June 12, 2012

M E M O R A N D U M

TO: Dan Redline
Regional Administrator , Coeur d'Alene Regional Office

John Tindall
Engineering Manager, Coeur d'Alene Regional Office

FROM: Stephanie Ogle, P.E.
Staff Engineer, Technical Services

SUBJECT: Staff Analysis for Draft Reuse Permit M-00143-02 (Municipal Recycled Water)
NKWSD - Gozzer Ranch Golf and Lake Club

1. PURPOSE

The purpose of this memorandum is to satisfy the staff analysis requirement of Section 400.05 of IDAPA 58.01.17., "Recycled Water Rules". The staff analysis is required as part of the application processing procedures for reuse permits. This memorandum addresses draft permit M-0143-02 for the municipal wastewater treatment system owned and operated by North Kootenai Water and Sewer District (NKWSD). Municipal wastewater is collected from the Gozzer Ranch Golf and Lake Club and Arrow Point subdivisions and treated at the NKWSD wastewater treatment plant, which produces Class A effluent. The treated wastewater is then transferred to the Gozzer Ranch Golf and Lake Club irrigation lagoon for use in their pressurized irrigation system. The treatment and reuse system is currently permitted under the terms of reuse permit LA-000143-01.

2. SUMMARY OF EVENTS

The Department of Environmental Quality (DEQ) issued permit LA-000143-01 to Discovery Coeur d'Alene Investors, LLC for the Gozzer Ranch Golf and Lake Club subdivision on April 27, 2007. The facility consists of a wastewater treatment plant that produces Class A effluent and a golf course that is irrigated with water from various sources, including the Class A effluent. These facilities are located near Lake Coeur d'Alene in Kootenai County, Idaho.

The wastewater collection system and the wastewater treatment plant were then sold to the NKWSD in 2008. The permit was transferred to the NKWSD on July 17, 2008 and NKWSD continues to own and operate the wastewater collection and treatment system. The draft permit is for continued operation of the recycled water treatment system that provides treated effluent to the Gozzer Ranch Golf and Lake Club golf course irrigation system. The purpose of the current draft permit is to renew permit LA-000143-01, which will expire on April 27, 2012.

A permit renewal application from NKWSD - Gozzer Ranch Golf and Lake Club was received on October 26, 2011, and largely serves as the basis for the terms and conditions contained in the draft permit. As required by the "Recycled Water Rules", the draft permit will be presented for a public comment period. After the comment period has closed, DEQ will provide written responses to all relevant comments and prepare a final permit for NKWSD - Gozzer Ranch Golf and Lake Club's wastewater reuse facilities.

3. PROCESS AND SITE DESCRIPTIONS

The descriptions of the reuse site and treatment processes in the staff analysis for Gozzer Ranch Golf and Lake Club's previous permit are generally the same. For complete discussions regarding these items, refer to the Fact Sheet provided in Appendix 1 of this staff analysis or the staff analysis dated February 20, 2007 for the draft version of reuse permit LA-000143-01.

The wastewater collection system consists of a septic tank effluent gravity (STEG) collection system from the Gozzer Ranch Subdivision and a force main from a lift station in the Arrow Point subdivision. As discussed in detail in the previous staff analysis, the wastewater treatment plant (WWTP) consists of three equalization basins, a membrane bio-reactor (MBR), and an ultra-violet disinfection unit. The system was designed to treat 130,000 gallons per day (gpd) from 560 total connections in the Gozzer Ranch and Arrow Point subdivisions. Waste activated sludge is purged from the bioreactor and membrane filters as necessary and stored in a 50,000 gallon capacity buried concrete sludge tank. The sludge tank is emptied at least once per year and is currently sent to the Hayden Area Regional Sewer Board solids handling facility.

