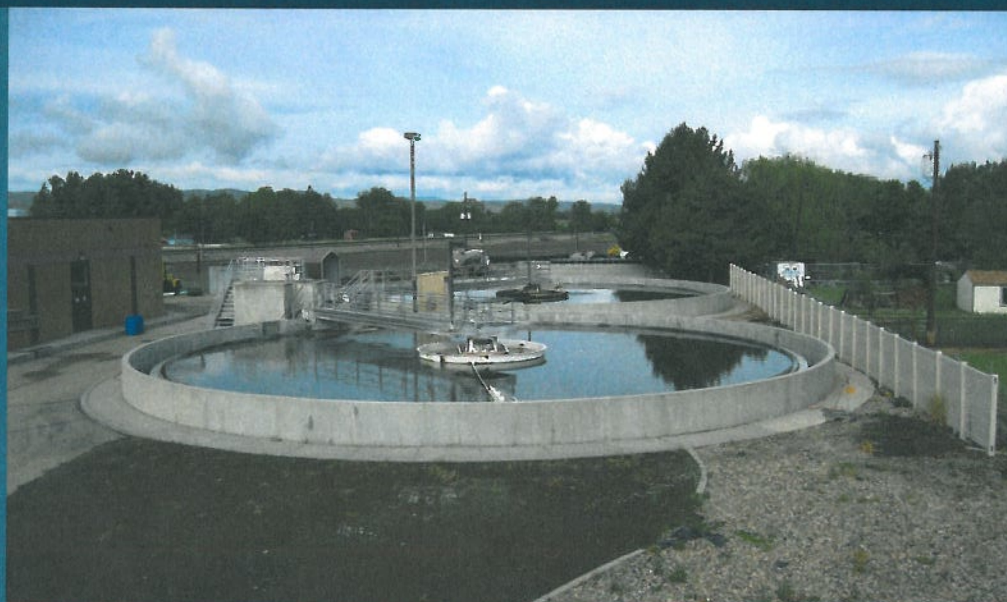
2011AG01593

City of Weiser, Idaho

Wastewater Treatment Plant & Main Lift Station



Facilities Planning Study

KELLER associates

July 2011

209040-006

CITY OF WEISER, IDAHO

WASTEWATER TREATMENT PLANT & MAIN LIFT STATION

FACILITIES PLANNING STUDY

APPROVED
By: KR
IDAHO DEQ
Boise Regional Office
Date: August-2-2011

JULY 2011

RECEIVED
JUL 26 2011
DEPARTMENT OF
ENVIRONMENTAL QUALITY
BOISE REGIONAL OFFICE

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July 2011

City of Weiser

Wastewater Treatment Plant & Main Lift Station

Facilities Planning Study

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CHAPTER 1.0 – EXECUTIVE SUMMARY

1.1 INTRODUCTION

The City of Weiser is located on the west edge of the State on the Snake River at the confluence of the Weiser River as illustrated in Figure 2.1The City of Weiser owns and operates a wastewater collection system and a wastewater treatment plant that collects and treats wastewater generated from within its service area. The City disposes of treated effluent into the Snake River under a National Pollution Discharge Elimination system (NPDES) permit (ID-002029-0) and dewatered sludge to the Washington County Transfer Station.

While inflow and infiltration studies have been completed more recently, a comprehensive facility planning study of the City's wastewater treatment plant has not been completed since 1976. Since that time, many infrastructural and operational changes have occurred at the wastewater treatment plant and in the collection system. Also with time, the quantity and quality of the influent into the wastewater treatment plant (WWTP) has changed with new industrial processing plants and other commercial and residential development. Consequently, this facility plan is intended to evaluate the existing infrastructure at the WWTP and Main lift station and present solutions that will address existing deficiencies and accommodate future development. This study does NOT include the wastewater collection system.

The City of Weiser is committed to maintaining a quality system and providing adequate service for all residential, commercial and industrial areas. This report evaluates the existing wastewater conveyance and treatment system and makes recommendations to address future needs.

1.2 POPULATION, FLOW, AND LOAD PROJECTIONS

The City of Weiser has experienced very modest average growth rate over the last 40 years with periods of positive and negative growth. The growth rate assumed for future population projections is 0.8%. Using this growth rate the population growth was projected and the wastewater flow estimated. Table 1.1 and 1.2 summarize anticipated flows and loads to the Weiser WWTP.

TABLE 1.1
20-Year (2030) Projected Flows to the Weiser WWTP, MGD

Flows	Average Day	Maximum Month	Peak Hour
Existing Residential/Commercial	1.00	1.50	5.20
Future Residential/Commercial	0.20	0.30	0.00
Existing Industrial (Fry Foods)	0.03	0.10	0.00
Future Industrial	0.02	0.03	0.00
I/I	0.24	0.80	0.00
TOTAL	1.49	2.73	5.20

TABLE 1.2
20-Year (2030) Projected Loads to the Weiser WWTP, ppd

Loads	Average Day	Maximum Month	Peak Day
Existing Residential/Commercial	715	1,070	1,800
Future Residential/Commercial	175	265	440
Existing Industrial (Fry Foods)	485	800	2,800
Future Industrial	290	465	1,670
TOTAL	1,665	2,600	6,710

ppd = pounds per day

1.3 EXISTING WASTEWATER FACILITIES

Wastewater from the City of Weiser is collected to the Main Lift Station and other minor lift stations and pumped to the wastewater treatment plant. The treatment facility includes headworks, flow measurement, four aeration tanks, two secondary clarifiers, return activated sludge (RAS) pumps, chlorine gas disinfection, effluent flow monitoring, dissolved air flotation thickening (TWAS), three aerated digester tanks, a belt filter press, and sludge drying beds. Incoming flow is pumped to the mechanical screen and wastewater flows to the remaining facilities and ultimately the Snake River by gravity. The treatment capacity of the existing plant facilities is approximately 1.40 million gallons per day (MGD).

1.4 TREATMENT AND DISPOSAL ALTERNATIVES

The City of Weiser FPS presents several feasible wastewater treatment/disposal alternatives for serving the Weiser area. Disposal options were evaluated first, as the method of disposal determines the level of treatment required. Surface water discharge, wastewater reuse via slow rate (SR) land application, rapid infiltration (RI), reuse, and deep well injection were considered. Surface water is considered the most suitable disposal option for the Weiser region, for the following reasons:

- The City is expecting a new NPDES permit and has an existing phosphorus allocation from the Snake River Hells Canyon TMDL which both include a 14 pounds per day total phosphorus load limit.
- Surface water discharge would provide continuous discharge and have no additional land requirements.
- Slow rate wastewater reuse is land-intensive, requiring large areas for winter storage and irrigation. Projected design flows would require 400 acres irrigated area and approximately 580 acre-feet of winter storage. Land is expensive and not available near the WWTP. Given these conditions, it is unlikely that sufficient affordable land will be available for slow rate wastewater reuse of the projected design flows.

- Rapid infiltration, with much higher application rates than crop irrigation, requires approximately 85 acres for disposal of the build-out flow. Land is expensive and not available near the WWTP. Given these conditions, it is unlikely that sufficient affordable land will be available for rapid infiltration of the projected build out flows.

With surface water discharge, a very high level of treatment is proposed to provide maximum protection of the area's water resources plus maximum flexibility for possible future reuse options (e.g. park or golf course irrigation). Effluent limits assumed for design are summarized below in Table 1.3.

TABLE 1.3
Design Discharge Limits

Parameter	BOD	TSS	Temperature	Total Phosphorus
Value	<30 mg/L	<30 mg/L	<72°F	<14 ppd

The treatment approach selected by the City is to retain the existing activated sludge system and modify the existing aeration basins, disinfection system, digesters, and sludge drying beds to meet the limits shown above. The City selected a design capacity for maximum month flows of 2.7 MGD for the new facility. The existing facilities would handle average annual day flows up to 1.40 MGD.

Treatment options considered to produce the effluent quality noted above include an activated sludge process, sequencing batch reactor (SBR), and membrane bio-reactor (MBR). For comparison on an equal basis, filtration processes were added as necessary to each alternative to achieve total phosphorus effluent quality. Advantages and disadvantages of the alternatives are discussed in Chapter 7.

1.5 MAIN LIFT STATION ALTERNATIVES

Many of the components of the lift station are more than fifty years old and in need of replacement and upgrades. Alternatives considered for upgrading the Main lift station included rehabilitating the existing lift station, constructing a parallel wet well with submersible pumps immediately adjacent to the existing lift station building, and constructing a new lift station further to the west. The alternatives are explained in more detail in Section 5.

1.6 APPARENT BEST ALTERNATIVE

Of the alternatives considered, the activated sludge process was the least costly option and thus the selected alternative. The effluent would meet requirements for surface water discharge. The activated sludge processes uses most of the existing infrastructure. A list of the needed improvements was prioritized and an initial project prepared to address the highest priority items.

The activated sludge system was selected as the recommended treatment process based upon the following characteristics:

- Utilizes existing aeration tanks and secondary clarifiers.
- Flexibility to handle seasonal variations in flow.
- Easily expandable to accommodate build-out conditions.
- Capable of producing high quality effluent with low levels of phosphorus.
- Operators are familiar with technology and operations and maintenance requirements.
- Proven technology.
- Reliability.

The recommended treatment alternative for the new wastewater process includes headworks, activated sludge facilities (aeration basins, secondary clarifiers, and RAS pumps), chlorine disinfection, de-chlorination facilities, and aerobic digestion facilities (TWAS, aerated digesters, belt filter press, and sludge drying beds), and discharge under a new NPDES permit. A schematic of the recommended alternative is shown on Figure 8.1.

The best apparent alternative for the Main lift station is to construct a parallel lift station facility directly adjacent to the existing lift station with a 12-foot diameter wet well with submersible pumps. A three or four pump arrangement is recommended to improve redundancy and more accurately match pump capacity with typical flows. New electrical, controls, standby power, and SCADA would be housed in a new control building or inside the existing lift station building with renovation.

1.7 CAPITAL IMPROVEMENT PLAN

The proposed improvements to the WWTP have been prioritized into a capital improvement plan based on need and available funding which is summarized in Table 1.4. Priority 1 improvements include an improved activated sludge wastewater treatment facility sized for maximum month flow of 2.7 MGD. Other Priority 1 components would include headworks building, rehabilitated aeration tanks, new aeration system, chlorine generation facilities for on site generation of chlorine for disinfection, dechlorination facilities, expanded sludge drying beds, and rehabilitation of the DAFT. Estimated costs for the entire Phase 1 project are shown in Table 1.4.

TABLE 1.4
Capital Improvement Plan

Item	Priority 1 2012	Priority 2 2016+	Future 2020+	TOTAL
Priority 1 (2012)				
Earthwork	$108,000	$75,000	$56,000	
Site Work	82,000	41,000	41,000	
Yard Piping	102,000	34,000	34,000	
Headworks Building	292,000			
Aeration Tank Rehabilitation	1,161,000			
Aeration System Upgrades	1,044,000			
Chemical Treatment Facilities	193,000			
Disinfection Improvements	590,000			
DAFT Rehabilitation	125,000			
SCADA Improvements	125,000			
Mobilization, Overhead, Profit (15%)	573,000			
Contingency	220,000			
Engineering (18%)	830,000			
Funding and Inflation Contingency	600,000			
TOTAL PRIORITY 1 Improvements	**$6,000,000**			
Priority 2 (2016+)				
Up-flow Sand Filter		$1,878,000		
Digester Rehabilitation		622,000		
Mobilization, Overhead, Profit (15%)		398,000		
Contingency		152,000		
Engineering (18%)		576,000		
TOTAL PRIORITY 2 Improvements		**$3,776,000**		
Future (2020+)				
Aeration System Upgrades (5th cell)			$877,000	
Expand Sludge Drying Beds			1,560,000	
Mobilization, Overhead, Profit (15%)			385,000	
Contingency			148,000	
Engineering (18%)			558,000	
TOTAL FUTURE Improvements			**$3,658,000**	
TOTAL (rounded)	**$6,000,000**	**$3,776,000**	**$3,658,000**	**$13,434,000**

Notes*
1) All costs in 2010 Dollars. Costs include engineering and contingencies.
2) Timing of Priority 2 and Future Improvements depends on when growth occurs. Development participation anticipated.
3) The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids or actual construction costs will not vary from the costs presented herein.

Other future improvements would include filtration facilities, digestion improvements, drying bed expansion, Main lift station upgrades, and installation of a fifth aeration tank.

1.8 PROJECT IMPLEMENTATION

The City's current residential wastewater rate structure includes a base rate of $19.00 per EDU (for a ¾" water meter) per month plus $1.45 per 100 cubic feet of monthly potable water consumption averaged over the four months from November through February. The average monthly wastewater bill for a residential customer is typically around $27.50. The City does not have sufficient cash reserves to construct the proposed Priority 1 improvements. Nor are the existing monthly user rates sufficient to cover loan repayments for the proposed improvements, a short-lived asset replacement program, and additional operation and maintenance costs for the proposed improvements.

There are various funding sources available for implementing the proposed project. Table 1.5 outlines some funding scenarios. Section 10 includes additional discussion about future funding, user rate, and connection fee considerations. A recommended user rate increase of approximately $20 is recommended over the next five years in order to fund the proposed improvements and O&M costs if no grant funds are obtained.

TABLE 1.5
Funding Scenarios

Loan Term	Scenarios				
Priorities Included	Priority 1	Priority 1 [1]	Priority 1 [2]	Priority 1	Priority 1 [2]
Interest Rate	2.0%	2.0%	2.0%	3.50%	3.50%
Term	30	30	30	30	30
Project Cost	$6,000,000	$6,000,000	$ 6,000,000	$6,000,000	$6,000,000
Grant	$0	$500,000	$1,500,000	$0	$1,500,000
Annual Payment	$267,900	$245,575	$200,925	$326,228	$244,671
Approximate Monthly User Rate Increase	$10	$9	$7	$12	$9

Assumptions:
[1] Assumes $500k CDBG
[2] Assumes $1,500,000 grant

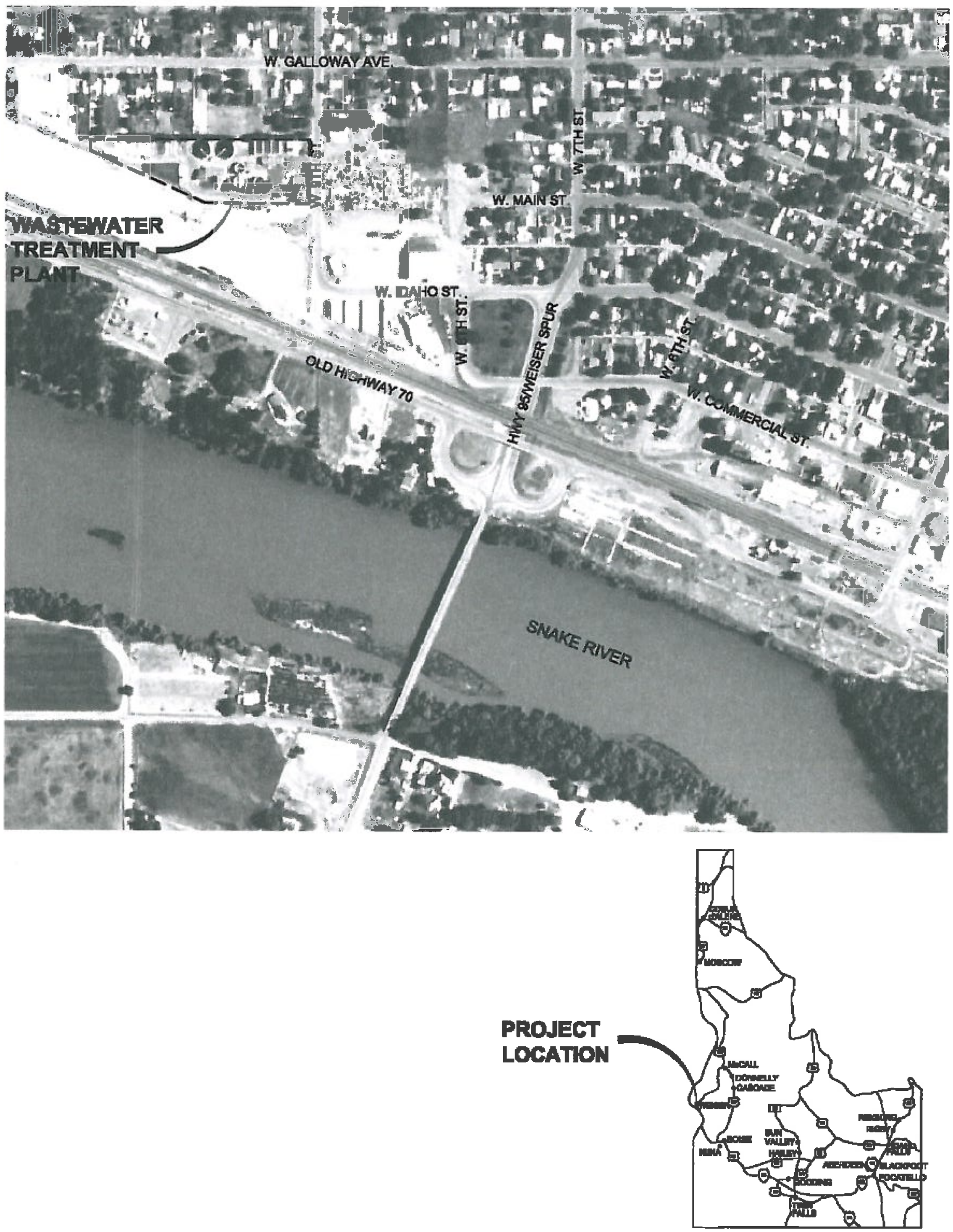
CHAPTER 2.0 – INTRODUCTION

2.1 INTRODUCTION

The City of Weiser is located on the west edge of the State on the Snake River at the confluence of the Weiser River as illustrated in Figure 2.1. The area's economic base consists of agriculture, ranching, commercial retail, and some light industrial. The City of Weiser owns and operates a wastewater collection system and a wastewater treatment plant that collects and treats wastewater generated from within its service area. The City disposes of treated effluent into the Snake River under a National Pollution Discharge Elimination system (NPDES) permit (ID-002029-0) and dewaters biosolids generated during the treatment process with a belt press. The dewatered sludge is then hauled to the City's sludge drying beds located near the Washington County Transfer Station. The dried solids meet Class A requirements and the solids are land applied on local farm land.

While inflow and infiltration studies have been completed more recently, a comprehensive facility planning study of the City's wastewater treatment plant has not been completed since 1976. Since that time, many infrastructural and operational changes have occurred at the wastewater treatment plant and in the collection system including most recently installation of an underdrain system, addition of headworks screening, belt press, and modification of the aeration diffusers and sludge drying process. In addition, the core components of the activated sludge infrastructure have been in operation since 1981 and show signs of deterioration and aging. Also with time, the quantity and quality of the influent into the wastewater treatment plant (WWTP) has changed with new industrial processing plants and other commercial and residential development. Consequently, this facility plan is intended to evaluate the existing infrastructure and present solutions that will address existing deficiencies and accommodate future development. This study does NOT include the wastewater collection system.

FIGURE 2.1
WWTP Location and Vicinity Maps



KELLER associates	CITY OF WEISER IDAHO	WASTEWATER TREATMENT PLANT LOCATION & VICINITY MAPS	PROJECT NO: 209040-006 FIGURE NO: 2.1

2.2 SCOPE OF WORK

The following list highlights the major tasks included in this study:

- Assess the existing treatment plant
- Review regulatory requirements and evaluate future conditions
- Evaluate the Main lift station
- Develop treatment alternatives to correct existing deficiencies and meet future needs
- Establish a best apparent alternative
- Conduct a WWTP operations and management evaluation
- Develop a capital improvement plan with relevant rate impacts
- Summarize findings in a facility planning study report.

2.3 AUTHORIZATION

In 2009, the City of Weiser, Idaho contracted with Keller Associates, Inc. to complete the wastewater treatment plant facility planning study. Funding for the study came from the City of Weiser.

2.4 PUBLIC PARTICIPATION

The City of Weiser has pursued many avenues to inform the public of the City's ongoing facility planning efforts. Members of the Wastewater Technical Review Committee, made up of elected officials, representatives from regional and federal government agencies serve in a review and advisory capacity for proposed improvements. Information has also been made available to the public through public outreach meetings.

2.5 ACKNOWLEDGEMENTS

Key to the success of this project was the support and direction of the Technical Review Committee (TRC) consisting of the following individuals: Weiser Mayor John R. Walker Jr., City Council Members, Public Works Director Nathan Marvin, Wastewater Superintendent Brad Hansen, City Clerk David Tate, and City wastewater operators.

CHAPTER 3.0 – REGULATORY REQUIREMENTS AND WATER QUALITY OBJECTIVES

Wastewater effluent requirements depend on the disposal method. Treated effluent may be discharged to surface water, applied to land, or reused. Surface water discharges are regulated through NPDES permits issued by the Environmental Protection Agency (EPA), with effluent quality limits specified to protect the beneficial uses of the receiving water. Land application is governed through wastewater reuse permits regulated by the Idaho Department of Environmental Quality (DEQ), with application rates specified to prevent degradation of groundwater quality. Disposal through reuse is regulated through a Wastewater Reuse permit issued by DEQ, with treatment limits specified for the protection of human health.

