491734 | 05/07/91 | 0 | Phosphorus as P | 0.048 | mg/L |
| 491734 | 05/23/91 | 0 | Phosphorus as P | 0.084 | mg/L |
| 491734 | 06/05/91 | 0 | Phosphorus as P | 0.063 | mg/L |
| 491734 | 06/19/91 | 0 | Phosphorus as P | 0.071 | mg/L |
| 491734 | 07/10/91 | 0 | Phosphorus as P | 0.066 | mg/L |
| 491734 | 07/31/91 | 0 | Phosphorus as P | 0.058 | mg/L |
| 491734 | 08/28/91 | 0 | Phosphorus as P | 0.085 | mg/L |
| 491734 | 07/15/94 | 0 | Phosphorus as P | 0.07 | mg/L |
| 491734 | 07/26/95 | 0 | Phosphorus as P | 0.05 | mg/L |
| 491734 | 09/27/95 | 0 | Phosphorus as P | 0.05 | mg/L |
| 491734 | 08/14/90 | NA | Dissolved Solids | 1292 | mg/L |

**Table A-13**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491737**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491737 | 08/14/90 | 0 | Phosphorus as P | 0.101 | mg/L |
| 491737 | 10/18/90 | 0 | Phosphorus as P | 0.11 | mg/L |
| 491737 | 11/16/90 | 0 | Phosphorus as P | 0.09 | mg/L |
| 491737 | 01/22/91 | 0 | Phosphorus as P | 0.1 | mg/L |
| 491737 | 04/04/91 | 0 | Phosphorus as P | 0.059 | mg/L |
| 491737 | 04/04/91 | 0 | Phosphorus as P | 0.065 | mg/L |
| 491737 | 05/07/91 | 0 | Phosphorus as P | 0.073 | mg/L |
| 491737 | 05/07/91 | 0 | Phosphorus as P | 0.052 | mg/L |
| 491737 | 05/23/91 | 0 | Phosphorus as P | 0.093 | mg/L |
| 491737 | 06/05/91 | 0 | Phosphorus as P | 0.085 | mg/L |
| 491737 | 06/05/91 | 0 | Phosphorus as P | 0.062 | mg/L |
| 491737 | 06/19/91 | 0 | Phosphorus as P | 0.09 | mg/L |
| 491737 | 07/10/91 | 0 | Phosphorus as P | 0.057 | mg/L |
| 491737 | 07/31/91 | 0 | Phosphorus as P | 0.057 | mg/L |
| 491737 | 08/28/91 | 0 | Phosphorus as P | 0.099 | mg/L |
| 491737 | 07/15/97 | 0 | Phosphorus as P | 0.100 | mg/L |
| 491737 | 07/06/99 | 0 | Phosphorus as P | 0.041 | mg/L |
| 491737 | 08/19/99 | 0.1 | Phosphorus as P | 0.049 | mg/L |
| 491737 | 08/14/90 | NA | Dissolved Solids | 1238 | mg/L |

**Table A-14**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491738**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491738 | 10/18/90 | 0 | Phosphorus as P | 0.11 | mg/L |
| 491738 | 11/16/90 | 0 | Phosphorus as P | 0.13 | mg/L |
| 491738 | 01/22/91 | 0 | Phosphorus as P | 1.88 | mg/L |
| 491738 | 04/04/91 | 0 | Phosphorus as P | 0.062 | mg/L |
| 491738 | 05/07/91 | 0 | Phosphorus as P | 0.063 | mg/L |
| 491738 | 05/23/91 | 0 | Phosphorus as P | 0.134 | mg/L |
| 491738 | 06/05/91 | 0 | Phosphorus as P | 0.068 | mg/L |
| 491738 | 06/19/91 | 0 | Phosphorus as P | 0.124 | mg/L |
| 491738 | 07/10/91 | 0 | Phosphorus as P | 0.065 | mg/L |
| 491738 | 07/31/91 | 0 | Phosphorus as P | 0.055 | mg/L |
| 491738 | 08/28/91 | 0 | Phosphorus as P | 0.128 | mg/L |
| 491738 | 08/14/90 | NA | Dissolved Solids | 1254 | mg/L |

**Table A-15**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491739**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491739 | 10/02/90 | 0 | Phosphorus as P | 0.21 | mg/L |
| 491739 | 10/18/90 | 0 | Phosphorus as P | 0.08 | mg/L |
| 491739 | 11/16/90 | 0 | Phosphorus as P | 0.07 | mg/L |
| 491739 | 01/22/91 | 0 | Phosphorus as P | 0.08 | mg/L |
| 491739 | 04/04/91 | 0 | Phosphorus as P | 0.053 | mg/L |
| 491739 | 05/07/91 | 0 | Phosphorus as P | 0.045 | mg/L |
| 491739 | 05/23/91 | 0 | Phosphorus as P | 0.069 | mg/L |
| 491739 | 06/05/91 | 0 | Phosphorus as P | 0.052 | mg/L |
| 491739 | 06/19/91 | 0 | Phosphorus as P | 0.049 | mg/L |
| 491739 | 07/10/91 | 0 | Phosphorus as P | 0.051 | mg/L |
| 491739 | 07/31/91 | 0 | Phosphorus as P | 0.029 | mg/L |
| 491739 | 08/28/91 | 0 | Phosphorus as P | 0.082 | mg/L |
| 491739 | 07/02/93 | 0 | Phosphorus as P | 0.194 | mg/L |
| 491739 | 07/15/97 | 0 | Phosphorus as P | 0.135 | mg/L |
| 491739 | 07/06/99 | 0 | Phosphorus as P | 0.036 | mg/L |
| 491739 | 08/19/99 | 0.1 | Phosphorus as P | 0.037 | mg/L |
| 491739 | 08/14/90 | NA | Dissolved Solids | 1262 | mg/L |

**Table A-16**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491740**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491740 | 10/18/90 | 0 | Phosphorus as P | 0.12 | mg/L |
| 491740 | 11/16/90 | 0 | Phosphorus as P | 0.09 | mg/L |
| 491740 | 01/22/91 | 0 | Phosphorus as P | 0.12 | mg/L |
| 491740 | 04/04/91 | 0 | Phosphorus as P | 0.053 | mg/L |
| 491740 | 05/07/91 | 0 | Phosphorus as P | 0.082 | mg/L |
| 491740 | 05/23/91 | 0 | Phosphorus as P | 0.089 | mg/L |
| 491740 | 06/05/91 | 0 | Phosphorus as P | 0.054 | mg/L |
| 491740 | 06/19/91 | 0 | Phosphorus as P | 0.031 | mg/L |
| 491740 | 07/10/91 | 0 | Phosphorus as P | 0.053 | mg/L |
| 491740 | 07/31/91 | 0 | Phosphorus as P | 0.029 | mg/L |
| 491740 | 08/28/91 | 0 | Phosphorus as P | 0.052 | mg/L |
| 491740 | 08/14/90 | NA | Dissolved Solids | 1224 | mg/L |

**Table A-17**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491741**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491741 | 10/18/90 | 0 | Phosphorus as P | 0.15 | mg/L |
| 491741 | 11/16/90 | 0 | Phosphorus as P | 0.06 | mg/L |
| 491741 | 01/22/91 | 0 | Phosphorus as P | 0.09 | mg/L |
| 491741 | 04/04/91 | 0 | Phosphorus as P | 0.061 | mg/L |
| 491741 | 05/07/91 | 0 | Phosphorus as P | 0.056 | mg/L |
| 491741 | 05/23/91 | 0 | Phosphorus as P | 0.087 | mg/L |
| 491741 | 06/05/91 | 0 | Phosphorus as P | 0.069 | mg/L |
| 491741 | 06/19/91 | 0 | Phosphorus as P | 0.108 | mg/L |
| 491741 | 07/10/91 | 0 | Phosphorus as P | 0.05 | mg/L |
| 491741 | 07/31/91 | 0 | Phosphorus as P | 0.069 | mg/L |
| 491741 | 08/28/91 | 0 | Phosphorus as P | 0.088 | mg/L |
| 491741 | 08/14/90 | NA | Dissolved Solids | 1244 | mg/L |