After the wastewater is treated, the effluent is discharged to a 7.8 million gallon (MG) lined irrigation pond that is owned and operated by the Gozzer Ranch Golf and Lake Club. During the growing season, the effluent is mixed with water from Lake Coeur d'Alene in the irrigation pond as well as the discharge from a nearby ground water interceptor. The drinking water treatment plant is located in an area that occasionally floods due to high ground water conditions. To prevent this from occurring, the permittee has installed a ground water interceptor system that directs ground water around the drinking water treatment plant and discharges the water to the irrigation pond. The water in the lagoon is then used to irrigate the golf course and common areas associated with the subdivision. According to the previous staff analysis, the golf course consists of 100 acres of fairways and 21 acres of golf greens which require approximately 500,000 gallons per day (gpd) of irrigation water. The irrigation pond is also used for storage of the treated wastewater during the non-growing season.

One difference from the previous permitting discussion was identified during the 2010 inspection conducted by DEQ in July 2010. The operator stated that there was approximately eight acres of residential lawns that are being irrigated with the golf course irrigation system. The irrigation systems are controlled by the golf course maintenance supervisor, but there was no evidence that the residents had been notified that the irrigation water contain recycled water. The permit application indicates that the addition to the irrigation system provides irrigation for 34 residential lots.

Also during the July 19, 2010 inspection, a question was raised by the DEQ staff regarding the under drain system for the bypass storage lagoon. DEQ was concerned that wastewater may be mixing with the ground water captured by the under drain system and discharged into a drainage area below the lagoon. According to the permittee, the under drain collects ground water from around and under the pond structure and is only intended to collect and direct spring water and spring runoff water from under the pond liner. It is assumed that the under drain system was installed to maintain the ground water level below the bottom of the lagoon liner to provide adequate separation between the ground water and the lagoon. DEQ requested that the permittee submit a proposed monitoring plan for monitoring the under drain discharge for the presence of wastewater. However, the permittee has indicated that they could not identify a way to sample the under drain in a reliable and financially non-stressing manner. DEQ understands the difficulty in collecting a sample from the under drain system as well as the difficulty in choosing a reasonable parameter that would reliably indicate the presence of wastewater but not provide a financial burden for the permittee. Also, wastewater lagoons are allowed to leak a small amount in accordance with IDAPA 58.01.16, "Wastewater Rules". The detection of wastewater in the under drain system may not indicate non-compliance with the "Wastewater Rules". Further evaluation would be required to determine if the lagoon seepage was more than the allowable rate. Section 493 of the

"Wastewater Rules" requires periodic testing of municipal wastewater lagoons to demonstrate compliance with the allowable seepage rates. It is felt that the seepage testing of the lagoon will be sufficient to determine if the lagoon is leaking and thereby potentially contributing to the water collected in the under drain system. The permittee has indicated that the lagoon was seepage tested prior to being placed into service in April of 2007 and municipal lagoons are required to be seepage tested once every 10 years. Therefore, a compliance activity has been added to require that the bypass lagoon be seepage tested prior to April 2017. As lagoons should not be tested during freezing conditions, the seepage test procedure is required to be submitted a year prior to the planned seepage test date.

As treated municipal wastewater is discharged into the irrigation lagoon, it is considered a municipal wastewater lagoon as well. Therefore, the irrigation lagoon must either be seepage tested to demonstrate that it meets the seepage testing requirements of the "Wastewater Rules" or a ground water impact assessment may be performed to show that seepage from the lagoon will not violate IDAPA 58.01.11, "Ground Water Quality Rule".

4. PERMITTING DISCUSSION

The following sections outline changes made to the terms of the draft renewal permit, based on changes requested by the permittee, evaluations of past performance with previous permit requirements, and updates required by changes to the "Recycled Water Rules*"* or any other applicable regulatory standards. Terms and conditions that are unchanged from the previous permit and remain applicable to the facility are not addressed in this document. Changes made to update language and regulatory references are also not addressed in this document.