This chapter reviews the City's existing permit requirements, and attempts to forecast discharge permit limits and conditions to be established for various disposal methods.

3.1 WATER QUALITY OBJECTIVES

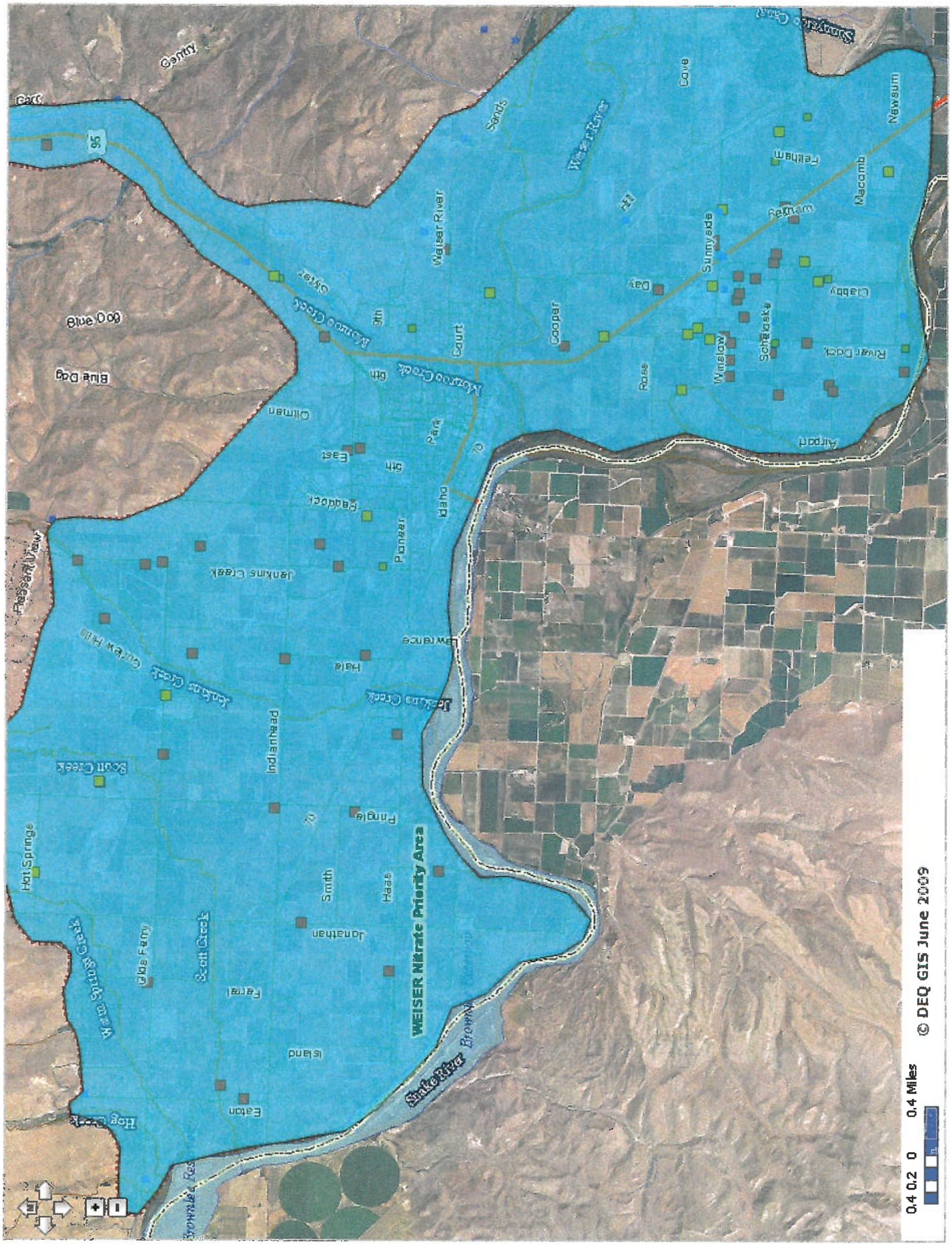
The Idaho DEQ has authority to adopt regulations and standards as necessary to protect the environment and health of the citizens of the State. Specific standards have been established for both groundwater and surface water.

3.1.1 GROUNDWATER

The stated goals of the Idaho Ground Water Quality Plan are to maintain the existing high quality of the State's groundwater, satisfy existing and projected beneficial uses, protect against unreasonable contamination or deterioration, and restore the quality of degraded groundwater where feasible and appropriate to support identified beneficial uses. Additional information about groundwater quality objectives have been summarized by DEQ in the *Weiser Area Ground Water Quality Management Plan* completed in 2003.

One of the primary beneficial uses of groundwater is drinking water. Nitrates are a constituent of concern relative to drinking water. The Weiser area has been identified as a nitrate priority area due to elevated levels of nitrate in the groundwater. Figure 3.1 below illustrates the general boundaries of the nitrate priority area which surrounds the city and WWTP. Historic concentrations of nitrate (NO_3) in groundwater have a reported average of 12 milligrams per liter (mg/l) and a maximum of 43 mg/l. The maximum contaminant level (MCL) for NO_3 in drinking water is 10 mg/l NO_3-N.

FIGURE 3.1
Nitrate Priority Areas around Weiser, ID



3.1.2 SURFACE WATER

Idaho water quality standards have been developed to protect beneficial uses of specific surface waters. Nutrients are of particular concern since phosphorus can stimulate algae and other aquatic plant growth, which can result in degraded water quality. For the Snake River, these designated beneficial uses as outlined in the *Snake River-Hells Canyon Total Maximum Daily Load (TMDL)* completed in 2004 include:

- Domestic water supply
- Primary contact recreation
- Cold water aquatic life

The Idaho 303(d) listed pollutants for the Snake River in the Weiser area include:

- bacteria
- nutrients
- pH
- sediment

Water quality targets for these uses are summarized in Table 3.1.

TABLE 3.1
Water Quality Targets for Snake River from TMDL: RM 396.4-RM 347

Parameter	Target
Bacteria	< 126 E coli organisms per 100 milliliter (mL) as a 30 day log mean with a minimum of 5 samples AND no sample greater than 406 E coli organisms per 100 mL
Dissolved Oxygen (DO)	6.5 mg/L water column as an absolute minimum
Mercury (Hg)	< 0.012 micrograms per liter (µg/l); less than 0.35 milligrams per kilogram (mg/kg) in fish tissue
Nuisance Algae	14 µg/l mean growing season limit
Nutrients	<= to 0.07 mg/l total phosphorus
Pesticides	< 0.024 nanograms per liter (ng/L) DDT; < 0.83ng/L DDD; < 0.59ng/L DDE; < 0.07ng/L Dieldrin
Sediment	<= 80 mg Total Suspended Solids per liter (TSS/L) (14 day average); <= 50 mg (30 day average);
Temperature	17.8 deg. Celsius (C); 64 deg. Fahrenheit (F) [1]

[1] 7-day average of the maximum temperature. If receiving water temperature is greater than 17.8°C, increase in temperature is limited to 0.14 °C from anthropogenic sources.

The Snake River-Hells Canyon TMDL limits establish the basis for the future NPDES permit limits for the Weiser WWTP effluent. These limits affect the degree of treatment needed prior to discharging to the Snake River. Phosphorus levels are of particular concern, as the TMDL for the lower Snake River-Hells Canyon complex requires an 80% reduction in phosphorus loads from the City's WWTP.

3.2 REGULATORY AGENCY REQUIREMENTS

3.2.1 SURFACE WATER DISCHARGE

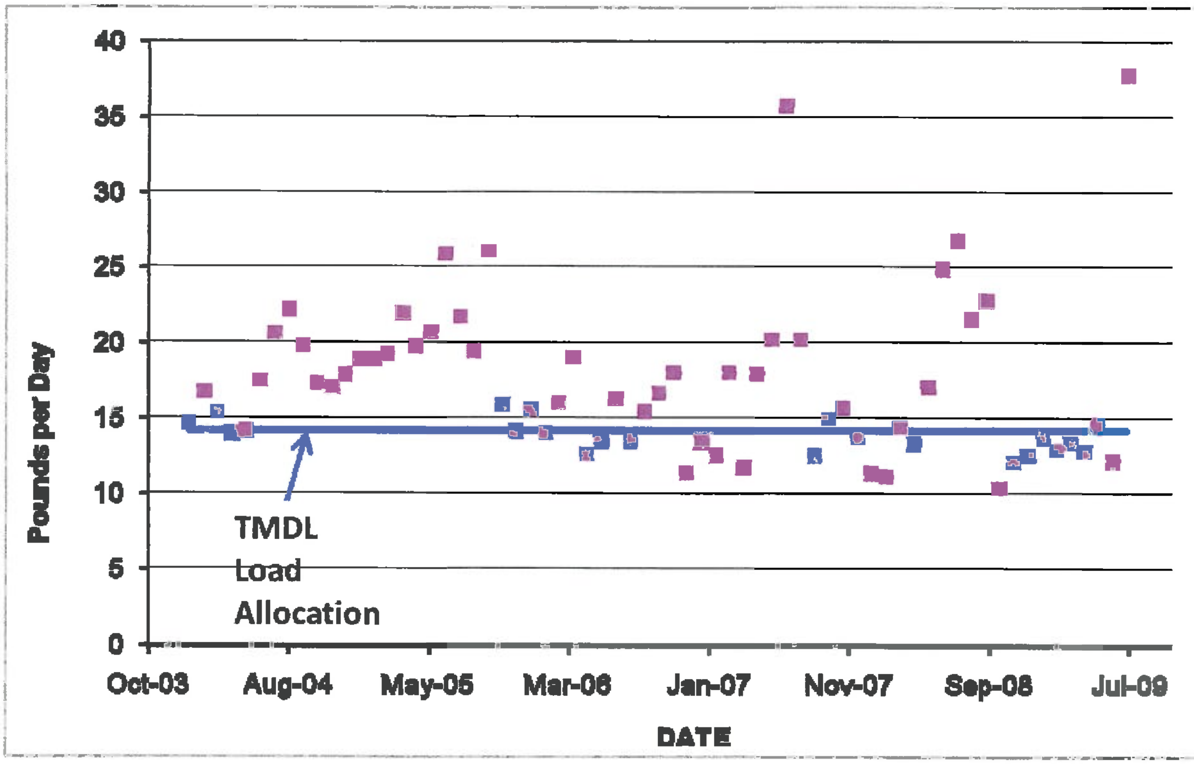
Currently the City of Weiser is discharging treated effluent into the Snake River under the constraints of an extended NPDES Permit ID-002029-0 (See Appendix A). The permit expired on August 1, 2006. A draft of a new permit from EPA was released for comment in January 2010 and then republished for public comment again in March 2011 (Appendix A). A final permit is expected in the spring or early summer of 2011. The City and Keller Associates had extensive communication and correspondence with EPA regarding the existing and draft permit conditions. A few key conditions are discussed below.

<u>Influent Flow and Nutrient Limits</u>
Section I.D (page 9 of 24) requires the City to complete a facility planning study and additional flow monitoring once influent flow, and/or Biochemical Oxygen Demand (BOD) and TSS loading exceeds 85% of the published values in Table 3 of the permit. First, while this might be a prudent response, EPA should only regulate the City on the WWTP effluent. The City should not be penalized if treatment processes achieve greater than 85% BOD and TSS loading and still meets the discharge permit limits. Secondly, previous evaluations by independent engineers suggest the load capacities proposed in Table 3 do not reflect current WWTP capabilities. The evaluation completed as part of this study reflects different capacities as outlined in Chapter 6. For these reasons, we have recommended to EPA staff working on the new NPDES permit that Section I.D be deleted from the permit, and EPA staff has accepted this recommendation favorably.

<u>Phosphorus</u>
The existing NPDES permit does not include a phosphorus effluent limit, but does require weekly monitoring. Since the current NPDES permit was issued, DEQ has established a TMDL for phosphorus on the Snake River in 2004. The TMDL reflects an 80% reduction from estimated phosphorus loads from the Weiser WWTP using an effluent concentration of 3.5 mg/L and a design flow of 2.4 MGD. This correlates to an average load allocation (based on monthly average) of 14 lb/day. At the design flow of 2.4 MGD, this correlates to an average phosphorus concentration of 0.7 mg/l.

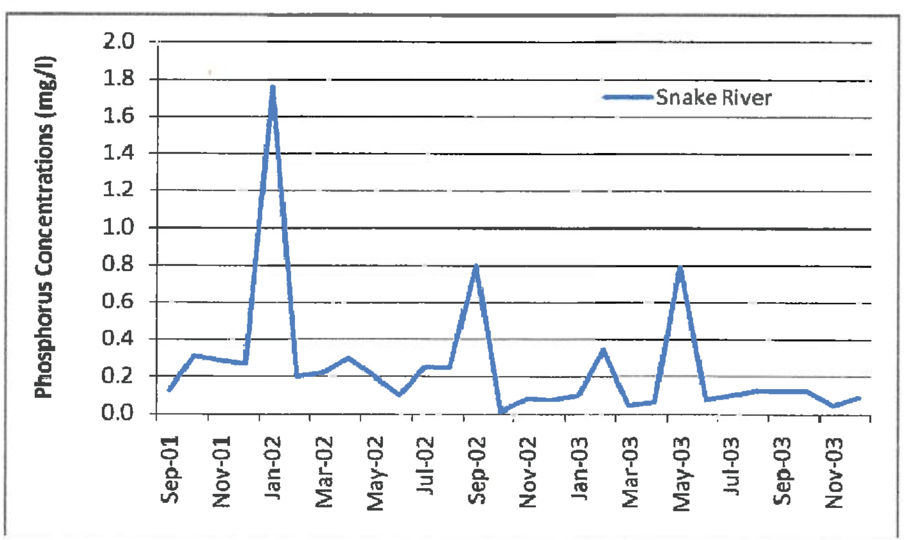
Chart 3.1 below illustrates the historical phosphorus discharge in comparison to the TMDL load allocation. It is apparent that historically, phosphorus effluent loads regularly exceed the TDML load allocation. The TMDL phosphorus load allocation is seasonal from May through September. The draft permit includes allows a four year and eleven month compliance schedule for phosphorus.

CHART 3.1
Weiser WWTP Effluent Phosphorus Loads



It should be noted that the City's water treatment plant (WTP) withdraws water from the Snake River as the primary source of water for the City's potable water system. Chart 3.2 illustrates the average monthly phosphorus concentrations recorded in the Snake River in portions of 2001 to 2003.

CHART 3.2
Snake River Phosphorus Concentrations



Temperature

The existing NPDES permit does not include a temperature effluent limit. The City monitors effluent temperature daily. The draft NPDES permit contained an effluent temperature limit of 72°F. A review of the effluent data from 2004 to 2009 found a peak effluent temperature of 69.8 °F. The 95% confidence interval for effluent temperature is 52 °F to 70 °F. Thus it is expected that the Weiser WWTP effluent will meet the new effluent temperature limit.

Future NPDES permits may include more stringent temperature limits consistent with the existing TMDL 7-day average maximum temperature target of 17.8°C. When receiving water temperatures exceed 17.8°C, temperature increase from anthropogenic sources can be no more than 0.14 °C. For this reason, it is strongly recommended that the City monitor in-stream temperature and flow periodically or with continuous monitoring probes upstream of the discharge point to establish baseline receiving stream flows and temperatures.

pH

The existing NPDES permit includes a pH effluent limit of from 6.5 to 9.0. The draft NPDES permit contains the same effluent pH limit. A review of the effluent data from 2004 to 2009 found a maximum effluent pH of 8.1 and a minimum pH of 6.5. The 95% confidence interval for effluent pH is 6.8 to 7.7. Thus it is expected that the Weiser WWTP effluent will continue to meet the effluent pH limit.

Existing and Anticipated NPDES Permit Limits

Outlined below in Table 3.2 is the existing and anticipated NPDES permit limits based on conversations with EPA staff.

TABLE 3.2
Existing and Anticipated NPDES Permit Limits

Parameter	Existing			Anticipated		
	Avg. Monthly	Avg. Weekly	Inst. Maximum	Avg. Monthly	Avg. Weekly	Inst. Maximum
Flow, MGD	---	---	---	2.4	---	---
BOD	30 mg/l 600.5 ppd	45 mg/l 900.7 ppd	---	30 mg/l 600 ppd	45 mg/l 900 ppd	---
TSS	30 mg/l 600.5 ppd	45 mg/l 900.7 ppd	---	30 mg/l 600 ppd	45 mg/l 900 ppd	---
Fecal Coliform		200/100 ml	---	---	---	---
E. Coli	126/100 ml		406/100 ml	126/100 ml		406/100 ml
Chlorine Residual	0.5 mg/l 10.0 ppd	0.75 mg/l 15.0 ppd	---	0.5 mg/l 10 ppd	0.75 mg/l 15 ppd	---
Ammonia (mg/L)	---	---	---	---	---	---
Phosphorus	---	---	---	14 ppd	21 ppd	---
pH	---	---	6.5 to 9.0	---	---	6.5 to 9.0
Temperature	---	---	---	72°F	---	---
Mercury (µg/l)	---	---	---	---	---	---

ppd = pounds per day
MGD = million gallons per day
BTU = British thermal unit

3.2.2 LAND APPLICATION

While the City does not currently land apply treated effluent, land application is a viable disposal option and is discussed generally below for reference. Land application involves the application of wastewater to the land surface, by one of the following methods:

Slow-Rate Land Application
This approach, often referred to as conventional land application, involves the application of wastewater to crop land. Application rates are designed to supplement or replace irrigation water. The wastewater is treated as it flows through the plant/soil matrix.

Overland Flow
Under this approach, wastewater is applied at the upper reaches of grass-covered slopes and allowed to flow over the vegetated surface to runoff collection ditches. The overland process is best suited to sites having relatively impermeable soils. The wastewater in the runoff collection ditches must be further managed under a wastewater reuse permit, or through an NPDES permit if the wastewater is discharged to surface water.

Fast-Rate Land Application
This approach, often referred to as rapid infiltration (RI), involves a high application rate of wastewater where most of the wastewater percolates through the soil. The soil acts as a "living filter" by removing wastewater nutrients and pollutants.

Constructed Wetlands
Engineered wetlands can be used for wastewater effluent discharge and treatment. Wetlands vegetation is selected to remove nutrients from the wastewater.

3.2.3 WATER REUSE

Reuse water is used here to refer to the beneficial use of wastewater effluent for irrigation purposes and is often referred to as reclaimed water. While the City does not currently reuse treated effluent, reuse is a viable disposal option that is becoming more and more popular with the more stringent NPDES permit limits and shortage of irrigation water supplies and is discussed generally below for reference. Examples of reuse water are provided below.

Urban/Recreational Reuse
Treated effluent is used for various non-potable purposes, such as:

- Irrigation of parks, cemeteries, and other landscaped areas
- Irrigation of golf courses
- Water hazards at golf courses
- Aesthetic impoundments (manmade water body)
- Commercial vehicle washing facilities
- Dust control
- Fire protection
- Highway landscaping irrigation

Industrial Reuse
Treated effluent is recycled for industrial use, such as cooling water, process water, or irrigation of facility grounds.

3.2.4 REGULATORY CONSIDERATIONS FOR LAND APPLICATION AND REUSE

Land application is governed through wastewater reuse permits issued by DEQ. There are currently over 160 wastewater reuse permits for facilities in Idaho. Approximately 10 of these sites are permitted for rapid infiltration, and the remainder are slow rate systems.

DEQ has detailed guidance and regulations for slow rate land application systems and conventionally is used to describe Class C effluent. Class C effluent can only be applied to the non-edible portion of the food crop and fruits. Typically slow rate land application is controlled by nutrient loading and background concentrations and hydraulic loading limitations. Various types of crops can be grown to maximize hydraulic and nutrient uptake. Due to weather patterns in the region, either supplemental disposal methods or winter storage is required to accommodate effluent during the winter season. Hundreds of acres of land application area and approximately 135 million gallons of winter storage capacity would be required for land application and winter storage exclusively.

Rapid Infiltration is defined as land application at rates from 20 to 600 feet per year for percolation through the soil. Current state rules require that Rapid infiltration systems shall be designed such that the beneficial uses of the waters of the state will not be injured. In addition to compliance with the State "Groundwater Water Quality Rule", state requirements require that

> *"Discharge to a rapid infiltration system may not exceed the hydraulic, organic, nitrogen, suspended solids or other limitations specified in the permit or plans developed pursuant to a permit requirement. In determining discharge limitations, the Department shall consider past operating performance, the ability of the soils to treat the pollutants in the recycled water, hydrogeologic characteristics of the site such as permeability and infiltration rates, and other relevant information. "*

Nitrates are of special interest in Weiser, which is considered a nitrate-priority area due to the existing elevated background levels in the groundwater.

