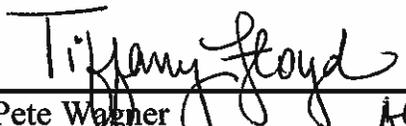


A. Permit Certificate

**MUNICIPAL
WASTEWATER REUSE PERMIT
LA-000154-03**

**Mountain Home Air Force Base, LOCATED AT 1100 Liberator
Street, Mountain Home AFB, ID 83648-5229** IS HEREBY
AUTHORIZED TO CONSTRUCT, INSTALL, AND OPERATE A
WASTEWATER REUSE SYSTEM IN ACCORDANCE WITH THE
RULES FOR THE RECLAMATION AND REUSE OF MUNICIPAL
AND INDUSTRIAL WASTEWATER (IDAPA 58.01.17) AND THE
WASTEWATER RULES (IDAPA 58.01.16), THE GROUND WATER
QUALITY RULE (IDAPA 58.01.11), AND ACCOMPANYING PERMIT,
APPENDICES, AND REFERENCE DOCUMENTS. THIS PERMIT IS
EFFECTIVE FROM THE DATE OF SIGNATURE AND EXPIRES ON
June 25, 2014.



Pete Wagner for
Boise Regional Administrator
Idaho Department of Environmental Quality

Date: June 25, 2009

**DEPARTMENT OF ENVIRONMENTAL QUALITY
1445 N. Orchard, Boise, ID 83706
208-373-0550**

B. Permit Contents, Appendices, and Reference Documents

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Appendices

1. Environmental Monitoring Serial Numbers
2. Site Maps

References

1. Plan of Operation (Operation and Maintenance Manual, CA-154-01 and CA-154-04)
 - Nuisance Odor Management Plan
 - Waste Solids Management Plan
 - Runoff Management Plan
2. Schedule for WWTP upgrade and commencement of Class A effluent (CA-154-03)

The Sections, Appendices, and Reference Documents listed on this page are all elements of Wastewater Reuse Permit LA-000154-03 and are enforceable as such. This permit does not relieve Mountain Home Air Force Base, hereafter referred to as the permittee, from responsibility for compliance with other applicable federal, state or local laws, rules, standards or ordinances.

C. Abbreviations, Definitions

Ac-in	Acre-inch. The volume of water or wastewater to cover 1 acre of land to a depth of 1 inch. Equal to 27,154 gallons.
BMP or BMPs	Best Management Practices
BOD ₅	Five-day Biological Oxygen Demand
COD	Chemical Oxygen Demand
DEQ or the Department	Idaho Department of Environmental Quality
Director	Director of the Idaho Department of Environmental Quality, or the Directors Designee, i.e. Regional Administrator
ET	Evapotranspiration – Loss of water from the soil and vegetation by evaporation and by plant uptake (transpiration)
GS	Growing Season – Typically April 01 through October 31 (214 days)
GW	Ground Water
GWQR	IDAPA 58.01.11 “Ground Water Quality Rule”
Guidance	Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater, DEQ.
HLRgs	Growing Season Hydraulic Loading Rate. Includes any combination of wastewater and supplemental irrigation water applied to reuse hydraulic management units during the growing season. The HLRgs limit is specified in Section F. Permit Limits and Conditions.
HLRngs	Non-Growing Season Hydraulic Loading Rate. Includes any combination of wastewater and supplemental irrigation water applied to each hydraulic management unit during the non-growing season. The HLRngs limit is specified in Section F. Permit Limits and Conditions.
HMU	Hydraulic Management Unit (Serial Number designation is MU)
IWR	<p>Irrigation Water Requirement – Any combination of wastewater and supplemental irrigation water applied at rates commensurate to the moisture requirements of the crop, and calculated monthly during the growing season (GS). Calculation methodology for the IWR can be found at the following website: http://www.kimberly.uidaho.edu/ETIdaho/. The equation used to calculate the IWR at this website is:</p> $IWR = (CU - P_e) / E_i$ <p>CU is the monthly consumptive use for a given crop in a given climatic area. CU is synonymous with crop evapotranspiration</p> <p>P_e is the effective precipitation. CU minus P_e is synonymous with the net irrigation requirement (IR)</p> <p>E_i is the irrigation system efficiency. To obtain the gross irrigation water requirement (IWR), divide the IR by the irrigation system efficiency.</p>
IDAPA	Idaho Administrative Procedures Act.
LG	Lagoon
lb/ac-day	Pounds (of constituent) per acre per day
MG	Million Gallons (1 MG = 36.827 acre-inches)
MGA	Million Gallons Annually (per WLAP Reporting Year)
NGS	Non-Growing Season – Typically November 01 through March 31 (151 days)
NVDS	Non-Volatile Dissolved Solids (= Total Dissolved Solids less Volatile Dissolved Solids)
O&M manual	Operation and Maintenance Manual, also referred to as the Plan of Operation

C. Abbreviations, Definitions

Reuse	The use of reclaimed wastewater for beneficial uses including, but not limited to, land treatment, irrigation, aquifer recharge, use in surface water features, toilet flushing in commercial buildings, dust control, and other uses.
Reuse Reporting Year	The reporting year begins with the non-growing season and extends through the growing season of the following year, typically November 01 – October 31. For example, the 2000 Reporting Year was November 01, 1999 through October 31, 2000.
RI	Rapid Infiltration
SAR	Sodium Absorption Ratio
SI	Supplemental Irrigation water applied to the reuse treatment site.
Soil AWC	Soil Available Water Holding Capacity - the water storage capability of a soil to a depth at which plant roots will utilize (typically 60 inches or root limiting layer)
SMU	Soil Monitoring Unit (Serial Number designation is SU)
SW	Surface Water
TDS	Total Dissolved Solids or Total Filterable Residue
TDIS	Total Dissolved Inorganic Solids – The summation of chemical concentration results in mg/L for the following common ions: calcium, magnesium, potassium, sodium, chloride, sulfate, and 0.6 times alkalinity (alkalinity expressed as calcium carbonate). Nitrate, Silica and fluoride shall be included if present in significant quantities (i.e. > 5 mg/L each).
TMDL	Total Maximum Daily Load – The sum of the individual waste-load allocations (WLA's) for point sources, Load Allocations (LA's) for non-point sources, and natural background. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. IDAPA 58.01.02 <i>Water Quality Standards and Wastewater Treatment Requirements</i>
Typical Crop Uptake	Typical Crop Uptake is defined as the median constituent crop uptake from the three (3) most recent years the crop has been grown. Typical Crop Uptake is determined for each hydraulic management unit. For new crops having less than three years of on-site crop uptake data, regional crop yield data and typical nutrient content values, or other values approved by DEQ may be used.
USGS	United States Geological Survey
WW	Wastewater applied to the reuse treatment site
WWTP	Wastewater Treatment Plant

D. Facility Information

Legal Name of Permittee	United States Air Force, Mountain Home Air Force Base
Type of Facility	Federal
Type of Wastewater	Municipal (approximately 1% of the flow is from non-domestic sources)
Method of Treatment	Sequencing Batch Reactors with Nitrification and Denitrification, Chlorination, Rapid Infiltration, and Slow Rate Irrigation
Facility Location	1100 Liberator Street, Mountain Home, ID 83648
Legal Location	T45, R5E, Sections 27, 29, 32
County	Elmore
USGS Quad	Crater Rings SE, Crater Rings SW
Soils on Site	Silt loam, loam, fine sandy loam, very fine sandy loam,
Depth to Ground Water	Generally 360 feet below ground surface
Beneficial Uses of Ground Water	Agricultural, Industrial, Domestic
Nearest Surface Water	Canyon Creek, 4 miles; Snake River, 4 miles
Beneficial Uses of Surface Water	Agriculture, Industrial, Domestic, Recreation, Aquatic Life
Responsible Official	Nathan E. Rowland, Chief, Asset Management Flight
Mailing Address	1100 Liberator St., Bldg, 1297 Mountain Home AFB, ID 83648
Phone / Fax	(208) 828-6666 / (208) 828-2194

E. Compliance Schedule for Required Activities

The Activities in the following table shall be completed on or before the Completion Date unless modified by the Department in writing.