There are also a few changes to the permit related to the Class A effluent requirements in the "Recycled Water Rules". Class A effluent is highly treated effluent with stringent reliability and redundancy requirements that make the effluent acceptable for many types of uses, including residential irrigation and other applications that allow outside entities to utilize the treated wastewater. In order for the permittee to be allowed to provide the treated wastewater to another entity for use, the wastewater must be adequately and reliably treated in a manner that will ensure protection of human health and the permittee must be able to demonstrate that the nutrient loading from the wastewater will not violate the "Ground Water Quality Rule". Multiple compliance activities and permit conditions have been added to the draft permit to address these issues.

4.1. Section 2. Facility Information

There is one change to the facility information in the draft permit. As discussed previously, the permit was transferred to the NKWSD and the Discovery Coeur d'Alene Investors, LLC are no longer associated with the permit. As such, the facility contact person has been changed from Andy Holloran, Vice President of Development, Discovery Coeur d' Alene Investors, LLC to Mike Galante, District Manager, North Kootenai Water and Sewer District.

4.2. Section 3. Compliance Schedule for Required Activities

It appears that all of the Compliance Activities from the previous permit have been addressed. The draft permit includes six compliance activities for this permitting period. The recommended compliance activities address the plan of operations (PO), a public education program, development of a nutrient management plan, a ground water impact assessment, seepage testing of the bypass lagoon, and submittal of a permit renewal application.

The draft permit contains modifications to the previous permit and as such the PO must be updated

accordingly. The PO must also be updated to address the requirements stated in IDAPA 58.01.17.300.05, "Wastewater Rules", and should address the items in the latest revision of the Plan of Operation Checklist in DEQ's *Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater*. Compliance Activity CA-143-01, as it appears in Section E of the draft permit, requires that the permittee submit an updated operations and maintenance manual to DEQ for review and approval six months after permit issuance.

During the July 2010 inspection, DEQ was informed that the water in the golf course irrigation pond was used to irrigate 34 residential lots as well as the golf course. Residential irrigation is not allowed by the current permit; however, Section 607 of the "Recycled Water Rules" allows Class A effluent to be used for residential irrigation, as long as a public education program is implemented to inform the users of the benefits and responsibilities of using Class A recycled water. Compliance Activity CA-143-02, as it appears in the draft permit, requires that the permittee initiate the public education program within three months of permit issuance and provide documentation about the program to DEQ within six months of permit issuance. Examples of acceptable documentation include, but is not limited to, meeting agendas and attendance sheets or copies of educational materials with a distribution list of who received the materials. The public education program is required for the residents of the 34 residential units that are irrigated with water from the golf course irrigation pond, but it recommended for all of the residents of the Gozzer Ranch subdivision.

NKWSD treats the wastewater from the Gozzer Ranch Golf and Lake Club subdivision and returns the treated wastewater back to their irrigation system for use at their golf course and some residential properties along the golf course. As such, Gozzer Ranch manages the application of the wastewater and the site in general. The draft permit does not contain hydraulic or nutrient loading limits at this time. Based on this, Compliance Activity CA-143-03, as it appears in the draft permit, requires that NKWSD create a Nutrient Management Plan (NMP) for the site within one year of permit issuance. The NMP will be included as part of the PO and must be given to Gozzer Ranch as a component of the Public Education Program required by the permit. The NMP should also be incorporated into the Utility Agreement between the two entities.

As discussed previously, the bypass storage lagoon will be required to be seepage tested during this permitting cycle. Compliance Activity CA-143-04, as it appears in the draft permit, requires seepage testing of the bypass storage lagoon and indicates that the lagoon may not leak more than 0.250 inches per day, in accordance with the "Wastewater Rules". It appears that the lagoon was put into service in April 2007 and was seepage tested prior to that, and, as such, the lagoon must be seepage tested again prior to April 2017. Seepage testing during freezing condition is not ideal and should be avoided if possible; therefore, the seepage test procedure will be required to be submitted by April of 2016 so that the lagoon may be tested during that year.