Wastewater application for a constructed wetland may require a wastewater reuse permit, and also a NPDES permit if the wetland discharges to surface water. In addition, modification to an existing wetland may require approval from the U.S. EPA and/or Army Corps of Engineers. Wetland treatment also requires large acreages of existing or constructed wetlands that require careful monitoring and harvesting to remove accumulated nutrient loads over time.

IDAPA 58.01.17 establishes the rules and regulations for reclamation and reuse of municipal and industrial wastewater. The rules specify pretreatment requirements based on use of the treated wastewater. Treatment requirements and uses for reclaimed water by classification (Class A through E) are shown in Table 3.3. Weiser's current effluent quality meets Class C requirements. Reuse options such as irrigation of golf courses or parks would require a higher level of treatment.

TABLE 3.3
Effluent Water Quality Requirements for Land Application and Reuse

Classification Table					
Classification	Class A	Class B	Class C	Class D	Class E
Treatment	Oxidized, coagulated, clarified, and filtered to meet turbidity and nutrient limits and disinfection to meet coliform limits or treated by an approved, equivalent process.	Oxidized, coagulated, clarified, and filtered to meet turbidity limits and disinfected to meet coliform limits or treated by an approved, equivalent process.	Oxidized and adequately disinfected	Oxidized and adequately disinfected	At least primary effluent quality
Disinfection: Total coliform organisms shall not exceed	2.2 MPN per 100 ml	2.2 MPN per 100 ml	23 MPN per 100 ml	230 per 100 ml	Total coliform organisms up to "too numerous to count"
Uses	Residential irrigation at individual homes; ground water recharge; surface spreading; seepage ponds; other unlined water features; or Class B, C, D, or E uses. Other requirements apply for groundwater uses.	May contact any edible portion of raw food crops; irrigation of golf courses, parks, playgrounds, or schoolyards; or Class C, D, or E uses.	Used to irrigate orchards and vineyards during the fruiting season, if no fruit harvested for raw use comes in contact with the irrigation water or ground or will only contact the unedible portion of raw food crops, irrigation of cemeteries or roadside vegetation, or Class D or E uses.	Used to irrigate fodder, seed, or processed food crops, or Class E uses.	Used to irrigate forested sites.

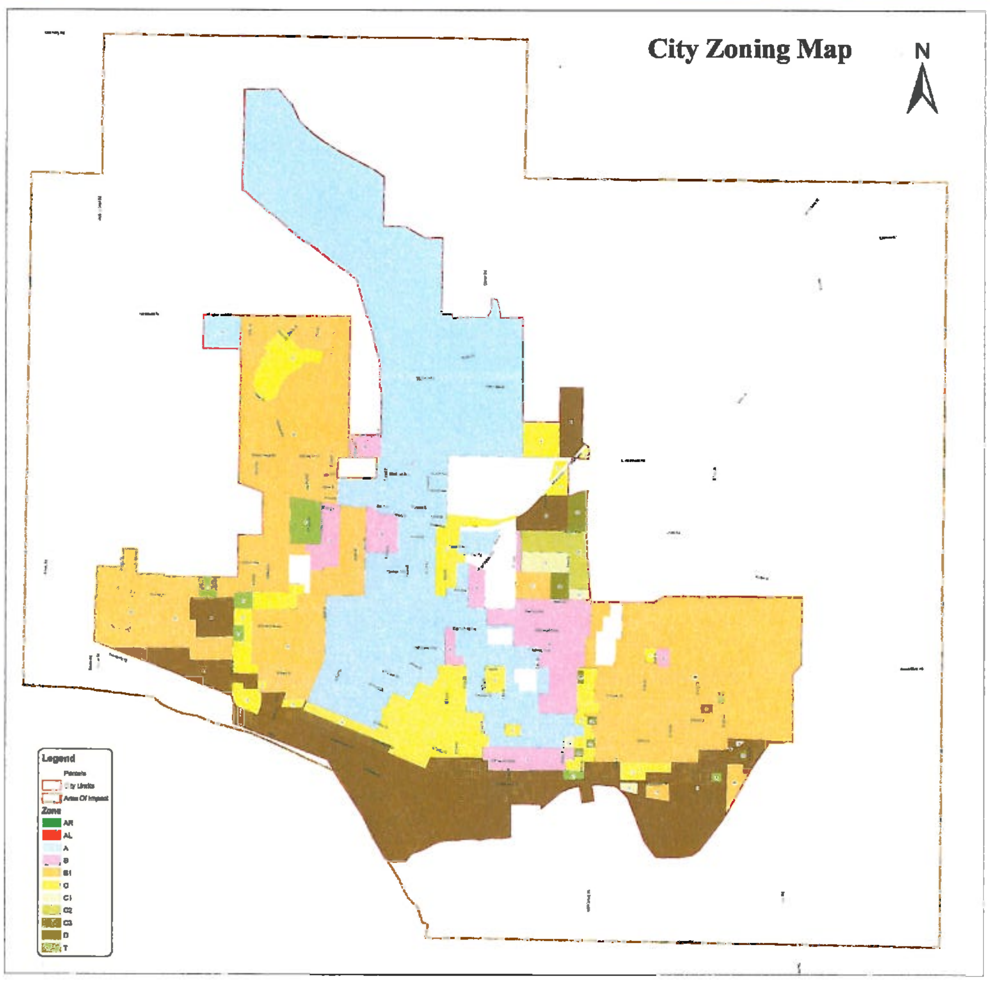
CHAPTER 4.0 – EXISTING AND FUTURE FLOW CONDITIONS

4.1 LAND USE

4.1.1 EXISTING LAND USE

The City of Weiser includes lands designated as low and medium density, mixed use, commercial, industrial, public, and agricultural inside the city limits that incorporates about 1,500 acres. Figure 4.1 graphically reflects the current land use distribution adopted by the City. The composition of the land use impacts both the quantity and nature of the wastewater conveyed to the WWTP for treatment. In particular, industrial developments can influence wastewater processes significantly.

FIGURE 4.1
Existing Land Use

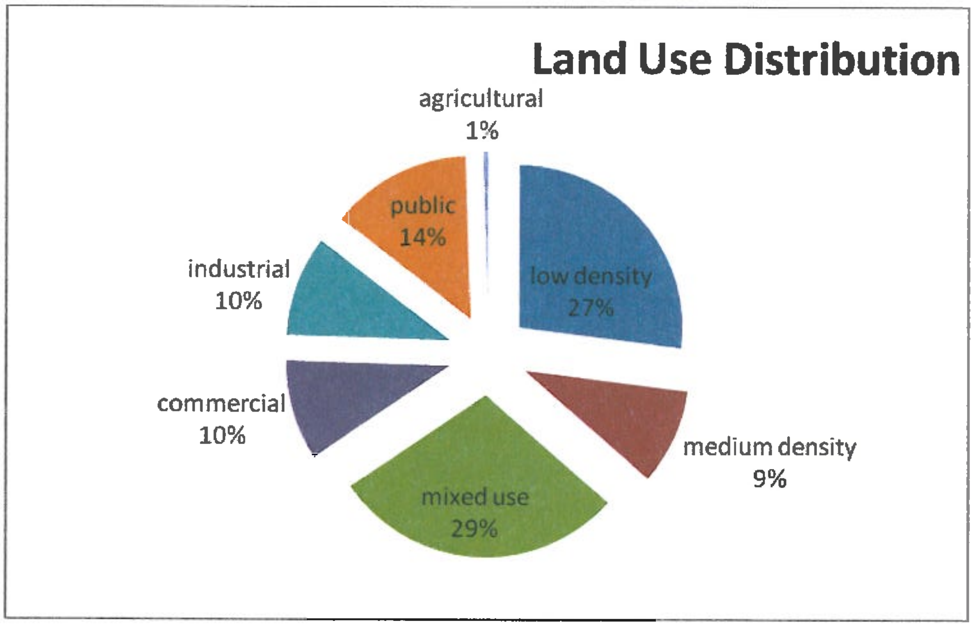


AR = Agricultural Residential over 5 acres
AL = Low Density-Single Family over ½ acre
A = Single Family (minimum lot size of 9600 sq. ft.)
B = Medium Density Single Family (minimum lot size of 7200 sq. ft.)
B1 = Single Family Live Stock with Pasture
C through C3 = Commercial (number designates different uses)
D = Industrial District
T = No longer used

4.1.2 FUTURE LAND USE

The future land use map for the City of Weiser is currently being updated as part of the Comprehensive Plan update process. The impact area includes approximately 5,500 acres of land. The percentage of each general land use category presented in the 2007 Water System Master Plan report and summarized below in Chart 4.1 is reported by the City to be representative of future land use patterns.

CHART 4.1
Future Land Use Distribution



4.2 POPULATION PROJECTIONS

4.2.1 HISTORIC POPULATION TRENDS

Past populations in the City of Weiser and Washington County are shown in Table 4.1. The population in Weiser has risen and fallen over the last 30 years with an average annual growth rate of 0.67%.

TABLE 4.1
City of Weiser and Washington County Historical Populations

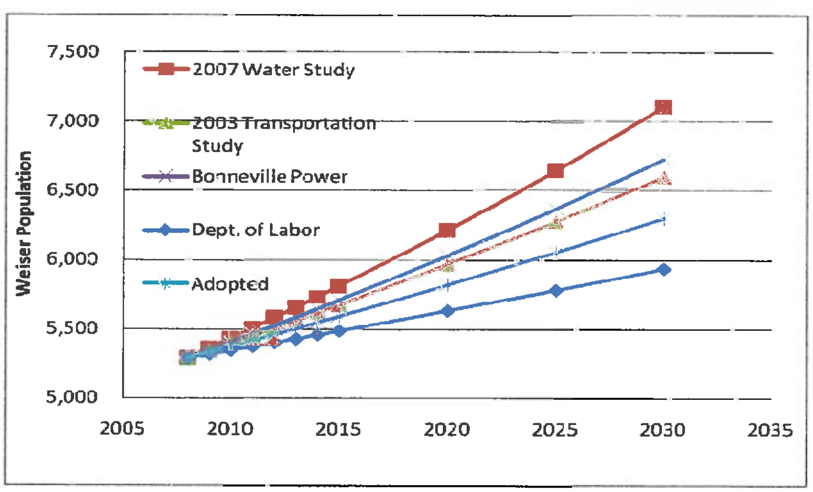
	City of Weiser		Washington County	
Year	Population	Annual Growth Rate	Population	Annual Growth Rate
1970	4,108	n/a	7,633	n/a
1980	4,771	1.51%	8,803	1.44%
1990	4,571	-0.43%	8,550	-0.29%
2000	5,343	1.57%	9,977	1.56%
2002	5,342	-0.01%	9,887	-0.45%
2004	5,333	-0.08%	9,920	0.17%
2006	5,350	0.16%	10,058	0.69%
2008	5,290	-0.56%	10,206	0.73%
	Average	**0.67%**	**Average**	**0.77%**

Year 2000 census data indicates an average household size of 2.58 people per household or Equivalent Residential Unit (ERU) for the City of Weiser.

4.2.2 POPULATION PROJECTIONS

In estimating future growth, many different sources were considered which included the population projections in the 2007 Water System Master Plan Report, the 2003 Transportation Study, Bonneville Power projections, historical population patterns, and the 5-year population projection from the Idaho Department of Labor. A graphical and tabular comparison of each of these projections is illustrated below in Chart 4.2 and Table 4.2.

CHART 4.2
Population Growth Rates



An annual growth rate of 0.8% was adopted for this facility planning study for Weiser area in consultation with the City of Weiser. This is slightly higher than the average growth rate experienced over the last thirty years, but is consistent with the growth rate over the last 20 years. Population projections for the next 20 years, based on a 0.8% growth rate, are listed in Table 4.2. The estimated 2030 population for the Weiser wastewater service area is approximately 6,300 people.

TABLE 4.2
Population Projections

Year	2007 Water Study	2003 Transportation Study	Bonneville Power [1]	Dept. of Labor [2]	Adopted
Annual Growth Rate	1.35%	1.01%	1.1%	0.53%	0.8%
2008	5,290	5,290	5,290	5,290	**5,290**
2009	5,361	5,343	5,348	5,318	**5,332**
2010	5,434	5,397	5,407	5,346	**5,375**
2011	5,507	5,452	5,466	5,374	**5,418**
2012	5,581	5,507	5,527	5,402	**5,461**
2013	5,657	5,563	5,587	5,430	**5,505**
2014	5,733	5,619	5,649	5,459	**5,549**
2015	5,811	5,676	5,711	5,487	**5,593**
2020	6,214	5,968	6,032	5,633	**5,821**
2025	6,644	6,276	6,371	5,782	**6,057**
2030	7,105	6,599	6,729	5,936	**6,304**

[1] Bonneville Power growth rate for 2009-2013 based on power demands.
[2] Dept. of Labor growth rate based on 2013 population projection of 5,430.

4.3 HISTORICAL WWTP FLOW AND QUALITY CHARACTERIZATION

Historical influent flow data from 2004 to 2009 is summarized in Table 4.3 (see Appendix B for more detailed data). The table also summarizes the influent flow characteristics measured at the treatment plant: biochemical oxygen demand (BOD) and total suspended solids (TSS).

TABLE 4.3
Weiser Historical Wastewater Flows and Water Quality

	2004	2005	2006	2007	2008	2009
Average Day, MGD	1.26	1.21	1.40	1.25	1.30	1.03
Maximum Month, MGD	1.68	1.84	1.75	1.75	1.89	1.64
Peak Day, MGD	2.50	1.96	1.96	1.96	2.21	1.74
Average BOD, mg/L	145	126	88	114	120	142
Max. Mo. BOD Loading, ppd	1,458	1,184	987	1,126	1,937	1,451
Average TSS, mg/L	104	110	86	101	104	117
Max. Mo. TSS Loading, ppd	1,061	1,065	983	1,008	1,089	1,440

These values for Weiser's influent BOD and TSS characterize the wastewater as a low strength domestic wastewater. Based on these characteristics and typical wastewater composition, the expected average influent concentrations for Total Kjeldhal Nitrogen (TKN) and phosphorus are 22 mg/L and 4 mg/L respectively.

A graph of the influent flow from January 2004 to August 2009 is attached as Chart 4.3. The daily flow, monthly average flow, annual average flow, and trend of the influent flow are presented on Chart 4.4. The daily influent flow pattern is seasonal with higher flows in the summer during irrigation season and lower flows in the winter. The overall trend for the influent flow since 2004 is decreasing slightly.

CHART 4.3
WWTP Influent Flow Data

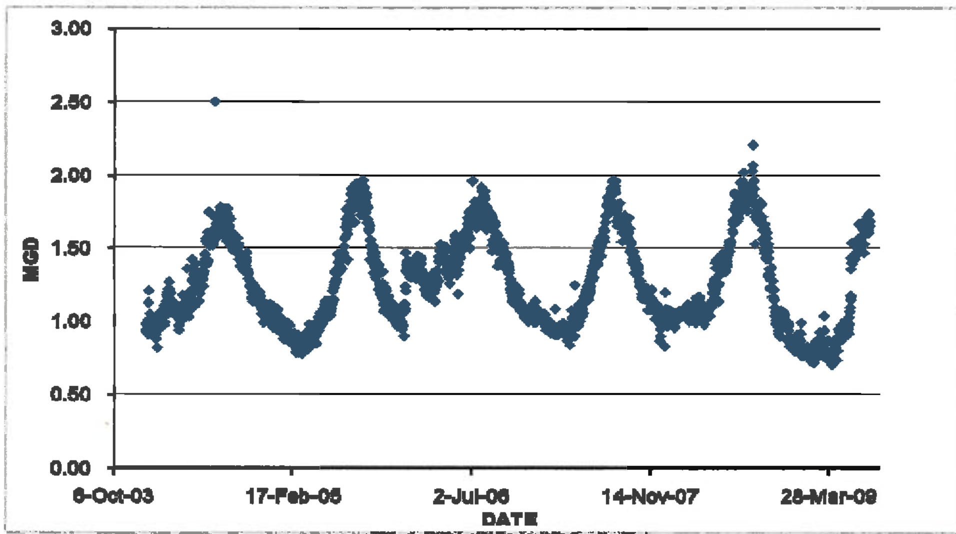
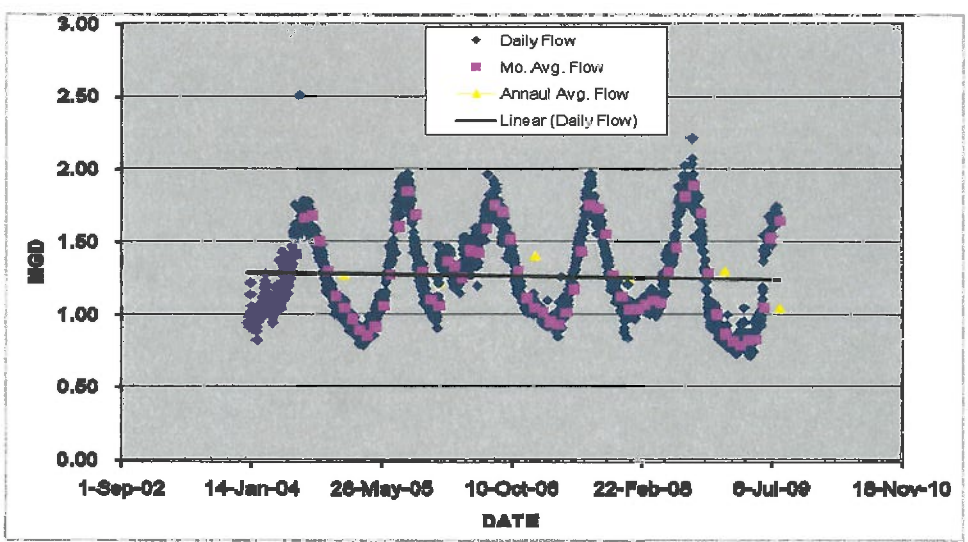


CHART 4.4
WWTP Influent Flow Statistics



<u>Seasonal Flow Patterns</u>

The seasonal fluctuations are due to infiltration and inflow (I/I). The flow data from the last five years can be divided into low flow periods (November 1 to April 30) when I/I is negligible and high flow periods (May 1 to October 31) when I/I is measurable. These periods are each approximately 183 days long. The flow data for the last five years was averaged and plotted against the day of the season, see Chart 4.5. The high flow season shown in Chart 4.5 is the average of the last five years of high season flow; the low season flow is the average of the last five years of low season flow. The difference between the low flow and high flow data is the I/I into the collection system. Over the last five years I/I has averaged about 86 million gallons per year (approximately 19% of the total wastewater inflow) or 0.236 million gallons per day (MGD) as an annual average (0.47 mgd as a daily average during the high flow season). By subtracting the I/I from the influent total flow the dry-weather wastewater flow pattern can be calculated, see Chart 4.6. For the last five years the average dry-weather flow is 1.03 MGD, and the maximum month dry-weather flow is 1.16 MGD.