Compliance Activity Number Completion Date	Compliance Activity Description
CA-154-01 Plan of Operation Within 1 year of permit issuance	<p>An updated Plan of Operation (Operation and Maintenance Manual or O&M Manual) for the wastewater reuse facilities shall be submitted to DEQ for review and approval. The O&M manual shall be designed for use as an operator guide for actual day-to-day operations to meet permit requirements and shall include daily sampling and monitoring requirements to insure proper operation of the wastewater treatment facility and reuse systems.</p> <p>The plan shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> • Wastewater Reuse Permit, • A Quality Assurance Project Plan (QAPP) for monitoring required in this permit. The plan shall cover field activities; laboratory analytical methods and other activities; data verification and validation; data storage, retrieval and assessment; and monitoring program evaluation and improvement, • Waste Solids Management Plan which shall describe how waste solids generated at the facility will be handled and disposed of to meet the requirements of Section I, No. 5, • A Runoff Management Plan. <p>The completed manual shall be incorporated by reference into this permit and shall be enforceable as a part of this permit.</p>
CA-154-02 Storage Lagoon Repair Submit schedule within 6 months of permit issuance	<p>Submit to DEQ a schedule for repair of the Storage Lagoon. Include in the schedule the estimated dates of submittal of plans and specifications, construction schedule, seepage testing protocol submittal, and seepage testing conductance. As-builts shall be submitted within 30 days of completion of construction.</p> <p>The submitted seepage testing protocol shall define the approach and testing procedures to be used to conduct seepage testing of the lagoon, and shall be based upon methods approved for use by DEQ.</p> <p>Upon approval of the seepage testing protocol, conduct testing in accordance with the approved protocol and submit results for DEQ review. The performance standard is 0.25 inches per day. If a properly tested lagoon leaks more than 0.25 inches per day, the permittee shall submit a plan and schedule to either retest, repair, replace or decommission the Storage Lagoon.</p> <p>Discharge to the Storage Lagoon shall not occur until after completion of this compliance condition.</p>

E. Compliance Schedule for Required Activities

<p style="text-align: center;">CA-154-03</p> <p style="text-align: center;">WWTP Upgrade</p> <p style="text-align: center;">Submit schedule within 6 months of permit issuance</p>	<p>Completing the WWTP upgrade to produce Class A effluent is required during this permit term. Submit for DEQ review and approval a schedule of the dates of submittal of plans and specifications for the WWTP upgrade and reuse system changes, the construction schedule, commencement of operation, and other activities as appropriate.</p> <p>The plans and specifications shall be reviewed and approved by DEQ prior to commencement of construction. As-builts shall be submitted within 30 days of completion of construction.</p> <p>Reuse effluent from the WWTP upgrade shall not be discharged to the Golf Course Storage Ponds distribution system until DEQ approval has been obtained.</p> <p>Refer to IDAPA 58.01.17.401 & 601.02 for relevant requirements.</p>
<p style="text-align: center;">CA-154-04</p> <p style="text-align: center;">Updated Plan of Operation</p> <p style="text-align: center;">At the 50% completion point of construction and after one year of operation</p>	<p>An updated Plan of Operation shall be submitted to DEQ for review and comment at the 50% completion point of construction of the WWTP upgrade. After one (1) year of operation the plan shall be updated to reflect actual operating procedures and submitted to DEQ for review and approval.</p> <p>At a minimum, the updated operations plan shall specify:</p> <ul style="list-style-type: none"> • A minimum filter to waste cycle following the high pressure wash based on displacement of two filtrate volumes and effluent turbidity below 2 NTU. • A filter to waste cycle is required for each time a filter starts up. The filter shall automatically filter to waste until the effluent turbidity is below 2 NTU. • Scheduled inspections of cloth conditions. This should include a routine visual inspection at least monthly, and a more in-depth assessment of the cloth condition at least annually. • Operation to insure adequate sludge wasting, • Operation that insures that disinfection meets the requirement of 450 mg-min/L and a minimum of 90 minute contact time. • Guidelines for irrigation with Class A reuse water to comply with irrigation scheduling and buffer zone requirements. • A plan to comply with the Golf Course nitrogen loading limits. <p>The completed manual shall be incorporated by reference into this permit and shall be enforceable as a part of this permit.</p>
<p style="text-align: center;">CA-154-05</p> <p style="text-align: center;">Permit Renewal Application</p> <p style="text-align: center;">Six months prior to permit expiration date</p>	<p>Submit an application package to DEQ for permit renewal.</p>

F. Permit Limits and Conditions

The Permittee is allowed to apply wastewater and treat it on a reuse site as prescribed in the tables below and in accordance with all other applicable permit conditions and schedules.

Category	Permitted Limits and Conditions
Type of Wastewater	Municipal (approximately 1% of flow from non-domestic sources)
Wastewater Reuse Areas	<ol style="list-style-type: none"> 1. High Rate Application to Rapid Infiltration Basins 11 Basins, 2.6 acres/basin 2. WWTP Grounds Irrigation (Growing Season Only) 1.34 acres, turf grass 3. Internal WWTP Uses Wastewater delivered to the belt filter press and to hose bib faucets 4. Golf Course Irrigation (Growing Season Only) 100.8 acres, turf grass 5. Golf Course Storage Ponds (Growing Season Only) Discharge to golf course storage ponds shall not occur until DEQ approval has been received; see CA-154-04.
Growing Season (GS)	April 1 through October 31
Maximum Hydraulic Loading Rate (includes wastewater and supplemental irrigation water, if used)	<ol style="list-style-type: none"> 1. Slow Rate Irrigation: Golf Course and WWTP Grounds Growing Season (GS) Hydraulic Loading Rate shall be substantially equal to the Irrigation Water Requirement (IWR). 2. Golf Course Irrigation The golf course irrigation system will utilize the following irrigation control system to comply with the growing season hydraulic limit: Toro T.Weather with the WeatherLogic Program Tracking of effluent and irrigation water use on the golf course shall be monitored as specified in Section G. Monitoring Requirements.

F. Permit Limits and Conditions

Category	Permitted Limits and Conditions
Total Nitrogen Application Limits	<ol style="list-style-type: none"> 1. Golf Course Irrigation 164 lb/acre/yr, from all sources including fertilizer and supplemental irrigation water. 2. WWTP Grounds Irrigation 164 lb/acre/yr, from all sources including fertilizer and supplemental irrigation water.
Total Nitrogen Concentration Limits	<ol style="list-style-type: none"> 1. High Rate Application to RIBs The total nitrogen (TKN+Nitrate+Nitrite) concentration of the RIB influent shall not exceed 20 mg/L, based on a 30-day average. 2. Discharge to Golf Course Storage Pond The total nitrogen (TKN+Nitrate+Nitrite) concentration of the reuse water effluent discharged to the Golf Course Storage Pond shall not exceed 10 mg/L, based on a monthly arithmetic mean as determined from weekly composite sampling. Discharge to Golf Course Storage Ponds shall not occur until DEQ approval has been obtained; see CA-154-04.
Total Suspended Solids (TSS) Application Limit	The TSS concentration of the RI Basin influent shall not exceed 100 mg/L, based on a 30-day average.
Five Day Biological Oxygen Demand (BOD₅) Concentration Limit	<p>The BOD₅ shall not exceed 5 mg/L for discharge to the Golf Course Storage Pond, based on a monthly arithmetic mean as determined from weekly composite sampling.</p> <p>Discharge to golf course storage ponds shall not occur until DEQ approval has been obtained; see CA-054-04.</p>
pH Limit	The pH of Class A filtered effluent, as determined by daily grab samples or continuous monitoring, shall be between 6 and 9 inclusive (6<pH<9).
Class A Filtration Units Hydraulic Loading Limit	<p><u>Cloth-Media Disk Filter:</u></p> <ul style="list-style-type: none"> • The loading rate shall not exceed 6 gpm/ft² of filter area.

