Date: Monday, February 22, 2011.

To: Honorable Mayor and City Council

From: Fritz Wonderlich

Request:

On February 7, 2011, the City Council conducted a Public Hearing to accept testimony regarding a resolution authorizing the filing of a petition for judicial confirmation to enter into a loan agreement to fund improvements to the wastewater system. A public hearing must be conducted at least fourteen (14) days prior to the adoption of the resolution. The Council may now consider adoption of the resolution.

Please note that the resolution authorizing the filing of the Petition for Judicial Confirmation does not commit the City Council to enter into a loan agreement. The Council is not committed to entering into the loan agreement or borrowing funds until those matters are before the Council. But Idaho Bond Bank Authority will not loan funds to the City without the Judicial Confirmation. So this resolution will continue the process that will eventually allow the City to borrow funds from the Idaho Bond Bank Authority, but it does not commit the City to funding all or any of the rehabilitation projects described in the Petition.

Time Estimate:

The staff presentation will take approximately 5 minutes

Background: The Wastewater Facility Plan was completed in May 2010. Initial work on the plan started in 2007. The facility plan represents a multi-year planning effort to identify and schedule required improvements to the City's wastewater treatment facility. The time required to complete the plan was longer than anticipated because of discussions with EPA regarding the renewal of the City's permit to discharge wastewater to the Snake River. The facility plan could not be completed until the discharged permit was finalized.

As you will recall from discussion last summer, the initial phase of improvements at the wastewater plant included four maintenance projects:

1. Replacement of the ultraviolet disinfection system. ($2,659,000)
2. Replacement of sludge dewatering equipment ($1,706,000)
3. Construction of a redundant fine screen system at the headworks of the plant ($289,000)
4. Updating of aeration systems for aeration basins 1, 2 and 3. ($118,000)

Additionally we have discussed the need to develop a redundant system for the Rock Creek lift station. The Rock Creek lift station is located in Rock Creek Canyon on the south side of Addison Avenue West. The station lifts wastewater that originates south of Rock Creek from the Rock Creek trunk line to the Grandview interceptor. This is the major pump station for wastewater and services most of our heavy industrial customers. Construction of a new redundant system will allow back-up for maintenance of the existing system and minimize the chance of a wastewater discharge into Rock Creek should the existing system fail. The estimated cost of the improvement is $2,750,000.

We believe the projects outlined above are all required to assure continued compliance with federal and state wastewater treatment regulations and our discharge permit.

During the budget process late last summer, we discussed financing options with the City Council. At that time, you instructed staff to work toward a judicially confirmed bond issue to finance the project. In the interim we have worked with the Idaho State Bond Bank and this week received a commitment letter from them. With this letter, we are now in the position to proceed with the judicial confirmation process.

Conclusion: Staff recommends the Council:

1. Adopt the resolution authorizing the filing of the Petition for Judicial Confirmation.

2. Instruct the City Attorney to proceed with the filing.

Actual commitment of funds will not occur unless and until the City Council authorizes execution of loan agreements and execution of bid contracts for the project.

Attachments: Resolution Authorizing the Filing of Petition for Judicial Confirmation.

RESOLUTION NO. ____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF TWIN FALLS, IDAHO AUTHORIZING THE FILING OF A PETITION FOR JUDICIAL CONFIRMATION.

WHEREAS, the Rock Creek Lift Station is in need of changes/repairs/replacement of components in order to comply with the requirements of the Idaho Department of Environmental Quality regulations; and,

WHEREAS, the City of Twin Falls Waste Water Treatment Plant is in need of repair/replacement of critical components of the treatment system, including UV Disinfection System, Influent Screening, Aeration Diffusers, and Belt Presses; and,

WHEREAS, the City's engineers have proposed improvements to the systems to obtain compliance with the federal and state standards; and,

WHEREAS, the City of Twin Falls lacks sufficient funds or reserves to pay for the $8 Million estimated cost of the repairs/replacements; and,

WHEREAS, the city's attorney has prepared a form of Petition for Judicial Confirmation seeking authorization of the city to finance the costs of the project; and,

WHEREAS, on January 20, 2011, the Notice of Public Hearing was published in the Times News, the official newspaper for public notice in Twin Falls County setting the date for a public hearing to be held on Monday, February 7, 2011 at 6:00 o'clock p.m. for the consideration of whether it should adopt a resolution authorizing the filing of a petition for judicial confirmation of the proposed financing documents; and,

WHEREAS, on February 7, 2011, at 6:00 o'clock p.m., the Twin Falls City Council held a public hearing on consideration of adoption of the resolution.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF TWIN FALLS, IDAHO:

That a petition for judicial confirmation be filed with the Fifth Judicial District Court, in and for the County of Twin Falls.

PASSED BY THE CITY COUNCIL , 2011
SIGNED BY THE MAYOR , 2011

_____
Mayor Don Hall

ATTEST:

_____
Deputy City Clerk

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SIGNED BY THE MAYOR , 2011

_____
Mayor Don Hall

ATTEST:

_____
Deputy City Clerk

Engineers Report

The Rock Creek Lift Station is a municipal sewage pump station which pumps sewage generated in South Twin Falls up a grade at Addison Avenue. The sewage then flows downhill approximately 3 miles to the City of Twin Falls sewage treatment plant. Domestic sewage flows into the lift station headworks where large solids are shredded by a comminutor. The sewage then flows into (2) wetwells where it is stored for pumping. These pumps pump the sewage through a piped forcemain which runs uphill across Addison Avenue East and eventually to the city treatment plant.

The City of Twin Falls Rock Creek Lift Station was rebuilt in 1992. The facility components are now 17 years old. The city has continued to grow since 1192 and has experienced increased sewage flows not planned in the original design. For these reasons the City of Twin Falls asked Murray, Smith, and Associates to conduct a study of the lift station conditions and capacity.

In September 2009, Murray, Smith, and Associates, Inc. (MSA) completed a study of the Twin Falls Rock Creek Lift Station and identified the following deficiencies at the plant:

1. Interior of the wet well has corrosive damage (e.g. concrete spalling). There are no signs of structural damage.
2. There is no isolation valve on the 18-inch bypass force main/24-inch force main. The lift station cannot be completely isolated from the 24-inch force main and 18-inch bypass force main.
3. The existing swing check valve configuration does not meet IDAPA 58.01.16.440.02.e.ii, which requires that check valves shall be placed on the horizontal portion of the discharge piping except for ball checks, which may be placed on the vertical run.
4. Existing Master Control Center (MCC) is not consolidated with pump variable frequency drives (VFDs) and Reduced Voltage Solid State Soft Starter resulting in an inefficient design that may be confusing to lift station operators.
5. Control equipment for pumps is dated with limited or no availability for replacement parts.
6. There are no pressure transducers or transmitters on pump discharge.
7. There is no redundant wet well level monitoring system.
8. There is no harmonic mitigation at the Rock Creek Lift Station. Harmonic mitigation (e.g. harmonic filters) are required for systems with Variable Frequency Drives (VFDs) in order to be compliant with IEEE-519-1992.
9. Various pump and force main deficiencies (discussed in detail in Section 5).

In addition the MSA Study found that the firm capacity (largest pump out of service) of the existing station was 5.7 million gallons per day (mgd). The existing peak firm flow in 2009 was 5.8 mgd. (with existing permitted industrial flows).

NOTE: The existing lift station wetwell design requires that two pumps be out of service when a wetwell is off line. The actual existing firm capacity of the station when a wetwell (and 2 pumps) is offline for maintenance (3.7 million gallons per day) is below IDEQ requirements for firm pumping capacity (5.8 mgd)

The 2010 Rock Creek Lift Station project is being designed to correct the existing lift station deficiencies and to meet current Idaho Department of Environmental Quality requirements.
The following items are part of that project:

1. Line existing wetwells to prevent corrosion.
2. Add isolation valves to the 18 inch force main and 24 inch force main.
3. Replumb the existing station to allow installation of horizontal check valves.
4. Replace the Master Control Center and Variable Frequency Drives drives with new equipment.
5. Provide pressure transducers and transmitters Supervisory Control and Data Aquisition System (SCADA) for pump discharges.
6. Provide a redundant wetwell monitoring system.
7. Provide harmonic mitigation for the pump Variable Frequency Drives.
8. Replace one 25 Horsepower pump and one 50 Horsepower pump with 2 new 50 Hp pumps in the existing station.
9. Provide a redundant wetwell with 2- 50Hp pumps for plant operation during wetwell maintenance.
10. Provide for future expansion to a total pumping capacity of 21 million gallons per day (buildout flows).