**Table A-18**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491742**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491742 | 10/18/90 | 0 | Phosphorus as P | 0.2 | mg/l |
| 491742 | 11/16/90 | 0 | Phosphorus as P | 0.08 | mg/l |
| 491742 | 01/22/91 | 0 | Phosphorus as P | 0.09 | mg/l |
| 491742 | 04/04/91 | 0 | Phosphorus as P | 0.053 | mg/l |
| 491742 | 05/07/91 | 0 | Phosphorus as P | 0.05 | mg/l |
| 491742 | 05/23/91 | 0 | Phosphorus as P | 0.092 | mg/l |
| 491742 | 06/05/91 | 0 | Phosphorus as P | 0.071 | mg/l |
| 491742 | 06/19/91 | 0 | Phosphorus as P | 0.096 | mg/l |
| 491742 | 07/10/91 | 0 | Phosphorus as P | 0.018 | mg/l |
| 491742 | 07/31/91 | 0 | Phosphorus as P | 0.032 | mg/l |
| 491742 | 08/28/91 | 0 | Phosphorus as P | 0.096 | mg/l |
| 491742 | 08/14/90 | NA | Dissolved Solids | 1262 | mg/L |

**Table A-19**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491750**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491750 | 10/02/90 | 0 | Phosphorus as P | 0.34 | mg/L |
| 491750 | 10/18/90 | 0 | Phosphorus as P | 0.11 | mg/L |
| 491750 | 11/16/90 | 0 | Phosphorus as P | 0.04 | mg/L |
| 491750 | 11/16/90 | 0 | Phosphorus as P | 0.06 | mg/L |
| 491750 | 01/22/91 | 0 | Phosphorus as P | 0.06 | mg/L |
| 491750 | 04/04/91 | 0 | Phosphorus as P | 0.059 | mg/L |
| 491750 | 05/07/91 | 0 | Phosphorus as P | 0.06 | mg/L |
| 491750 | 05/23/91 | 0 | Phosphorus as P | 0.109 | mg/L |
| 491750 | 06/05/91 | 0 | Phosphorus as P | 0.054 | mg/L |
| 491750 | 07/10/91 | 0 | Phosphorus as P | 0.034 | mg/L |
| 491750 | 07/31/91 | 0 | Phosphorus as P | 0.083 | mg/L |
| 491750 | 08/28/91 | 0 | Phosphorus as P | 0.109 | mg/L |
| 491750 | 07/15/97 | 0 | Phosphorus as P | 0.067 | mg/L |
| 491750 | 07/06/99 | 0 | Phosphorus as P | 0.052 | mg/L |
| 491750 | 08/19/99 | 0.1 | Phosphorus as P | 0.024 | mg/L |
| 491750 | 08/14/90 | NA | Dissolved Solids | 1246 | mg/L |

**Table A-20**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491751**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491751 | 10/18/90 | 0 | Phosphorus as P | 0.11 | mg/L |
| 491751 | 11/16/90 | 0 | Phosphorus as P | 0.07 | mg/L |
| 491751 | 01/22/91 | 0 | Phosphorus as P | 0.1 | mg/L |
| 491751 | 04/04/91 | 0 | Phosphorus as P | 0.065 | mg/L |
| 491751 | 05/07/91 | 0 | Phosphorus as P | 0.057 | mg/L |
| 491751 | 05/23/91 | 0 | Phosphorus as P | 0.094 | mg/L |
| 491751 | 06/05/91 | 0 | Phosphorus as P | 0.087 | mg/L |
| 491751 | 07/10/91 | 0 | Phosphorus as P | 0.083 | mg/L |
| 491751 | 07/31/91 | 0 | Phosphorus as P | 0.068 | mg/L |
| 491751 | 08/28/91 | 0 | Phosphorus as P | 0.075 | mg/L |
| 491751 | 08/14/90 | NA | Dissolved Solids | 1284 | mg/L |

**Table A-21**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491752**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491752 | 10/18/90 | 0 | Phosphorus as P | 0.11 | mg/L |
| 491752 | 11/16/90 | 0 | Phosphorus as P | 0.07 | mg/L |
| 491752 | 01/22/91 | 0 | Phosphorus as P | 0.14 | mg/L |
| 491752 | 04/04/91 | 0 | Phosphorus as P | 0.063 | mg/L |
| 491752 | 05/07/91 | 0 | Phosphorus as P | 0.074 | mg/L |
| 491752 | 05/23/91 | 0 | Phosphorus as P | 0.15 | mg/L |
| 491752 | 06/05/91 | 0 | Phosphorus as P | 0.088 | mg/L |
| 491752 | 07/10/91 | 0 | Phosphorus as P | 0.061 | mg/L |
| 491752 | 07/31/91 | 0 | Phosphorus as P | 0.075 | mg/L |
| 491752 | 08/28/91 | 0 | Phosphorus as P | 0.073 | mg/L |
| 491752 | 07/02/93 | 0 | Phosphorus as P | 0.066 | mg/L |
| 491752 | 07/15/97 | 0 | Phosphorus as P | 0.076 | mg/L |
| 491752 | 07/06/99 | 0 | Phosphorus as P | 0.041 | mg/L |
| 491752 | 08/19/99 | 0 | Phosphorus as P | 0.235 | mg/L |
| 491752 | 08/14/90 | NA | Dissolved Solids | 1262 | mg/L |

**Table A-22**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491762**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491762 | 10/18/90 | 0 | Phosphorus as P | 0.29 | mg/L |
| 491762 | 11/16/90 | 0 | Phosphorus as P | 0.06 | mg/L |
| 491762 | 01/22/91 | 0 | Phosphorus as P | 0.08 | mg/L |
| 491762 | 04/04/91 | 0 | Phosphorus as P | 0.088 | mg/L |
| 491762 | 04/04/91 | 0 | Phosphorus as P | 0.102 | mg/L |
| 491762 | 05/07/91 | 0 | Phosphorus as P | 0.064 | mg/L |
| 491762 | 05/23/91 | 0 | Phosphorus as P | 0.189 | mg/L |
| 491762 | 06/05/91 | 0 | Phosphorus as P | 0.073 | mg/L |
| 491762 | 06/05/91 | 0 | Phosphorus as P | 0.062 | mg/L |
| 491762 | 07/10/91 | 0 | Phosphorus as P | 0.067 | mg/L |
| 491762 | 07/31/91 | 0 | Phosphorus as P | 0.133 | mg/L |
| 491762 | 08/28/91 | 0 | Phosphorus as P | 0.312 | mg/L |
| 491762 | 07/02/93 | 0 | Phosphorus as P | 0.076 | mg/L |
| 491762 | 07/06/99 | 0 | Phosphorus as P | 0.036 | mg/L |
| 491762 | 08/14/90 | NA | Dissolved Solids | 1330 | mg/L |
| 491762 | 07/06/99 | NA | Dissolved Solids | 716 | mg/L |

**Table A-23**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491770**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491770 | 10/02/90 | 0 | Phosphorus as P | 0.25 | mg/L |
| 491770 | 10/18/90 | 0 | Phosphorus as P | 0.12 | mg/L |
| 491770 | 11/16/90 | 0 | Phosphorus as P | 0.06 | mg/L |
| 491770 | 01/22/91 | 0 | Phosphorus as P | 0.05 | mg/L |
| 491770 | 04/04/91 | 0 | Phosphorus as P | 0.078 | mg/L |
| 491770 | 05/07/91 | 0 | Phosphorus as P | 0.055 | mg/L |
| 491770 | 05/23/91 | 0 | Phosphorus as P | 0.12 | mg/L |
| 491770 | 06/05/91 | 0 | Phosphorus as P | 0.068 | mg/L |
| 491770 | 06/19/91 | 0 | Phosphorus as P | 0.099 | mg/L |
| 491770 | 07/10/91 | 0 | Phosphorus as P | 0.046 | mg/L |
| 491770 | 07/31/91 | 0 | Phosphorus as P | 0.043 | mg/L |
| 491770 | 08/28/91 | 0 | Phosphorus as P | 0.072 | mg/L |
| 491770 | 08/14/90 | NA | Dissolved Solids | 1284 | mg/L |