Compliance Activity CA-143-05, as it appears in the draft permit, requires that the permittee submit a permit renewal application six months prior to permit expiration if they intend to continue treating wastewater for the purpose of reuse after the permit expires. CA-143-05 also requires that the permittee set up a pre-application meeting with DEQ one (1) year prior to the permit expiration date to discuss any issues associated with the reuse site or any anticipated changes that will be requested in the new permit.

4.3. Section 4. Permit Limits and Conditions

Most of the Permit Limits and Conditions in Section 4 of the permit are the same. There are a few modifications to the existing permit conditions, the deletion of one existing permit condition, and the

addition of four new permit conditions, as discussed below.

The modifications to the existing permit conditions are to the application site area condition, the ground water protection condition, the signing condition, and the buffer distances condition. As stated previously, the application site area was revised to include the residential irrigation of 34 lots with the golf course irrigation system. The ground water protection condition in the existing permit states that ground water quality shall be in compliance with the "Ground Water Quality Rule", as demonstrated by maintenance of existing public drinking water quality in the two ground water supply wells serving the Arrow Point public drinking water system. Arrow Point has since abandoned the two wells and is now served by the Gozzer Ranch drinking water system which utilizes treated surface water from Lake Coeur d'Alene. Because the wells are no longer in service, the ground water protection condition in the draft permit has been revised to solely indicate the activities at the wastewater treatment plant and the reuse site must be in accordance with the "Ground Water Quality Rule". The signing requirement was updated to match the wording in the current rule requirement in the "Recycled Water Rules". And the buffer distances have been updated to indicate that recycled water may not be applied within 50 feet of public or private drinking water sources.

The previous permit included a maximum hydraulic loading rate of agronomic rates as determined by the Golf Course Superintendent based on monitoring application areas for irrigation water needs. The wastewater collection system and wastewater treatment plant were transferred to NKWSD in July 2008; however, ownership and operation of the Gozzer Ranch golf course pond where the treated wastewater is discharged and the associated irrigation system were not included in the transfer. As discussed previously, Class A effluent may be provided to other entities for use if the wastewater is treated in accordance with the Class A effluent requirements in the "Recycled Water Rules" and it can be demonstrated that application of the effluent will meet the "Ground Water Quality Rule". As such, instead of a maximum hydraulic loading rate for the reuse site, the draft permit contains all the necessary treatment requirements for a Class A system and a compliance activity has been included in the draft permit to address the "Ground Water Quality Rule". The draft permit also requires that the permittee establish and maintain a utility user agreement with the golf course (and any entity that will utilize the Class A effluent for irrigational purposes). The utility agreement must state that the user understands the origin of the effluent and the concept of agronomic rates for applying the Class A recycled water. This utility agreement is a requirement of the previous permit and DEQ understands that this agreement has been established between the NKWSD and the Gozzer Ranch Golf and Lake Club. The requirement has been maintained in the draft permit to ensure that the utility agreement continues to exist between the parties and is amended as necessary.

The first additional permit condition is associated with the disinfection requirements in the "Recycled Water Rules". The permit contains the same disinfection level requirements; however, the "Recycled Water Rules" also require that the wastewater be treated by a disinfection process that, when combined with filtration, has been demonstrated to achieve 5-log inactivation of virus. According to the previous staff analysis, the ultraviolet disinfection process utilized by NKWSD has demonstrated that it is able to meet the 5-log inactivation requirement. Therefore, the requirement to utilize a disinfection process that meets the aforementioned criteria has been added to the draft permit.