CHART 4.5
Seasonal Flow and I/I

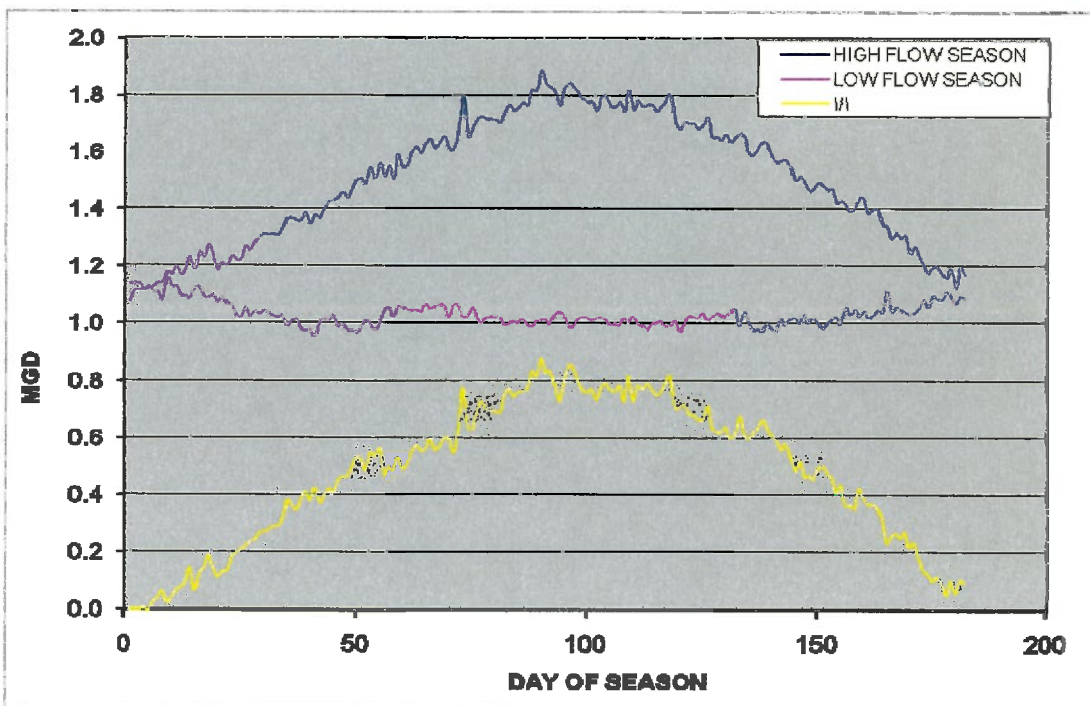
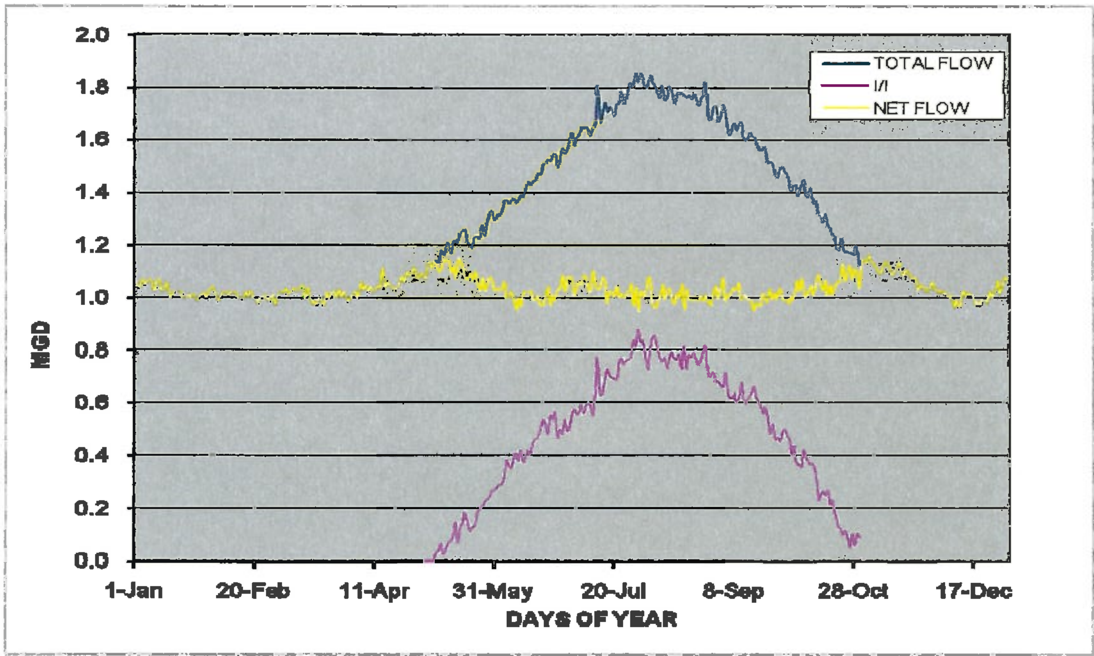


CHART 4.6
WWTP Influent Flow Summary



Peaking Factors

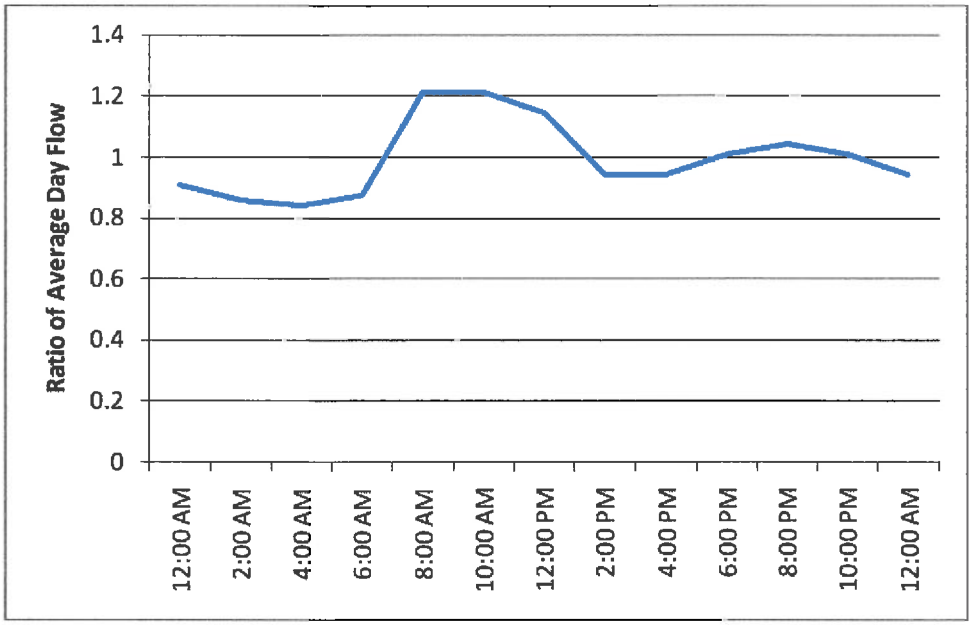
The Weiser WWTP has flow measurement capabilities at the headworks provided by a Parshall flume. The telemetry system logs charts of 24-hour flow patterns each day on circular flow charts most recently and prior to that on strip sheets. Unfortunately, due to calibration inconsistencies and operational challenges, the City staff has little confidence in the recorded flows on the circular flow charts and strip charts. Consequently, recorded peak hour and peak instant flows were not obtainable. However, City staff have reported that they have observed peak influent flow events of approximately 4.0 MGD, and during a river flooding event, they have observed both pumps at the Main lift station running at 60 hertz and barely keeping up with flow into the wet well. Consequently, based on these observations, a typical peak hour factor of 2.0 and a peak instant flow of 5.2 MGD are proposed for design considerations. Since all wastewater into the WWTP is pumped to the plant from the Main and Galloway lift stations, the potential peak instant flow is governed by the pumping capacity of the lift station(s) that convey wastewater to the WWTP which correlates to 5.2 MGD.

TABLE 4.4
Weiser Historical Wastewater Flows Peaking Factors

	2007	2008	2009	Average
Peak Day	Aug. 4	Aug. 26	July 17	n/a
Peak Day, MGD	1.96	2.21	1.74	1.74
Peak Hour, MGD		4.0+		
Peak Hour Factor		2.0		
Peak Instant, MGD		5.2		

The 24-hour wastewater flow pattern for a typical summer day on August 20, 2009 is shown in Chart 4.7 below. The flow pattern is typical for a domestic wastewater flow with a diurnal pattern showing higher wastewater flows during the early morning hours and the evening hours correlating to people preparing for school and work and then returning home.

CHART 4.7
24-Hour WWTP Influent Flow Pattern, August 20, 2009

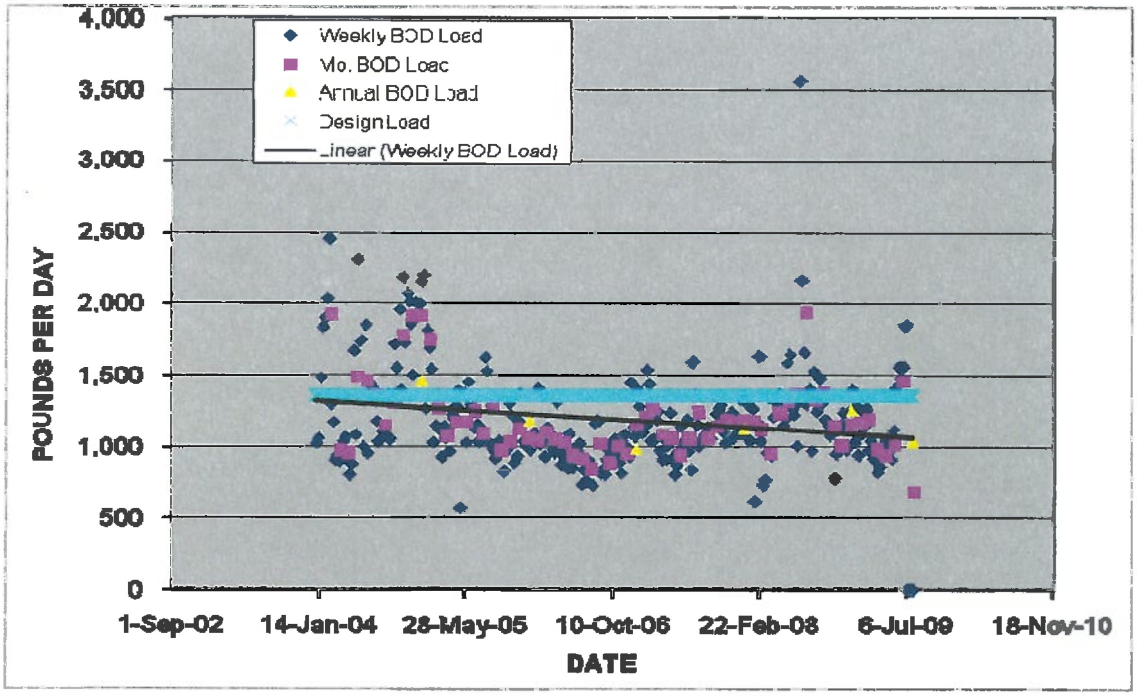


BOD

A graph of the influent BOD loads since 2004 is provided in Chart 4.8. The chart presents the weekly BOD load, monthly average BOD load, annual average BOD load, design BOD load, and the trend in BOD loading. In general the overall trend indicates decreasing BOD loading. The graph also indicates that the original design BOD loading of 1350 ppd was exceeded 8 months in 2004 and the annual average loading for 2004 exceeded the design load. Since 2004 the monthly BOD loading has exceeded the original design loading four times.

Although there are some seasonal fluctuations, the BOD loading is fairly constant, particularly for the average monthly loading, as would be expected since I/I is not adding much if any BOD.

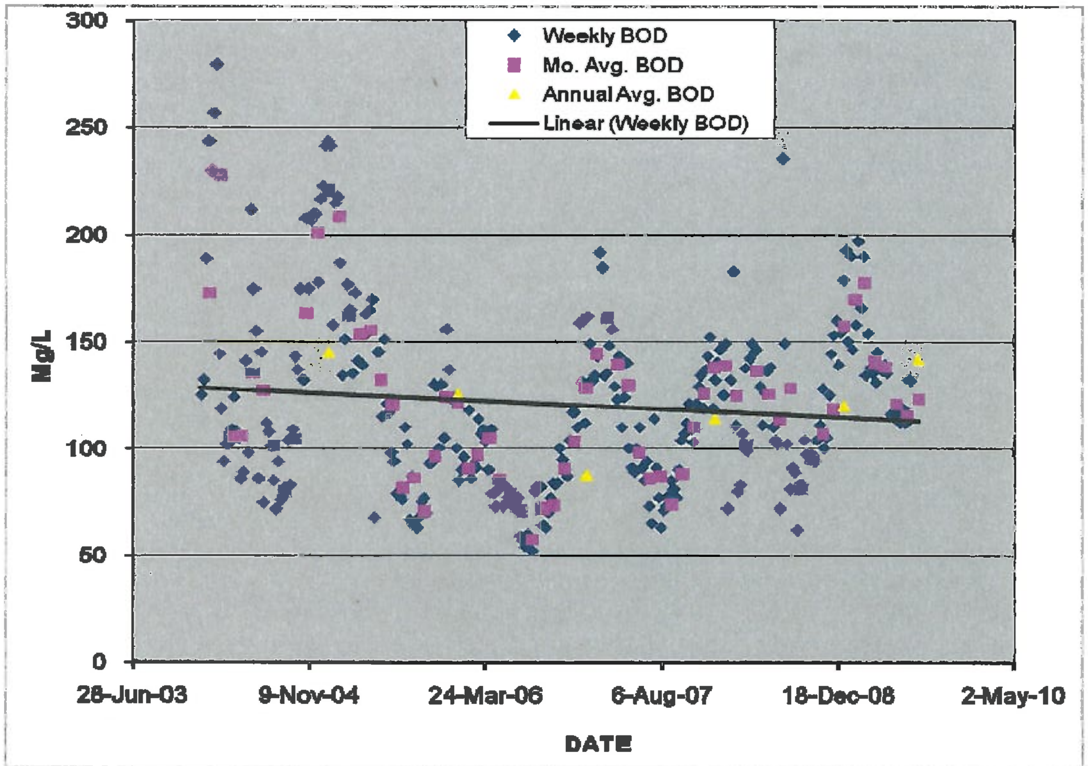
CHART 4.8
WWTP Influent BOD Loads



A graph of the influent BOD concentrations since 2004 is provided in Chart 4.9. The chart presents the weekly BOD, monthly average BOD, annual average BOD, and the trend. In general the BOD tends to increase during periods of low flow and decrease during periods of high flow as expected due to dilution. The overall trend indicates decreasing BOD concentrations.

The affect of I/I can be removed by removing the I/I flow and calculating the BOD concentration from the dry-weather flow and BOD loading. This average adjusted influent BOD concentration over the last five years, without the affect of I/I, is 138 mg/L which is still a low strength wastewater.

CHART 4.9
WWTP Influent BOD Concentrations

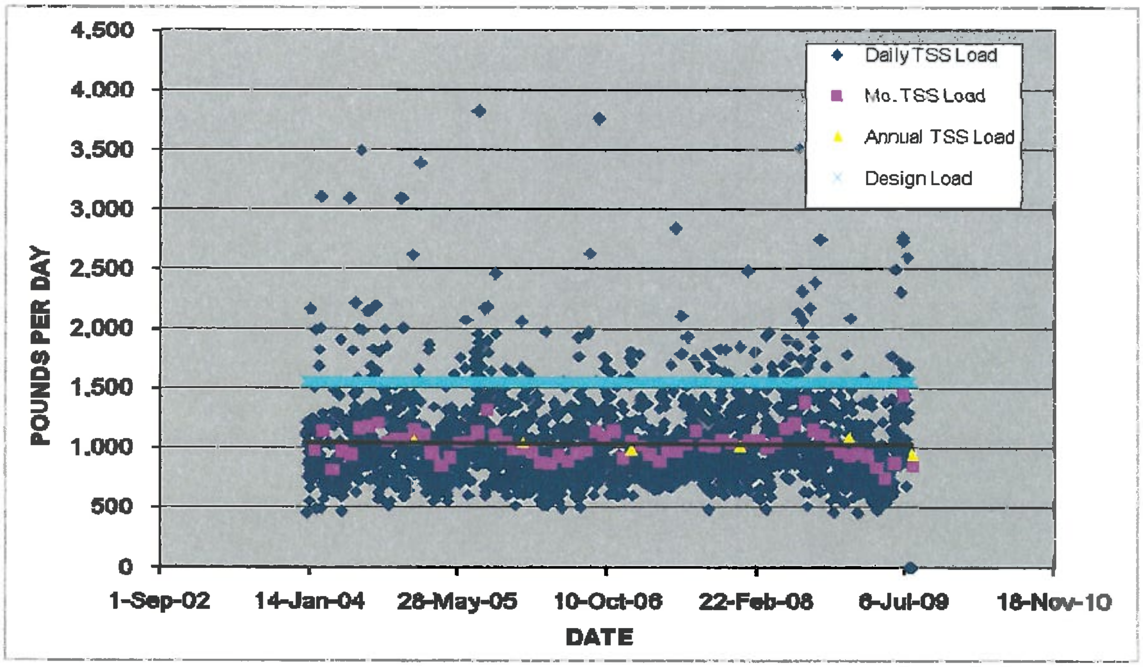


TSS

A graph of the influent TSS loads since 2004 is provided in Chart 4.10. The chart presents the weekly TSS load, monthly average TSS load, annual average TSS load, design TSS load, and the trend in TSS loading. In general the overall trend indicates constant TSS loading. The graph also indicates that the design TSS loading of 1550 ppd has not been exceeded on a monthly or annual average TSS loading.

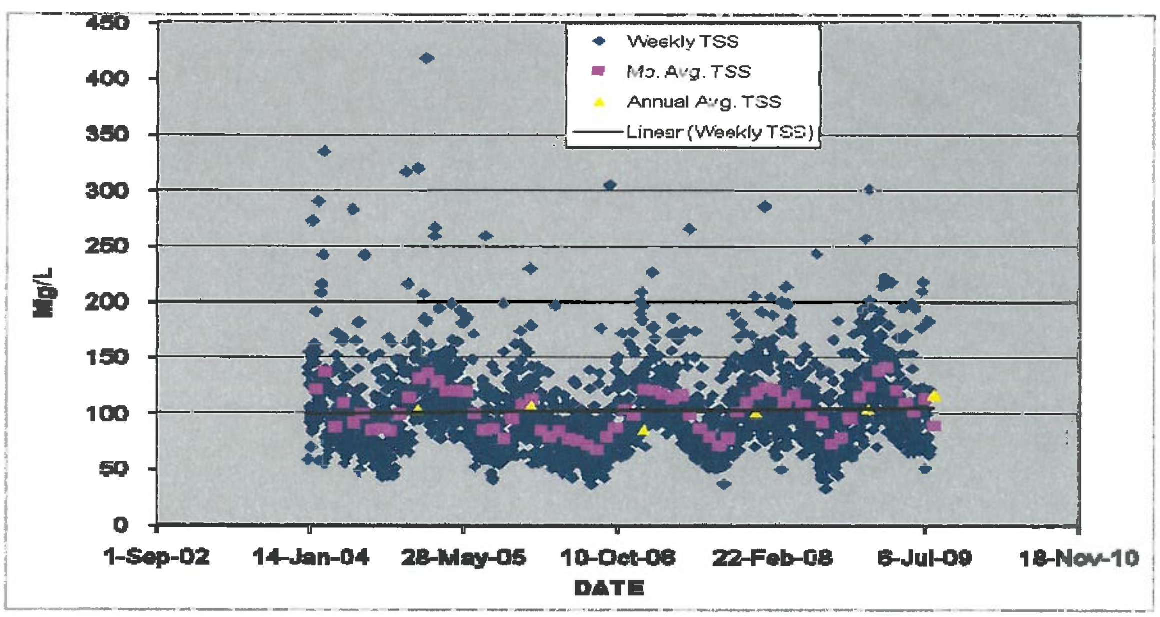
Again, the TSS load shows less seasonal fluctuations in that the flow rates and the monthly average loads are fairly constant. However, the daily TSS loads fluctuate substantially, from 500 ppd to 3,500 ppd.

CHART 4.10
WWTP Influent TSS Loads



A graph of the influent TSS concentrations since 2004 is provided in Chart 4.11. The chart presents the weekly TSS, monthly average TSS, annual average TSS, and the trend. In general the TSS tends to increase during periods of low flow and decrease during periods of high flow, again due to dilution from I/I. The overall trend indicates slightly increasing TSS concentrations.

CHART 4.11
WWTP Influent TSS Concentrations

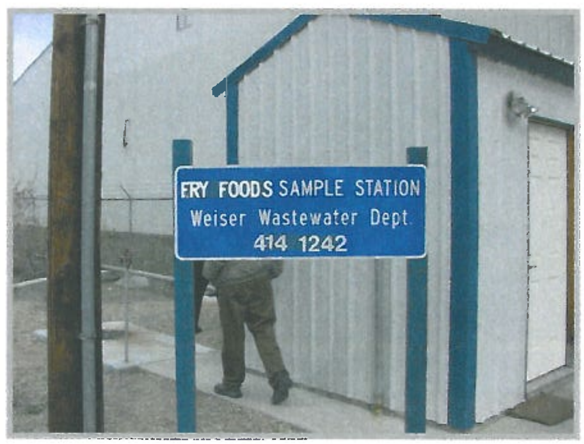


4.4 FRY FOODS FLOW CHARACTERIZATION

Due to the load impacts of the waste from the Fry Foods processing facility, it is quantified separately and will be given special consideration when projecting future flows and loads to the WWTP. A brief summary of the Fry Foods facility is provided below. A more comprehensive study of the Fry Foods facility and pretreatment alternatives can be found in the Fry Foods Pre-design Report completed in 2007.

Fry Foods industry

Fry Foods is a vegetable processor that manufactures onion rings, zucchini sticks, and cheese sticks; the principal product by a wide percentage is the onion rings. The products are manufactured in production lines which include a peeler, washer, shaker, breader, sorter, fryer, freezer, and packaging area. Wastewater from the vegetable processing system is regulated under an Industrial Wastewater Acceptance Agreement between Fry Foods and the City. It is metered and monitored at a City sample station after which it is conveyed to the City's WWTP via the City collection system. Domestic waste from employees is collected separately from the industrial waste and conveyed to the WWTP.



Fry Foods sampling station

A summary of the industrial flow characteristics from Fry Foods is presented in Table 4.5. As illustrated, while Fry Foods only produces 1-2% of the hydraulic load to the WWTP, it represents up to nearly 50% of the BOD load to the plant, around 15% of the TSS load to the plant, and nearly 20% of the phosphorus load allocation allotted by the Snake River-Hells Canyon TMDL. Another aspect of the Fry Foods wastewater flows that is problematic for the City's WWTP is the daily fluctuation in the nutrient loads like BOD and TSS which fluctuates by almost 400% from day to day. A pretreatment process that equalizes wastewater loads from Fry Foods would alleviate many of the problems at the WWTP.