The pertinent regulatory document which pertains to the design and operation of municipal wastewater pumping stations in Idaho is Idaho Administrative Code Department of Environmental Quality IDAPA 58.01.16 (440). Those requirements are referenced below:

Item	**IDAPA Section**	**Comment**
1. Comminutor	58.01.06 440(01)C Grit. The wet well pump station Shall be designed to avoid operational Problems from the accumulation of grit. Protection Against Clogging. Pumps (except screw Pumps) handling separate sanitary wastewater from thirty (30) inch or larger diameter sewers shall be protected by bar racks. Appropriate protection from clogging shall also be considered for small pumping stations.	without grit removal solids would plug pumps and case Station overflows to Streams. Bar screens are a required design parameter.
2. Wetwells	58.01.06 440(02)cii 58.01.06 440(02)bii Equipment Removal. Provision shall be made to facilitate removing pumps, motors, and other mechanical and electrical equipment. Individual pump and motor removal must not interfere with the continued operation of remaining pumps.	Duplicate wetwells are required because taking one wetwell offline for maintenance takes 2 pumps offline. This leaves insufficient pumping capacity and will result in overflows to streams. An additional wetwell with (2) pumps is required.
3. Pumps	58.01.06 440(02)ci Multiple Units. Multiple pumps shall be provided. Units shall have capacity such that, with any unit Out of service, the remaining units will have Capacity to handle the design peak hourly flow.	When a wetwell is down for maintenance one set of two pumps are out of Remaining pump capacity is not sufficient to prevent station overflows to streams.

Item	IDAPA Section	Comment
4. Variable Frequency Drives (VFDs)	58.01.16 (440)cviii Pumping Rates. The pumps and controls of main pumping stations shall be selected to operate with varying rates. The pump control system design shall take into account, and minimize as needed, downstream impact of pump discharge hydraulic surges. The station design capacity shall be based on peak hourly flow as determined in accordance with Section 411 and shall be adequate to maintain a velocity in the force main sufficient to avoid solids deposition. See Subsection 440.09.	Pump flows must match varying sewage inflow rates to avoid overflows and drying of wetwells causing pump damage. VFDs are controls which match pump flows with plant sewage inflows. VFD's are required for station operation.
5. Shutoff Plug Valves and Check Valves	58.01.16 440(02)eii Discharge Line. Suitable shutoff and check Valves shall be placed on the discharge line of each pump (except on screw pumps). The check valve shall be located between the shutoff valve and the pump. Check valves shall be suitable for the material being handled and shall be placed on the horizontal portion of the discharge piping except for ball checks, which may be placed in the vertical run. Valves shall be capable of withstanding normal pressure and water hammer. All shutoff and check valves shall be operable from the flow level and accessible for maintenance. Outside levers are recommended on swing check valves. 58.01.16 440(02)ei Suction Line. Suitable shutoff valves shall be placed on the suction lines of dry pit pumps.	Check valves keep pumped water from flowing backwards through offline pumps. Plug valves allow isolation of pumps and valves for maintenance. Check valves and plug valves are required station components.
6. Flow Meters	58.01.16 440(h) Flow Measurement. Suitable methods for Measuring water flow shall be addressed at all pumping stations.	Flow monitoring is required to assess pump efficiencies and Station capacity.
7. Water Level Measuring Devises	58.01.16 440(d) Controls. Water level control sensing devices shall be designed to allow for automatic control of pumps.	Wetwell water level sensing allows pump controls to balance outflows with inflows. Sensors are a required portion of the pumping system.

Item	IDAPA Section	Comment
8. Generators	58.01.16 440 (07b) Emergency Pumping Capacity. Emergency pumping capacity is required for all new lift stations constructed after April 15, 2007. Emergency pumping capacity is required for all existing lift stations that undergo a material modification or expansion unless overall system reliability can be proven adequate to the Department as shown in Subsections 440.07.b.i. and 440.07.b.ii. or overflow prevention is provided by adequate emergency storage capacity as defined in these rules. If required, emergency pumping capability shall be accomplished by connection of the station to at least two (2) independent utility substations as determined by and stated in a letter from the appropriate power provider, by provision of portable or in-place internal combustion engine equipment which will generate electrical or mechanical energy, or by the provision of portable pumping equipment. Such emergency standby systems shall have sufficient capacity to start up and maintain the total rated running capacity of the station. Regardless of the type of emergency standby system provided, a portable pump connection to the force main with rapid connection capabilities and appropriate valving shall be provided outside the dry well and wet well.	Power outages occur in this area. Backup power is necessary to keep pumps running during primary power outages to prevent station overflows to streams.
9. Supervisory Control and Data Aquisition System (SCADA) Master Control Center	58.01.16 440(06) Alarm Systems. Alarm systems with a backup power source shall be provided for pumping stations. The alarm shall be activated in cases of power failure, dry well sump and wet well high water levels, pump failure, unauthorized entry, or other cause of pump station malfunction. Pumping station alarms, including identification of the alarm condition, shall be transmitted to a twenty-four (24) hour response center. Audio-visual alarm systems may be acceptable in some Cases in lieu of a transmitting system depending upon location, station holding capacity, and inspection frequency.	The Master Control Center (MCC) receives flow and alarm data from pumps, level sensing, and variable Frequency drives & automatically controls pumps & Other station items via a programmed computer.

Item	IDAPA Section	Comment
	58.01.16 440 07ci(1) Engine Protection. The engine must be protected from operating conditions that would result in damage to equipment. Unless continuous manual supervision is planned, protective equipment hall be capable of shutting down the engine and activating an alarm on site and as provided in Subsection 440.06. Protective equipment shall monitor for conditions of low oil pressure and overheating, except that oil pressure monitoring will not be required for engines with splash lubrication.	The supervisory control & data acquisition system (SCADA) collects data including broken Pumps, overheating, high water conditions, low level conditions, etc. These conditions are reported to the manned station at the Twin Falls sewage treatment plant at the Snake River.
10. Wetwell Lining Systems	58.01.16(02)b(v) Construction Materials. Materials shall be selected that are appropriate under conditions of exposure to hydrogen and other corrosive gases, greases, oils, and other constituents frequently present in wastewater. This is particularly in the selection of metals and paints.	Linings are required to prevent corrosion and loss of concrete structure from corrosive Conditions at plant.
11. Miscellaneous Structures, Piping And valving	No direct IDAPA citation.	Piping, valving, and diversion structures are required to Distribution sewage inflows to station components including screens wetwells, pumps & outlet mains. They are a Necessary Portion of the facility.

Costs associated with bid document items are presented below:

The project bid includes two main items. Schedule A is completion of the new pump station and new diversion/transmission systems. Schedule B consists of work on the existing station and controls. All work on Schedule A items shall be completed prior to initiation of Schedule B items.

The contractor shall at all times keep sufficient pumping capacity available to the City for 5.7 million gallons per day with backup power available.

Contract Payment Item	Discussion
A101 Mobilization/Demobilization	This payment item is for contractor costs in mobilizing his equipment and personnel to the site and demobilizing after the work is done.
A 102 Site Work	This payment item involves grading the site and installing runoff pollution measures required by EPA regulations.
A 103 Pavement/Gravels	This payment item involves installing the roadbase gravels and asphalt surfaces in the new structure areas. They are necessary for site personnel to get all weather access to structures and equipment.
A 104 Fencing	This payment item consists of fencing in the new structure and equipment. The fences are required to prevent the public from accessing the site without permission.
A 105 Yard Piping	This payment item includes constructing exterior piping to connect the new pumping systems with the outside transmission mains. Valves for isolation and routing purposes are also in this item.
A 106 Intake Structure	This payment item includes constructing a new structure which allows diversion of influent sewage flows to the new pumps.
A 107 Pre-treatment Structure	This payment item is for construction of a comminutor and structure to house it. The comminutor shreds solids to a size that the pumps can pass.
A 108 Distribution Channel	This payment item is for construction of a distribution channel to direct flows to each individual pump. It is necessary to allow maintenance on one pump while others are functioning.