**Table A-24**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491771**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491771 | 10/02/90 | 0 | Phosphorus as P | 0.17 | mg/L |
| 491771 | 10/18/90 | 0 | Phosphorus as P | 0.09 | mg/L |
| 491771 | 11/16/90 | 0 | Phosphorus as P | 0.06 | mg/L |
| 491771 | 01/22/91 | 0 | Phosphorus as P | 0.15 | mg/L |
| 491771 | 04/04/91 | 0 | Phosphorus as P | 0.06 | mg/L |
| 491771 | 05/07/91 | 0 | Phosphorus as P | 0.041 | mg/L |
| 491771 | 05/23/91 | 0 | Phosphorus as P | 0.083 | mg/L |
| 491771 | 06/05/91 | 0 | Phosphorus as P | 0.055 | mg/L |
| 491771 | 06/19/91 | 0 | Phosphorus as P | 0.07 | mg/L |
| 491771 | 07/10/91 | 0 | Phosphorus as P | 0.05 | mg/L |
| 491771 | 07/31/91 | 0 | Phosphorus as P | 0.041 | mg/L |
| 491771 | 08/28/91 | 0 | Phosphorus as P | 0.064 | mg/L |
| 491771 | 08/14/90 | NA | Dissolved Solids | 1278 | mg/L |

**Table A-25**
**Utah Lake Surface Total Phosphorus Concentration and Dissolved Solids Concentration at STORET Station 491777**