F. Permit Limits and Conditions

Category	Permitted Limits and Conditions																		
Class A Filter Operation and Turbidity Limits	<p>Two in-line, continuously monitoring and recording turbidimeters are required: one prior to filtration and one following filtration, prior to disinfection.</p> <ul style="list-style-type: none"> • Influent turbidity shall not exceed 10 NTU more than 5% of the time within a 24 hr period. • Influent turbidity shall not exceed 15 NTU at any time. • Effluent turbidity shall not exceed two (2) NTU based on the daily arithmetic mean of all daily measurements effluent turbidity. • Effluent turbidity shall not exceed five (5) NTU at any time. <p>If the instantaneous effluent turbidity exceeds 5 NTU for more than five (5) minutes, or if the instantaneous influent turbidity exceeds 15 NTU for more than five (5) minutes, diversion to the DEQ accepted redundancy back-up system shall be automatically activated.</p>																		
Class A Disinfection Limit	<p>For Class A effluent, the concentration/contact time (CT) of Total Chlorine shall not be less than 450 mg-min/L, measured at the end of the contact time, with a modal contact time of not less than 90 minutes.</p> <p>If the chlorine residual drops below the instantaneous required value for more than five (5) minutes, diversion to the DEQ accepted redundancy back-up systems shall be automatically activated.</p>																		
Buffer Zone Distances and Disinfection Requirements	<p>Disinfection to 23/100mL and the associated buffer zones are required for all application sites/wastewater reuse systems, <i>excluding</i> High Rate Application to the RIBs.</p> <p>When CA-154-04 is completed and Class A effluent has been approved for reuse, disinfection to 2.2/100mL and the associated buffer zones are required for Golf Course irrigation and/or discharge to the Golf Course Storage Ponds. Reuse effluent discharged to the Golf Course Storage Ponds must be filtered..</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 15%;">Disinfection Level, Total Coliform (Note 1,2)</th> <th style="width: 15%;">Single Sample Maximum Total Coliform Level</th> <th style="width: 15%;">Distance to Public Access</th> <th style="width: 15%;">Distance to Inhabited Dwellings</th> <th style="width: 15%;">Distance to Streams (Note 3)</th> <th style="width: 15%;">Distance to Public Water Sources (Note 4)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2.2/100mL</td> <td style="text-align: center;">23/100mL</td> <td style="text-align: center;">0 feet</td> <td style="text-align: center;">Note 5</td> <td style="text-align: center;">100 feet</td> <td style="text-align: center;">1,000 feet</td> </tr> <tr> <td style="text-align: center;">23/100mL</td> <td style="text-align: center;">230/100mL</td> <td style="text-align: center;">50 feet</td> <td style="text-align: center;">Note 5</td> <td style="text-align: center;">100 feet</td> <td style="text-align: center;">1,000 feet</td> </tr> </tbody> </table> <p>1) To determine compliance with the 2.2/100mL disinfection level, the median value of the last seven (7) results must not exceed 2.2/100mL, with no single sample greater than 23/100 mL.</p>	Disinfection Level, Total Coliform (Note 1,2)	Single Sample Maximum Total Coliform Level	Distance to Public Access	Distance to Inhabited Dwellings	Distance to Streams (Note 3)	Distance to Public Water Sources (Note 4)	2.2/100mL	23/100mL	0 feet	Note 5	100 feet	1,000 feet	23/100mL	230/100mL	50 feet	Note 5	100 feet	1,000 feet
Disinfection Level, Total Coliform (Note 1,2)	Single Sample Maximum Total Coliform Level	Distance to Public Access	Distance to Inhabited Dwellings	Distance to Streams (Note 3)	Distance to Public Water Sources (Note 4)														
2.2/100mL	23/100mL	0 feet	Note 5	100 feet	1,000 feet														
23/100mL	230/100mL	50 feet	Note 5	100 feet	1,000 feet														

F. Permit Limits and Conditions

Category	Permitted Limits and Conditions
	<p>2) To determine compliance with the 23/100mL disinfection level, the median value of the last five (5) results must not exceed 23/100mL, with no single sample greater than 230/100 mL.</p> <p>3) The minimum buffer zone between effluent application areas and man-made canals and ditches is 50 feet.</p> <p>4) A minimum 100-ft buffer zone shall be maintained between golf course areas irrigated with reuse wastewater and BPW-8.</p> <p>5) When irrigating with <i>less than Class A</i> reuse effluent, the golf course sprinkler system shall be shut down in areas where the edge of the sprinkled area is less than 300 feet to homes when the short-term average wind speed is 15 miles per hour or greater. There is no requirement for distance to inhabited dwellings when using Class A reuse effluent.</p> <p>6) Reuse wastewater shall not be sprayed within 100 feet of areas where food is prepared or served or where drinking fountains are located.</p>
Golf Course Irrigation Scheduling	<p>Irrigation with <i>less than Class A</i> reuse effluent shall occur only during nighttime hours.</p> <p>Irrigation with Class A reuse effluent shall occur only during periods of non-use by the public.</p>
Fencing and Posting	<p>Wastewater Treatment Plant Grounds Irrigation:</p> <ul style="list-style-type: none"> • Install signs identifying the areas irrigated with reuse water: “Attention: Reclaimed Water, Avoid Contact, Do Not Drink” or equivalent. • Install signs at effluent reuse hose bib faucets and at the belt filter press indicating that water is not safe for drinking or bodily contact such as “Attention: Reclaimed Water, Avoid Contact, Do Not Drink” or equivalent. <p>Golf Course Irrigation and Golf Course Storage Ponds:</p> <ul style="list-style-type: none"> • Install signs around the perimeter of the golf course and at other locations identifying the areas irrigated reuse water: “Attention: Reclaimed Water, Avoid Contact, Do Not Drink” or equivalent. Minimum sign placement of every 500 feet along the perimeter of the course and at the entrance to the No. 1 and No. 10 tee box areas. <p>Warning signs shall be installed at each Golf Course Storage Pond where reuse water is discharged. Signs shall contain, at a minimum, one (1) inch purple letters (Pantone 512 or equivalent) on a white or other high contrast background (or the opposite) notifying the public that the water is unsafe to drink. Signs shall read “Warning: Reclaimed Wastewater – Do Not Drink” in Spanish and English.</p>

F. Permit Limits and Conditions

Category	Permitted Limits and Conditions
Source Water Protection Requirements	For systems with wastewater and fresh irrigation water interconnections, DEQ approved backflow prevention devices are required.
Wastewater Treatment Facility Operation	<p>The wastewater treatment facility shall be operated by personnel holding a license from the Idaho Bureau of Occupational Licenses (IBOL). The facility shall be under the direct supervision of a Responsible Charge Operator, and shall have a designated Substitute Responsible Charge Operator, both holding licenses equal to or greater than the classification of the wastewater treatment system in accordance with IDAPA 58.01.16.203 of the Wastewater Rules.</p> <p>Operation of the wastewater treatment system shall be monitored on a 24-hour basis for alarm conditions, including notification of the qualified operating personnel under alarm conditions.</p>
Distribution System Operator Requirements	Requirements for distribution system operators are located in IDAPA 58.01.17.601.08.g of the Reclamation & Reuse of Municipal & Industrial Wastewater Rules. An operator license is not required for personnel exclusively operating a Class A effluent distribution system, IDAPA 58.01.16.203.05.
Ground Water Quality	Ground Water Quality shall be in compliance with the <i>Idaho Ground Water Quality Rule</i> , IDAPA 58.01.11.
Runoff	No runoff of wastewater is allowed from any site or fields used for wastewater land application except after a 25-year, 24-hour storm event or greater using Western Regional Climate Center (WRCC) Precipitation Frequency Map, Figure 28 "Isopluvials of 25-yr, 24-hr Precipitation".
Construction Plans	Detailed plans and specifications shall be reviewed and approved by DEQ prior to construction or modification of all wastewater facilities associated with the reuse system or expansion. Within 30 days of completion of construction, the permittee shall submit as-built plans to DEQ or submit a certification letter stating that all construction was done in substantial compliance with DEQ approved plans and specifications.