Contract Payment Item	Discussion
A 109 Wetwell	This payment item is for construction of water holding structures which provide flow detention and equilization to average flows so pump output doesn't have to exactly match influent flows which are highly variable.
A 110 Pump Structure	This payment item is for construction of the new pump vault to house the 3 new pumps. It includes stairs for access for maintenance.
A 111 50 Hp Pumps and Motors (3)	This payment item is for the contractor to supply and install 3- 50 horsepower pumps in the new station.
A 112 Building Electrical Lighting and HVAC Systems	This payment item is to provide lighting and electrical services for routine system maintenance and system power requirements. The item includes air conditioning in the panel room to keep the VFD pump drives cool.
A 113 Drywell Piping	This payment item is to provide piping from the 3 new pumps to the outside piping. This is necessary to carry wastewater from the pumps to the pressure mains.
A 114 Site Transformers	This payment item is to provide additional electrical capacity for the 3 new pumps
A 115 VFD's with Electrical Controls	This payment item is to provide variable frequency drives (VFD) for each of the 3 pumps in the new station and the 4 pumps in the existing station.
A 116 MCC	This payment item is for Master Control Center instrumentation (MCC). The MCC switches the VFD drives and provides automatic and hand operation of equipment during outages and failures.

Contract Payment Item	Discussion
A 117 SCADA System	This payment item is to construct a telemetry system to a remote site (The Twin Falls Wastewater Treatment Plant). It is required to allow personnel to monitor the system from a continually manned site.
A 118 Generator	This payment item is to provide a power generation system with increased capacity to run all 7 new pumps during main power outages
A 119 Start Up Services and MCC Programming	This bid item is to pay the contractor to run and program the new controls. The contractor will adjust and eliminate problems before turning the system over for city operation. City personnel training will be included in this item.
A 120 Rock Excavation	This bid item is for rock removal to provide room to build below ground structures.
A 121 Dewatering System	This bid item is for the construction of piping and pumps to dewater below grade structure excavations so workers and construction materials can be placed below ground.
A 122 Project Administration And Inspection	This bid item is for the design engineer to oversee construction to insure that the systems are built in accordance with the plan and specifications.
A 123 Testing Services	This bid item is to pay for field testing of piping, concretes, pavements, and other materials to confirm conformance with specification requirements.

Contract Payment Item	Discussion
B 101 Mobilization/Demobilization	This payment item is for construction of water holding structures which provide flow detention and equilization to average flows so pump output doesn't have to exactly match influent flows which are highly variable.
B102 Lining Systems for Existing Structures	This bid item is to install concrete coatings to stop corrosion of existing structures from wastewater acids.
B 103 New 50 Hp Motors (2)	This bid item is to replace one 50 Hp motor and pump and one 25 Hp motor and pump with 2 new 50 Hp motors and pumps in the existing station.
B 104 VFD's (4)	This bid item is to provide 4 new pump Variable Frequency Drives for the 4 existing station pumps.
B 105 Drywell Piping for Pumps	This bid item is to provide new check valves and piping for the pumps.
B 106 Pump Controls and Electrical	This bid item is to connect the new and existing pumps to the new control systems. Electrical power connections to the new VFD's and generator are included in this item.
B 107 Wetwell Sensing System	This bid item includes constructing new water level sensing systems in the wetwells and connecting them to the new pump controls.
B 108 Startup Services	This bid item includes contractors training of City personnel and trouble shooting the system before putting it into full operation.
B 109 Final Connections	This bid item is for the contractors to divert wastewater flows from the new station to the existing station and to put them in full operation

Contract Payment Item	Discussion
B 110 Project Administration And Inspection	This bid item is for the design engineer to oversee construction to insure that the systems are built in accordance with the plan and specifications
B 111 Testing Services	This bid item is to pay for field testing of concretes, pavements, and other materials to confirm conformance with specification requirements
C 101 Demolition Structure 9 Plan Sheet C-2	This payment item is for the contractor to remove a site structure which is no longer needed after the new structures are built
C 102 Demolition Structure 10 Plan Sheet C-2	This payment item is for the contractor to remove a site structure which is no longer needed after the new structures are built

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Rock Creek Lift Station

Bid Item #	Bid Item Name	Estimated Cost
A 101	Mobilization/ Demobilization	$ 43,350.00
A 102	Site Work	$ 6,816.00
A 103	Pavement/ Gravels	$ 4,464.00
A 104	Fencing	$ 7,200.00
A 105	Yard Piping	$ 52,716.00
A 106	Intake Structure	$ 58,470.00
A 107	Pretreatment Structure	$ 349,530.00
A 108	Distribution Channel	$ 77,676.00
A 109	Wetwell	$ 63,030.00
A 110	Pump Structure & Basement	$ 262,200.00
A 111	50 HP Pumps & Motors (3)	$ 257,688.00
A 112	Building Electical, Lighting & HVAC System	$ 41,400.00
A 113	Drywell Piping	$ 214,740.00
A 114	Site Transformer	$ 18,000.00
A 115	VFD's with Electrical & Controls	$ 48,480.00
A 116	MCC	$ 10,440.00
A 117	SCADA System	$ 54,000.00
A 118	Generator	$ 209,262.00
A 119	Startup Services & MCC Programing	$ 30,000.00
A 120	Rock Excavation	$ 60,000.00
A 121	Dewatering System	$ 36,000.00
A 122	Project Administration & Inspection	$ 48,000.00
A 123	Testing Services	$ 23,500.00
B101	Mobilization/ Demobilization	$ 8,500.00
B102	Lining Systems for Existing Structures	$ 31,280.00
B103	New 50 HP Pumps & Motors (2)	$ 171,792.00
B104	VFD's (4)	$ 48,480.00
B105	Drywell Piping for 4 Pumps	$ 53,685.00
B106	Pump Controls & Electrical	$ 15,500.00
B107	Wetwell Sensing System	$ 7,200.00
B108	Startup Services	$ 8,000.00
B109	Final Connections	$ 8,000.00
B110	Project Administration & Inspection	$ 27,000.00
B111	Testing Services	$ 13,250.00
C101	Demolition Structure 9 - Plan Sheet C-2	$ 22,500.00
C102	Demolition Structure 10 - Plan Sheet C-2	$ 16,500.00

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Attorneys for Petitioner

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

IN THE MATTER OF:	)	
	)	
THE CITY OF TWIN FALLS, IDAHO	)	Case No. CV-2011-_____
	)	
	)	PETITION FOR JUDICIAL CONFIRMATION
	)	
PETITIONER.	)	
_____	)	

The Petitioner, the City of Twin Falls, Idaho ("City"), an Idaho municipal corporation, by and through its counsel of record, Fritz Wonderlich, petitions this Court, pursuant to I.C. § 7-1304, for a judicial examination and determination of the validity and authority of petitioner to enter into a certain loan agreements. In support thereof, Petitioner states as follows:

1. Petitioner is a municipal corporation incorporated pursuant to I.C. § 50-101, et seq.

2. Petitioner makes this petition as a political subdivision pursuant to the Idaho Judicial Confirmation Law, I.C. § 7-1301, et seq.

3. Petitioner operates a sewerage system pursuant to I.C. § 50-1028, et seq.

4. Petitioner possesses authority to issue revenue bonds to finance its wastewater system pursuant to I.C. § 50-1027, et seq. Petitioner is also authorized to issue its bonds to the Idaho Bond Bank Authority under Section I.C. §67-8722.

5. Petitioner is subject to the debt limitations contained in Article 8, Section 3 of the Idaho Constitution.

6. Petitioner is the owner and operator of a wastewater collection and treatment system. The system has been modified and improved, and presently is in need of rehabilitation in order to comply with state and federal requirements. The City has developed a plan to address the inadequacies of the current systems.