As discussed previously, the "Recycled Water Rules" require that all operators of Class A recycled water distribution systems, including operators of distribution systems that utilize a combination of Class A recycled water and other irrigation water, must sign a utility user agreement provided by the utility providing the Class A recycled water that states that the user understands the origin of the effluent and the concept of agronomic rate for applying the Class A recycled water. The provider of the

Class A recycled water must also undertake a public education program within its service area to teach potential customers the benefits and responsibilities of using Class A recycled water. As such, the permit requires both the Utility User Agreement and the Public Education Program. This public education program must include the residents of the homes that are irrigated by the Gozzer Ranch Lake and Golf Club irrigation system to ensure that they are aware of the origin of the effluent. The draft permit also contains two new permit requirements that must be included as part of the public education program: 1) the Nutrient Management Plan that will be developed by the permittee, and 2) the results of the sampling from the irrigation pond effluent.

It appears that the bypass storage lagoon has been used for storage during the weekends due to the sampling requirements of the current permit. The current permit requires that the permittee collect a daily sample, when operating, from the wastewater treatment plant effluent and have the sample analyzed for total coliform and pH. The sample for total coliform must be analyzed within 30 hours, which requires at least one of the weekend samples to be analyzed during that weekend when most analytical laboratories are closed. Due to this fact, the wastewater treatment plant does not generally operate on the weekends and the weekend flows are diverted to the bypass storage lagoon. It appears that the diverted water is allowed to accumulate in the bypass storage lagoon until the fall when the flows to the wastewater treatment plant are greatly reduced. The bypass storage lagoon is intended to allow the storage of treated wastewater that does not meet the Class A effluent requirements, namely the disinfection and turbidity limits, until the treatment plant was able to meet the effluent requirements again. The new permit recommends reducing the total coliform sampling to five days per week to allow continued treatment through the entire week. The emergency bypass capacity is an important component of the reliability requirement for Class A systems. Therefore, a new permit condition has been added that requires that the capacity of the bypass storage lagoon must be maintained in such a manner that would allow for the diversion of wastewater treatment plant effluent that does not meet the disinfection or turbidity limits to the lagoon until the treatment plant is again able to meet the effluent requirements.

The permittee has indicated that they are able to chlorinate the treated effluent after the effluent has been disinfected with ultraviolet radiation. Therefore, the fourth additional permit condition is the requirement that chlorination must occur after ultraviolet disinfection on days when total coliform samples are not collected from the treated effluent. Chlorination will provide additional disinfection as well as a chlorine residual in the effluent pipe to provide additional protection during the periods when the permittee will not sample the effluent for total coliform.

4.4. Section 5. Monitoring Requirements

In order to demonstrate that the Class A effluent system is able to adequately and reliably produce water that is acceptable for use by other entities, frequent monitoring of the treated wastewater is essential to demonstrate compliance with the permit. The monitoring requirements are generally the same as the current permit, with a few modifications, one addition, and one deletion.

All of the flow requirements have been maintained in the draft permit. In addition, the draft permit requires that the permittee subtract the flow from the equalization basin to the wastewater treatment plant from the flow into the equalization basins on a monthly basis. The result will be the overflow volume from the equalization basin to the bypass storage lagoon and will be used along with the bypass pond sump pump run time to demonstrate compliance with the requirement to maintain sufficient capacity in the bypass storage lagoon.

All of the wastewater treatment plant effluent monitoring has also been maintained in the draft permit, with two modifications. One modification was requested by the permittee in the permit renewal application. The permittee requested to reduce the sampling frequency for total coliform from daily to five times per week. This change was requested due to the difficulty associated with having the sample analyzed by a laboratory on the weekend (a BOD sample must be analyzed within 30 hours of taking the sample). As part of the request, the permittee indicated that they would chlorinate in addition to their regular disinfection method on any day that a total coliform sample was not collect to provide redundancy during those periods. Also, the treated effluent is mixed with other irrigation water prior to reuse and at full build the amount of treated wastewater is less than half of the irrigation requirement for the golf course. Therefore, based on the redundant disinfection system and relatively low flow of wastewater to the storage pond, daily total coliform sampling is not necessary for protection of human health and the environment and has been reduced to five times per week in the draft permit. As discussed previously, the reduced sampling requirements also allows for continued operation of the WWTP which prevents the bypass storage lagoon from being used as storage for weekend flows. The sample frequency for pH has also been reduced to correspond with the total coliform sampling. The total nitrogen and BOD5 samples were slightly modified to indicate that the weekly samples are to be composited monthly to match the current rule requirements in the "Recycled Water Rules".