| Station ID | Date | Depth (meters) | Constituent | Value | Units |
|---|---|---|---|---|---|
| 491777 | 10/02/90 | 0 | Phosphorus as P | 0.21 | mg/L |
| 491777 | 10/18/90 | 0 | Phosphorus as P | 0.23 | mg/L |
| 491777 | 11/16/90 | 0 | Phosphorus as P | 0.11 | mg/L |
| 491777 | 11/16/90 | 0 | Phosphorus as P | 0.09 | mg/L |
| 491777 | 01/22/91 | 0 | Phosphorus as P | 0.84 | mg/L |
| 491777 | 04/04/91 | 0 | Phosphorus as P | 0.122 | mg/L |
| 491777 | 04/04/91 | 0 | Phosphorus as P | 0.144 | mg/L |
| 491777 | 05/07/91 | 0 | Phosphorus as P | 0.074 | mg/L |
| 491777 | 05/23/91 | 0 | Phosphorus as P | 0.116 | mg/L |
| 491777 | 06/05/91 | 0 | Phosphorus as P | 0.254 | mg/L |
| 491777 | 06/05/91 | 0 | Phosphorus as P | 0.075 | mg/L |
| 491777 | 06/19/91 | 0 | Phosphorus as P | 0.074 | mg/L |
| 491777 | 07/10/91 | 0 | Phosphorus as P | 0.055 | mg/L |
| 491777 | 07/31/91 | 0 | Phosphorus as P | 0.087 | mg/L |
| 491777 | 08/28/91 | 0 | Phosphorus as P | 0.118 | mg/L |
| 491777 | 07/02/93 | 0 | Phosphorus as P | 0.089 | mg/L |
| 491777 | 07/26/95 | 0 | Phosphorus as P | 0.16 | mg/L |
| 491777 | 09/27/95 | 0 | Phosphorus as P | 0.05 | mg/L |
| 491777 | 07/06/99 | 0 | Phosphorus as P | 0.054 | mg/L |
| 491777 | 08/14/90 | NA | Dissolved Solids | 1214 | mg/L |
| 491777 | 07/06/99 | NA | Dissolved Solids | 682 | mg/L |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 1/9/90 | Dissolved oxygen (DO) | 20.1 | mg/l |
| 499479 | 2/13/90 | Dissolved oxygen (DO) | 16.3 | mg/l |
| 499479 | 3/6/90 | Dissolved oxygen (DO) | 11.7 | mg/l |
| 499479 | 4/12/90 | Dissolved oxygen (DO) | 8.7 | mg/l |
| 499479 | 5/7/90 | Dissolved oxygen (DO) | 8.9 | mg/l |
| 499479 | 6/12/90 | Dissolved oxygen (DO) | 8.2 | mg/l |
| 499479 | 7/10/90 | Dissolved oxygen (DO) | 8.8 | mg/l |
| 499479 | 8/8/90 | Dissolved oxygen (DO) | 7.5 | mg/l |
| 499479 | 9/5/90 | Dissolved oxygen (DO) | 6.7 | mg/l |
| 499479 | 10/10/90 | Dissolved oxygen (DO) | 8.8 | mg/l |
| 499479 | 11/6/90 | Dissolved oxygen (DO) | 12.6 | mg/l |
| 499479 | 1/9/91 | Dissolved oxygen (DO) | 8.3 | mg/l |
| 499479 | 2/5/91 | Dissolved oxygen (DO) | 12.2 | mg/l |
| 499479 | 5/9/91 | Dissolved oxygen (DO) | 9.1 | mg/l |
| 499479 | 6/26/91 | Dissolved oxygen (DO) | 6.9 | mg/l |
| 499479 | 7/30/91 | Dissolved oxygen (DO) | 6.3 | mg/l |
| 499479 | 8/26/91 | Dissolved oxygen (DO) | 6.4 | mg/l |
| 499479 | 9/27/91 | Dissolved oxygen (DO) | 7.1 | mg/l |
| 499479 | 10/28/91 | Dissolved oxygen (DO) | 9.7 | mg/l |
| 499479 | 11/26/91 | Dissolved oxygen (DO) | 12.5 | mg/l |
| 499479 | 12/17/91 | Dissolved oxygen (DO) | 19.9 | mg/l |
| 499479 | 3/12/92 | Dissolved oxygen (DO) | 8.7 | mg/l |
| 499479 | 4/29/92 | Dissolved oxygen (DO) | 6.5 | mg/l |
| 499479 | 5/29/92 | Dissolved oxygen (DO) | 6.2 | mg/l |
| 499479 | 6/30/92 | Dissolved oxygen (DO) | 7.9 | mg/l |
| 499479 | 7/29/92 | Dissolved oxygen (DO) | 6.2 | mg/l |
| 499479 | 9/24/92 | Dissolved oxygen (DO) | 6.3 | mg/l |
| 499479 | 10/7/92 | Dissolved oxygen (DO) | 7.9 | mg/l |
| 499479 | 10/28/92 | Dissolved oxygen (DO) | 7.4 | mg/l |
| 499479 | 1/19/93 | Dissolved oxygen (DO) | 10.2 | mg/l |
| 499479 | 2/4/93 | Dissolved oxygen (DO) | 9.4 | mg/l |
| 499479 | 3/2/93 | Dissolved oxygen (DO) | 10 | mg/l |
| 499479 | 4/7/93 | Dissolved oxygen (DO) | 9 | mg/l |
| 499479 | 5/7/93 | Dissolved oxygen (DO) | 7.4 | mg/l |
| 499479 | 6/9/93 | Dissolved oxygen (DO) | 7.4 | mg/l |
| 499479 | 7/15/93 | Dissolved oxygen (DO) | 6.4 | mg/l |
| 499479 | 8/10/93 | Dissolved oxygen (DO) | 6.4 | mg/l |
| 499479 | 9/20/93 | Dissolved oxygen (DO) | 7.6 | mg/l |
| 499479 | 10/14/93 | Dissolved oxygen (DO) | 7.4 | mg/l |
| 499479 | 11/12/93 | Dissolved oxygen (DO) | 8.6 | mg/l |
| 499479 | 12/7/93 | Dissolved oxygen (DO) | 10 | mg/l |
| 499479 | 1/13/94 | Dissolved oxygen (DO) | 13.7 | mg/l |
| 499479 | 2/15/94 | Dissolved oxygen (DO) | 13.7 | mg/l |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 3/31/94 | Dissolved oxygen (DO) | 7.1 | mg/l |
| 499479 | 4/13/94 | Dissolved oxygen (DO) | 8.1 | mg/l |
| 499479 | 4/27/94 | Dissolved oxygen (DO) | 8.2 | mg/l |
| 499479 | 5/11/94 | Dissolved oxygen (DO) | 5.5 | mg/l |
| 499479 | 5/25/94 | Dissolved oxygen (DO) | 8.1 | mg/l |
| 499479 | 6/9/94 | Dissolved oxygen (DO) | 6.9 | mg/l |
| 499479 | 7/13/94 | Dissolved oxygen (DO) | 6.2 | mg/l |
| 499479 | 8/17/94 | Dissolved oxygen (DO) | 7.1 | mg/l |
| 499479 | 9/14/94 | Dissolved oxygen (DO) | 7.2 | mg/l |
| 499479 | 10/11/94 | Dissolved oxygen (DO) | 10.2 | mg/l |
| 499479 | 11/22/94 | Dissolved oxygen (DO) | 10.9 | mg/l |
| 499479 | 12/9/94 | Dissolved oxygen (DO) | 9.7 | mg/l |
| 499479 | 1/19/95 | Dissolved oxygen (DO) | 8.6 | mg/l |
| 499479 | 3/9/95 | Dissolved oxygen (DO) | 9.6 | mg/l |
| 499479 | 3/23/95 | Dissolved oxygen (DO) | 8.9 | mg/l |
| 499479 | 4/5/95 | Dissolved oxygen (DO) | 10.4 | mg/l |
| 499479 | 4/19/95 | Dissolved oxygen (DO) | 8.5 | mg/l |
| 499479 | 5/3/95 | Dissolved oxygen (DO) | 9.2 | mg/l |
| 499479 | 5/18/95 | Dissolved oxygen (DO) | 6.4 | mg/l |
| 499479 | 5/31/95 | Dissolved oxygen (DO) | 5.7 | mg/l |
| 499479 | 6/14/95 | Dissolved oxygen (DO) | 6.2 | mg/l |
| 499479 | 7/15/99 | Dissolved oxygen (DO) | 6.9 | mg/l |
| 499479 | 8/26/99 | Dissolved oxygen (DO) | 4.4 | mg/l |
| 499479 | 10/5/99 | Dissolved oxygen (DO) | 6.8 | mg/l |
| 499479 | 12/1/99 | Dissolved oxygen (DO) | 9.9 | mg/l |
| 499479 | 1/9/90 | Dissolved Solids | 1596 | mg/l |
| 499479 | 2/13/90 | Dissolved Solids | 1310 | mg/l |
| 499479 | 3/6/90 | Dissolved Solids | 1442 | mg/l |
| 499479 | 4/12/90 | Dissolved Solids | 1070 | mg/l |
| 499479 | 5/7/90 | Dissolved Solids | 1102 | mg/l |
| 499479 | 6/12/90 | Dissolved Solids | 1176 | mg/l |
| 499479 | 7/10/90 | Dissolved Solids | 1204 | mg/l |
| 499479 | 8/8/90 | Dissolved Solids | 1300 | mg/l |
| 499479 | 9/5/90 | Dissolved Solids | 1338 | mg/l |
| 499479 | 10/10/90 | Dissolved Solids | 1434 | mg/l |
| 499479 | 11/6/90 | Dissolved Solids | 1576 | mg/l |
| 499479 | 12/11/90 | Dissolved Solids | 1586 | mg/l |
| 499479 | 1/9/91 | Dissolved Solids | 586 | mg/l |
| 499479 | 2/5/91 | Dissolved Solids | 1910 | mg/l |
| 499479 | 5/9/91 | Dissolved Solids | 1126 | mg/l |
| 499479 | 6/26/91 | Dissolved Solids | 1084 | mg/l |
| 499479 | 7/30/91 | Dissolved Solids | 1286 | mg/l |
| 499479 | 8/26/91 | Dissolved Solids | 1396 | mg/l |
| 499479 | 9/27/91 | Dissolved Solids | 1384 | mg/l |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 10/28/91 | Dissolved Solids | 1556 | mg/l |
| 499479 | 11/26/91 | Dissolved Solids | 958 | mg/l |
| 499479 | 12/17/91 | Dissolved Solids | 1868 | mg/l |
| 499479 | 3/12/92 | Dissolved Solids | 1555 | mg/l |
| 499479 | 4/29/92 | Dissolved Solids | 1054 | mg/l |
| 499479 | 5/29/92 | Dissolved Solids | 1176 | mg/l |
| 499479 | 6/30/92 | Dissolved Solids | 1348 | mg/l |
| 499479 | 7/29/92 | Dissolved Solids | 1412 | mg/l |
| 499479 | 8/28/92 | Dissolved Solids | 1596 | mg/l |
| 499479 | 9/24/92 | Dissolved Solids | 1614 | mg/l |
| 499479 | 10/7/92 | Dissolved Solids | 1736 | mg/l |
| 499479 | 10/28/92 | Dissolved Solids | 1608 | mg/l |
| 499479 | 1/19/93 | Dissolved Solids | 1110 | mg/l |
| 499479 | 2/4/93 | Dissolved Solids | 1628 | mg/l |
| 499479 | 3/2/93 | Dissolved Solids | 1668 | mg/l |
| 499479 | 4/7/93 | Dissolved Solids | 1682 | mg/l |
| 499479 | 5/7/93 | Dissolved Solids | 906 | mg/l |
| 499479 | 6/9/93 | Dissolved Solids | 832 | mg/l |
| 499479 | 7/15/93 | Dissolved Solids | 832 | mg/l |
| 499479 | 8/10/93 | Dissolved Solids | 900 | mg/l |