G. Monitoring Requirements

- 1) Appropriate analytical methods, as given in the *Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater* or as approved by the Idaho Department of Environmental Quality (hereinafter referred to as DEQ), shall be employed. A description of approved sample collection methods, appropriate analytical methods and companion QA/QC protocol shall be included in the Operation and Maintenance Manual.
- 2) The permittee shall monitor and measure parameters and submit information as stated in the Facility Monitoring Table in this section.
- 3) Samples shall be collected at times and locations that represent typical environmental and process parameters being monitored.
- 4) Monitoring locations are described in Appendix 1. Environmental Monitoring Serial Numbers.
- 5) Monitoring is required at the frequency shown in the table below if wastewater is applied anytime during the time period shown. Unless otherwise agreed in writing by the DEQ, data collected and submitted shall include, but not be limited to, the parameters and frequencies in the Facility Monitoring Table as follows.
- 6) If the soil management unit is less than 15 acres, use 5 sub-samples. If the soil management unit is greater than 15 acres, use 10 sub-samples.
- 7) Three (3) soil samples shall be collected at each sample location, one at 0-12 inches, one at 12-24 inches, and one at 24-36 inches. The soil samples collected at 0-12 inches from each sample location shall be composited. Similarly, all soil samples collected at 12-24 inches shall be composited and all soil samples collected at 24-36 inches shall be composited. This method will yield three samples for analysis, one for 0-12 inches, one for 12-24 inches and one for 24-36 inches for each soil management unit.
- 8) Ground Water Monitoring Procedure: Ground Water Monitoring Wells shall be purged a minimum of three casing volumes and/or until field measurements for pH, specific conductance and temperature meet the following conditions: two successive temperature values measured at least five minutes apart are within one degree Celsius of each other, pH values for two successive measurements measured at least five minutes apart are within 0.2 units of each other, and two successive specific conductance values measured at least five minutes apart are within 10% of each other. This procedure will determine when the wells are suitable for sampling for constituents required by the permit. Other procedures, such as low flow sampling, may be considered by DEQ for approval. The static water level shall be measured prior to pumping or sampling for ground water.
- 9) Annual reporting of monitoring requirements is described in Section H, Standard Reporting Requirements.
- 10) Surface water sampling guidance: DEQ to review and approve methods, timing and locations for sampling prior to initial sampling event.
- 11) A composite sample must contain a minimum of 4 equal aliquots over an 8-hr period.

G. Monitoring Requirements

Facility Monitoring Tables

Growing Season Effluent Monitoring Prior (April 1 – October 31)

These requirements apply prior to commencement of filtered reuse effluent discharge to the Golf Course Storage Ponds

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
3 times per week ¹ (When Golf Course Irrigation with reuse water is in use)	Effluent WW-015403	Grab sample or continuous monitoring	Total Coliform, Chlorine residual
Weekly (When WWTP grounds irrigation or Belt Filter Press/Hose Bib Faucets are in use)	Effluent WW-015403	Grab sample or continuous monitoring	Total Coliform, Chlorine residual
Continuously ²	CCB Effluent WW-015403	Continuous monitoring	Chlorine residual
Continuously ²	CCB Effluent WW-015403	Chlorine Concentration/Contact Time	Calculate chlorine concentration/contact time, mg-min/L
Continuously ²	Filter Influent Turbidimeter WW-015405	Turbidity	NTU
Continuously ²	Filter Effluent Turbidimeter WW-015406	Turbidity	NTU
Daily	Flow Meter	Volume of Reuse Effluent applied to each HMU	Gallons/Day, Gallons/Month and acre-inches/month
Daily	Calibrated Pump Rate or Flow Meter	Volume of Supplemental Irrigation Water applied to the Golf Course	Gallons/Day, Gallons/Month
Monthly	Effluent WW-015403	Composite Sample (Note 11)	Total Kjeldahl Nitrogen (TKN), Nitrite+Nitrate Nitrogen, Total Phosphorus, BOD ₅ , Total Suspended Solids (TSS), pH

¹ Buffer zones for 23/100mL total coliform disinfection level apply.

² Requirement applies when filtration is in service. Continuous monitoring data must be recorded but does not need to be included in the annual report. Report exceedances in the annual report.

G. Monitoring Requirements

Growing Season Effluent Monitoring (April 1 – October 31)

These requirements apply following commencement of discharge of filtered reuse effluent to the Golf Course Storage Ponds

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
Daily (When discharge of reuse water to the Golf Course Storage Ponds is in use)	Effluent WW-015403	Grab Sample or Continuous Monitoring	Total Coliform, pH, Chlorine residual
Weekly (When WWTP Grounds irrigation or Belt Filter Press/Hose Bib Faucets are in use)	Effluent WW-015403	Grab Sample or Continuous Monitoring	Total Coliform, Chlorine residual
Continuously ¹	CCB Effluent WW-015403	Chlorine Residual	mg/L
Continuously ¹	CCB Effluent WW-015403	Chlorine Concentration/Contact Time	Calculate chlorine concentration/contact time, mg-min/L
Continuously ¹	Filter Influent Turbidimeter WW-015405	Turbidity	NTU
Continuously ¹	Filter Effluent Turbidimeter WW-015406	Turbidity	NTU
Daily	Flow Meter	Volume of Reuse Effluent applied to each HMU ²	Gallons/Day, Gallons/Month and acre-inches/month
Daily	Flow Meter	Volume of Reuse Effluent discharged to the Golf Course Storage Ponds	Gallons/Day, Gallons/Month
Daily	Calibrated Pump Rate or Flow Meter	Volume of supplemental irrigation water discharged to the Golf Course Storage Ponds	Gallons/Day, Gallons/Month

G. Monitoring Requirements

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
Daily	Calibrated Pump Rate or Flow Meter WW-015404	Volume of water used for Golf Course Irrigation	Gallons/Day, Gallons/Month and acre-inches/month
Weekly	Effluent WW-015403	Composite Sample (Note 11)	Total Kjeldahl Nitrogen (TKN), Nitrite+Nitrate Nitrogen, Total Phosphorus, BOD ₅ , Total Suspended Solids (TSS), pH
Monthly	Golf Course Storage Pond Effluent WW-015407	Composite Sample (Note 11)	Total Kjeldahl Nitrogen (TKN), Nitrite+Nitrate Nitrogen, Total Phosphorus, BOD ₅ , Total Suspended Solids (TSS), pH

¹ Requirement applies when filtration is in service. Effluent must be filtered prior to discharge to the Golf Course Storage Ponds. Continuous monitoring data must be recorded but does not need to be included in the annual report. Report exceedances in the annual report.

² Requirement does not apply to the Golf Course.

Non-Growing Season Effluent Monitoring (November 1 – March 31)

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
Daily	Flow Meter	Volume of Reuse Effluent applied to each HMU	Gallons/Day, Gallons/Month and acre-inches/month
Weekly (When Belt Filter Press/Hose Bib Faucets are in use)	Effluent (WW-015403)	Grab Sample	Chlorine Residual, Total Coliform
Monthly	Effluent (WW-015403)	Composite Sample (Note 11)	Total Kjeldahl Nitrogen (TKN), Nitrite+Nitrate Nitrogen, Total Phosphorus, BOD ₅ , Total Suspended Solids (TSS), pH

G. Monitoring Requirements

Other monitoring and reporting requirements

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
Quarterly	Effluent (WW-015403)	Composite Sample (Note 11)	Total Dissolved Solids (TDS)
Twice per Year, April and October	Ground Water Monitoring and Production Wells listed in Appendix 1.	See Note 8	Nitrate-Nitrite Nitrogen, Total Kjeldahl Nitrogen (TKN), Total Dissolved Solids (TDS), Total Phosphorus (TP), Chloride, Static Water Level, pH, Temperature, Specific Conductivity
Annually in November	Soil Monitoring unit listed in Appendix 1.	See Notes 6 and 7	Electrical Conductivity, Nitrate-Nitrogen, Ammonium-Nitrogen, pH, Plant Available Phosphorous* *use Olsen method for soils with pH 6.5 or greater, use Bray method if soil pH is less than 6.5
Annually	HMUs	Acres of each Hydraulic Management Unit	Acres
Annually	WWTP Grounds and Golf Course HMUs	Calculate Total Nitrogen and Total Phosphorus loading from each source (including all Non-Reuse Water application sources)	Total Nitrogen and Total Phosphorus applied in lbs/acre-year from each source
Annually	Each HMU	Calculate Total Dissolved Solids (TDS) loading	TDS applied in lbs/acre-year
Annually	WWTP Grounds and Golf Course Irrigation HMUs	Calculate monthly Irrigation Water Requirement (IWR)	Volume (inches/acre and gallons) per month