7. The Rock Creek Lift Station is a municipal sewage pump station which pumps sewage generated in south Twin Falls up a grade at Addison Avenue West. The sewage then flows downhill approximately 3 miles to the City of Twin Falls Wastewater Treatment Plant. Domestic sewage flows into the lift station headworks where large solids are shredded by a comminutor. The sewage then flows into (2) wetwells where it is stored for pumping. These pumps pump the sewage through a piped force main which runs uphill across Addison Avenue East and eventually to the city treatment plant. The City of Twin Falls Rock Creek Lift Station was rebuilt in 1992. The facility components are now 17 years old. In recent years, the city of Twin Falls has experienced a number of problems with the functioning of the lift station. The City engaged the services of the engineering firm of EHM Engineers to prepare a facility study to address the deficiencies of the lift station. As a result of the facility study, a plan was developed. A number of changes/repairs/improvements are required for compliance with requirements of the Idaho Department of Environmental Quality, as contained in IDAPA 58301.16(440). The project plan is contained in a report prepared by EHM Engineers, attached to this Petition as Exhibit “A”. The cost of the project is estimated to be $2,750,000.

8. The City of Twin Falls Waste Water Treatment Plant (WWTP) serves the City and associated service area, providing the treatment of wastewater prior to discharge of effluent to the

Snake River. The treatment of municipal and industrial wastewater at the WWTP is accomplished through a series of physical, chemical, and biochemical processes. A number of unit processes make up the WWTP to provide these removal mechanisms. In recent years, the city of Twin Falls has experienced a number of problems with the functioning of its wastewater treatment plant. The City engaged the services of the engineering firm of CH2M Hill to prepare a facility study to address the deficiencies of the wastewater system. As a result of the facility study, a plan was developed. Repairs/replacements of elements of the WWTP, including the UV Disinfection System, Influent Screening, Aeration Diffusers, and Belt Presses are required in order for the City to protect the plant facilities and to remain in compliance with the National Pollution Discharge Elimination System (NPDES) permit issued by the EPA. The project plan for these repairs/replacements is contained in an Engineer's Report prepared by CH2MHill, attached to this Petition as Exhibit "B". The cost of the project is estimated to be $4,772,000.

9. The Petitioner maintains wastewater fund reserves in amounts only large enough to meet ongoing O & M costs, and has insufficient funds to pay the estimated cost of the project improvements, as described above. It will be necessary for the Petitioner to borrow the funds required for this project. The Idaho Bond Bank has provided an estimate of costs of issuance, including a flat fee of $65,396 original issue discount, an underwriter's discount for sale of the bonds of 0.80%, or $60,416, IBBA estimated cost of issuance a flat fee of $118,550, the Idaho Bond Bank fee of 0.10% or $7,552, for a total estimated financing cost of $215,914.

10. The Petitioner anticipates funding through the Idaho Bond Bank Authority (IBBA), pursuant to I.C. § 67-8701 et seq. under the form of loan agreement attached hereto as Exhibit "C".

11. The agreement would provide for financing estimated at $8,000,000 repayable pursuant to a loan repayment schedule at an estimated rate of 4 % interest over a 20-year period from the date of project completion. The Petitioner will not levy an annual tax to pay interest and principal on the loan within 20 years. The financing will be repaid through wastewater system revenues.

12. The Petitioner estimates an annual payment of $555,000 which constitutes approximately 1.21% of the Petitioner's 2010-2011 annual budget of $45,871,241.

13. As a condition of financing, IBBA will require the Petitioner to obtain a judicial confirmation which finds that the financing obligation constitutes an ordinary and necessary expense, an exception to the voter approval and sinking fund levy requirements of Article 8, Section 3, of the Idaho Constitution.

14. Article 8, Section 3, Idaho Constitution, provides that no county, city, or other political subdivision shall incur any indebtedness or liability, in any manner or for any purpose, exceeding in that year the income and revenue provided to it for such year, but said Article 8, Section 3, contains the following exception: "provided, that this section shall not be construed to apply to the ordinary and necessary expenses authorized by the general laws of the state...."

15. Petitioner has the authority to secure a loan by a promissory note, based upon Article 12, Section 4, of the Idaho Constitution, I.C. § 50-237, and I.C. § 50-1033, and has the authority to pledge system revenues as security for a loan pursuant to I.C. §§ 50-237, 50-1033 and 50-301. Petitioner also is authorized to issue its bonds to the Idaho Bond Bank Authority under I.C. §67-8722, and is further authorized to lease or purchase property under I.C. §§50-301 and 50-1030(a).

16. Petitioner seeks a determination of the validity of a proposed loan, and in particular:

a. Whether the expenditures for the rehabilitation of the Rock Creek Lift Station and the WWTP, required by the federal and state standards and the constitute ordinary and necessary expenditures under Article 8, Section 3 of the Idaho Constitution.

b. Whether funding agreement, which obligate the Petitioner to repay the financing over 20 years, will be valid under Article 8, Section 3 of the Idaho Constitution and applicable Idaho statutes.

c. Whether the Petitioner has the power and authority to execute the financing documents.

17. Judicial determination of the validity of the proposed loan obligation pursuant to I.C. § 7-1301, et seq. will serve the public interest and welfare.

18. Fifteen days after published notice, the Council of the City of Twin Falls conducted a public hearing in compliance with I.C. § 7-1304(3) on February 7, 2011, and found that the filing of the Petition is in the best interests of the citizens of the City of Twin Falls. (A copy of said published notice and the Resolution approved by the Council are attached hereto as Exhibits “D” and “E”).

19. This action is in the nature of a proceeding in rem and jurisdiction of all interested parties will be obtained by publication and posting as provided under I.C. §§ 7-1305 and 7-1306.

WHEREFORE, Petitioner prays (1) for an order setting the date and time of a hearing herein and directing the giving of notice hereof as provided by law, and (2) for a judicial examination and determination of the validity of the power and authority of Petitioner (a) to enter into the proposed Funding Agreements, (b) to incur indebtedness thereunder within the

"ordinary and necessary expense" exception to the voter approval and sinking fund requirements of Article VIII Section 3 of the Idaho Constitution, (c) to issue its evidence of such indebtedness, (d) to pledge its wastewater revenues to repay the indebtedness, and (3) such other and further relief as the Court deems proper.

DATED this ____ day of _____, 2011.

_____
Fritz Wonderlich
WONDERLICH & WAKEFIELD
Attorneys for Petitioner

VERIFICATION

STATE OF IDAHO

COUNTY OF TWIN FALLS

I, Don Hall, being first duly sworn upon oath, depose and say:

That I am Mayor of the City of Twin Falls, Idaho, Petitioner in the above-entitled action; that I have read the within and foregoing Petition For Judicial Confirmation, know the contents thereof and believe the facts therein to be true.

_____
Don Hall

SUBSCRIBED AND SWORN TO before me this ____ day of _____, 2011.

_____
NOTARY PUBLIC FOR IDAHO
Residing at _____
My commission expires _____

EXHIBIT “A”

EHM ENGINEERS’ REPORT ON ROCK CREEK LIFT STATION REHABILITATION PROJECT

(attached)

EXHIBIT “B”

CH2MHill ENGINEERS’ REPORT ON TWIN FALLS
WASTEWATER TREATMENT PLANT REHABILITATION PROJECT

(attached)

EXHIBIT “C”

IDAHO BOND BANK AUTHORITY LOAN AGREEMENT

(attached)

EXHIBIT "D"

TWIN FALLS CITY COUNCIL NOTICE OF PUBLIC HEARING
RESOLUTION OF INTENTION TO FILE PETITION FOR JUDICIAL CONFIRMATION

(attached)

EXHIBIT “E”

RESOLUTION OF INTENTION TO FILE PETITION FOR JUDICIAL CONFIRMATION

(attached)

Twin Falls WWTP: Near-term Rehabilitation Projects

TO: Fritz Wonderlich / City of Twin Falls

COPIES: Travis Rothweiler / City of Twin Falls
Tom Courtney / City of Twin Falls
Jackie Fields / City of Twin Falls
Jon Caton / City of Twin Falls
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Jack Bennion / CH2M HILL
John Keady / CH2M HILL

FROM: Leaf, William / CH2M HILL

DATE: September 30, 2010

This memorandum presents a description of the near-term rehabilitation projects identified within the City's capital improvement program for the Twin Falls Wastewater Treatment Plant (WWTP). This capital improvement program is also presented in the Facility Plan Update for the City of Twin Falls Wastewater Treatment Plant (CH2M HILL, July 2010), approved by the Idaho Department of Environmental Quality, August 11, 2010. A reduction in the initial capital investment at the WWTP is warranted to meet the City's anticipated budget. The near-term projects recommended for implementation are rehabilitation oriented, providing the needed replacement of aging equipment. This memorandum presents a description of updated projects along with an estimated capital cost for each.