TABLE 4.5
Fry Foods Industrial Waste Summary

Parameter	2008 Summary	2008 % of WWTP	2009[1] Summary	2009[1] % of WWTP
Total Annual Flow (MG)	11.56	2%	5.39	1%
Average Month BOD (lb/d)	436	35%	605	48%
Average Month TSS (lb/d)	145	13%	160	15%
Average Month Ammonia (lb/d)	9	--	--	--
Average Month Phosphorus (lb/d)	3	17%	7	--
Average Month Oil & Grease (lb/d)	15	--	11	--

[1] 2009 data includes data from January through May 2009

From January 2008 till May 2009, the average monthly flow from Fry Foods has been 0.031 MGD and the maximum monthly flow 0.039 MGD. The average monthly BOD load has been 485 ppd and the maximum monthly load 779 ppd. The average TSS load has been 149 ppd and the maximum monthly load 304 ppd.

Charts 4.12 through 4.14 illustrate the annual variation in flow, BOD, TSS, ammonia, and phosphorus loads from the Fry Foods processing facility.

CHART 4.12
2008 Flows from Fry Foods

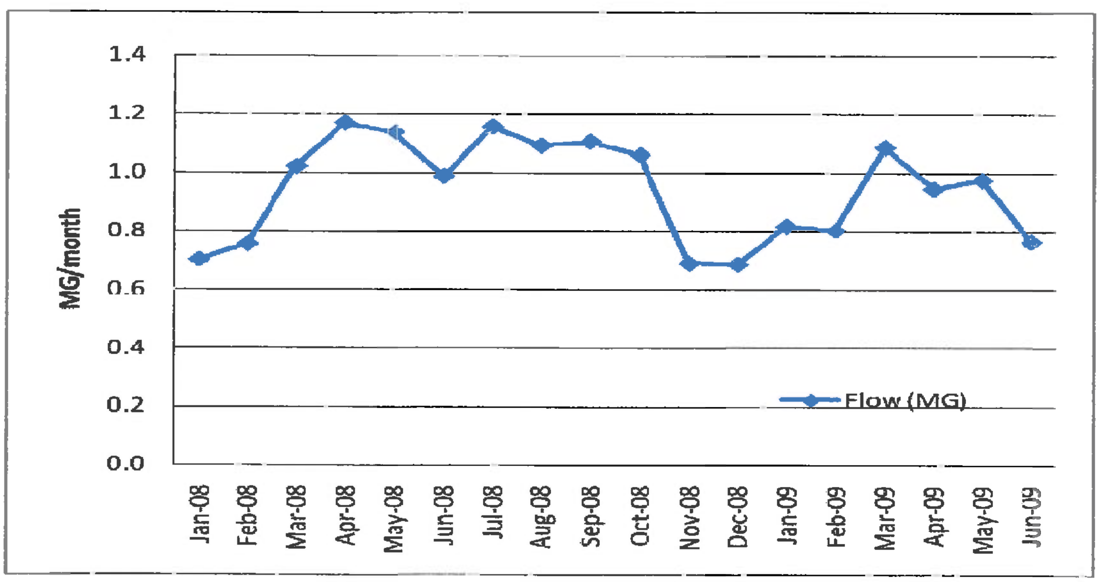


CHART 4.13
2008 BOD and TSS Loads from Fry Foods

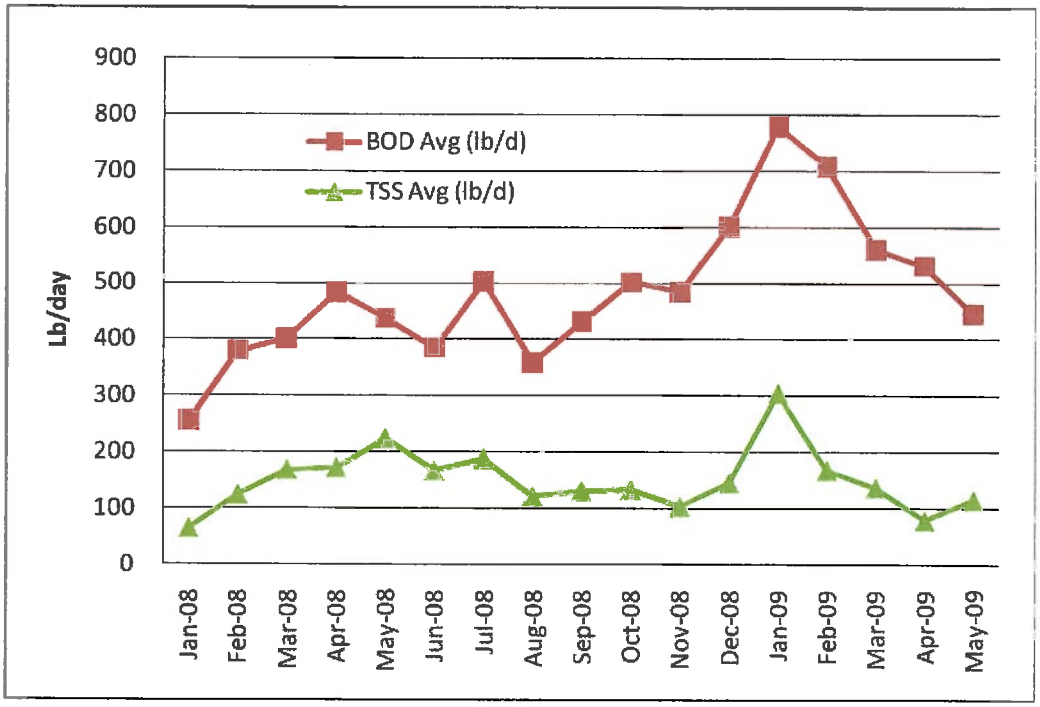
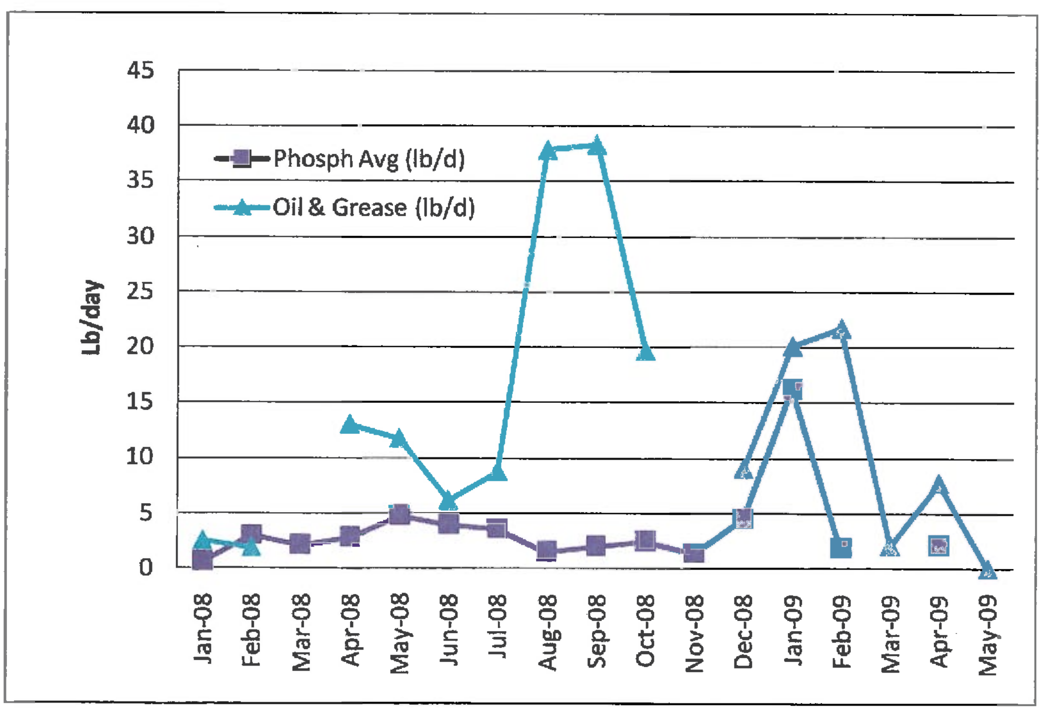


CHART 4.14
2008 Ammonia and Phosphorus Loads from Fry Foods



4.5 FUTURE FLOWS AND LOADS

4.5.1 PROJECTED FLOW FROM FUTURE GROWTH

Future flows are calculated by summing the existing flow, I/I, and future wastewater flows from residential, commercial, and industrial growth over the next 20 years.

Residential/Commercial
Existing average dry-weather influent plant flow is 1.03 MGD (net of I/I). Subtracting the average Fry Foods flow results in an average influent plant flow of 1.00 MGD which represents flow from all residential, commercial, and public land uses. When divided over the existing population, per capita flows (based on monthly flow averages) range from 143 gallons per capita per day (gpcd) to 215 gpcd with a 90% probability value of 206 gpcd. The estimated population increase at 2030 is 943 people, which results in an additional residential/commercial flow of approximately 200,000 gallons per day (gpd) at 206 gpcd. The maximum month flows are estimated using a factor of 1.5 based on historical flows from the last five years.

Industrial
The source of existing industrial wastewater flow comes from Fry Foods. The existing Industrial Wastewater Acceptance Agreement allows Fry Foods a monthly average flow of 0.100 mgd. In order to accommodate growth at Fry Foods or other new industrial development, an additional 20,000 gpd is included in future wastewater flows to the WWTP as illustrated in Table 4.6. The future industrial flow is estimated based on a 60% growth from current flows.

I/I
Future wastewater flows will include an I/I allowance that represents current I/I flows. While the wastewater collection system will likely expand over the next 20 years which will have a tendency to increase I/I, wastewater pipe technology is becoming increasingly "tighter" with time which has a tendency of reducing I/I. In addition, the City of Weiser has been successful in reducing I/I over the last few years which is evident with a declining trend in wastewater flows over the last five years. The maximum month I/I was the observed maximum month.

The City has taken significant steps in reducing I/I including completion of an I/I study in 1992. In response to that study, the City constructed an underdrain collection system along the major sewer interceptors which reduced I/I flows to the plant by approximately 1 MGD. Since then, the City continues its I/I reduction program by repairing I/I with pipe bursting and open trench pip rehabilitation. The City intends on continuing this program to reduce I/I in the future.

Table 4.6 summarizes the projected 20-year (2030) wastewater flow to the WWTP. The peak hour flow is 5.2 MGD as this is the capacity of the influent lift station. The peak flow will remain at 5.2 MGD until the pumps are increased in capacity. The peak flow to the plant is independent of the flow into the lift station.

TABLE 4.6
20-Year (2030) Wastewater Flow Projection, MGD

Flows	Average Day	Maximum Month	Peak Hour
Existing Residential/Commercial	1.00	1.50	5.20
Future Residential/Commercial	0.20	0.30	0.00
Existing Industrial (Fry Foods)	0.03	0.10	0.00
Future Industrial	0.02	0.03	0.00
I/I	0.24	0.80	0.00
TOTAL	**1.49**	**2.73**	**5.20**

4.5.2 PROJECTED LOADS FROM FUTURE GROWTH

Future loads are calculated by adding the existing load and future wastewater loads produced by residential, commercial, and industrial growth. I/I is assumed to provide no load.

Residential/Commercial

The BOD load from Fry Foods must be subtracted from the existing plant influent BOD load in order to determine the residential/commercial loads which are then divided by the population to determine the per capita load. This calculation results in a per capita load ranging from 0.072 pounds of BOD per capita per day (ppcd) to 0.271 ppcd with a 90% probability value of 0.184 ppcd. The estimated population increase to 2030 is 943 people which results in an additional BOD load of 175 ppd at 0.184 ppcd.

Industrial

The source of existing industrial wastewater load comes from Fry Foods. The existing Industrial Wastewater Acceptance Agreement allows Fry Foods a daily BOD load of 800 ppd. In order to accommodate growth at Fry Foods or other new industrial development, an additional 290 ppd is included in future wastewater loads to the WWTP as illustrated in Table 4.7. This was estimated based on a 60% increase from current loads.

Table 4.7 summarizes the projected 20-year (2030) BOD loads to the WWTP. The maximum month and peak day loads are estimated using the future flows in Table 4.6.

TABLE 4.7
20-Year (2030) BOD Influent Load Projection, ppd

Loads	Average Day	Maximum Month	Peak Day
Existing Residential/Commercial	715	1,070	1,800
Future Residential/Commercial	175	265	440
Existing Industrial (Fry Foods)	485	800	2,800
Future Industrial	290	465	1,670
TOTAL	**1,665**	**2,600**	**6,710**

Residential/Commercial
The TSS load from Fry Foods must be subtracted from the existing plant influent plant TSS load to determine the residential/commercial loads which h is then divided by the population to determine the per capita load. This calculation results in a per capita load ranging from 0.121 pounds of TSS ppcd to 0.226 ppcd with a 90% probability value of 0.195 ppcd. The estimated population increase of 943 people results in an additional TSS load of 185 ppd at 0.195 ppcd.

Industrial
The source of existing industrial wastewater load comes from Fry Foods. The existing Industrial Wastewater Acceptance Agreement allows Fry Foods a daily TSS load of 600 ppd. In order to accommodate growth at Fry Foods or other new industrial development, an additional 90 ppd is included in future wastewater loads to the WWTP as illustrated in Table 4.7. This was estimated based on a 60% increase from current loads.

Table 4.8 summarizes the projected 20-year (2030) TSS loads to the WWTP. The maximum month and peak day loads are estimated using the future flows in Table 4.6.

TABLE 4.8
20-Year (2030) TSS Influent Load Projection, ppd

Loads	Average Day	Maximum Month	Peak Day
Existing Residential/Commercial	900	1,350	2,250
Future Residential/Commercial	185	280	460
Existing Industrial (Fry Foods)	150	600	1,300
Future Industrial	90	185	800
TOTAL	**1,325**	**2,415**	**4,810**

The City has not monitored the influent for total Kjeldahl nitrogen (TKN) and phosphorus so there is no data. Thus, the influent TKN and phosphorus concentrations have been estimated using the ratio of the average influent BOD and TSS data to typical data for domestic wastewater. The influent TKN and phosphorus are estimated to be 22 mg/L and 4 mg/L respectively. Sampling being conducted by the City will provide data needed to determine these values more accurately.

4.6 DESIGN CRITERIA

The design criteria were developed based on recent plant data, future residential growth projections, existing industrial, and future industrial growth, and I/I as discussed above. These design criteria will be used to evaluate the existing treatment system components in the next chapter and are presented in Table 4.9.

TABLE 4.9
20-Year (2030) Design Criteria for the Weiser WWTP

Parameter	Units	Influent	Effluent Avg. Monthly	Average Weekly	Instant Maximum
Average Day	MGD	1.50			
Maximum Month	MGD	2.70			
Peak Hour	MGD	5.20			
Average BOD	mg/L	115	30	45	
Max. Month BOD Loading	ppd	2,600	600	900	
Average TSS	mg/L	100	30	45	
Max. Month TSS Loading	ppd	2,415	600	900	
Septage Load, BOD[1]	ppd	0			
Septage Load, TSS[1]	ppd	0			
Total Coliform	MPN/100 mL		126		406
Fecal Coliform	MPN/100 mL			200	
Total Chlorine Residual	mg/L		0.3	0.5	
Total Chlorine Residual	ppd		10	15	
pH	SU				6.5 to 9.0
TKN	mg/L	22			
Phosphorus	mg/L	4			
Phosphorus	ppd		14	21 ppd	
Effluent Ammonia	mg/L		1.0		

[1] The plant has a septage receiving station; but the plant no longer accepts septage due to issues with solids in the screen.

CHAPTER 5.0 – EVALUATION OF MAIN LIFT STATION

This chapter reviews both the infrastructure and performance of the City of Weiser's Main Lift Station. This chapter is concluded with a discussion of recommended improvements to improve the functionality, performance, and structural integrity of the lift station.

5.1 OVERVIEW OF MAIN LIFT STATION

The Main lift station is located adjacent to the railroad tracks between W 3rd Street and W. 4th Street. The lift station was originally constructed in 1960 with the original wastewater treatment plant. It is composed of three main elements: the 22.5' diameter wet well, the dry well, and the control room. The wet well receives and temporarily stores the raw wastewater. The dry well has two levels. Up until April 2011, the lower level housed two vertical, centrifugal Fairbanks-Morse wastewater pumps, and the upper level housed the 150 hp GE motors that run the pumps. In April 2011, a new 40 HP pump and motor was installed on the level with the 150 HP motors which is explained in more detail in Section 5.4. The control room houses the control panels and standby power generator and the new 40 HP pump VFD. The standby power generator is a 425-horsepower generator powered equipped with an automatic transfer switch in the event of power loss. The wastewater pumps convey wastewater to the wastewater treatment plant headworks facilities via a 16-inch cast iron force main.

Main lift station

The original lift station and wet well was built in the 1950's. The existing pumps were installed in the 1980s and were then overhauled in the late 1990s. The variable frequency drives were installed in the early 1990s.

5.2 FORMER CONTROL STRATEGY WITH 150 HP PUMPS

The lift station has two pumps that are designed to function in duty/standby arrangement. The lead pump designation is rotated essentially every day manually between pumps by the operators with a lead pump switch. Both pumps are equipped with a variable frequency control system that is programmed to ramp the speed of the motors up and down to maintain a wet well elevation between 2097.5 feet and 2098.0 feet which is measured with a Milltronics ultrasonic level sensor. This operation scheme provides two benefits. First, it reduces the number of on/off pump cycles which generally extends pump life. Second, the control strategy provides a more constant flow to the wastewater treatment plant. **Attention is needed to ensure that the pump speed is monitored to ensure that regular "scour" velocities occur in the force main to prevent deposition of solids in the force main**.

5.3 HISTORICAL FLOWS INTO MAIN LIFT STATION

All wastewater collected inside Weiser is collected into the Main lift station except the flow to the Galloway lift station, which is only estimated to be approximately 20,000 gallons per day. Consequently, the Main lift station pumps 99% of the City's wastewater to the wastewater treatment plant and the flow patterns into the lift station are essentially identical to those presented in Section 4.3 of this report.

The current two 150 hp motors were sized to pump 5.2 MGD which was intended to meet the peak flow events caused by significant inflow and infiltration. The pump size was established before the City constructed a groundwater under-drain system throughout town that significantly reduced wastewater flows into the Main lift station and WWTP. Based on historical influent wastewater flows into the WWTP since January 2007, the average flow into the Main lift station is approximately 1.26 MGD and the maximum day flow is only 2.21 MGD. However, City operators have witnessed peak flow events that exceed 4.0 MGD during rain events and flows that exceed 5.2 MGD during river flooding events. Consequently, the current pumps are oversized for normal flows that occur a majority of time, but would be needed for occasional peak flow events.

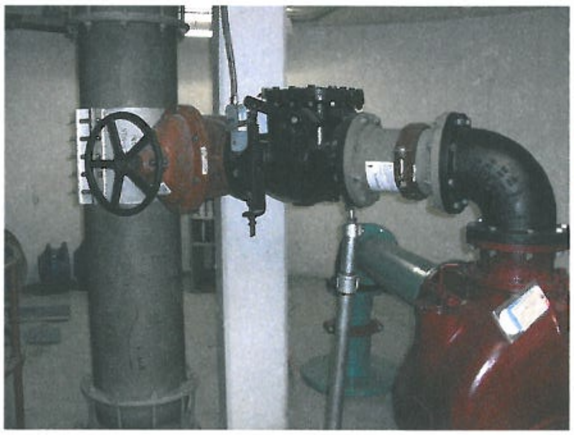
5.4 2011 UPGRADES TO MAIN LIFT STATION

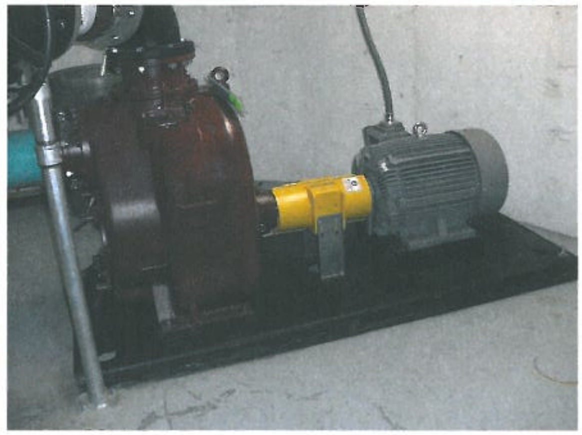
In order to extend the life of the existing 150 HP Main Lift Station pumps and reduce energy consumption, a new 40 HP American Marsh self-priming wastewater pump was installed in the Main Lift Station in April 2011. The project was funded with an Energy Block Grant created under the American Recovery and Reinvestment Act of 2009 and administered by the Idaho Department of Energy. The new pump did not add any pumping capacity to the lift station because the power supply restricts all three pumps from running simultaneously.

The upgrades completed as part of the project generally included the following:

- Installation of a new 40 HP self priming American-Marsh wastewater pump and motor.
- Installation of pump discharge pipe and fittings that tie new pump to existing 16-inch force main including a 8-inch tapping sleeve and tapping gate valve, 8-inch lever-arm style check valve, and 8-inch pipe and fittings.