G. Monitoring Requirements

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
Annually	WWTP Grounds and Golf Course Irrigation HMUs	Calculate monthly GS hydraulic loading rate	Volume (inches/acre and gallons) of total water (reuse water plus supplemental irrigation water) applied per month
Annually	RIB HMUs	Calculate total wastewater loading rate per HMU	Million gallons per loading event & Inches/year
Annually	RIB HMUs	Calculate Total Suspended Solids (TSS) loading rate	TSS applied in lbs/acre-year
Annually	All flow measurement locations.	Flow measurement calibration of all flows to reuse.	Document the flow measurement calibration of all flow meters and pumps used directly or indirectly measure all wastewater, tail water, flushing water, and supplemental irrigation water flows applied to each HMU.
Annually	All supplemental irrigation pumps directly connected to the wastewater distribution system.	Backflow testing	Document the testing of all backflow prevention devices for all supplemental irrigation pumps directly connected to the wastewater distribution system(s). Report the testing date(s) and results of the test (pass or fail). If any test failed, report the date of repair or replacement of backflow prevention device, and if the repaired/replaced device is operating correctly.
Annually	Filters	Report total filter surface area and yearly maximum loading rate	Square feet, and maximum gpm/ft ²

H. Standard Reporting Requirements

- 1) The Permittee shall submit an Annual Wastewater-Land Application Site Performance Report ("Annual Report") prepared by a competent environmental professional no later than January 31 of each year, which shall cover the previous reporting year. The Annual Report shall include an interpretive discussion of monitoring data (ground water, soils, hydraulic loading, wastewater etc.) with particular respect to environmental impacts by the facility.
- 2) The annual report shall contain the results of the required monitoring as described in *Section G. Monitoring Requirements*. If the permittee monitors any parameter more frequently than required by this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the annual report.
- 3) The annual report shall be submitted to the Engineering Manager in the applicable Regional DEQ Office.

Mark Mason, P.E.
Boise Regional Office
1445 N. Orchard
Boise, ID 83706-2239
208-769-1422

A copy of the annual report shall also be mailed to:

Richard Huddleston, P.E.
Wastewater Program Manager
1410 N. Hilton
Boise, ID 83706
208-373-0561

- 4) Notice of completion of any work described in *Section E. Compliance Schedule for Required Activities* shall be submitted to the Department within 30 days of activity completion. The status of all other work described in Section E shall be submitted with the Annual Report.
- 5) All laboratory reports containing the sample results for monitoring required by *Section G. Monitoring Requirements* of this permit shall be submitted with the Annual Report.

I. Standard Permit Conditions: Procedures and Reporting

- 1) The permittee shall at all times properly maintain and operate all structures, systems, and equipment for treatment, operational controls and monitoring, which are installed or used by the permittee to comply with all conditions of the permit or the Wastewater-Land Application Permit Regulations, in conformance with a DEQ approved, current Plan of Operations (Operations and Maintenance Manual) which describes in detail the operation, maintenance, and management of the wastewater treatment system. This Plan of Operations shall be updated as necessary to reflect current operations.
- 2) Wastewater(s) or recharge waters applied to the land surface must be restricted to the premises of the application site unless permission has been obtained from the DEQ authorizing a discharge into the waters of the State as stated in IDAPA 58.01.02.600.02.
- 3) Wastewater must not create a public health hazard or nuisance condition as stated in IDAPA 58.01.02.600.03. In order to prevent public health hazards and nuisance conditions the permittee shall:
 - a. Apply wastewater as evenly as practicable to the treatment area;
 - b. Prevent organic solids (contained in the wastewater) from accumulating on the ground surface to the point where the solids putrefy or support vectors or insects; and
 - c. Prevent wastewater from ponding in the fields to the point where the ponded wastewater putrefies or supports vectors or insects.
- 4) The permittee shall:
 - a. Manage the wastewater land application treatment site as an agronomic operation where vegetative cover is grown and harvested or grazed to utilize the nutrients and minerals in the wastewater, and,
 - b. Not hydraulically overload any particular areas of the wastewater land application treatment site.
- 5) All waste solids, including dreggings and sludges, shall be utilized or disposed in a manner which will prevent their entry, or the entry of contaminated drainage or leachate therefrom, into the waters of the state such that health hazards and nuisance conditions are not created; and to prevent impacts on designated beneficial uses of the ground water and surface water. The permittee's management of waste solids shall be governed by the terms of the DEQ approved Waste Solids Management Plan, which upon approval shall be an enforceable portion of this permit.
- 6) If the permittee intends to continue operation of the permitted facility after the expiration of an existing permit, the permittee shall apply for a new permit at least six months prior to the expiration date of the existing permit in accordance with the Waste Water Land Application Permit Regulations and include seepage tests on all lagoons per latest DEQ procedures.
- 7) The permittee shall allow the Director of the Idaho Department of Environmental Quality or the Director's designee (hereinafter referred to as Director), consistent with Title 39, Chapter 1, Idaho Code, to:
 - a. Enter the permitted facility,
 - b. Inspect any records that must be kept under the conditions of the permit.
 - c. Inspect any facility, equipment, practice, or operation permitted or required by the permit.
 - d. Sample or monitor for the purpose of assuring permit compliance, any substance or any parameter at the facility.
- 8) The permittee shall report to the Director under the circumstances and in the manner specified in this section:
 - a. In writing thirty (30) days before any planned physical alteration or addition to the permitted facility or activity if that alteration or addition would result in any significant change in information that was submitted during the permit application process.
 - b. In writing thirty (30) days before any anticipated change which would result in non-compliance with any permit condition or these regulations.
 - c. Orally within twenty-four (24) hours from the time the permittee became aware of any non-compliance which may endanger the public health or the environment at telephone numbers provided in the permit by the Director (see below)

DEQ Regional Office: see Permit Certificate Page
Emergency 24 Hour Number: 1-800-632-8000

I. Standard Permit Conditions: Procedures and Reporting

- d. In writing as soon as possible but within five (5) days of the date the permittee knows or should know of any non-compliance unless extended by the DEQ. This report shall contain:
 - i. A description of the non-compliance and its cause;
 - ii. The period of non-compliance including to the extent possible, times and dates and, if the non-compliance has not been corrected, the anticipated time it is expected to continue; and
 - iii. Steps taken or planned to reduce or eliminate reoccurrence of the non-compliance.
 - e. In writing as soon as possible after the permittee becomes aware of relevant facts not submitted or incorrect information submitted, in a permit application or any report to the Director. Those facts or the correct information shall be included as a part of this report.
- 9) The permittee shall take all necessary actions to prevent or eliminate any adverse impact on the public health or the environment resulting from permit noncompliance.
- 10) The permittee shall determine (on an on-going basis) if any noxious weed problems relate to the permitted sites. If problems are present, coordinate with the Idaho Department of Agriculture or the local County authority regarding their requirements for noxious weed control. Also address these control operations in an update to the Operations and Maintenance Manual.