Twin Falls Wastewater Treatment Plant Overview

The City of Twin Falls WWTP serves the City and associated service area, providing the treatment of wastewater prior to discharge of effluent to the Snake River. The treatment of municipal and industrial wastewater at the WWTP is accomplished through a series of physical, chemical, and biochemical processes. A number of unit processes make up the WWTP to provide these removal mechanisms. The unit processes incorporated into the Twin Falls WWTP are presented in Table 1.

TABLE 1
Twin Falls WWTP – Unit Processes

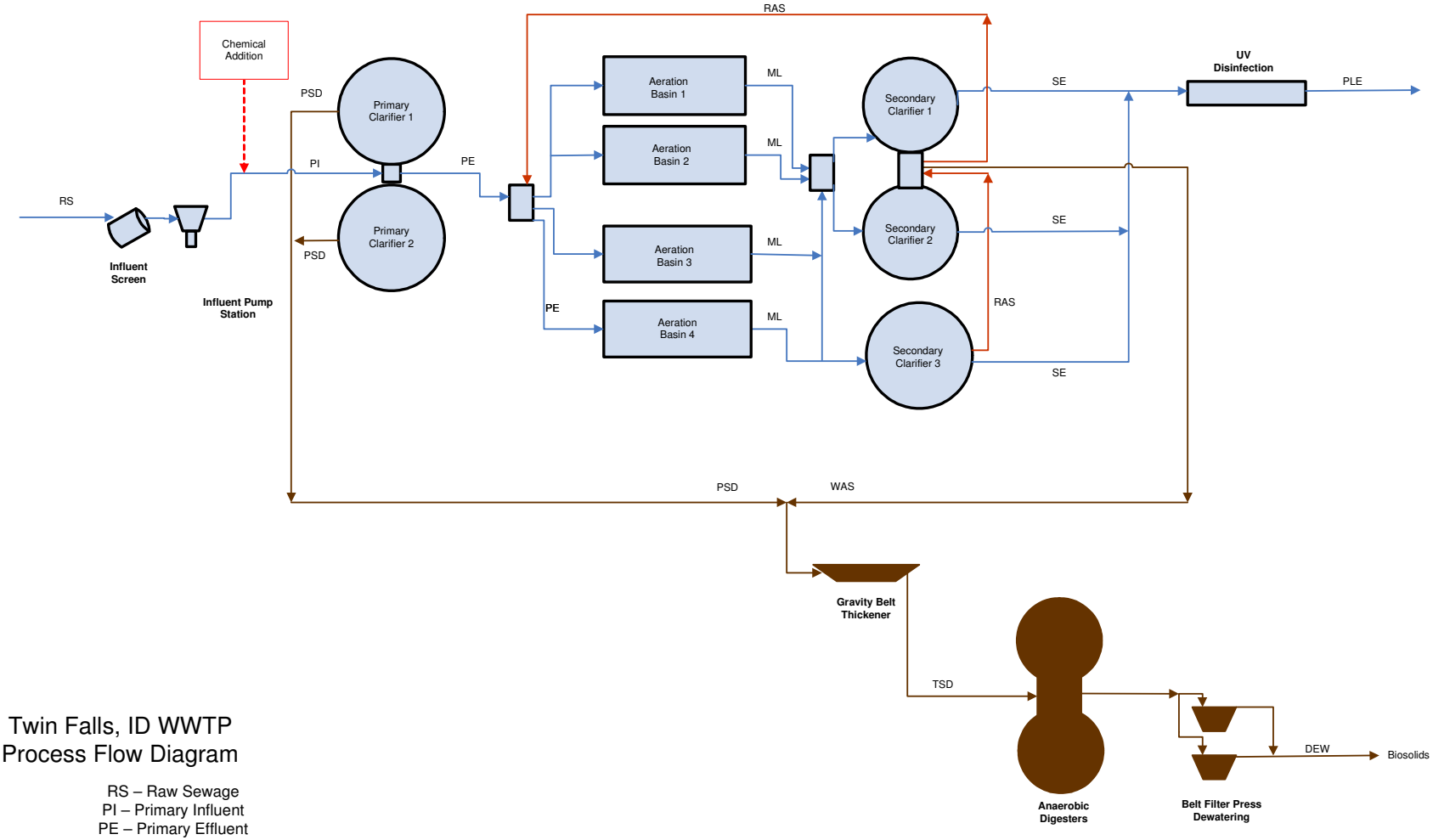
Unit Process	Description
Preliminary Treatment	
Influent Screening	Removal of inorganic and gross pollutants from waste stream
Grit Removal	Remove sand and grit from waste stream
Primary Treatment	Produces a liquid effluent suitable for downstream biological treatment and achieve solids separation for convenient and economic treatment and disposal. Typically removes all of the settleable solids and the majority of the insoluble organic matter from the treatment process.
Primary Clarification	Most common practice for solids separation, providing up to 60% removal of totals suspended solids (TSS).
Chemically Enhanced Primary Treatment	The addition of metal salt (ferric chloride or aluminum sulfate) and polymer to primary influent, improving the suspended solids removal efficiency and providing a level of orthophosphate removal.
Secondary Treatment	Provides for the removal of soluble pollutants typically through biochemical operations
Conventional Activated Sludge	Suspended growth culture of microorganisms (MLSS) in an aerobic bioreactor that employs some means of biomass recycle. For Twin Falls the objective of secondary treatment is the removal of soluble organic matter and oxidation of the carbon contained within, along with the reduction of ammonia. A solids separation stage is required within all systems. Conventional activated sludge utilizes typically long, narrow activated sludge basins that approach "plug flow" characteristics where the influent and return activated sludge (RAS) enter at one end and flow to the other. A "plug flow" system will contain concentration gradients of soluble constituents as the fluid moves through the basin. As a result, the aeration requirement is reduced in the process as the oxygen demand will decrease from the front end of the basin to the outlet. The solids residence time (SRT) is typically 3 to 8 days.
Secondary Clarification	Solids separation of the suspended growth culture of microorganisms is required for a biological treatment system. Sedimentation within the Secondary Clarifiers provides the needed liquids-solids separation. The clarified effluent is conveyed downstream to the disinfection process, while the

TABLE 1
Twin Falls WWTP – Unit Processes

Unit Process	Description
	solids stream is returned to the activated sludge system to maintain the required MLSS in the system. A portion of the solids is wasted from the system to the solids handling treatment process to maintain a balance in the system.
Disinfection	Disinfection is required to improve water quality for subsequent downstream use. The primary reason for disinfection is the protection of public health through the control of disease-causing microorganisms. Disinfection results in the inactivation of enteric bacteria, and viruses that pass through secondary treatment systems.
Ultraviolet Disinfection	Technique for the disinfection of wastewater by exposing the wastewater to ultraviolet radiation employed at the Twin Falls WWTP
Solids Handling	
Sludge Thickening	Physical process to reduce the amount of liquid within a sludge stream. Thickening at the Twin Falls WWTP is accomplished through the use of mechanical gravity belt thickening, increasing the solids concentration within the sludge stream prior to digestion to 6 percent.
Anaerobic Digestion	Stabilization process to treat the solids generated from the wastewater treatment process, and provide for a stable product for disposal or use. In addition, stabilization provides for the reduction of pathogens for a safer product for beneficial use.
Dewatering	Physical process that reduces the amount of liquid from the digested sludge, allowing for the economic disposal and reuse of biosolids. Belt filter press dewatering units are utilized at the Twin Falls WWTP, prior to the reuse of biosolids on agricultural land in the area.