- Installation of 8-inch suction pipe and fittings that penetrate the top of the wet well and draw water up into the pump from the wet well.
- Installation of variable frequency drive (VFD) for new 40 HP motor with associated control panel and electrical wiring and gear.
- SCADA instrumentation and programming.


New third pump piping


New third self-priming pump

5.5 CURRENT CONTROL STRATEGY

It is anticipated based on flow data provided by the City that the new 40 HP pump will be capable of pumping inflows experienced during a majority of the time. The new 40 HP pump VFD speed will be adjusted up and down to maintain a set level of approximately 3.5' in the wet well (similar to how existing 150 hp pumps are currently controlled). In the event that inflows are larger than can be handled by new 40 HP pump, the wet well level will rise. When a high level alarm is triggered, the new 40 HP pump will be shut off, and one of the 150 HP pumps will be called on and run until the wet well level reaches a low level set point at which time the 150 HP pump will be called off and the new 40 HP pump will be called on. The 150 HP pumps on call will be alternated with each pump call. If the wet well level continues to rise with one 150 HP pump on, the second 150 HP pump will be called on based on a high-high level alarm. An interlock exists that prevents the new 40 HP pump from running if either of the 150 HP pumps are running since the power supply was not designed to handle all three pump loads.

It is important that both 150 HP pumps/motors are exercised a minimum of once per day for approximately 30 minutes to exercise equipment and flush the discharge pressure main. A control strategy was implemented that operates both 150 HP pumps for 30 minutes at 12:00 pm each day which generally correlates to the highest flow period during the day.

All pumps will be called off based on a low level wet well set-point. All pump starts and stops should be controlled by the VFD's to accommodate "soft" starts and stops. The control strategy has been configured to be identical under standby power conditions. In the event that the new 40 hp pump is not operational, the pump control strategy should be similar to current operation strategy.

5.6 EXISTING DEFICIENCIES

Based on field inventories that were conducted on April 6, 2009 and December 22, 2009, on evaluation of the flow data and construction documents, and information provided by City staff, the following deficiencies exist.

- The existing 150 HP lift station pumps and motors are approximately thirty years old and past their useful life.
- Current and past operators and consultants have expressed concerns about the structural integrity of the wet well. The wet well is separated from the lower portion of the dry well by an old concrete wall. If the wall failed, the dry well would be flooded by wastewater which would likely destroy the existing lift station pumps. This hazard poses a serious threat to public safety in an operator were inside the dry well during a wet well failure.
- No built-in crane system exists for removing wastewater pumps, motors, and other equipment. A boom truck is required to hoist equipment out of the dry well through a pair of double doors installed for that purpose.
- Telemetry from the lift station is very simple that includes an auto-dialer that calls out alarms. Signals provide little detail about fault cause. A more sophisticated SCADA and telemetry system is recommended.
- Without removing the roof and/or wall sections, the generator cannot be removed.
- Stairway down to the lower portion of the dry well is narrow and steep. It would be challenging to remove an incapacitated person.

5.7 ALTERNATIVE CONSIDERATIONS

A number of alternative solutions were considered to mitigate some of the existing deficiencies enumerated above. These alternative solutions are described below.

<u>New Lift Station versus Rehabilitate the Existing Lift Station</u>
Based on the old and dilapidated condition of the existing infrastructure and equipment inside the Main lift station compounded by the functional and operational challenges outlined in many of the deficiencies enumerated above, it

is recommended that the City consider and budget to replace or rehabilitate the Main lift station in the next 10 to 15 years.

Options are discussed in the next sections. The first alternative **(Alternative A)** is to construct a parallel lift station facility directly adjacent to the existing lift station with a 12-foot diameter wet well. To eliminate some of the access challenges that exist with a dry well/wet well configuration, the City could consider using a wet well configuration with submersible pumps. The lift station could be equipped with an overhead crane if the City does not have a boom truck capable of lifting the proposed pumps. A three or four pump arrangement is recommended to improve redundancy and more accurately match pump capacity with typical flows. As an example, a three pump system would include (3) 75-hp pumps, motors, and VFDs. Two pumps would be capable of meeting peak wastewater flows with the third pump as backup. One 75-hp pump would be capable of meeting flows a majority of the time. New electrical, controls, standby power, and SCADA would be housed in a new control building or inside the existing lift station building with renovation. The City would likely have to acquire additional railroad right-of-way. The new lift station could be constructed without affecting existing lift station operations and flows could be diverted to the new wet well when complete. The existing wet well could be used for additional emergency wet well storage if determined structurally adequate. The existing standby power generator is sufficient for proposed improvements and could be housed in the existing electrical building or in a new electrical building. This alternative is estimated to cost approximately $712,100. Detailed costs for this alternative are provided in Appendix C.

A slight modification to this alternative **(Alternative B)** would be to construct the new lift station on property owned by the City approximately 150 yards west of the existing lift station site. In addition to the improvements outlined above, other necessary improvements would likely include power, water, and communication utility extensions to the site and construction of a 24-inch gravity sewer from the old lift station to the new lift station site. Since the new lift station site is directly adjacent to the existing 16-inch force main, only a connection to the existing 16-inch force main would be required. A new 425-HP generator is recommended for standby power. This alternative would be more expensive with an estimated cost of $941,600, but would not require acquisition of additional right-of-way from the railroad.

Under both Alternatives A and B, a pump configuration that includes three or more pumps in the new lift station would accommodate a larger range of wastewater flows and is recommended. At lower flows, a single pump with a minimum pumping capacity of 1,300 GPM (scour velocity in the force main) would run. Additional pumps would be called on as flows increased. As an example, under a four pump system each pump would be capable of pumping 1,300 GPM with three of the four pumps running simultaneously. The total pumping capacity with one of the pumps offline for redundancy would be 5.6 MGD.

The third alternative **(Alternative C)** entails rehabilitating the existing lift station equipment and infrastructure. The lift station rehabilitation should include replacement of the standby power generator, 150 HP pumps and motors, variable frequency drive (VFD), and electrical and controls. All this equipment has reached its useful life. The new 40 HP pump, motor, and VFD should have a useful life of approximately 20 years and would not need to be replaced. Structural upgrades would be recommended to improve accessibility of equipment which would include installation of a crane system for pumps and motors. The wet well should be emptied and inspected. If significant concrete spawling and deterioration has occurred, concrete rehabilitation should be made and then a concrete coating should be applied to the interior of the wet well (The cost comparison assumes concrete rehabilitation will be needed). Some of the deficiencies may not be correctable as part of a rehabilitation like the access challenges with the existing stairwell without essentially reconstructing the entire lift station. This alternative is estimated to cost approximately $618,300. Detailed costs for this alternative are provided in Appendix C.

5.8 BEST APPARENT IMPROVEMENT ALTERNATIVE

Based on the options outlined above, the best apparent alternative is Alternative A. This option is slightly more expensive than Alternative C, but provides for the longest useful life since essentially all of the components of the lift station would be new. The lift station design under Alternative A could evaluate alternatives for salvaging and reusing the new 40 HP pump, motor, and VFD if it has significant useful life at the time. Furthermore, the pump configuration proposed in this alternative more efficiently matches the flow conditions, which translates into energy savings and ultimately lower life-cycle operational and maintenance costs.

CHAPTER 6.0 – EVALUATION OF EXISTING WASTEWATER TREATMENT FACILITIES

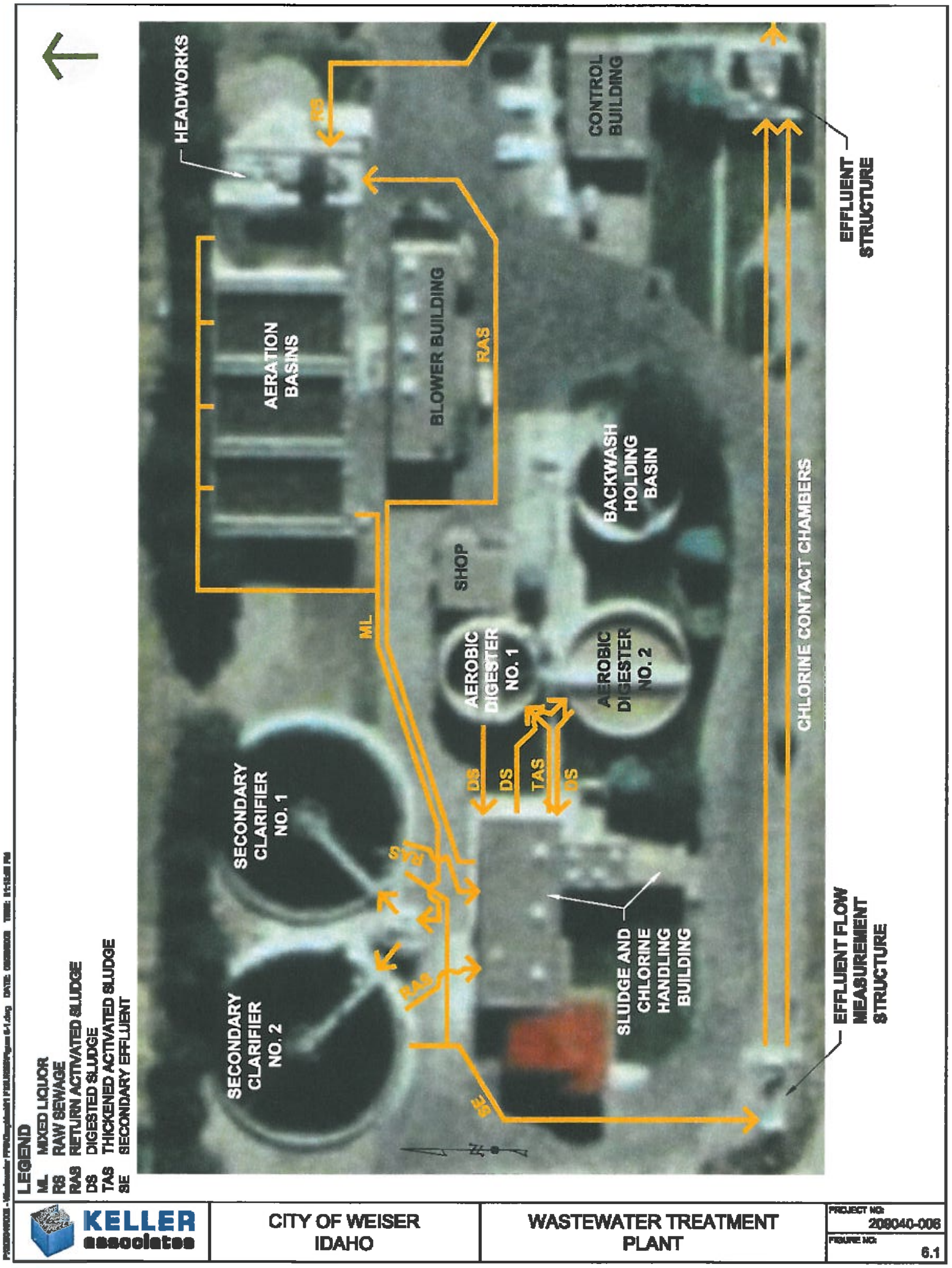
6.1 OVERVIEW OF EXISTING WASTEWATER TREATMENT FACILITY

6.1.1 GENERAL

Wastewater from the City of Weiser flows from the City collection system to the West Galloway Lift station and Main Pump Station and is pumped from there to the wastewater treatment plant (WWTP) located on the southwest side of town, see Figure 6.1 for a Plant Layout. The treatment facility includes headworks (screening and flow metering), activated sludge treatment (four aeration basins, blowers, and two secondary clarifiers), disinfection (chlorine and contact chamber), solids handling facilities (dissolved air flotation (DAF), pumps, two digesters, and one belt press), and a control building. Incoming flow is pumped to the mechanical screen and then flows to the remaining facilities by gravity, except that solids are pumped to the DAF and digesters. Treated wastewater is discharged under an NPDES permit to the Weiser River. The existing facility was constructed in 1981.

Keller reviewed the as-built drawings, design documents, and operations and maintenance manual as part of the preparation for this report. Several processes have changed since the design documents were prepared. In particular a step screen was installed to replace the original mechanical bar screen, fine bubble diffusers were installed to replace the original coarse bubble diffusers, a dewatering belt press was installed, the sludge drying beds at the Plant were abandoned and new ones constructed at the Washington County transfer station, the filters and backwash facilities were never constructed, and much of the original control system has failed and been abandoned. Details of these changes will be discussed later in the report.

FIGURE 6.1
Wastewater Treatment Plant



6.1.2 DESIGN CRITERIA

The original design criteria for the existing the Weiser WWTP are taken from Sheet 1-G-2 of the 1981 design drawings prepared by CH2MHill and are provided in Table 6.1 along with the future design criteria developed in Chapter 4.

TABLE 6.1
Design Criteria for the Weiser WWTP

Influent	Original	For 2030
AVERAGE DAY		
Influent Flow, MGD	2.4	1.50
BOD, mg/L		125
TSS, mg/L		100
TKN, mg/l		19
P, mg/L		4
MAXIMUM MONTH		
Influent Flow, MGD	3.7	2.70
BOD, mg/L		115
BOD Loading, ppd	1,350	2,600
TSS, mg/L		98
TSS Loading, ppd	1,550	2,200
SUMMER		
Influent Flow, MGD		1.80
BOD, mg/L		100
TSS, mg/L		90
TKN, mg/l		15
P, mg/L		3
Maximum Temperature, °C		20
WINTER		
Influent Flow, MGD		1.25
BOD, mg/L		145
TSS, mg/L		115
TKN, mg/l		22
P, mg/L		5
Minimum Temperature, °C		10
Peak Hour, MGD	5.2	5.20
Septage Load, BOD ppd	100	0
Septage Load, TSS, ppd	200	0

Note that the changes in the design criteria are due to changes in the estimated flow and loadings that will need to be treated over the next 20 years. When CH2MHill developed the design criteria for the Plant in 1980, I/I was much higher, there was no industry, and population growth estimates were higher. This resulted in high flows and low loadings in their design criteria. Since then the City has installed an under drain system that has reduced I/I to the Plant by almost 2 mgd at its peak. Now with reduced I/I, lower growth rates, and one major industry, the City is facing different circumstances and therefore different design criteria. The City has stopped accepting septage due to problems with solids interfering with the screen, which is why the 2030 loads are 0.

Design criteria do not represent treatment capacity. Rather they represent the level of treatment required for the design period (20 years in this case). As will be discussed later in this report, the treatment capacity for each process within the treatment plant will not be the same for each process. All references to design criteria in the remainder of this report will be to the current design criteria developed by Keller.

6.1.3 DISCHARGE LIMITS

As discussed in Chapter 3, the City of Weiser discharges under an NPDES permit granted by EPA. The current permit number is ID-0001155 and the discharge limits are summarized in Table 6.2.

TABLE 6.2
NPDES Discharge Limits for the Weiser WWTP

Parameter	Avg. Monthly	Avg. Weekly	Instant. Max.
BOD, mg/L	30	45	
BOD, ppd	600.5	900.7	
BOD, Removal %	85		
TSS, mg/L	30	45	
TSS, ppd	600.5	900.7	
TSS, Removal %	85		
Fecal Coliform, MPN/100mL		200	
Total Coliform, MPN/100mL	126		406
Total Chlorine Residual, mg/L	0.3	0.5	
Total Chlorine Residual, ppd	10.0	15.0	
PH, su			6.5 to 9.0

The City's NPDES permit has expired and the new permit is expected to have an effluent load limit for phosphorus of 14.1 ppd.

6.1.4 EFFLUENT QUALITY

Keller has reviewed the effluent data provided by the City from January 2004 until July 2009. During that period the Plant appeared to meet discharge limits except for three monthly total chlorine residual concentrations. The Plant effluent total residual chlorine monthly average concentration exceeded the limit of 0.3 mg/L in November 2004 with a monthly average of 0.4 mg/L, December 2004 with a monthly average of 0.4 mg/L, January 2005 with a monthly average of 0.4 mg/L. The weekly average concentration and the monthly and weekly average load were never exceeded. It should be noted that there were several months when the monthly average was between 0.31 and 0.34 mg/L. According to EPA rules these values are rounded down to 0.3 mg/L (the three violations discussed above were rounded up to 0.4 from 0.37, 0.38, and 0.37, respectively). Thus the plant was on the edge of violating this limit several times.

For BOD and TSS, the plant is well under the monthly average effluent limits. For BOD, the maximum monthly average effluent concentration has been 4 mg/L and the limit is 30 mg/L, the maximum monthly average mass discharge has been 57 ppd and the limit is 600.5 ppd, and the minimum removal efficiency has been 96% and the limit is 85%. For TSS, the maximum monthly average effluent concentration has been 5 mg/L and the limit is 30 mg/L, the maximum monthly average mass discharge has been 69 ppd and the limit is 600.5 ppd, and the minimum removal efficiency has been 93% and the limit is 85%. The City is also well under the weekly average limits for BOD and TSS.

The Snake River TMDL allocation for Weiser for phosphorus is a monthly average of 14 ppd. The existing facilities were not designed for phosphorus removal. We reviewed the available effluent data for phosphorus and the results are summarized in Appendix D. The City's wastewater plant effluent averaged approximately 17 ppd from 2004 to 2009 which is higher than the anticipated NPDES limit of 14 ppd. Therefore, phosphorus removal capability will need to be added to the WWTP to meet the new permit limits. Options for phosphorus treatment will be discussed in Chapter 7.

6.1.5 EXISTING WWTP FACILITIES

General

A process schematic and hydraulic grade line of the City's WWTP are provided in Figures 6.2 and 6.3, respectively. The existing treatment facilities will be discussed by process starting from the front of the plant and following the flow path.

Headworks

The headworks are elevated and located adjacent to the aeration basins. The influent flow is discharged to two influent channels each 3.0' wide by 4.59' deep. Stop gates are used to isolate each channel. Each channel has a 2'-0" by 1'-8" by 2'-0" deep rock trap at the start of the channel. One channel has no bar screen and the other has a mechanical bar screen. The mechanical screen is a step screen with ¼" openings. The mechanical screen is a Conpura Constep Screen manufactured by Waste Tech, Inc., Model FS self-cleaning step screen. The screenings are conveyed to a chute that drops the screenings to a dumpster located underneath the headworks.

The flow exits the channels and enters the flow-metering flume. The flume is an 18" Parshall flume. An ultrasonic sensor measures the depth of water and the flow rate is calculated using the Parshall flume formula. The flow then drops into a box, mixes with the return activated sludge (RAS) and other plant return flows (DAF under flow, belt press filtrate, etc.), and then flows by gravity to a 20" pipe.