J. Standard Permit Conditions: Modifications, Violations, and Revocations

- 1) The permittee shall furnish to the Director within reasonable time, any information including copies of records, which may be requested by the Director to determine whether cause exists for modifying, revoking, re-issuing, or terminating the permit, or to determine compliance with the permit or these regulations.
- 2) Both minor and major modifications may be made to this permit as stated in IDAPA 58.01.17.700.01 and 02 with respect to any conditions stated in this permit upon review and approval of the DEQ.
- 3) Whenever a facility expansion, production increase or process modification is anticipated which will result in a change in the character of pollutants to be discharged or which will result in a new or increased discharge that will exceed the conditions of this permit, or if it is determined by the DEQ that the terms or conditions of the permit must be modified in order to adequately protect the public health or environment, a request for either major or minor modifications must be submitted together with the reports as described in Section I. *Standard Reporting Requirements*, and plans and specifications for the proposed changes. No such facility expansion, production increase or process modification shall be made until plans have been reviewed and approved by the DEQ and a new permit or permit modification has been issued.
- 4) Permits shall be transferable to a new owner or operator provided that the permittee notifies the Director by requesting a minor modification of the permit before the date of transfer.
- 5) Any person violating any provision of the Wastewater Land Application Permit Regulations, or any permit or order issued thereunder shall be liable for a civil penalty not to exceed ten thousand dollars (\$10,000) or one thousand dollars (\$1,000) for each day of a continuing violation, whichever is greater. In addition, pursuant to Title 39, Chapter 1, Idaho Code, any willful or negligent violation may constitute a misdemeanor.
- 6) The Director may revoke a permit if the permittee violates any permit condition or the Wastewater Land Application Permit Regulations.
- 7) Except in cases of emergency, the Director shall issue a written notice of intent to revoke to the permittee prior to final revocation. Revocation shall become final within thirty-five (35) days of receipt of the notice by the permittee, unless within that time the permittee request an administrative hearing in writing to the Board of Environmental Quality pursuant to the Rules of Administrative Procedures contained in IDAPA 58.01.23.
- 8) If, pursuant to Idaho Code, 67-5247, the Director finds the public health, safety or welfare requires emergency action, the Director shall incorporate findings in support of such action in a written notice of emergency revocation issued to the permittee. Emergency revocation shall be effective upon receipt by the permittee. Thereafter, if requested by the permittee in writing, a revocation hearing before the Board of Environmental Quality shall be provided. Such hearings shall be conducted in accordance with the Rules of Administrative Procedures contained in IDAPA 58.01.23.
- 9) The provisions of this permit are severable and if a provision or its application is declared invalid or unenforceable for any reason, that declaration will not affect the validity or enforceability of the remaining provisions.
- 10) The permittee shall notify the DEQ at least six (6) months prior to permanently removing any permitted land application facility from service, including any treatment, storage, or other facilities or equipment associated with the land application site. Prior to commencing closure activities, the permittee shall: a) participate in a pre-site closure meeting with the DEQ; b) develop a site closure plan that identifies specific closure, site characterization, or cleanup tasks with scheduled task completion dates in accordance with agreements made at the pre-site closure meeting; and c) submit the completed site closure plan to the DEQ for review and approval within forty-five (45) days of the pre-site closure meeting. The permittee must complete the DEQ approved site closure plan.

Appendix 1
Environmental Monitoring Serial Numbers

HYDRAULIC MANAGEMENT UNITS

Serial Number	Description	Acres
MU-015401	Basin 1	2.6
MU-015402	Basin 2	2.6
MU-015403	Basin 3	2.6
MU-015404	Basin 4	2.6
MU-015405	Basin 5	2.6
MU-015406	Basin 6	2.6
MU-015407	Basin 7	2.6
MU-015408	Basin 8	2.6
MU-015409	Basin 9	2.6
MU-015410	Basin 10	2.6
MU-015411	Basin 11	2.6
MU-015412	Wastewater Treatment Plant Grounds	1.34
MU-015417	Golf Course Reuse Area	100.8

WASTEWATER SAMPLING POINTS

Serial Number	Description
WW-015403	Chlorine Contact Basin Effluent/Reuse Wastewater to Golf Course, Rapid Infiltration Basins, Wastewater Treatment Plant Grounds, Belt Filter Press and Hose Bib Faucets
WW-015405	Turbidity prior to filtration
WW-015406	Turbidimeter after filtration and prior to disinfection
WW-015407	Golf Course Storage Pond Effluent, supplemental irrigation water or a mix of fresh irrigation water and reuse wastewater

Appendix 1
Environmental Monitoring Serial Numbers
SOIL MONITORING UNITS

Serial Number	Description	Associated MU
SU-015401	Golf Course Reuse Area	MU-015417

GROUND WATER MONITORING

Serial Number	Description
GW-015401	MW-29
GW-015402	BPW-8
GW-015403	MW-34
GW-015404	MW-3-2
GW-015405	MW-6-2
GW-015406	MW-7-2
GW-015407	MW-17-2
GW-015408	MW-21
GW-015409	MW-22
GW-015410	MW-23
GW-015411	BPW-6
GW-015412	MW-11-2
GW-015413	MW-18

LAGOONS

Serial Number	Description
LG-015401	Wastewater Storage Lagoon
LG-015402	Golf Course Storage Ponds

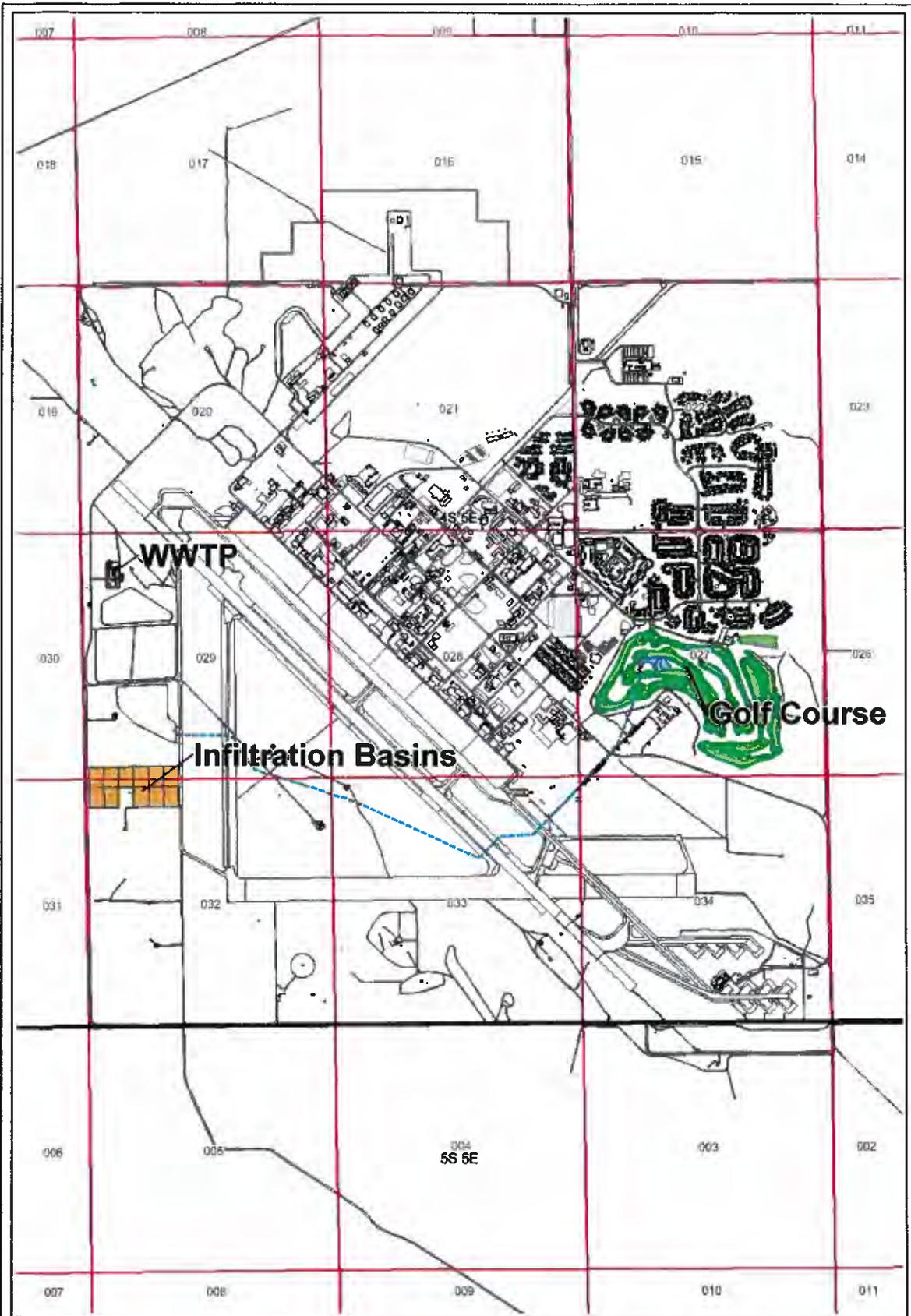
Appendix 2 Site Maps

Site Map 1:
WWTP and Reuse Site Location Map

Site Map 2:
Reuse Components and Serial Numbers

Site Map 3:
3a: Well Locations, Well Serial Numbers and Spring Ground Water Flow
3b: Well Locations, Well Serial Numbers and Fall Ground Water Flow