A process flow diagram of the Twin Falls WWTP is presented in Figure 1. The Twin Falls WWTP has a capacity to treat 8.6 million gallons of wastewater per day (mgd) on an average day, maximum month (ADMM) basis. The current ADMM influent wastewater flow at the WWTP is 7.7 mgd.

FIGURE 1
Twin Falls WWTP – Process Flow Diagram



Twin Falls, ID WWTP
Process Flow Diagram

RS – Raw Sewage
PI – Primary Influent
PE – Primary Effluent
ML – Mixed Liquor
SE – Secondary Effluent
PLE – Plant Effluent
PSD – Primary Sludge
RAS – Return Activated Sludge
WAS – Waste Activated Sludge
TSD – Thickened Sludge
DEW – Dewatered Sludge/Biosolids

Each of these unit processes are integral for the WWTP to meet the treatment limits established in the National Pollution Discharge Elimination System (NPDES) permit given the current wastewater flow and load in the system. At this time there are four key unit processes and related equipment has degraded to the point where replacement is required. These features must be incorporated into the WWTP to maintain the high level of treatment required.

Twin Falls Wastewater Treatment Plant Rehabilitation Requirements

Table 2 presents the near-term rehabilitation oriented projects required for the WWTP.

TABLE 2
Phase 2 Rehabilitation Improvements

Project	Description— Modified Unit Processes
Phase 2A	Priority 1 – Replace Existing Ultraviolet (UV) Disinfection System
(Rehabilitation)	Priority 2 – Add one 6-mm fine screen for Influent Screening
	Priority 3 – Replace aeration diffusers for Aeration Basins 1, 2, and 3
	Priority 4 – Replace two (2) existing Belt Filter Presses (BFPs)

Descriptions of the near-term rehabilitation projects recommended are included in the following sections. These sections provide details on each unit process and the associated treatment implications with equipment failure.

UV Disinfection

The purpose of disinfection is to inactivate or destroy pathogenic organisms to prevent the spread of waterborne diseases to downstream users and the environment. Some common disease causing microorganisms found in domestic wastewater include but are not limited to E. Coli bacteria, Salmonella bacteria, Cryptosporidium, Giardia lamblia, Helminths, and viruses including Hepatitis A. Disinfection is required by the NPDES permit.

Ultraviolet (UV) disinfection systems have become the standard for wastewater treatment. UV disinfection systems transfer electromagnetic energy from a mercury arc lamp to an organism's genetic material (DNA and RNA). When UV radiation penetrates the cell wall of an organism, it destroys the cell's ability to reproduce. The effectiveness of a UV disinfection system depends on how clean the wastewater is before it enters the UV disinfection system, the intensity of UV radiation, and the amount of time the microorganisms are exposed to the radiation. The main components of a UV disinfection system are mercury arc lamps, ballasts that control the lamps, quartz sleeves that cover the lamps, wipers that keep the sleeves clean, and a reactor (typically concrete channels).

A new low pressure, high output UV disinfection system is recommended to replace the existing equipment, allowing the WWTP to remain in compliance under the current NPDES permit. The replacement system will be designed to match the capacity of the existing system. The existing UV Disinfection system was installed in 1995 and at that time was a new, innovative system. Unfortunately a significant amount of research and development

by the manufacturer was required to get this system operating effectively. As a result of this being essentially the first model number for this equipment type, there were a number of issues that were never completely resolved. These have proven to be a burden for the WWTP staff over time but were manageable. These issues are now starting to compromise treatment quality as the existing system is unreliable, inefficient, and repair and maintenance costs are excessive. Evaluations determined that it is cost-effective to replace the existing system rather than continue making costly repairs. Figure 2 includes a picture of the existing UV System.

FIGURE 2
Twin Falls WWTP – Existing UV System

The following issues associated with the existing system result in high disinfection costs and a risk for NPDES compliance:

- It appears that the UV intensity rate (amount of UV light it can generate) has been reduced, which is key to providing disinfection. Intensity probes that were an original part of the system are no longer operational so a direct measurement of intensity rate is not possible. In addition, the original intensity probe only showed the intensity at one point in the system and did not take into consideration the non-functioning lamps.

- The control system does not allow the operator to know which lamps are functioning and which are burnt out while the system is operating. Therefore, the operator does not know with any level of certainty how much UV light is being generated by the system at any given time, which may compromise overall disinfection.
- The mercury arc lamps used in the system have a typical life of about 3,500 hours rather than 5,500 hour lamp life that the manufacturer claims. Because of this lamps have to be replaced frequently.
- There is no service available for the ballasts that control the lamps, so as a result a new ballast needs to be purchased instead of only being repaired. In addition, only 1-year warranties are available for replacement ballast assemblies.
- Average costs for replacement parts for the system is about $80,000 per year. Replacement parts include lamps, ballasts, quartz lamp sleeves, and sleeve wipers.

If the existing UV disinfection system is not replaced then the City will continue paying high maintenance and repair costs and risk violations of the NPDES permit and associated fines. Not meeting the disinfection requirements of the NPDES permit means that the level of pathogenic microorganisms in the treated wastewater entering the river is higher than what is considered to be safe for downstream users and the environment.

Newer UV disinfection systems have improved designs that eliminate many of the flaws that cause the existing system to be unreliable. They have better UV intensity probes and improved control systems that extend lamp life and allow more precise and efficient control of the system. This will insure lower maintenance and repair costs and better reliability so that the City can stay in compliance with the NPDES permit and better protect downstream users and the environment.

Influent Fine Screen

Influent screening is a critical component to wastewater treatment facilities in protecting downstream equipment and unit processes from trash and other non-biodegradable items that are found in raw sewage. This is of particular importance at the Twin Falls WWTP due to the amount of daily flow treated, as a system of this size has a significant amount of trash in the system. If rags or other trash get through the screening system these items can bind pumps and other equipment downstream, reducing the effective performance of the WWTP.

A second influent mechanically-cleaned fine screen is recommended to provide redundancy within the system as there is only one mechanically-cleaned fine screen currently in service. This existing mechanically-cleaned influent fine screen is in need of repair, but it is difficult to remove from service to provide needed maintenance. An existing, manually-cleaned bar rack is available, but this unit has one-inch-wide openings resulting in an inefficient removal of trash from the influent wastewater. As a result trash passes through the screening process, causing a detrimental impact to downstream unit processes. A Lakeside Rotomat© mechanically-cleaned fine screen with 6 millimeter openings is recommended for installation in the existing Headworks Building, matching the existing equipment. The Headworks Building is designed to accommodate this additional screen, so the installation of the system can be completed by WWTP staff.

A picture of the existing screening system is presented in Figure 3.

FIGURE 3
Twin Falls WWTP – Existing Influent Screen

Aeration Basin 1, 2, and 3 Diffuser Replacement

An essential component to the treatment of wastewater is the biochemical processes included in the secondary treatment process. The bioreactor (aeration basin) where these biochemical processes take place, in combination with a secondary clarifier, provide for the removal of organics, nutrients, and suspended solids from the wastewater. Oxygen is introduced into the aeration basin through a low pressure air system to drive the biochemical processes that provide this treatment. The low pressure air system includes the aeration blowers, air piping distribution system, and fine bubble diffusers (located on the floor of the aeration basins). As these diffusers get older, their performance degrades to a point where the appropriate level of dissolved oxygen within the aeration basin cannot be maintained at proper levels.

Aeration Basin 1, 2, and 3 utilize older diffusers that have fouled to the point of being inefficient to provide effective treatment. Cleaning methods by WWTP staff have maintained the diffusers so that treatment has not been compromised, but the required cleaning is becoming more frequent and the diffuser performance is continuing to degrade.