A permit condition has been added to the draft permit that requires that the permittee sample the discharge from the irrigation storage pond to facilitate implementation of the nutrient management plan required by compliance activity CA-143-03. The permittee is required to sample the effluent from the irrigation storage pond once a month during the growing season.

The requirement to report the frequency, cleaning agent used, and Membrane module number whenever a membrane module is cleaned has been removed from the draft permit. The operator should continue to record and maintain this information in their logs as this is important operational information, but this information does not specifically demonstrate compliance with any of the permit conditions and therefore is not necessary information in the annual reports.

The sludge storage tank was removed from Section 5.2: Lagoon Information (formerly Wastewater Storage Facilities) but the serial numbers were not modified for the bypass storage lagoon and the golf irrigation lagoon.

4.5. Section 10. Site Maps

Two new site maps are included in the draft permit and the previous site map has been deleted. Site Map 1 in Appendix 2 is a vicinity map that depicts the location of the hydraulic management units with respect to the city of Coeur d'Alene. Site Map 2 depicts hydraulic management unit MU-143-01 and the two storage lagoons, the bypass storage lagoon (LG-0143-01) and the golf irrigation pond (LG-0143-03).

5. RECOMMENDATIONS

Based on review of applicable state rules, staff recommends that DEQ issue draft reuse permit M-0143-02 for a public review and comment period. The draft permit contains effluent quality requirements for the recycled water treatment system, as well as terms and conditions required for operation of the reuse system in Section F. Monitoring and reporting requirements to evaluate system performance and to determine permit compliance have been specified in Sections 5 and 6, and compliance activities have been incorporated into Section 3 of the permit.

APPENDIX 1

NKWSD – GOZZER RANCH GOLF AND LAKE CLUB
REUSE PERMIT FACT SHEET

Process and Site Descriptions

General Project Description:

Gozzer Ranch is a 375 lot residential subdivision located on about 600 acres above Arrow Point on Lake Coeur d'Alene that is owned by Discovery CDA Investors, LLC. The residential units surround an 18-hole golf course in the center of the development. Due to the recreational nature of the subdivision, occupancy of the residential units is expected to be low during the winter months. Drinking water is provided to the subdivision through a public drinking water system that treats surface water from Lake Coeur d'Alene with a slow sand filtration system. Wastewater from the residential units is sent to individual septic tanks which then discharge into a septic tank effluent gravity (STEG) sewage collection system. Effluent from the STEG system is discharged into one of three 7,200-gallon capacity equalization tanks for further treatment at the wastewater treatment plant (WWTP). The WWTP also accepts wastewater from the Arrow Point development. The Arrow Point development consists of condominiums and homes which account for 170 equivalent residential units (ERUs). Wastewater from the development receives primary treatment from septic tanks before entering a gravity collection system. Septic tank effluent flows to a lift station and is pumped to the WWTP equalization tanks. The WWTP was designed to treat up to 48 million gallons annually from approximately 560 ERUs. The drinking water and wastewater systems are currently owned and operated by North Kootenai Water and Sewer District (NKWSD).

Site Description:

Allwest Materials Testing and Geotechnical Engineering completed a geotechnical report for the site titled "Geotechnical Engineering Evaluation: Arrow Point Planned Unit Development" dated September 2, 2004. The report indicates that the USDA Natural Resource Conservation Service mapped the soils in the area as Lacy-Rock outcrop complex and Dorb silt loam. Lacy-Rock outcrop is described as shallow, well-drained soil with a small amount of loess in the upper part of the profile. Dorb silt loam is described as moderately deep, well-drained. Both soils are said to have a moderate permeability and both have a high water erosion hazard. The report indicates that the soils that were encountered on the site were generally consistent with these descriptions.