| 499479 | 9/20/93 | Dissolved Solids | 960 | mg/l |
| 499479 | 10/14/93 | Dissolved Solids | 970 | mg/l |
| 499479 | 11/12/93 | Dissolved Solids | 1052 | mg/l |
| 499479 | 12/7/93 | Dissolved Solids | 1028 | mg/l |
| 499479 | 1/13/94 | Dissolved Solids | 1116 | mg/l |
| 499479 | 2/15/94 | Dissolved Solids | 1584 | mg/l |
| 499479 | 3/14/94 | Dissolved Solids | 1658 | mg/l |
| 499479 | 3/31/94 | Dissolved Solids | 922 | mg/l |
| 499479 | 4/13/94 | Dissolved Solids | 1136 | mg/l |
| 499479 | 4/27/94 | Dissolved Solids | 938 | mg/l |
| 499479 | 5/11/94 | Dissolved Solids | 928 | mg/l |
| 499479 | 5/25/94 | Dissolved Solids | 958 | mg/l |
| 499479 | 6/9/94 | Dissolved Solids | 984 | mg/l |
| 499479 | 7/13/94 | Dissolved Solids | 1050 | mg/l |
| 499479 | 8/17/94 | Dissolved Solids | 1086 | mg/l |
| 499479 | 9/14/94 | Dissolved Solids | 1106 | mg/l |
| 499479 | 10/11/94 | Dissolved Solids | 1218 | mg/l |
| 499479 | 11/22/94 | Dissolved Solids | 1780 | mg/l |
| 499479 | 12/9/94 | Dissolved Solids | 1528 | mg/l |
| 499479 | 1/19/95 | Dissolved Solids | 1334 | mg/l |
| 499479 | 3/9/95 | Dissolved Solids | 1894 | mg/l |
| 499479 | 3/23/95 | Dissolved Solids | 1514 | mg/l |
| 499479 | 4/5/95 | Dissolved Solids | 1096 | mg/l |
| 499479 | 4/19/95 | Dissolved Solids | 1034 | mg/l |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 5/3/95 | Dissolved Solids | 1028 | mg/l |
| 499479 | 5/18/95 | Dissolved Solids | 938 | mg/l |
| 499479 | 5/31/95 | Dissolved Solids | 870 | mg/l |
| 499479 | 6/14/95 | Dissolved Solids | 906 | mg/l |
| 499479 | 7/15/99 | Dissolved Solids | 690 | mg/l |
| 499479 | 8/26/99 | Dissolved Solids | 828 | mg/l |
| 499479 | 10/5/99 | Dissolved Solids | 780 | mg/l |
| 499479 | 12/1/99 | Dissolved Solids | 1272 | mg/l |
| 499479 | 9/27/91 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.025 | mg/l |
| 499479 | 10/28/91 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.068 | mg/l |
| 499479 | 11/26/91 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.042 | mg/l |
| 499479 | 12/17/91 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.214 | mg/l |
| 499479 | 3/12/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | *Non-detect | mg/l |
| 499479 | 4/29/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.187 | mg/l |
| 499479 | 5/29/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.209 | mg/l |
| 499479 | 6/30/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | *Non-detect | mg/l |
| 499479 | 7/29/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.185 | mg/l |
| 499479 | 8/28/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.13 | mg/l |
| 499479 | 9/24/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | *Non-detect | mg/l |
| 499479 | 10/7/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.067 | mg/l |
| 499479 | 10/28/92 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.091 | mg/l |
| 499479 | 1/19/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.698 | mg/l |
| 499479 | 2/4/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.15 | mg/l |
| 499479 | 3/2/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | *Non-detect | mg/l |
| 499479 | 4/7/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.069 | mg/l |
| 499479 | 5/7/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.311 | mg/l |
| 499479 | 6/9/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.456 | mg/l |
| 499479 | 7/15/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.08 | mg/l |
| 499479 | 8/10/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.038 | mg/l |
| 499479 | 9/20/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.064 | mg/l |
| 499479 | 10/14/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.024 | mg/l |
| 499479 | 11/12/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.344 | mg/l |
| 499479 | 12/7/93 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.308 | mg/l |
| 499479 | 1/13/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.12 | mg/l |
| 499479 | 2/15/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.046 | mg/l |
| 499479 | 3/14/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.047 | mg/l |
| 499479 | 3/31/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.431 | mg/l |
| 499479 | 4/13/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.128 | mg/l |
| 499479 | 4/27/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.505 | mg/l |
| 499479 | 5/11/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.638 | mg/l |
| 499479 | 5/25/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.64 | mg/l |
| 499479 | 6/9/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.493 | mg/l |
| 499479 | 7/13/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | *Non-detect | mg/l |
| 499479 | 8/17/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.23 | mg/l |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 9/14/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.202 | mg/l |
| 499479 | 10/11/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | *Non-detect | mg/l |
| 499479 | 11/22/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.235 | mg/l |
| 499479 | 12/9/94 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.101 | mg/l |
| 499479 | 1/19/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.415 | mg/l |
| 499479 | 3/9/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | *Non-detect | mg/l |
| 499479 | 3/23/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.094 | mg/l |
| 499479 | 4/5/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.233 | mg/l |
| 499479 | 4/19/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.3 | mg/l |
| 499479 | 5/3/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.36 | mg/l |
| 499479 | 5/18/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.37 | mg/l |
| 499479 | 5/31/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.52 | mg/l |
| 499479 | 6/14/95 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.47 | mg/l |
| 499479 | 7/15/99 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | *Non-detect | mg/l |
| 499479 | 8/26/99 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.1 | mg/l |
| 499479 | 10/5/99 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.2 | mg/l |
| 499479 | 12/1/99 | Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N | 0.1 | mg/l |
| 499479 | 1/9/90 | pH | 8.1 | None |
| 499479 | 1/9/90 | pH | 7.8 | None |
| 499479 | 2/13/90 | pH | 7.4 | None |
| 499479 | 2/13/90 | pH | 7.8 | None |
| 499479 | 3/6/90 | pH | 8 | None |
| 499479 | 3/6/90 | pH | 8.2 | None |
| 499479 | 4/12/90 | pH | 8.3 | None |
| 499479 | 4/12/90 | pH | 7.9 | None |
| 499479 | 5/7/90 | pH | 8.4 | None |
| 499479 | 5/7/90 | pH | 8.1 | None |
| 499479 | 6/12/90 | pH | 7.9 | None |
| 499479 | 6/12/90 | pH | 8.2 | None |
| 499479 | 7/10/90 | pH | 8.3 | None |
| 499479 | 7/10/90 | pH | 7.7 | None |
| 499479 | 8/8/90 | pH | 7.7 | None |
| 499479 | 8/8/90 | pH | 8.5 | None |
| 499479 | 9/5/90 | pH | 7.5 | None |
| 499479 | 9/5/90 | pH | 8.4 | None |
| 499479 | 10/10/90 | pH | 8.2 | None |
| 499479 | 10/10/90 | pH | 7.7 | None |
| 499479 | 11/6/90 | pH | 8 | None |
| 499479 | 11/6/90 | pH | 8.1 | None |
| 499479 | 12/11/90 | pH | 7.6 | None |
| 499479 | 12/11/90 | pH | 7.8 | None |
| 499479 | 1/9/91 | pH | 6.7 | None |
| 499479 | 1/9/91 | pH | 7.6 | None |
| 499479 | 2/5/91 | pH | 6.7 | None |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 2/5/91 | pH | 7.4 | None |
| 499479 | 5/9/91 | pH | 7.8 | None |
| 499479 | 5/9/91 | pH | 8.1 | None |