FIGURE 6.2
WWTP Flow Diagram

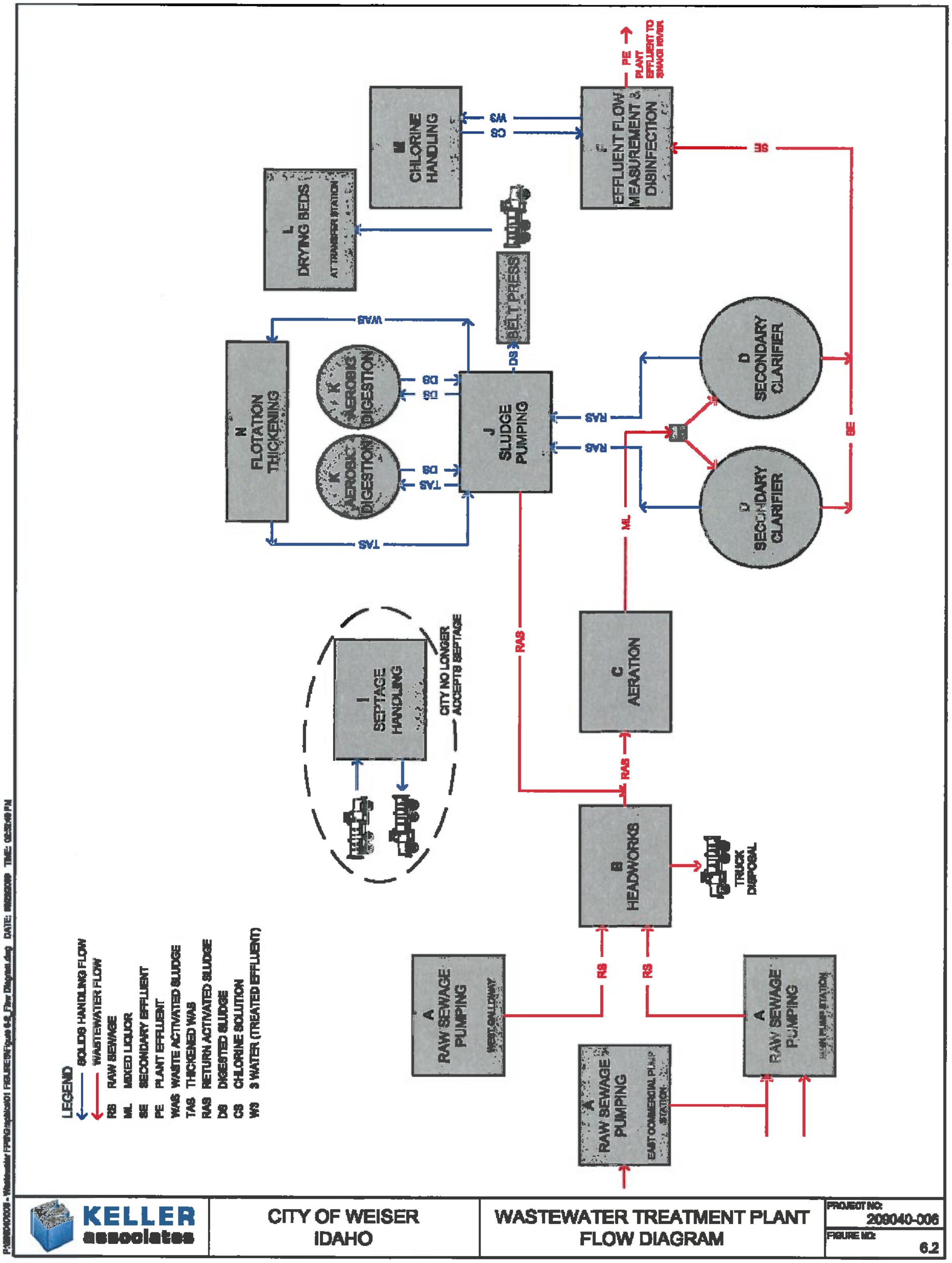
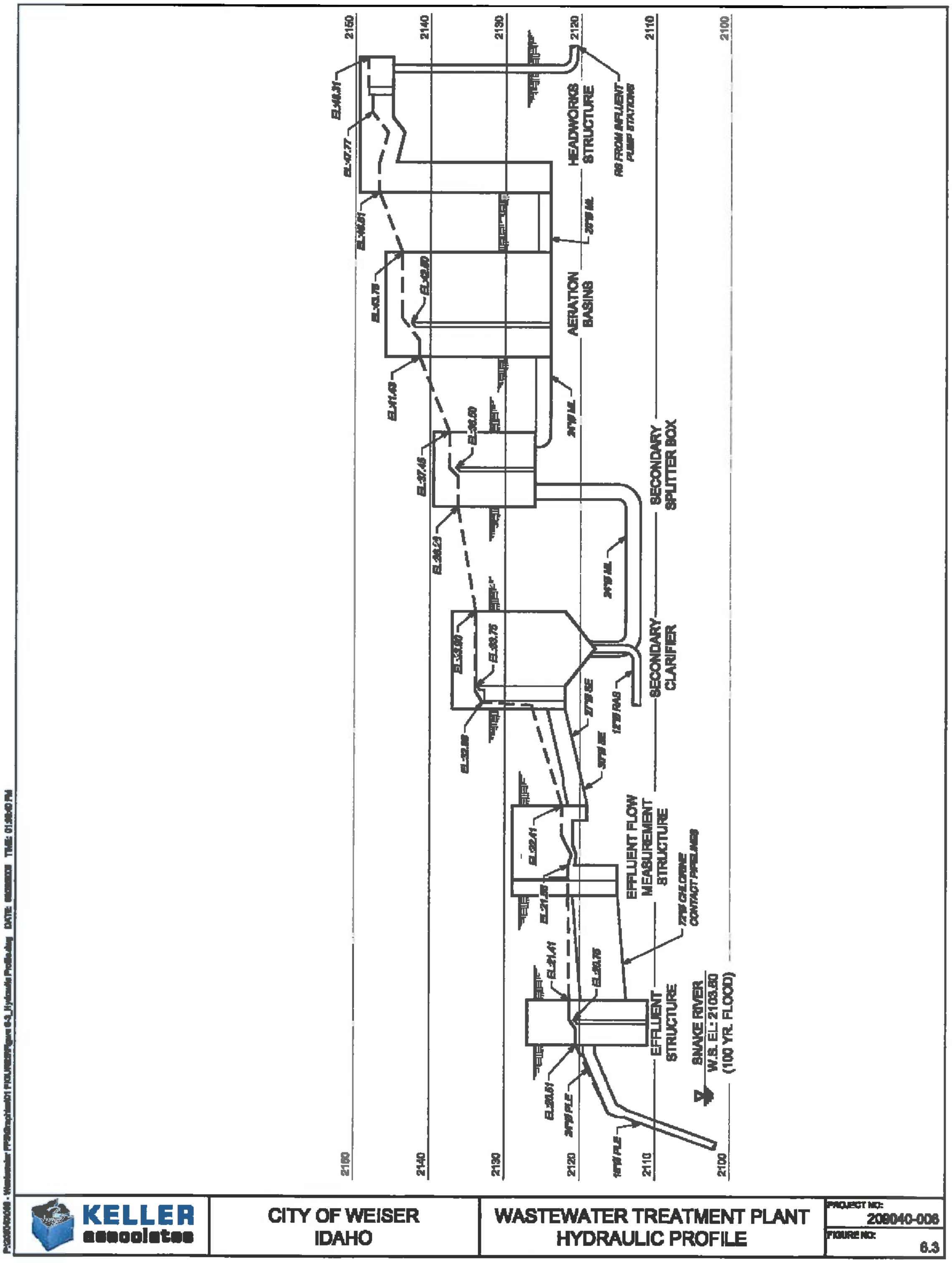


FIGURE 6.3
WWTP Hydraulic Profile



Activated Sludge System

General: The activated sludge system was design to be operated as either a complete-mix activated sludge system (CMAS) or a conventional plug flow system except in both cases there is no primary clarifier.

The CMAS system utilizes continuous flow stirred-tank reactors. The City's system has four tank reactors. The flow is split between each tank and a portion of the flow treated in each tank. The organic load, mixed liquor suspended solids (MLSS), and oxygen demand are uniform throughout the tank. An advantage of the CMAS process is the dilution of shock loads that occur from industrial dischargers. The wastewater is treated in a single pass through the tanks and the activated sludge solids are separated in a secondary clarifier.

The advantages of a CMAS system are as follows:

- Common, proven process
- Adaptable to many types of wastewater
- Large dilution capacity for shock and toxic loads
- Uniform oxygen demand
- Uncomplicated
- Suitable for all types of aeration equipment

The limitations of a CMAS system are as follows:

- Susceptible to filamentous sludge bulking
- Inability to provide biological nutrient removal without a selector cell

The conventional plug flow system consists of plug flow through several aeration tanks followed by secondary clarifiers with return activated sludge pumped from the bottom of the secondary clarifiers to the influent to the first aeration tank. Diffused air is used for aeration and mixing. The diffused air system has the same number of diffusers in each tank so that it can be operated as a complete mix system as well. If the system were designed for only conventional plug flow there would be more diffusers in the first cell to provide more aeration to the initial load. Each successive cell would have fewer diffusers as the load decreases. This is to match the oxygen demand along the length of the tank by tapering the aeration rates. The wastewater is treated as it passes from one tank to the next and the activated sludge solids are separated in a secondary clarifier.

The advantages of a conventional plug flow system are as follows:

- Proven process
- May achieve somewhat higher level of ammonia removal than complete mix

- Acceptable to many operating schemes including step-feed, selector design, and anoxic/anaerobic processes used for biological nitrogen and phosphorus removal

The limitations of a conventional plug flow system are as follows:

- Design and operation of tapered aeration is more complex
- May be difficult to match oxygen supply to oxygen demand in first cell

Aeration Basins: The 20" pipe from the headworks runs along the north side of the aeration basins and there are four tees in the pipe that allow the flow to be split to each of the four basins. Four sluice gates, one on the inlet pipe inside of each basin, allow each basin to be isolated from the 20" pipe. There are sluice gates on a 42" square opening between basin 2 and 3 and basins 3 and 4 and another on an alternative outlet from basin 4. Each basin has a weir gate and a slide gate on the south side of the basin where the basins overflow into the channel located on the south side of all the basins. In the channel, there are stop gates at six locations. All of these valves and gates allow two flow schemes and allow one channel to be taken off-line in either flow scheme. One flow scheme is to split the flow into 3 or 4 basins, flow through that one basin, discharge to the channel, and flow to the secondary clarifier splitter box. A second flow scheme is to flow to basin 1, then through basin 2, then through basin 3, then through basin 4 and then to the splitter box. Again, by using the valves and gates, one basin can be taken off-line. Thus the flow can go from basin 1 to basin 3 to basin 4 or from 2 to 3 to 4, etc.

Each basin is 53' long by 30' wide by 19' deep (water depth). Thus each basin holds approximately 226,000 gallons. Thus at the design maximum month flow of 2.5 mgd, 3 basins have a retention time of approximately 6.50 hours and four basins have a retention time of approximately 8.68 hours.

The aeration system for the basins consists of three 100 horse power (hp) rotary lobe blowers. The motors for the blowers are two speed, 1800 rpm and 1200 rpm. At 1800 rpm the blowers produce 1500 standard cubic feet per minute (scfm) each. The air flows to the aeration basins in a 10" pipe. The 10" pipe tees at the channel to two 10" pipes that provide air to all four basins. There are two 4" drop pipes from the 10" pipe into each basin that each connect to a 4" air distribution header and each header has 28 coarse bubble diffusers for a total of 56 coarse bubble diffusers in each basin. The diffusers are set on concrete pads with the diffusers set at 2' above the basin floor. The City replaced the original coarse bubble diffusers with EDI Flexall T-series fine bubble membrane diffusers.

Secondary Clarifiers: The overflow from the aeration basins flows to the center of the splitter box in a 24" pipe. From the center of the splitter box, the flow overflows two weirs into two separate boxes to split the flow into two equal parts. From the boxes, a 24" pipe directs the flow to the center feed well of each clarifier. The splitter box was constructed to add a third weir to provide for installation of a third secondary clarifier in the future. The two clarifiers are each 70 feet diameter center feed clarifiers with 12' sidewall depth and suction headers.

The 24" inlet pipe discharges into the side of a round pipe below the center column of the clarifier which discharges up into the center column and then up into the center feed well. The 12" RAS pipe inlet is up inside the 24" center column in the center feed well. The inlet flow radiates out from the outlet of the center feed well and is redirected in a circular flow pattern by energy dissipaters. The flow exits the center feed well through windows and flows radial to the edge of the clarifier, under a baffle and over the weir to the launder. The launder directs the flow to the outlet box and then to a 27" secondary effluent pipe.

Solids settle to the bottom of the clarifier. Each clarifier has a set of scrapers that directs settled sludge to six 6" pipes that are connected to the center well. The RAS pumps pull the surface of the center wet well down and cause a hydraulic gradient that flushes the sludge from the bottom of the clarifier up through the 6" pipe to the center wet well. The sludge hopper is connected to the scum pit by an 8" pipe for removal of heavy sludge. On the top of the spiral scraper is a skimmer that directs floating scum to a scum collector that discharges to the scum pit. In the scum pit a top mounted pump removes scum and sludge and pumps it to the digesters or sludge drying beds. The RAS lines are connected to the RAS pumps that are located in the Sludge and Chlorine Handling Building. The RAS pumps consist of three 15 hp centrifugal pumps on variable speed drives (VFD) that are capable of pumping up to 860 gallons per minute (gpm) each. The 12" RAS outlet piping goes to the headworks to mix with the influent flow prior to recycling to the aeration basins. The 4" outlet pipe from the RAS pumps (from a reducing elbow on the RAS outlet header) discharges to either the dissolved air flotation (DAF) system or the digesters.

Disinfection

The two 24" secondary effluent pipes from each existing clarifier combine into one 27" pipe. At the location of the future secondary clarifier, the 27" pipe increases to a 30" pipe that flows to the effluent flow meter structure. The effluent flow metering structure contains a 12" Parshall flume and the chorine injection facilities. An ultrasonic sensor measures the depth of water and the flow rate is calculated using the Parshall flume formula. After the flume, a flow splitting structure splits the flow in half into two 72" diameter chlorine contact chambers. The chambers are each 365 feet long and thus each have a volume of 77,200 gallons. The chlorine contact chambers provide a retention time of 60 minutes at a flow of 3.7 mgd.

The plant chlorine handling facilities consist of storage for three 2,000 pound chlorine gas cylinders and two chlorinators and two injectors. Both the chlorinators and injectors have a capacity of 500 pound of chlorine gas per day at 60 psi. One chlorine cylinder is on line at a time with one in standby position. The chlorine is injected ahead of the effluent flume and mixed in the hydraulic jump in the throat of the Parshall flume. The original design dosage was 310 pounds per day at 3.7 mgd or 10 mg/L. But since de-chlorination facilities were not included in the original design, the plant can only dose chlorine at a rate that prevents effluent chlorine violations. Thus the chlorinators have been replaced with units that have a maximum dosage rate of 35 pounds per day.

3W System

The 3W system is located at the outlet of the chlorine contact channels at the Effluent Structure. The 3W system provides reclaimed treated wastewater to be used on the plant site within the treatment processes and consists of three vertical turbine pumps. Two are rated at 350 gpm at 100 psi and the third pump is rated at 100 gpm at 100 psi. The 3W pumps discharge to an 8" 3W pipe that distributes 3W across the plant. 3W is used for foam spraying at the aeration basins and clarifiers, hose bibs, pump seal water, wash water for the screen, and all other recycled water uses within the plant. The plant normally operates with just the 100 gpm pump in service. If the pressure drops in the outlet pipe below a set point, then one of the 350 gpm turns on and the 100 gpm turns off. The plant has not needed more than 350 gpm to meet the 3W demand.

Outfall

The existing effluent pipe is 18-inch and 24-inch in diameter and was sized to accommodate a peak flow rate of 5.2 MGD which meets the projected 20-year peak flow rate. It is in good working condition according to City staff, so no improvements are required.

6.2 OVERVIEW OF EXISTING SOLIDS HANDLING FACILITY

6.2.1 GENERAL

The solids handling facilities consist of sludge pumping equipment, dissolved air flotation thickener, two aerobic digesters, and sludge drying beds.

6.2.2 THICKENER

The thickening equipment is a dissolved air flotation (DAF) system. The DAF system has an air compressor that discharges compressed air into the WAS flow. The air bubbles that are released from the WAS lift the solids to the surface and overflow to a hopper. The thickened activated sludge (TAS) is then pumped to the digesters by a single plunger type pump. The TAS pump has a capacity of 10 to 80 gpm. The DAF underflow drains to the plant recycle pump station and is pumped from there to the headworks where it mixes with the plant influent after the flow meter.

The one DAF unit has 150 square feet of surface area. The DAF system uses a cationic polymer to coagulate solids and improve thickening. The DAF design loading rate is 2.0 pounds per hour per square foot. The feed solids are approximately 1% and the DAF sludge output is approximately 3 to 5%.

6.2.3 DIGESTERS

There are three aerobic digesters. The TAS pumps feed both digesters and flow is controlled by manual plug valves. Digester 1 has a diameter of 35' and a sidewall water depth of 19'. The volume is approximately 137,000 gallons. The design retention time is 40 days. Digester 2 has a diameter of 48' and a sidewall water depth of 19'. The volume is approximately 257,000 gallons. The design retention time is 75 days. Digester 3 has a diameter of 40 feet and a sidewall water depth of 20 feet. The volume is approximately 188,000 gallons. The design retention time is 56 days. Digester 3 has a mixing pump/aerator that has never worked for the City. Thus, Digester 3 has been used as a backup digester that is only used if one of the other digesters is off-line.

The sludge pumping system consists of three pumps, piping and valves. There are many options for pumping. The sludge pumps can pump from either digester to the DAF, belt press, sludge drying beds, or to a sludge truck loading station or from the DAF to either digester or WAS to either digester, etc. The flow for all these options is controlled by manual valves. Both digested sludge pumps are plunger pumps with a capacity of 90 gpm. For normal operations, Pump P-J-1-3 (controlled by a variable speed controller) is used to pump from the DAF to Digester 1; Pump P-J-1-1 (constant speed pump) is used to pump digested sludge from Digester 1 to Digester 2; and Pump P-J-1-2 (constant speed pump) is used to pump digested sludge from Digester 2 to the belt press. Piping and valves exist that allow Digester 3 to replace either Digester 1 or 2.

The digesters originally used telescoping valves for decanting; but the City has abandoned these valves and no longer decants.

The aeration system for the digesters consists of two positive displacement blowers, one 75 hp and one 50 hp. The motor for the 75 hp blower is two speed, 1800 rpm and 1200 rpm. At 1800 rpm the blower produces 1,050 scfm. The motor for the 50 hp blower is controlled by a VFD. At 100% (1800 rpm), the blower produces 575 cfm. The air flows to the digesters in an 8" pipe. The 8" pipe tees at the digesters to one 6" pipe for Digester 1 and one 8" pipe for Digester 2. At Digester 1, the 6" air pipe connects to three 4" air distribution headers. Two headers have 16 coarse bubble diffusers and one has 20 coarse bubble diffusers for a total of 52 coarse bubble diffusers in Digester 1. At Digester 2, the 8" air pipe connects to four 4" air distribution headers. Two headers have 14 coarse bubble diffusers and two have 26 coarse bubble diffusers for a total of 84 coarse bubble diffusers in Digester 2. The diffusers are set 2'-0" apart on concrete pads with the diffusers set at a minimum of 2' above the basin floor.

The City operates the three digester system by pumping from the DAF (approximately 1,800 gpd) to Digester 1 until the Digester is filled to a depth of 12 feet (about 86,000 gallons). This takes about 30 to 40 days. The contents of Digester 1 are then pumped to Digester 2. About every 70 days the contents of

Digester 2 are pumped through the belt press and the dewatered solids is hauled to the drying bed. Digester 3 is only used in emergencies and has not been used for several years.

6.2.4 BELT PRESS

The belt press is a 1.7 meter Roediger belt press. Polymer is added to the digested sludge in the inlet piping and the sludge is flocculated in the pipeline. The sludge discharges onto the horizontal gravity section of the press for thickening and then discharges to the vertical press section for dewatering. Dewatered sludge discharges to a conveyor for discharge to trucks. The trucks haul the sludge to the sludge drying bed at the Washington County transfer station for the final drying stage.

6.2.5 SLUDGE DRYING BEDS

The City has one large sludge drying bed located at the Washington County transfer station. The sludge drying bed system is 300' long by 175' wide. In the northwest corner, a 125' by 25' pond has been constructed to accept the drainage and storm water from the drying bed (approximate volume of 212,000 gallons). The remaining 49,400 square feet, or 1.13 acre, is the sludge drying bed. The drying bed is surrounded by a 4' high concrete wall and has 2" of asphalt on the bottom. There is a 20' wide opening in the wall for truck access on the west end adjacent to the pond. The drying bed is sloped towards the center at 2% and the center trough is sloped towards the west end at 0.3%. A catch basin at the west end directs the drainage to the pond. The water collected in the storage pond is evaporated each summer and hauled to the collection system during the winter if the pond is full. The sludge is left in the bed until it has dried to 95%.

6.2.6 DISPOSAL

After the sludge has dried to 95% in the drying bed, it is scooped out with a front end loader, loaded into a dump truck and hauled to local farm for disposal as Class A sludge.

6.3 CAPACITY ANALYSIS

6.3.1 HEADWORKS

The headworks must be able to provide screening for the peak hour flow of 5.2 mgd. According to the manufacturer, the existing step screen is sized to handle 12 mgd. The manufacturer must provide the capacity of their screen as the capacity can best be determined in tests of the system under actual conditions and usually conducted by the manufacturers. The manufacturer of the City's step screen would not provide a copy of any tests and would only state in a telephone call what the capacity was. We are not certain that the step screen can handle 12 mgd as the original mechanical bar screen with 1" openings was rated at 8 mgd. However, step screens typically have low head loss and high capacities. Based on the 3' channel width and 4.6' depth and the performance of step screens from other manufacturers, it is likely that the treatment capacity of the step screen is about 8.5 mgd. The screen has been able to screen the pumped flow to the plant and thus appears to have the capacity to treat the peak flow at the headworks.

6.3.2 AERATION TANKS

The activated sludge basins have a total volume of approximately 900,000 gallons, 226,000 gallons for each of the four basins. Since the plant operates with one basin off-line, there is approximately 675,000 gallons of aeration basin available. The basins have fifty 2.5 inch diameter by 2 feet long fine bubble tube diffusers in each basin. There are three aeration blowers, each rated at 1500 cfm. The typical design range and actual operations data for various parameters used for carbonaceous BOD removal and nitrification process design are provided in Table 6.3. The process data were developed with the system operated with three basins on line and one basin off line. This is a conservative way to operate the plant and keeps one basin off line to allow for maintenance of each basin.