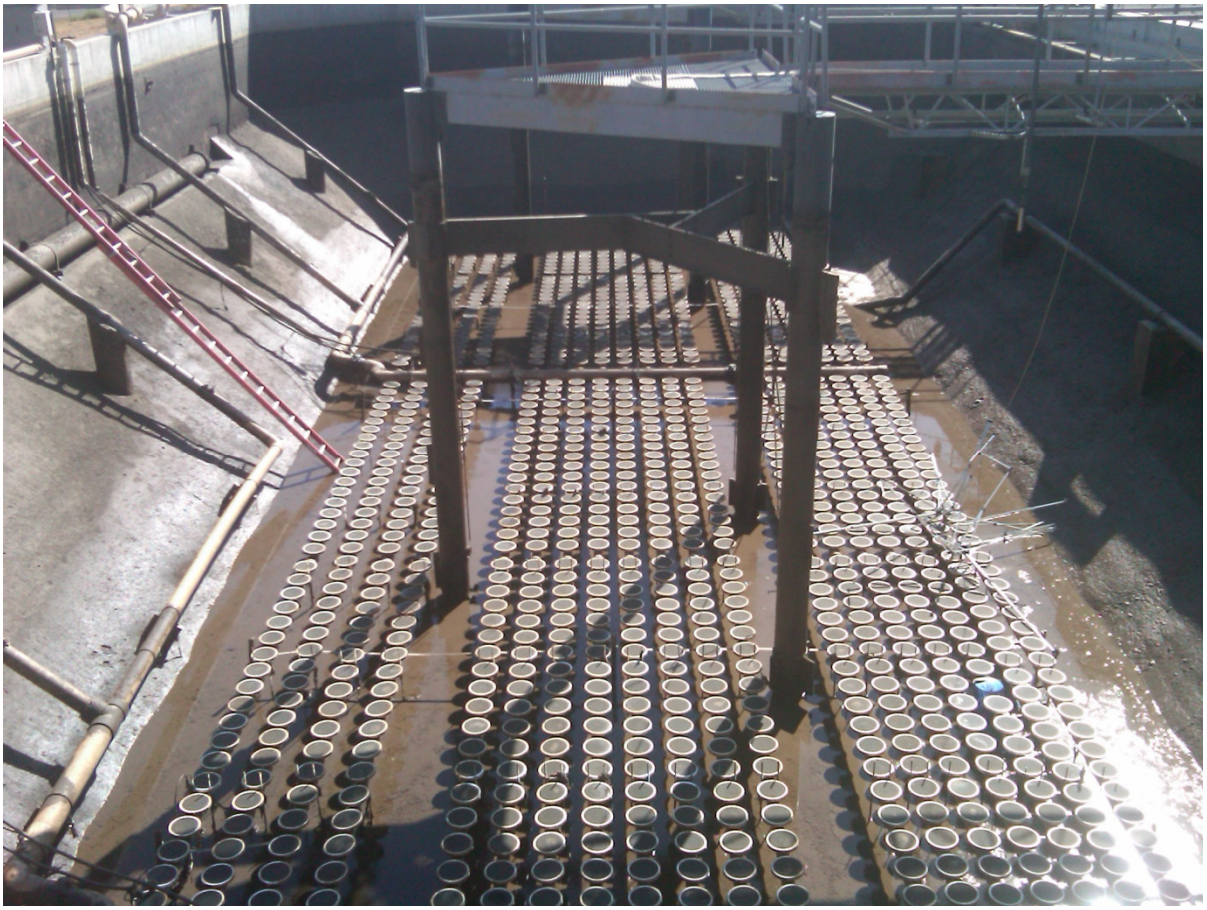
In a review of the system with WWTP staff, it is determined that replacement of the ceramic diffusers is needed at this time. The air piping distribution system can be maintained by WWTP staff and does not require replacement. The cost estimate included in this memorandum includes the replacement of diffusers in these three aeration basins (6,000 diffusers total). WWTP staff will install the replacement diffusers.

Figure 4 shows the surface of the aeration basin with the low pressure air system and existing fine bubble diffusers in operation.

FIGURE 4
Twin Falls WWTP – Existing Aeration Basin

Figure 5 shows an aeration basin that has been drained, with the fine bubble diffuser system exposed.

FIGURE 5
Twin Falls WWTP – Existing Aeration Basin Diffuser Assembly



Dewatering System

The dewatering system at the Twin Falls WWTP provides for a reduction in biosolids quantity required for offsite disposal. After the anaerobic digestion process, these stabilized solids are dewatered and then transported via truck to agricultural fields in the area for use as a soil amendment. The WWTP currently utilizes two, 2-m Belt Filter Press (BFP) units. Polymer is added to the digested sludge for conditioning prior to the BFP units to assist in the dewatering process. The BFP includes a series of rollers and filter fabric that essentially "squeeze" out water from the digested sludge. A picture of a new BFP is shown in Figure 6.

FIGURE 6
Dewatering Belt Filter Press (Ashbrook Simon-Hartley Klampress®)

Performance of dewatering equipment is determined through the level of solids concentration present in the dewatered biosolids (percent solids) and the solids capture rate across the equipment. A higher biosolids percent solid concentration indicates a higher reduction in water content and an overall reduction in biosolids quantity. As the water is removed from the biosolids during the dewatering process this excess water or "filtrate" is recycled to the front the WWTP and mixed with the influent wastewater for treatment. Relative to the influent wastewater, the volume of filtrate is much lower but this return stream is typically high in suspended solids, biochemical oxygen demand, ammonia, and total phosphorus. This filtrate stream provides a significant addition to the overall wastewater load that must be treated by the WWTP. If the capture rate on the dewatering equipment is lower, more filtrate with the higher wastewater constituent concentrations will be returned to the front of the WWTP. This higher load reduces the overall capacity of the WWTP, impacting treatment performance in the system.

The existing dewatering system is beyond its useful life, requiring replacement of the old BFP units. An evaluation completed by CH2M HILL in 2005 indicated that the solids concentration of the biosolids was 12 to 15-percent solids (compared to the 18 to 20-percent

solids possible with new equipment). The solids capture rate on the existing system was only 80 percent, compared to the 95-percent capture rate new BFP units could provide. In comparing a new system (18-percent biosolids, 95-percent solids capture) to the existing system (13.6-percent biosolids average, 80-percent capture rate) the evaluation indicates the following results:

- An annual operation and maintenance savings of 28 percent is possible with a new BFP. This results from the reduction in polymer use, equipment parts, and sludge hauling costs.
- From a treatment standpoint, with an improved solids capture rate to 95-percent with a new system compared to the existing 80-percent capture rate, the performance of the anaerobic digesters will increase by 13 percent (reflected in terms of solids residence time within the system). This is one example of how the reduction in solids being recycled in the filtrate will benefit the overall WWTP in term of performance.

Since the evaluation in 2005, the system has continued to degrade. The biosolids solids concentration is now 11 to 12 percent with the solids capture rate below 80 percent at times. Equipment maintenance requirements have increased, with frequent repair and part replacement required. Figures 7, 8, and 9 show the existing dewatering equipment utilized at the Twin Falls WWTP.