| 499479 | 6/26/91 | pH | 7.9 | None |
| 499479 | 6/26/91 | pH | 8 | None |
| 499479 | 7/30/91 | pH | 7.8 | None |
| 499479 | 7/30/91 | pH | 8.1 | None |
| 499479 | 8/26/91 | pH | 7.9 | None |
| 499479 | 8/26/91 | pH | 7.7 | None |
| 499479 | 9/27/91 | pH | 8.1 | None |
| 499479 | 9/27/91 | pH | 7.8 | None |
| 499479 | 10/28/91 | pH | 7.8 | None |
| 499479 | 10/28/91 | pH | 8 | None |
| 499479 | 11/26/91 | pH | 8 | None |
| 499479 | 11/26/91 | pH | 7.1 | None |
| 499479 | 12/17/91 | pH | 7 | None |
| 499479 | 12/17/91 | pH | 7.9 | None |
| 499479 | 3/12/92 | pH | 7.6 | None |
| 499479 | 3/12/92 | pH | 8 | None |
| 499479 | 4/29/92 | pH | 7.7 | None |
| 499479 | 4/29/92 | pH | 8.1 | None |
| 499479 | 5/29/92 | pH | 7.8 | None |
| 499479 | 5/29/92 | pH | 8.1 | None |
| 499479 | 6/30/92 | pH | 7.9 | None |
| 499479 | 6/30/92 | pH | 8.2 | None |
| 499479 | 7/29/92 | pH | 8 | None |
| 499479 | 7/29/92 | pH | 7.7 | None |
| 499479 | 8/28/92 | pH | 8 | None |
| 499479 | 9/24/92 | pH | 7.8 | None |
| 499479 | 9/24/92 | pH | 7.8 | None |
| 499479 | 10/7/92 | pH | 8 | None |
| 499479 | 10/7/92 | pH | 8.1 | None |
| 499479 | 10/28/92 | pH | 8 | None |
| 499479 | 10/28/92 | pH | 7.7 | None |
| 499479 | 1/19/93 | pH | 7.7 | None |
| 499479 | 1/19/93 | pH | 7.8 | None |
| 499479 | 2/4/93 | pH | 7.6 | None |
| 499479 | 2/4/93 | pH | 7.4 | None |
| 499479 | 3/2/93 | pH | 7.7 | None |
| 499479 | 3/2/93 | pH | 7.5 | None |
| 499479 | 4/7/93 | pH | 7.5 | None |
| 499479 | 4/7/93 | pH | 7.8 | None |
| 499479 | 5/7/93 | pH | 7.7 | None |
| 499479 | 5/7/93 | pH | 7.9 | None |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 6/9/93 | pH | 7.7 | None |
| 499479 | 6/9/93 | pH | 7.9 | None |
| 499479 | 7/15/93 | pH | 7.9 | None |
| 499479 | 7/15/93 | pH | 7.9 | None |
| 499479 | 8/10/93 | pH | 7.8 | None |
| 499479 | 8/10/93 | pH | 8.3 | None |
| 499479 | 9/20/93 | pH | 7.6 | None |
| 499479 | 9/20/93 | pH | 8.3 | None |
| 499479 | 10/14/93 | pH | 7.8 | None |
| 499479 | 10/14/93 | pH | 8.2 | None |
| 499479 | 11/12/93 | pH | 7.4 | None |
| 499479 | 11/12/93 | pH | 7.9 | None |
| 499479 | 12/7/93 | pH | 7.5 | None |
| 499479 | 12/7/93 | pH | 7.8 | None |
| 499479 | 1/13/94 | pH | 7.5 | None |
| 499479 | 1/13/94 | pH | 8.1 | None |
| 499479 | 2/15/94 | pH | 7.8 | None |
| 499479 | 2/15/94 | pH | 7.1 | None |
| 499479 | 3/14/94 | pH | 7.8 | None |
| 499479 | 3/31/94 | pH | 8.3 | None |
| 499479 | 3/31/94 | pH | 7.7 | None |
| 499479 | 4/13/94 | pH | 8.2 | None |
| 499479 | 4/13/94 | pH | 7.4 | None |
| 499479 | 4/27/94 | pH | 8.2 | None |
| 499479 | 4/27/94 | pH | 7.5 | None |
| 499479 | 5/11/94 | pH | 8.4 | None |
| 499479 | 5/11/94 | pH | 7.6 | None |
| 499479 | 5/25/94 | pH | 8.1 | None |
| 499479 | 5/25/94 | pH | 7.4 | None |
| 499479 | 6/9/94 | pH | 7.6 | None |
| 499479 | 6/9/94 | pH | 8.3 | None |
| 499479 | 7/13/94 | pH | 8.5 | None |
| 499479 | 7/13/94 | pH | 7.5 | None |
| 499479 | 8/17/94 | pH | 7.8 | None |
| 499479 | 8/17/94 | pH | 8.7 | None |
| 499479 | 9/14/94 | pH | 8.6 | None |
| 499479 | 9/14/94 | pH | 7.5 | None |
| 499479 | 10/11/94 | pH | 7.3 | None |
| 499479 | 10/11/94 | pH | 8.7 | None |
| 499479 | 11/22/94 | pH | 8 | None |
| 499479 | 11/22/94 | pH | 8.13 | None |
| 499479 | 12/9/94 | pH | 8.3 | None |
| 499479 | 12/9/94 | pH | 8 | None |
| 499479 | 1/19/95 | pH | 7.7 | None |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 1/19/95 | pH | 7.9 | None |
| 499479 | 3/9/95 | pH | 8.2 | None |
| 499479 | 3/23/95 | pH | 8.1 | None |
| 499479 | 3/23/95 | pH | 8.2 | None |
| 499479 | 4/5/95 | pH | 8.2 | None |
| 499479 | 4/5/95 | pH | 8.3 | None |
| 499479 | 4/19/95 | pH | 8.1 | None |
| 499479 | 4/19/95 | pH | 8.1 | None |
| 499479 | 5/3/95 | pH | 8.2 | None |
| 499479 | 5/3/95 | pH | 8.2 | None |
| 499479 | 5/18/95 | pH | 8 | None |
| 499479 | 5/18/95 | pH | 8.2 | None |
| 499479 | 5/31/95 | pH | 7.8 | None |
| 499479 | 5/31/95 | pH | 8.22 | None |
| 499479 | 6/14/95 | pH | 8.3 | None |
| 499479 | 6/14/95 | pH | 8.26 | None |
| 499479 | 7/15/99 | pH | 8.5 | None |
| 499479 | 7/15/99 | pH | 8.17 | None |
| 499479 | 8/26/99 | pH | 7.6 | None |
| 499479 | 8/26/99 | pH | 7.78 | None |
| 499479 | 10/5/99 | pH | 8.3 | None |
| 499479 | 10/5/99 | pH | 8.36 | None |
| 499479 | 12/1/99 | pH | 7.9 | None |
| 499479 | 12/1/99 | pH | 7.7 | None |
| 499479 | 1/9/90 | Phosphorus as P | 0.07 | mg/l |
| 499479 | 2/13/90 | Phosphorus as P | 0.322 | mg/l |
| 499479 | 3/6/90 | Phosphorus as P | 0.108 | mg/l |
| 499479 | 4/12/90 | Phosphorus as P | 0.143 | mg/l |
| 499479 | 5/7/90 | Phosphorus as P | 0.416 | mg/l |
| 499479 | 6/12/90 | Phosphorus as P | 0.435 | mg/l |
| 499479 | 7/10/90 | Phosphorus as P | 0.328 | mg/l |
| 499479 | 8/8/90 | Phosphorus as P | 0.236 | mg/l |
| 499479 | 9/5/90 | Phosphorus as P | 0.446 | mg/l |
| 499479 | 10/10/90 | Phosphorus as P | 0.14 | mg/l |
| 499479 | 11/6/90 | Phosphorus as P | 0.03 | mg/l |
| 499479 | 12/11/90 | Phosphorus as P | 0.02 | mg/l |
| 499479 | 1/9/91 | Phosphorus as P | 0.05 | mg/l |
| 499479 | 2/5/91 | Phosphorus as P | 0.037 | mg/l |
| 499479 | 5/9/91 | Phosphorus as P | 0.229 | mg/l |
| 499479 | 6/26/91 | Phosphorus as P | 0.124 | mg/l |
| 499479 | 7/30/91 | Phosphorus as P | 0.202 | mg/l |
| 499479 | 8/26/91 | Phosphorus as P | 0.347 | mg/l |
| 499479 | 9/27/91 | Phosphorus as P | 0.248 | mg/l |
| 499479 | 10/28/91 | Phosphorus as P | 0.078 | mg/l |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 11/26/91 | Phosphorus as P | 0.017 | mg/l |
| 499479 | 12/17/91 | Phosphorus as P | 0.03 | mg/l |
| 499479 | 3/12/92 | Phosphorus as P | 0.032 | mg/l |
| 499479 | 4/29/92 | Phosphorus as P | 0.148 | mg/l |
| 499479 | 5/29/92 | Phosphorus as P | 0.013 | mg/l |
| 499479 | 6/30/92 | Phosphorus as P | 0.391 | mg/l |
| 499479 | 7/29/92 | Phosphorus as P | 0.017 | mg/l |
| 499479 | 7/29/92 | Phosphorus as P | 0.579 | mg/l |
| 499479 | 8/28/92 | Phosphorus as P | 0.583 | mg/l |
| 499479 | 8/28/92 | Phosphorus as P | 0.017 | mg/l |
| 499479 | 9/24/92 | Phosphorus as P | 0.179 | mg/l |
| 499479 | 9/24/92 | Phosphorus as P | 0.03 | mg/l |
| 499479 | 10/7/92 | Phosphorus as P | 0.119 | mg/l |
| 499479 | 10/28/92 | Phosphorus as P | 0.017 | mg/l |
| 499479 | 10/28/92 | Phosphorus as P | 0.072 | mg/l |
| 499479 | 1/19/93 | Phosphorus as P | 0.022 | mg/l |
| 499479 | 1/19/93 | Phosphorus as P | 0.043 | mg/l |
| 499479 | 2/4/93 | Phosphorus as P | 0.026 | mg/l |
| 499479 | 2/4/93 | Phosphorus as P | *Non-detect | mg/l |
| 499479 | 3/2/93 | Phosphorus as P | 0.013 | mg/l |
| 499479 | 3/2/93 | Phosphorus as P | 0.029 | mg/l |
| 499479 | 4/7/93 | Phosphorus as P | 0.035 | mg/l |
| 499479 | 4/7/93 | Phosphorus as P | 0.058 | mg/l |
| 499479 | 5/7/93 | Phosphorus as P | 0.139 | mg/l |
| 499479 | 5/7/93 | Phosphorus as P | 0.03 | mg/l |
| 499479 | 6/9/93 | Phosphorus as P | 0.033 | mg/l |
| 499479 | 6/9/93 | Phosphorus as P | 0.102 | mg/l |
| 499479 | 7/15/93 | Phosphorus as P | 0.02 | mg/l |
| 499479 | 7/15/93 | Phosphorus as P | 0.163 | mg/l |
| 499479 | 8/10/93 | Phosphorus as P | 0.113 | mg/l |
| 499479 | 8/10/93 | Phosphorus as P | 0.179 | mg/l |
| 499479 | 9/20/93 | Phosphorus as P | *Non-detect | mg/l |
| 499479 | 9/20/93 | Phosphorus as P | 0.312 | mg/l |
| 499479 | 10/14/93 | Phosphorus as P | 0.023 | mg/l |
| 499479 | 10/14/93 | Phosphorus as P | 0.077 | mg/l |
| 499479 | 11/12/93 | Phosphorus as P | 0.063 | mg/l |
| 499479 | 11/12/93 | Phosphorus as P | 0.017 | mg/l |
| 499479 | 12/7/93 | Phosphorus as P | 0.014 | mg/l |
| 499479 | 12/7/93 | Phosphorus as P | 0.047 | mg/l |