Well logs in the area were reviewed to determine the depth to ground water table and this was found to be 150 to 200 feet below the ground surface. The report indicates that dense basalt can cause perched water tables near the surface and that these water tables are highly variable and discontinuous. Ground water was encountered in some of their test pits and occurred 2.0 to 6.5 feet below the existing ground surface. But they state that the elevation of the water table will vary with seasonal changes in precipitation, infiltration, irrigation and many other factors.

Design of the golf course included the placement of 4 to 9 inches of sandy material over the existing shallow soils and exposed impermeable basaltic bedrock surfaces. Golf course turf has been established on top of the sandy material.

Wastewater Treatment Plant:

The Gozzer Ranch WWTP is a package treatment system that consists of USFilter's MemJet Model Xpree 100 Membrane Bioreactor (MBR) system followed by ultraviolet (UV) disinfection. Effluent from the equalization basins are pumped via two 132 gallon per minute (gpm) pumps to the 2 mm screening device on top of the MBR unit. Screened wastewater is then sent through a 14-foot diameter by 60 foot long cylindrical epoxy-coated steel tank containing one third anoxic and two thirds aerobic zones with associated recirculation pumps and aeration bubbler provisions. The capacity of the tank is approximately 70,000 gallons. Following biological treatment, the wastewater is filtered through 144 US Filter hollow fiber membrane modules with a maximum pore size of 0.1 microns. Suction pumping is used to pull wastewater into the hollow fibers which then discharges to the UV disinfection system. The UV disinfection system is a Trojan Technologies Model UV3150K-PTP that is able to achieve 5-log virus inactivation. Waste activated sludge is purged from the bioreactor and membrane filters as necessary and stored in a 50,000 gallon capacity buried concrete sludge tank located outside of the treatment building. Removal of the sludge from the tank and transportation to an appropriate disposal site occurs periodically in accordance with the approved Waste Solids Management Plan.

The WWTP was designed to meet the requirements to produce Class A effluent, as defined by the Recycled Water Rules. Class A treatment systems are required to provide redundancy and reliability for the system. For redundancy, all of the necessary pumps, including the influent pumps, anoxic return pump, mixed liquor return pump, effluent pump, plant wash water pump, and golf course effluent pump either have a spare pump already installed or there is a spare pump stored at the facility that can replaced in a short amount of time. There is a spare anoxic mixer stored on site. There are two separate membrane filtration tanks with two sets of racks installed in each which can operate independently. And there are three units in the UV disinfection system, but only two units are required to be operational at any given time. For reliability purposes, the system has on-site standby power in case of a power outage. Also, the system has a continuously recording turbidimeter that will alert the operator of turbidity violations and automatically divert the off-specifications wastewater to the bypass lagoon. The bypass lagoon can store up to seven days of effluent that is not able to meet the Class A turbidity limits. This lagoon is equipped with a return flow pump station capable of pumping the wastewater to the plant headworks once compliance with treatment standards has been re-established.

Wastewater Reuse:

After disinfection, the treated wastewater flows to a pump station that pumps the effluent to the golf course irrigation storage lagoon. The golf course lagoon is lined and has a capacity of 7.8 million gallons (MG). In the lagoon, the treated wastewater is mixed with supplemental irrigation water that consists of water from Lake Coeur d'Alene as well as ground water from a ground water interceptor. The ground water inceptor directs ground water away from the system's nearby drinking water treatment plant to prevent flooding of the drinking water treatment plant area. The water stored in the golf course lagoon is used to irrigate the golf course as well as 34 cabins located along the edge of the golf course. The irrigation system for both the golf course and the cabin areas is controlled by the golf course irrigation system operators.