FIGURE 7
Twin Falls WWTP – Existing Dewatering Belt Filter Press

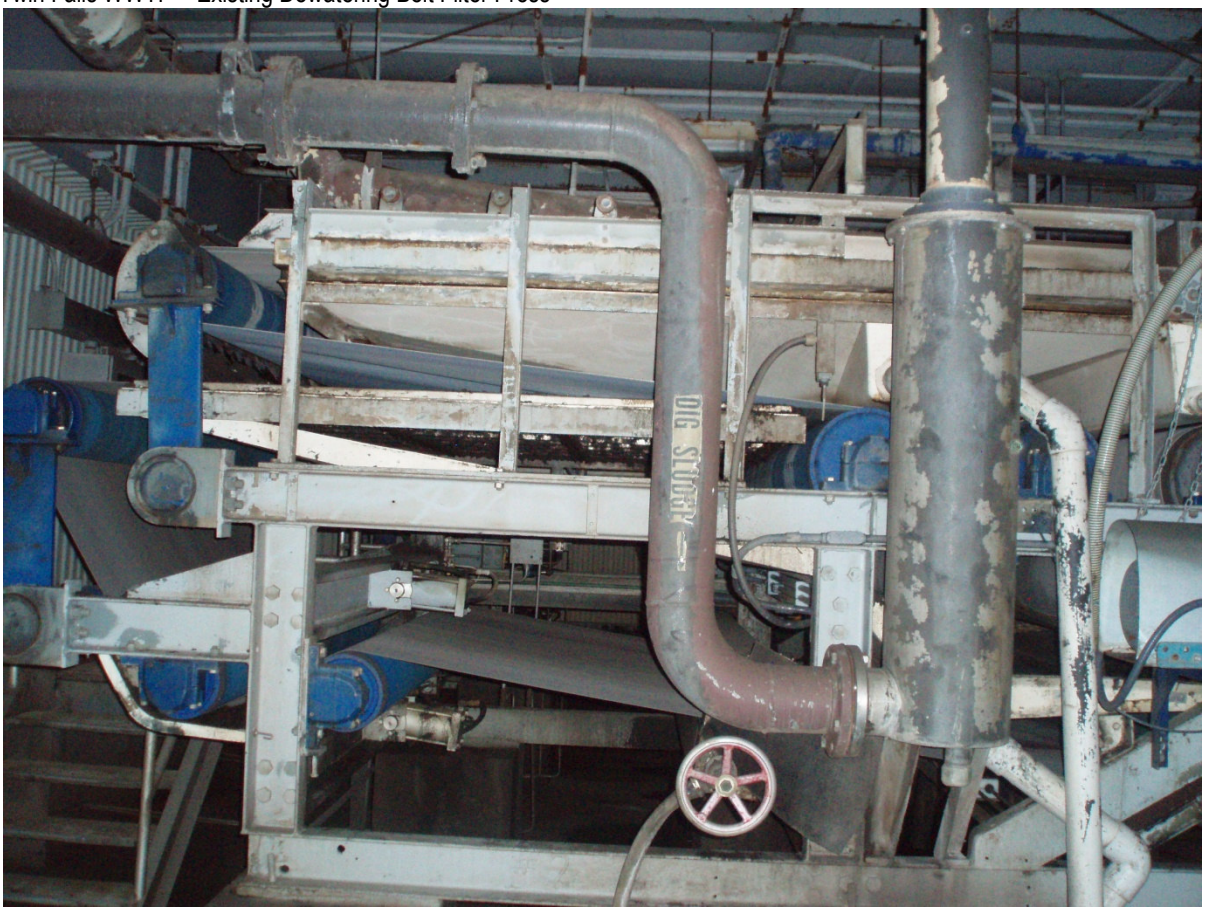


FIGURE 8
Twin Falls WWTP – Existing Dewatering Belt Filter Press

FIGURE 9
Twin Falls WWTP – Existing Dewatering Belt Filter Press

It is recommended that two, new 2-meter BFP units be installed in the existing dewatering building. The cost estimate reflects the addition of two new BFP units in the existing building. It is assumed that a contractor would be hired to install the new BFPs and make the necessary modifications to the existing electrical, instrumentation and control, process mechanical, and HVAC systems that support the dewatering process.

Near-term Rehabilitation Project Capital Cost Estimate

Table 3 presents the capital cost summary for the near-term rehabilitation project recommended at the Twin Falls WWTP. The costs presented are total capital costs and include updated construction costs, an escalation to midpoint of construction, and non-construction costs.

TABLE 3
Rehabilitation Project Capital Cost Estimate[1, 2.]

Unit Process	Capital Cost
UV disinfection system	$2,659,000
Headworks - fine screen	$289,000
Aeration Basins 1, 2, and 3 diffuser replacement	$118,000
Dewatering facility	$1,706,000
Total Capital Cost	**$4,772,000**

Notes:

1. Total capital cost markups vary, depending on the type of the improvement project. Equipment replacement oriented projects installed by WWTF staff (Headworks fine-screen, Aeration Basin 1,2,3 diffuser replacement) include the following:
    i. No Contractor Markups, equipment will be owner-furnished and installation will be completed by WWTP staff
    ii. Contingency (5%)
    iii. Escalation (3%)
    iv. Non-Construction Costs (5% Engineering)
2. Total capital cost markups for unit process rehabilitation (UV system, Dewatering Facility) include the following markups:
    i. Contractor Markups (10% overhead, 5% profit, 5% mobilization/bonds/insurance, 30% contingency)
    ii. Escalation (0 to 5 %)
    iii. Non-Construction Costs (3% permitting, 10% engineering, 5% services during construction, 5% commissioning)

Details for these capital cost estimates are presented in the following tables.

TABLE 4
Twin Falls WWTP: UV Disinfection System Capital Cost Breakdown

Unit Process	Cost
New UV Disinfection	$1,211,000
(includes new concrete channel, low-pressure high-output UV disinfection equipment, mechanical and electrical support)	
Additional Project Costs[1.]	$137,000
Direct Project Cost	$1,348,000
Subtotal with Contractor Markups[2.]	$779,000
Subtotal with Escalation [3.]	$0
Subtotal with Non-Construction Costs[4.]	$532,000
Total Capital Costs	**$2,659,000**

1. Additional Project Costs: Demolition (2%), Overall Sitework (2%), Plant Computer System (2%), Yard Electrical (3%), Yard Piping (2%)
2. Contractor Markups: overhead (10%), profit (5%), mobilization/bonds/insurance (5%), contingency (30%)
3. Escalation (0%) – Predesign effort underway
4. Non-Construction Costs permitting (3%), engineering (10%), services during construction (5%), commissioning (5%)

TABLE 5
Twin Falls WWTP: Headworks Influent Fine Screen

Unit Process	Cost
New Influent Fine Screen	$228,000
Additional Project Costs[1.]	$14,000
Direct Project Cost	$242,000
Subtotal with Markups[2.]	$13,000
Subtotal with Escalation [3.]	$8,000
Subtotal with Non-Construction Costs[4.]	$26,000
Total Capital Costs	**$289,000**

1. Additional Project Costs: Demolition (2%), Overall Sitework (2%), Plant Computer System (2%), Yard Electrical (3%), Yard Piping (2%)
2. Markups: Contingency (5%) – No contractor planned for installation, completed by WRF staff
3. Escalation (3%) – Installation assumed for 2011
4. Non-Construction Costs: engineering (5%), services during construction (5%)

TABLE 6
Twin Falls WWTP: Aeration Basin 1, 2, and 3 Diffuser Replacement

Unit Process	Cost
Aeration Basin 1, 2, and 3 Diffusers	$99,000
Additional Project Costs[1.]	$3,000
Direct Project Cost	$102,000
Subtotal with Markups[2.]	$6,000
Subtotal with Escalation [3.]	$4,000
Subtotal with Non-Construction Costs[4.]	$6,000
Total Capital Costs	**$118,000**

1. Additional Project Costs: Demolition (2%), Overall Sitework (2%), Plant Computer System (2%), Yard Electrical (3%), Yard Piping (2%)
2. Markups: Contingency (5%) – No contractor planned for installation, completed by WRF staff
3. Escalation (3%) – Installation assumed for 2011
4. Non-Construction Costs: engineering (5%), services during construction (5%)

TABLE 7
Twin Falls WWTP: Belt Filter Press Dewatering System

Unit Process	Cost
New Belt Filter Press Dewatering System	$802,000
(includes two, 2-m BFPs, mechanical and electrical support)	
Additional Project Costs[1.]	$50,000
Direct Project Cost	$852,000
Subtotal with Contractor Markups[2.]	$494,000
Subtotal with Escalation [3.]	$41,000
Subtotal with Non-Construction Costs[4.]	$319,000
Total Capital Costs	**$1,706,000**

1. Additional Project Costs: Demolition (3%), Plant Computer System (3%)
2. Contractor Markups: overhead (10%), profit (5%), mobilization/bonds/insurance (5%), contingency (30%)
3. Escalation (5 %) – Installation for 2011, but construction duration is longer relative other projects
4. Non-Construction Costs permitting (3%), engineering (10%), services during construction (5%), commissioning (5%)