| 499479 | 1/13/94 | Phosphorus as P | *Non-detect | mg/l |
| 499479 | 1/13/94 | Phosphorus as P | 0.049 | mg/l |
| 499479 | 2/15/94 | Phosphorus as P | 0.01 | mg/l |
| 499479 | 2/15/94 | Phosphorus as P | 0.042 | mg/l |
| 499479 | 3/14/94 | Phosphorus as P | 0.014 | mg/l |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 3/14/94 | Phosphorus as P | 0.064 | mg/l |
| 499479 | 3/31/94 | Phosphorus as P | 0.017 | mg/l |
| 499479 | 3/31/94 | Phosphorus as P | 0.075 | mg/l |
| 499479 | 4/13/94 | Phosphorus as P | *Non-detect | mg/l |
| 499479 | 4/13/94 | Phosphorus as P | 0.026 | mg/l |
| 499479 | 4/27/94 | Phosphorus as P | 0.095 | mg/l |
| 499479 | 4/27/94 | Phosphorus as P | 0.091 | mg/l |
| 499479 | 5/11/94 | Phosphorus as P | 0.02 | mg/l |
| 499479 | 5/11/94 | Phosphorus as P | 0.072 | mg/l |
| 499479 | 5/25/94 | Phosphorus as P | 0.078 | mg/l |
| 499479 | 5/25/94 | Phosphorus as P | 0.014 | mg/l |
| 499479 | 6/9/94 | Phosphorus as P | 0.011 | mg/l |
| 499479 | 6/9/94 | Phosphorus as P | 0.084 | mg/l |
| 499479 | 7/13/94 | Phosphorus as P | 0.183 | mg/l |
| 499479 | 7/13/94 | Phosphorus as P | 0.025 | mg/l |
| 499479 | 8/17/94 | Phosphorus as P | 0.013 | mg/l |
| 499479 | 8/17/94 | Phosphorus as P | 0.178 | mg/l |
| 499479 | 9/14/94 | Phosphorus as P | 0.04 | mg/l |
| 499479 | 9/14/94 | Phosphorus as P | 0.388 | mg/l |
| 499479 | 10/11/94 | Phosphorus as P | 0.019 | mg/l |
| 499479 | 10/11/94 | Phosphorus as P | 0.135 | mg/l |
| 499479 | 11/22/94 | Phosphorus as P | 0.14 | mg/l |
| 499479 | 11/22/94 | Phosphorus as P | 0.068 | mg/l |
| 499479 | 12/9/94 | Phosphorus as P | 0.011 | mg/l |
| 499479 | 12/9/94 | Phosphorus as P | 0.044 | mg/l |
| 499479 | 1/19/95 | Phosphorus as P | 0.11 | mg/l |
| 499479 | 1/19/95 | Phosphorus as P | 0.036 | mg/l |
| 499479 | 3/9/95 | Phosphorus as P | 0.011 | mg/l |
| 499479 | 3/9/95 | Phosphorus as P | 0.111 | mg/l |
| 499479 | 3/23/95 | Phosphorus as P | *Non-detect | mg/l |
| 499479 | 3/23/95 | Phosphorus as P | 0.073 | mg/l |
| 499479 | 4/5/95 | Phosphorus as P | 0.015 | mg/l |
| 499479 | 4/5/95 | Phosphorus as P | 0.069 | mg/l |
| 499479 | 4/19/95 | Phosphorus as P | 0.012 | mg/l |
| 499479 | 4/19/95 | Phosphorus as P | 0.08 | mg/l |
| 499479 | 5/3/95 | Phosphorus as P | 0.016 | mg/l |
| 499479 | 5/3/95 | Phosphorus as P | 0.111 | mg/l |
| 499479 | 5/18/95 | Phosphorus as P | 0.023 | mg/l |
| 499479 | 5/18/95 | Phosphorus as P | 0.085 | mg/l |
| 499479 | 5/31/95 | Phosphorus as P | 0.014 | mg/l |
| 499479 | 5/31/95 | Phosphorus as P | 0.08 | mg/l |
| 499479 | 6/14/95 | Phosphorus as P | 0.01 | mg/l |
| 499479 | 6/14/95 | Phosphorus as P | 0.08 | mg/l |
| 499479 | 7/15/99 | Phosphorus as P | 0.04 | mg/l |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 7/15/99 | Phosphorus as P | *Non-detect | mg/l |
| 499479 | 8/26/99 | Phosphorus as P | 0.082 | mg/l |
| 499479 | 8/26/99 | Phosphorus as P | 0.126 | mg/l |
| 499479 | 10/5/99 | Phosphorus as P | 0.023 | mg/l |
| 499479 | 10/5/99 | Phosphorus as P | 0.062 | mg/l |
| 499479 | 12/1/99 | Phosphorus as P | *Non-detect | mg/l |
| 499479 | 12/1/99 | Phosphorus as P | *Non-detect | mg/l |
| 499479 | 1/9/90 | Selenium | *Non-detect | ug/l |
| 499479 | 2/13/90 | Selenium | *Non-detect | ug/l |
| 499479 | 3/6/90 | Selenium | *Non-detect | ug/l |
| 499479 | 4/12/90 | Selenium | *Non-detect | ug/l |
| 499479 | 5/7/90 | Selenium | *Non-detect | ug/l |
| 499479 | 6/12/90 | Selenium | *Non-detect | ug/l |
| 499479 | 7/10/90 | Selenium | *Non-detect | ug/l |
| 499479 | 8/8/90 | Selenium | *Non-detect | ug/l |
| 499479 | 9/5/90 | Selenium | *Non-detect | ug/l |
| 499479 | 10/10/90 | Selenium | *Non-detect | ug/l |
| 499479 | 11/6/90 | Selenium | *Non-detect | ug/l |
| 499479 | 12/11/90 | Selenium | *Non-detect | ug/l |
| 499479 | 1/9/91 | Selenium | *Non-detect | ug/l |
| 499479 | 2/5/91 | Selenium | *Non-detect | ug/l |
| 499479 | 5/9/91 | Selenium | *Non-detect | ug/l |
| 499479 | 6/26/91 | Selenium | *Non-detect | ug/l |
| 499479 | 7/30/91 | Selenium | *Non-detect | ug/l |
| 499479 | 8/26/91 | Selenium | *Non-detect | ug/l |
| 499479 | 9/27/91 | Selenium | *Non-detect | ug/l |
| 499479 | 10/28/91 | Selenium | *Non-detect | ug/l |
| 499479 | 11/26/91 | Selenium | *Non-detect | ug/l |
| 499479 | 12/17/91 | Selenium | *Non-detect | ug/l |
| 499479 | 3/12/92 | Selenium | *Non-detect | ug/l |
| 499479 | 4/29/92 | Selenium | *Non-detect | ug/l |
| 499479 | 5/29/92 | Selenium | *Non-detect | ug/l |
| 499479 | 6/30/92 | Selenium | *Non-detect | ug/l |
| 499479 | 7/29/92 | Selenium | *Non-detect | ug/l |
| 499479 | 8/28/92 | Selenium | *Non-detect | ug/l |
| 499479 | 9/24/92 | Selenium | *Non-detect | ug/l |
| 499479 | 10/28/92 | Selenium | *Non-detect | ug/l |
| 499479 | 1/19/93 | Selenium | *Non-detect | ug/l |
| 499479 | 2/4/93 | Selenium | *Non-detect | ug/l |
| 499479 | 3/2/93 | Selenium | *Non-detect | ug/l |
| 499479 | 4/7/93 | Selenium | *Non-detect | ug/l |
| 499479 | 5/7/93 | Selenium | *Non-detect | ug/l |
| 499479 | 6/9/93 | Selenium | *Non-detect | ug/l |
| 499479 | 7/15/93 | Selenium | *Non-detect | ug/l |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 8/10/93 | Selenium | *Non-detect | ug/l |
| 499479 | 9/20/93 | Selenium | 1 | ug/l |
| 499479 | 10/14/93 | Selenium | 1 | ug/l |
| 499479 | 11/12/93 | Selenium | *Non-detect | ug/l |
| 499479 | 12/7/93 | Selenium | 1 | ug/l |
| 499479 | 1/13/94 | Selenium | *Non-detect | ug/l |
| 499479 | 2/15/94 | Selenium | *Non-detect | ug/l |
| 499479 | 3/14/94 | Selenium | *Non-detect | ug/l |
| 499479 | 4/27/94 | Selenium | *Non-detect | ug/l |
| 499479 | 5/25/94 | Selenium | 1 | ug/l |
| 499479 | 7/13/94 | Selenium | 1 | ug/l |
| 499479 | 10/11/94 | Selenium | *Non-detect | ug/l |
| 499479 | 1/19/95 | Selenium | *Non-detect | ug/l |
| 499479 | 5/31/95 | Selenium | *Non-detect | ug/l |
| 499479 | 7/15/99 | Selenium | 1.8 | ug/l |
| 499479 | 10/5/99 | Selenium | 1.7 | ug/l |
| 499479 | 1/9/90 | Temperature, water | 5 | deg C |
| 499479 | 2/13/90 | Temperature, water | 0 | deg C |
| 499479 | 3/6/90 | Temperature, water | 4 | deg C |
| 499479 | 4/12/90 | Temperature, water | 14 | deg C |
| 499479 | 5/7/90 | Temperature, water | 14 | deg C |
| 499479 | 6/12/90 | Temperature, water | 18 | deg C |
| 499479 | 7/10/90 | Temperature, water | 28 | deg C |
| 499479 | 8/8/90 | Temperature, water | 25.4 | deg C |
| 499479 | 9/5/90 | Temperature, water | 20.2 | deg C |
| 499479 | 10/10/90 | Temperature, water | 8.9 | deg C |
| 499479 | 11/6/90 | Temperature, water | 4.5 | deg C |
| 499479 | 12/11/90 | Temperature, water | 4.7 | deg C |
| 499479 | 1/9/91 | Temperature, water | 1.8 | deg C |
| 499479 | 2/5/91 | Temperature, water | 1.1 | deg C |
| 499479 | 5/9/91 | Temperature, water | 11.3 | deg C |
| 499479 | 6/26/91 | Temperature, water | 18.4 | deg C |
| 499479 | 7/30/91 | Temperature, water | 24.5 | deg C |
| 499479 | 8/26/91 | Temperature, water | 23 | deg C |
| 499479 | 9/27/91 | Temperature, water | 16.4 | deg C |
| 499479 | 10/28/91 | Temperature, water | 7.3 | deg C |
| 499479 | 11/26/91 | Temperature, water | 4.9 | deg C |
| 499479 | 12/17/91 | Temperature, water | 4.3 | deg C |
| 499479 | 3/12/92 | Temperature, water | 10.8 | deg C |
| 499479 | 4/29/92 | Temperature, water | 17.2 | deg C |
| 499479 | 5/29/92 | Temperature, water | 18.4 | deg C |
| 499479 | 6/30/92 | Temperature, water | 13.8 | deg C |
| 499479 | 7/29/92 | Temperature, water | 22 | deg C |
| 499479 | 9/24/92 | Temperature, water | 16.7 | deg C |