Site Map 4:
Golf Course Boundaries



Legend

- Wastewater Reuse Line
- Plays Lake
- Park
- Athletic Field
- Golf Course Ponds
- Rapid Infiltration Area
- WWTP Grounds Irrigation Area
- Golf Course Irrigation Area

MHAFB, Idaho

1:24,000 Scale

Spatial Reference: UTM Zone 18N, WGS-84

Site Map 1 MWH

**WWTP and Reuse Site
Location Map**





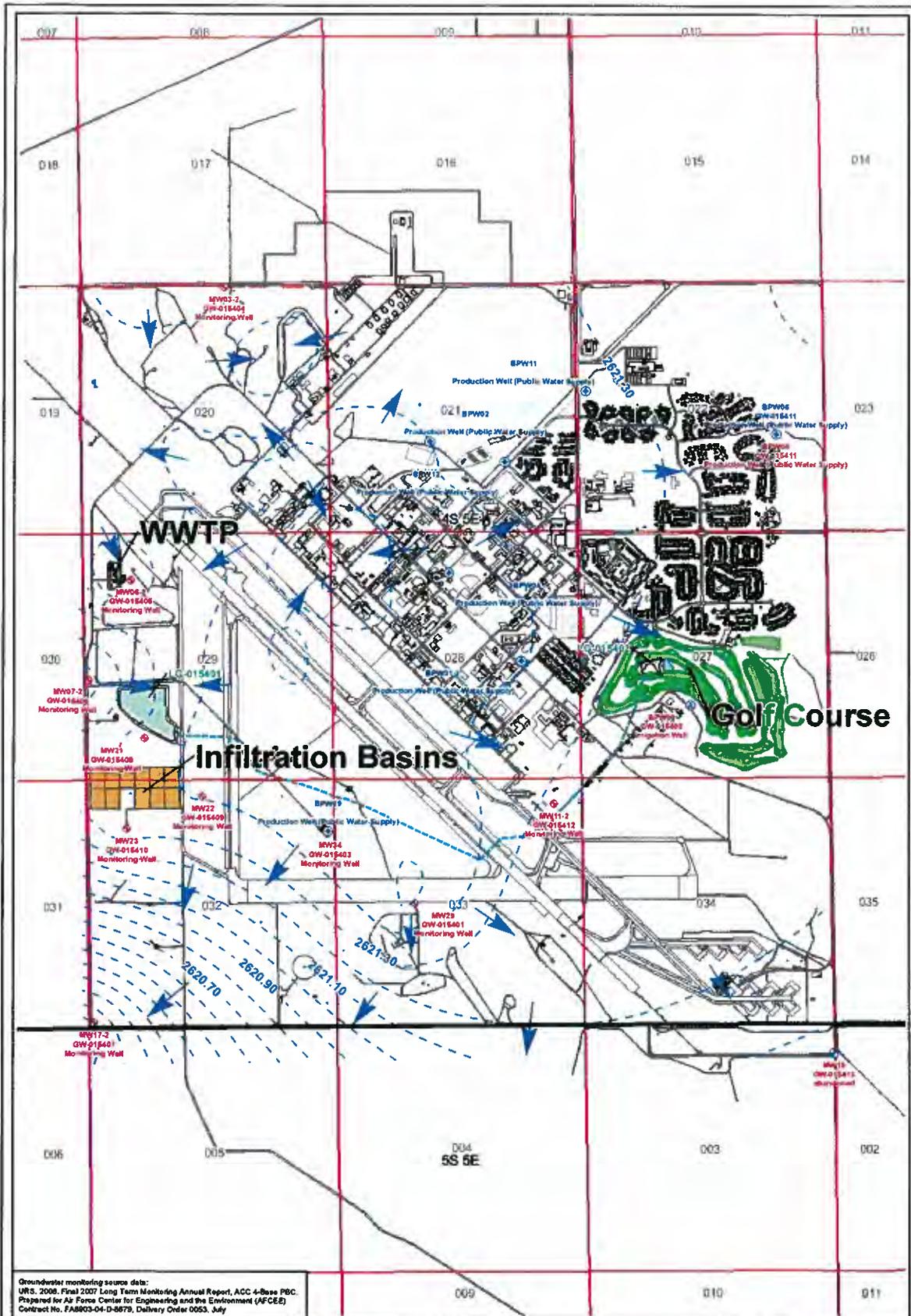
MHAFB, Idaho
 1:12,000 Scale
 North Reference: UTM Zone 18N, WGS84
Site Map 2
 MWH

Reuse Components

Legend

- Wastewater Reuse Line
- Playa Lake
- Park
- Athletic Field
- Wastewater Lagoon
- Golf Course Ponds
- MAIN
- SERVICE
- SPRINKLER
- Water Pump
- Wastewater System
- Stormwater System
- MAIN
- SERVICE
- Land Application Sites in Use
- Rapid Infiltration Area
- WWTP Grounds Irrigation Area
- Golf Course Irrigation Area

0 250 500 1,000 1,500 2,000 Feet



Groundwater monitoring source data:
 URS, 2008, Final 2007 Long Term Monitoring Annual Report, ACC 4-Base PBC.
 Prepared for Air Force Center for Engineering and the Environment (AFCEE)
 Contract No. FA8803-04-D-8679, Delivery Order 0053, July

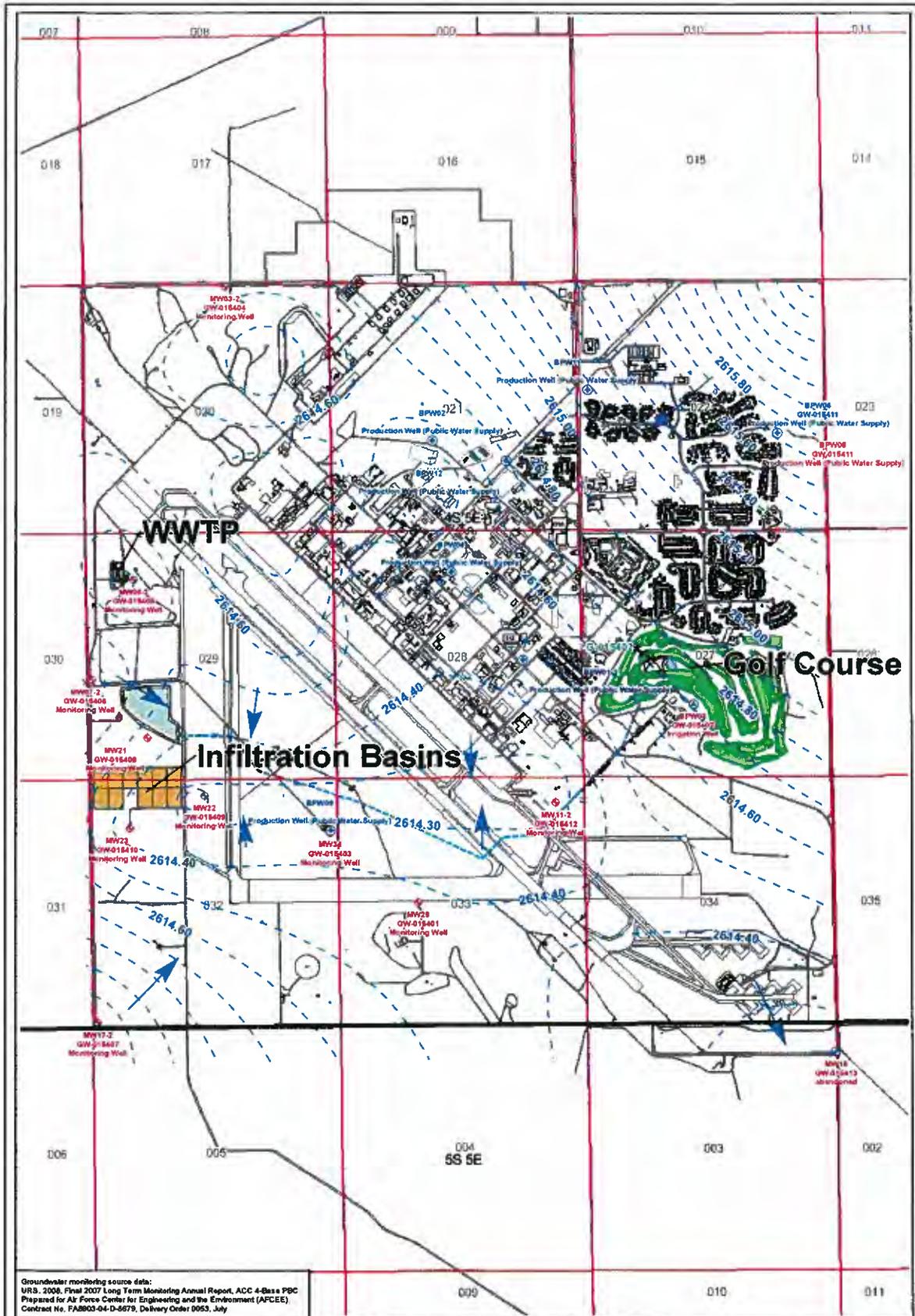
Legend	
Domestic Water Well	Wastewater Reuse Line
Domestic Water Test Well	Playa Lake
Domestic Water Abandoned Well	Park
Irrigation Well	Rapid Infiltration Area
Monitoring Well	WWTP Grounds Irrigation Area
Monitoring Well Abandoned	Golf Course Irrigation Area
	Groundwater Contours