**Table A-26**
**Jordan River from Outlet of Utah Lake to Jordan Narrows at STORET Station 499479**



| Station ID | Date | Characteristic Name | Result Value | Units |
|---|---|---|---|---|
| 499479 | 10/7/92 | Temperature, water | 13 | deg C |
| 499479 | 10/28/92 | Temperature, water | 13.5 | deg C |
| 499479 | 1/19/93 | Temperature, water | 0.6 | deg C |
| 499479 | 2/4/93 | Temperature, water | 5.2 | deg C |
| 499479 | 3/2/93 | Temperature, water | 5.5 | deg C |
| 499479 | 4/7/93 | Temperature, water | 10.2 | deg C |
| 499479 | 5/7/93 | Temperature, water | 11 | deg C |
| 499479 | 6/9/93 | Temperature, water | 14.7 | deg C |
| 499479 | 7/15/93 | Temperature, water | 21.6 | deg C |
| 499479 | 8/10/93 | Temperature, water | 21.4 | deg C |
| 499479 | 9/20/93 | Temperature, water | 15.9 | deg C |
| 499479 | 10/14/93 | Temperature, water | 11.7 | deg C |
| 499479 | 11/12/93 | Temperature, water | 4.6 | deg C |
| 499479 | 12/7/93 | Temperature, water | 3.2 | deg C |
| 499479 | 1/13/94 | Temperature, water | 3.4 | deg C |
| 499479 | 2/15/94 | Temperature, water | 4.2 | deg C |
| 499479 | 3/31/94 | Temperature, water | 9.9 | deg C |
| 499479 | 4/13/94 | Temperature, water | 11.9 | deg C |
| 499479 | 4/27/94 | Temperature, water | 12 | deg C |
| 499479 | 5/11/94 | Temperature, water | 19.5 | deg C |
| 499479 | 5/25/94 | Temperature, water | 19 | deg C |
| 499479 | 7/13/94 | Temperature, water | 22 | deg C |
| 499479 | 8/17/94 | Temperature, water | 25.1 | deg C |
| 499479 | 9/14/94 | Temperature, water | 15.9 | deg C |
| 499479 | 10/11/94 | Temperature, water | 14.3 | deg C |
| 499479 | 11/22/94 | Temperature, water | 3.4 | deg C |
| 499479 | 12/9/94 | Temperature, water | 4.2 | deg C |
| 499479 | 1/19/95 | Temperature, water | 5.3 | deg C |
| 499479 | 3/9/95 | Temperature, water | 8.5 | deg C |
| 499479 | 3/23/95 | Temperature, water | 10.3 | deg C |
| 499479 | 4/5/95 | Temperature, water | 14.2 | deg C |
| 499479 | 4/19/95 | Temperature, water | 9.3 | deg C |
| 499479 | 5/3/95 | Temperature, water | 12.7 | deg C |
| 499479 | 5/18/95 | Temperature, water | 17.2 | deg C |
| 499479 | 5/31/95 | Temperature, water | 18.3 | deg C |
| 499479 | 6/14/95 | Temperature, water | 20.9 | deg C |
| 499479 | 7/15/99 | Temperature, water | 24.2 | deg C |
| 499479 | 8/26/99 | Temperature, water | 21.3 | deg C |
| 499479 | 10/5/99 | Temperature, water | 12.8 | deg C |
| 499479 | 12/1/99 | Temperature, water | 5.3 | deg C |