MHAFB, Idaho
 1:24,000 Scale
 Spatial Reference: UTM Zone 19L, NAD83

Site Map 3a

Well Locations and Groundwater Monitoring
 April 2007



Groundwater monitoring source data:
 URS, 2006, Final 2007 Long Term Monitoring Annual Report, ACC 4-Bas e PBC
 Prepared for Air Force Center for Engineering and the Environment (AFCEE)
 Contract No. FA8903-04-D-5679, Delivery Order 0053, July

Legend

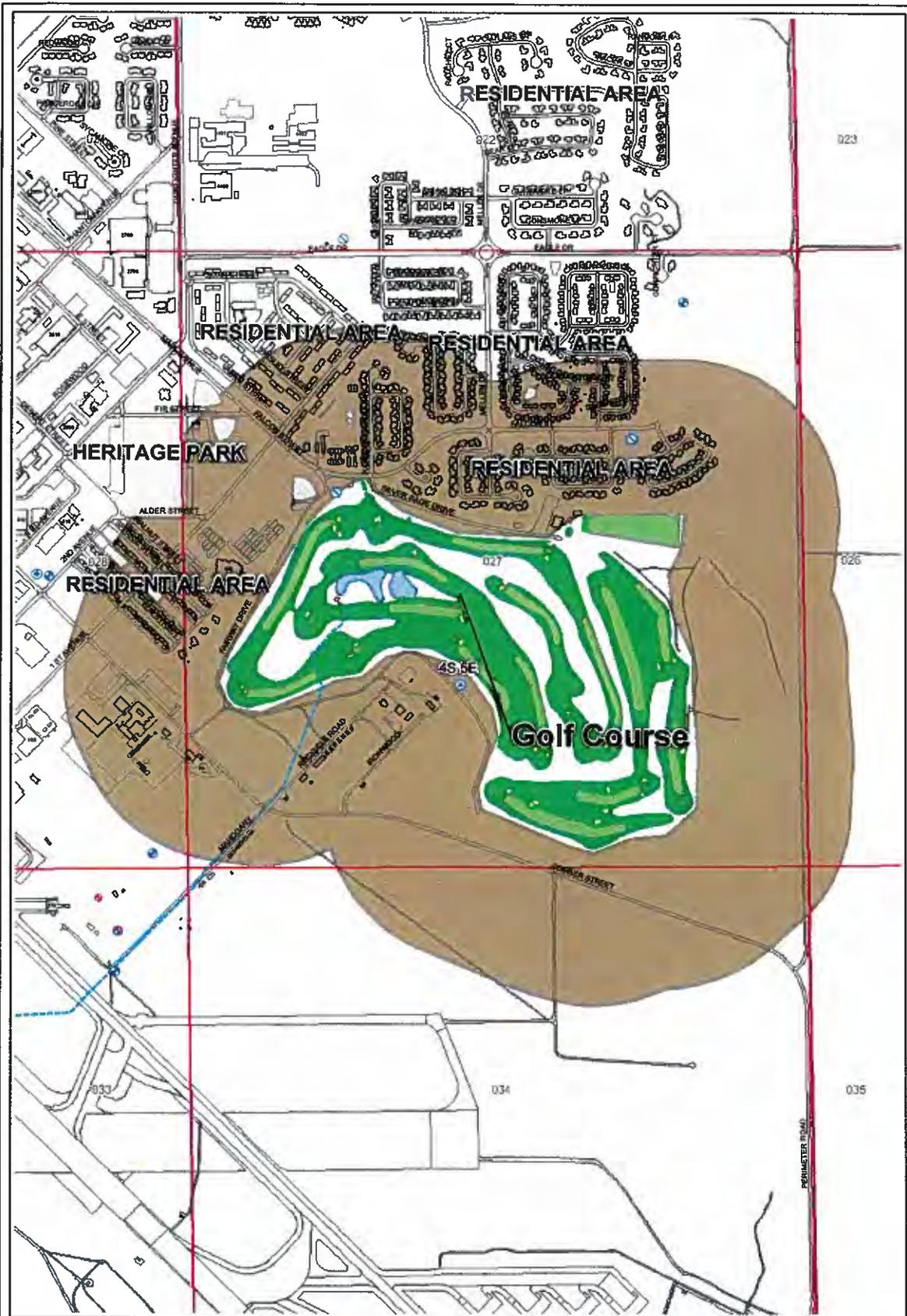
- | | | |
|---|---|---|
| <ul style="list-style-type: none"> ⊕ Domestic Water Well ⊕ Domestic Water Test Well ⊕ Domestic Water Abandoned Well ⊕ Irrigation Well ⊕ Monitoring Well ⊕ Monitoring Well Abandoned | <ul style="list-style-type: none"> --- Wastewater Reuse Line ⊕ Plays Lake ⊕ Park ⊕ Athletic Field ⊕ Wastewater Lagoon ⊕ Golf Course Ponds ⊕ Groundwater Contours | <ul style="list-style-type: none"> ⊕ Land Application Sites In Use ⊕ Rapid Infiltration Area ⊕ WWTP Grounds Irrigation Area ⊕ Golf Course Irrigation Area |
|---|---|---|

MHAFB, Idaho
 1:24,000 Scale
 Spatial Reference: UTM Zone 18N, WGS-84

Site Map 3b MWH

Well Locations and Groundwater Monitoring October 2007





Legend

Well Type

- ⊕ Domestic Water Well
- ⊕ Domestic Water Test Well
- ⊕ Domestic Water Abandoned Well
- ⊕ Irrigation Well
- ⊕ Monitoring Well
- ⊕ Monitoring Well Abandoned

Wastewater Reuse Line

- Playa Lake
- Park
- Athletic Field
- Golf Course Ponds
- Golf Course Buffer - 1/4 Mile

Land Application Sites In Use

- Rapid Infiltration Area
- WWTP Grounds Irrigation Area
- Golf Course Irrigation Area

MHAFB, Idaho

1:9,600 Scale

Spatial Reference: MTN Zone 18, WGS-84

Site Map 4



Golf Course Area Dwellings and Roads