TABLE 6.3
Aerated Basins at the Weiser WWTP, 2004 to 2009

Parameter	Design Range	Jan. 2004 to July 2007	August 2007 to July 2009
Carbonaceous BOD Removal			
SRT, days	3-15	25-38	21-40
F/M	0.2-0.4	0.03-0.15	0.04-0.20
MLSS, mg/L	1500-4000	1610-6370	2730-5940
Recycle Ratio	25-100	64-102	61-84
BOD Loading Rate, pounds per 1,000 ft^3 per day	40-60	6-27	7-39
Nitrification			
SRT, days	20-40	25-38	21-40
F/M	0.04-0.10	0.03-0.15	0.04-0.20
MLSS, mg/L	2000-5000	1610-6370	2730-5940
Recycle Ratio	50-150	64-102	61-84
BOD Loading Rate, pounds per 1,000 ft^3 per day	5-15	6-27	7-39

Notes:
F/M is the food to microorganism ratio.
Recycle ratio is the ratio of the RAS flow rate to the influent flow.

Table 6.3 shows that the plant is generally operating within the typical design range for nitrification.

Keller used standard activated sludge design calculations to determine the treatment capacity for the existing aeration system for the design average BOD concentration of 125 mg/L and TSS of 100 mg/L. The data provided by the City shows that the average effluent ammonia has been less than 0.5 mg/L indicating that the plant is nitrifying (converting ammonia to nitrate). We determined that the existing aeration tanks and aeration system could reliably treat a flow of approximately 1.40 mgd. This is for the existing aeration equipment that is providing approximately 1,500 cfm of air to the aeration tanks and with a fine bubble diffuser system in each tank.

The principal factor that limits the treatment capacity of the plant is the aeration system. When the City converted the coarse bubble diffusers to fine bubble diffusers, the operating range of the blowers was exceeded and only one blower can run at a time without opening the pressure release valve. Thus only 1,500 scfm of air can be applied to the aeration tanks. Thus for this condition, the treatment capacity of the aeration tanks is approximately 1.40 MGD. Note that this treatment capacity does not include the I/I since I/I provides no BOD or ammonia and has no effect on the removal of BOD and ammonia. Thus the treatment capacity for the plant is for a net average flow of 1.40 mgd without I/I. The plant is currently treating a net average flow of 1.03 mgd.

The plant is currently treating a five-year average flow of 1.26 mgd.

Installing more fine bubble diffusers will reduce the pressure loss, increase the airflow, and increase the treatment capacity. Treatment options to increase capacity will be discussed in Chapter 7. The treatment options will include biological phosphorus removal in the aeration tanks.

6.3.3 SECONDARY CLARIFIERS

The secondary clarifiers each have a diameter of 70 feet and sidewall depth of 12 feet. Metcalf and Eddy, Wastewater Engineering, 4th Edition recommends a side wall depth from 11.5 feet to 20 feet. The flow spitting structure divides the flow evenly to each clarifier unless one clarifier is off line and all the flow goes to the other clarifier. The typical design range and actual operations data for various parameters used for secondary clarifier design for both operating conditions are provided in Table 6.4. The average MLSS for 2004 to 2009 has been 4,000 mg/L. The average flow is 1.5 MGD and the peak hourly flow is 5.2 MGD.

TABLE 6.4
Secondary Clarifiers at the Weiser WWTP, 2004 to 2009

Parameter	Design Range[1]	Both Clarifiers On Line	One Clarifier On Line
Average Flow			
Overflow Rate, gpd/ft^2	400-700	195	390
Solids Loading Rate, pph/ft^2	0.8-1.2	0.27	0.54
Peak Flow			
Overflow Rate, gpd/ft^2	1000-1600	676	1352
Solids Loading Rate, pph/ft^2	1.6	0.94	1.88

[1] Metcalf and Eddy, Wastewater Engineering, 4th Edition

As indicated in the table, with both clarifiers on line the system is below the design range for the average and peak flows and thus has capacity for more flow. Operation with a single clarifier is within the design range for average flow and at peak flow meets the overflow rate design range but exceeds the solids loading rate. Thus the system is sized to handle the increasing average flows the City will experience over time. In addition, a single clarifier can be taken off-line for maintenance and the remaining clarifier has capacity for the average and peak flows as long as the influent lift station pumps capacity is not increased.

The theoretical capacity for the two clarifier system is in the range of 5.2 to 6.1 mgd average flow which still allows one clarifier to be taken off line. Due to the high MLSS used by the City, the recommended solids overflow rate would be exceeded but the overflow rate would not during peak flows with one clarifier off line.

6.3.4 DISINFECTION

The chlorine contact chambers are each 365 feet long and each have a volume of 77,200 gallons. The chlorine contact chambers provide a retention time of 82 minutes at the maximum month flow of 2.7 mgd and 148 minutes at the average flow of 1.5 MGD. DEQ only requires that the chlorine dose be sufficient to meet the effluent discharge limit. The City is currently dosing the effluent flow with an average of 15 pounds per day of chlorine. At the average current flow of 1.20 mgd, including I/I, this is a dose of 1.5 mg/L. The average effluent chlorine load is 3 ppd or 0.3 mg/L. The City has been reliably meeting its effluent fecal and total coliform limits with this dose. Typical dosages for activated sludge effluent for the City's coliform limit range from 5 to 15 mg/L. This typical dose includes excess chlorine to provide for an initial chlorine demand not related to disinfection and for chlorine demand decay within the contact chamber.

Since the City does not have a dechlorination system to remove excess chlorine, an excess dose is not possible. The chlorine dose can only be increased to the point that the effluent chlorine residual load does not exceed the permit limit of 10 ppd. Based on the existing monitoring data, the effluent chlorine residual load limit may be exceeded when the flow exceeds 2.2 mgd.

If a dechlorination system was installed to remove excess chlorine residual, then the chlorination system could disinfect any flows anticipated at the City.

Chlorination and dechlorination alternatives will be discussed in Chapters 7 and 8.

6.3.5 DISSOLVED AIR FLOTATION THICKENER (DAFT)

The City's DAFT unit has 150 square feet of surface area. The DAF design solids loading rate is 2.0 pounds per hour per square foot (lb/ft^2*h). The feed solids have averaged 8,141 mg/L over the last five years. The City has wasted an average of 8,510 gpd over the last five years or an average of 575 ppd. The City operates the DAFT two hours per day seven days per week in order to process the WAS each day. Operating in this manner results in a solids loading rate of 1.92 lb/ft^2*h, which is just under the DAFT's design loading rate. The DAFT sludge output has ranged from 2% to 5% with an average of 3.80% over the last five years. The typical range in the literature is from 3% to 6%. This indicates that the DAFT is performing adequately. The solids capture rate for the DAFT has exceeded 99% which is very good.

The City's DAFT unit has the capacity to treat three times as much WAS as the City is currently wasting and would be sufficient until 2030. Although the DAFT unit is 30 years old, it has been well maintained. Solids thickening options will be discussed in Chapters 7 and 8.

6.3.6 AEROBIC DIGESTERS

The digestion process can meet 503 regulations for a Class B sludge by providing a minimum of 40 days solids retention time (SRT) at 20°C, a 60 day SRT at 15°C, or meet the specific oxygen uptake rate of 1.5 mgO_2/g TSS-hr. Although the City dries their sludge in the sludge drying beds to attain a Class A sludge, the City should continue to operate their digesters to meet the oxygen uptake requirements to meet Class B sludge. The typical design range and actual plant operations data for various parameters used for aerobic digester design are provided in Table 6.5.

TABLE 6.5
Aerobic Digestion for the Weiser WWTP, 2004 to 2009

Parameter	Design Range[1]	Digester 1	Digester 2	Digester 3
Volume, gallons				
SRT At 20°C (days)	40	40		
SRT At 15°C (days)	60		75	56
Volatile Solids Loading Rate, ppd/ft^3	0.1-0.3	.06	0.03	0.04
Oxygen Requirements, lb O_2/lb VSS destroyed	2.3	2.3	2.3	2.3
Energy Requirement for Mixing, cfm/1000 ft^3	20-40	30	30	30
DO in Digester, mg/L	1-2	1-2	2-6	2
VSS Reduction, %	38-50	4	1	--[2]

1 Metcalf and Eddy, Wastewater Engineering, 4th Edition.
2 No data

The City has a total of 394,000 gallons of aerobic digester volume. For the solids they are currently digesting, the City uses approximately 250,000 gallons. For the design criteria solids, the City will need to use approximately 290,000 gallons. Thus the City has sufficient digester volume for the 2030 flow.

The City current uses approximately 1,000 cfm for the digesters to provide mixing and aeration for the digesters. The digesters need approximately 400 cfm for digestion and 1,000 cfm for mixing. For the 2030 flow, the digesters need approximately 900 cfm for digestion and 1,200 cfm for mixing. The City has one 1,000 cfm blower and one 600 cfm dedicated to the digester and a third blower with a capacity of 1,500 cfm that can be directed to the digesters. However, the 1,500 cfm blower was originally designed for the aeration basins and that blower will be replaced as part of the plant upgrades. Thus the City needs to replace their digester blowers with two blowers each of which can meet the 1,200 cfm mixing requirement.

The City is not attaining good VSS reduction in the digesters. Since the City utilizes drying beds to obtain a Class A rating, VSS reduction in the aeration tanks is not required.

6.3.7 DEWATERING

The dewatering belt press at the WWTP is a Roediger tower belt filter press Model TP 17.43. The press has a 1.7 meter wide belt. The hydraulic throughput is limited to 120 gpm and the solids throughput capacity is 1021 pounds of dry solids per hour.

The City is currently wasting solids at a rate of approximately 575 dry pounds per day. The average solids content in the second aerated digester is 2.06%. At 120 gpm the belt press can process 43,000 gallons of digested sludge in a 6 hour day or 7,400 pounds of dry solids. Thus the belt press can dewater 13 days of solids production in one day. The solids content of the dewatered sludge ranges for 16% to 18%.

The belt press has the dewatering capacity to provide all the dewatering needs for the City until 2030.

6.3.8 SLUDGE DRYING BEDS

The plant produces approximately 705,000 pounds per year (ppy) of dried solids now and will produce approximately 865,000 ppy in 2030. At the Weiser evaporation rate of 35 inches per year, a percent solids applied of 18% (solids from the belt press), and a goal of 95% solids, the plant needs approximately 2.3 acres of drying beds for the existing flow compared to 1.13 acres in the existing system. Thus the existing drying bed is undersized.

The existing drying bed generates approximately 392,000 gallons or runoff during the year. The existing storage pond will evaporate approximately 122,000 gallons per year. The difference between the runoff and evaporation plus storage is 58,000 gallons. Thus the existing water storage pond is undersized.

6.4 ASSESSMENT OF THE CONDITION OF EACH PROCESS

6.4.1 HEADWORKS

When maintenance is required on the step screen, the flow is diverted to the bypass channel. However, the bypass channel does not have a manual bar screen and therefore plastics and rags will flow directly into the aeration basins. This will cause additional maintenance issues with the clarifiers and sludge pumps. A stainless steel manual bar screen with maximum 1" openings between the bars should be installed in the bypass channel.


Step screen

There is no easy way to maintain the screen due to the small size of the screen building. This is because there is no method to rotate the step screen up out of the channel for maintenance. A hoist needs to be installed over the channel that is sized to lift and hold the approximately 3,000 pound screen. Sufficient lighting needs to be supplied to allow maintenance work to be conducted on the screen.

The screenings washer does not operate well and loses solids onto the floor and back into the channel.

There is no method to remove grit from the grit traps and thus grit ends up in the aeration basins and has to be removed manually. Typical WWTPs have automatic grit removal systems.

Options for new headworks including grit removal and screening will be discussed in Chapter 7.

6.4.2 AERATION BASINS

<u>Structural</u>
The structural condition of the concrete is critical to whether the aeration basins can be reused or not. A Keller structural engineer inspected the aeration basins and determined that the concrete in the existing aeration basins is in good condition. The concrete isn't visible in most locations due to coating applied inside and outside of the walls. Where the concrete is visible is appears to be sound with no serious deterioration.


Cracks in aeration basin concrete at sluice gates

The coating on the walls is performing well with no major areas of coating failure. The coating will have to be replaced if the basins are reused as part of the plant upgrade. The current coating will not last many more years and isn't preventing seepage through the concrete cracks. The leaks visible on the outside of the wall and in the vehicle garage on the east end are common in large containment tanks. The leaks don't pose any serious threat to the structure but they are a nuisance.


Cracks in concrete at sluice gates

The cracks at the gate operators don't extend to any great depths into the concrete and are contained to an area close to the operator anchor bolts. The cracks are repairable and won't need to the structurally reinforced since any new gates used in the plant upgrade will be mounted at different locations

The new treatment plant improvements will require any reused structures to have a useful life of at least 30 years. Generally life of concrete is 50 to 100 years if not exposed to unusual deteriorating conditions. Typically concrete in bridges and wastewater treatment plants are exposed to these conditions so the life of concrete is reduced unless something is done to protect concrete from exposure to deteriorating elements. The existing concrete in the aeration basins is not likely to last 30 more years if used as is. It will require rehabilitation to extend the life of the concrete another 30 years. The concrete is sound but leaks and leaking joints will require repair and a coating will be required to protect the concrete from deteriorating elements. The cracks around the gate operators are minor and can easily be repaired. Different gate operators are planned for the new basin layout so the repaired areas will not be affected by the new gate operators.

The main rehabilitation work necessary is to stop or greatly reduce the leakage through the basin walls and expansion joint. The leaks currently visible in the walls are not severe and should be repairable with modern concrete repair products. The existing coating on the interior of the basin walls is in fair to good condition but isn't flexible which allows coating cracks to form if the underlying concrete cracks. The cracks in the coating allow seepage of the wastewater through the cracks and become visible on the outside of the basin.

The interior of all the basins will require recoating with a flexible coating. This requires complete removal of the existing coating by blasting down to sound concrete. During blasting some areas of weakened concrete will likely be exposed and will require concrete repair work before the coating is applied. The concrete repair can be made using a polymer modified repair mortar.

The floor of the basins is not currently coated. If the basins are to be reused, the entire floor will be coated with the same product as used on the walls. This will reduce the deterioration of the floor in the future. Keller has estimated that the rehabilitation of the concrete basins will cost approximately $750,000.

<u>Mechanical</u>

The sluice gate valves on the inlet 24" pipe are very hard to open and close and the gates do not seal well. This makes it difficult to isolate the basins for the annual maintenance of the diffusers. The concrete is beginning to crack at the handles for the sluice gates due to the force required to open the gates. Once the gates are closed and the basin pumped out, the gate leaks for a while until sludge seals the leaks. These gates need to be replaced. This will be an expensive and difficult repair since there is no way to remove one of the sluice gates unless all of the influent flow is diverted past the headworks. In addition, two of the aeration basins would have to be taken offline at a time in order to replace the sluice gates between the basins. We have estimated the repair cost at approximately

Aeration tanks

$500,000. Approval from EPA would be required to bypass the headworks and two aeration basins.

The weir gates in the south end of the aeration basins have been removed. This means that the system cannot be operated in series. All of the sluice and weir gates would need to be replaced if the system were to be operated in a series mode.

The operators cannot control the air flow to basin 2 because the butterfly valves are not working and need repair or replacement. The fine bubble diffuser system needs more diffusers in order to increase the amount of air that can be delivered to the basins. The diffuser system needs to be redesigned as part of a re-design of the aeration system.

Weir gates that replaced slide gate

The blowers are two stage blowers. Although the blowers are old they appear to be working well. If the diffuser system is redesigned, then it may be possible to use the blowers to meet the new design criteria. However, the blowers should be controlled by VFD in order to match the air output with the air requirements in the basins. This would be accomplished by installing dissolved air monitors in each basin and using a PLC to speed up and slow down the blowers to maintain the dissolved air in the basins. This would also save energy. The existing blowers are two stage blowers and may not be able to operate on a VFD. If this is the case, then the blowers would need to be replaced.

Another issue with the aeration basin is the pine trees located along the north side of the basins. The trees hang over and above the basins and drop a lot of pine needles into the basins. The needles cause problems with the diffusers, in the clarifiers, with the RAS and sludge pumps, and in the digesters. The trees need to be either topped or replaced with trees that will not grow over the top of the basins.

Options for a new aeration system and for biological removal of phosphorus will be discussed in Chapter 7.

W3 pumps

6.4.3 SECONDARY CLARIFIERS

The clarifiers are in good shape considering their age, 30 years. They need to be coated every 10 to 15 years and the drives and motors replaced as needed.

The RAS and scum pumps will also have to be maintained and replaced as needed.

However, due to their age, options for updating the secondary clarifier equipment will be discussed in Chapter 7.


Corrosion around W3 pumps

6.4.4 DISINFECTION

The City needs to install de-chlorination facilities so that the chlorine dose can be increase as needed for disinfection and the excess chlorine residual removed to meet the permit limit.


W3 pumps

The City should consider switching to a different source of chlorine such as liquid sodium hypochlorite or onsite chlorine generation to remove the hazards of gaseous chlorine or to UV disinfection to eliminate chlorine altogether and eliminate the need for de-chlorination.

Options for disinfection and dechlorination, if required, will be discussed in Chapter 7.

6.4.5 DISSOLVED AIR FLOTATION THICKENER (DAFT)

The DAFT unit is 30 years old; but, has been maintained well. The DAFT Solids thickening options will be discussed in Chapter 7.

6.4.6 AERATED DIGESTERS

Digester No. 1 was converted from an existing anaerobic digester. The tank walls are in fairly good condition. But concrete deterioration has occurred along the top. Digester No. 2 is in fairly good condition. The fine bubble diffusers in Digesters No. 1 and 2 need to be maintained annually and replaced every 5 to 7 years. Digester 3 is in better condition than the other 2. But, the aeration system in Digester 3 does not work and needs to be replaced.

Digestion options will be discussed in Chapter 7.

6.4.7 BELT PRESS THICKENER

The belt press is relatively new and in good condition. As long as it is maintained it will provide good service for a number of years.

6.4.8 3W SYSTEM

The 3W pumps are old and need to be replaced. Both of the 350 gpm pumps leak and are noisy when operating, thus they are not used unless high flows are required. The 3W filter is also old, leaking badly, and should be replaced. Options for new pumps will be discussed in Chapter 7.

6.4.9 SLUDGE DRYING BED

The sludge drying bed is in good condition; however, it is too small for the existing flow and needs to be increased in area. The drainage storage pond is too small and needs to be enlarged. A method to increase evaporation from the pond would reduce the size of the required pond.

6.5 EVALUATION OF THE MONITORING SYSTEMS

The only monitoring at the City's WWTP is equipment monitoring, flow monitoring and chlorine gas monitoring. A panel in the display room indicates which piece of equipment is operating by lighting up a display. There are displays for:

- Main Raw Sewage Pump No. 1
- Main Raw Sewage Pump No. 2
- Standby Engine Generator M-6-1
- Mechanical Bar Screen
- Screenings Conveyor
- Clarifier No. 1
- Clarifier No. 2
- Scum Pump
- Polymer Metering Pump No. 2
- No. 3 Water Pup No. 1
- No. 3 Water Pump No. 2
- No. 3 Water Pump No. 3
- Drain Pump
- Variable Speed Blower No. 5
- Aeration Blower No. 1 High
- Aeration Blower No. 1 Low
- Aeration Blower No. 2 High
- Aeration Blower No. 2 Low
- Aeration Blower No. 3 High
- Aeration Blower No. 3 Low
- Aeration Blower No. 4 High
- Aeration Blower No. 4 Low
- No. 3 Digester Blower
- RAS Pump No. 1
- RAS Pump No. 2
- RAS Pump No. 3
- DAFT Pressurization Pump
- DAFT Skimmer Drive
- DAFT Scrapper Drive
- Standby Engine Generation M-6-2
- Digested Sludge Pump No. 1
- Digested Sludge Pump No. 2
- Thickened Sludge Pump No. 3
- Recycle Pump No. 1
- Recycle Pump No. 2

The influent flow is measured in a Parshall flume and a 4-20 milliamp signal sent to the control room. In the control room, the influent flow is displayed as cumulative gallons on a numeric readout and as instantaneous flow on a circular chart. The effluent flow is measured behind a rectangular weir at the outlet of the chlorine contact chambers and a 4-20 milliamp signal sent to the control room. In the control room, the effluent flow is displayed as cumulative gallons on a numeric readout and as instantaneous flow on a circular chart. The flow entering the chlorine contact chambers is measured in a Parshall Flume. The cumulative flow is displayed in gallons on a readout at the meter. A chlorine gas sensor in the chlorine room measures chlorine gas in the room and an alarm contact is connected to an alarm light in the control room. If chlorine gas is measured, the alarm light is lit.

There are several parameters that should be monitored at the plant and recorded in a data logger that can be accessed by the plant computer including:

- Influent pH and temperature
- Effluent pH and temperature
- Effluent chlorine residual concentration
- Dissolved oxygen (DO) in the aeration basins

Monitoring for influent and effluent temperature and pH and for effluent total chlorine residual are permit requirements. The staff currently measures each manually. Thus only one sample point is collected each day. With on line monitoring, there would be continuous samples and alarms is permit limits were exceeded. Monitoring for DO in each basin if currently conducted manually and therefore there is only one data point each day. With continuous monitoring the changes in DO can be charted and alarms set for low DO. If the blowers were on VFD, they could be ramped up and down to maintain DO.

Monitoring is extremely important for maintaining permit compliance and for plant operations. In order to take advantage of the benefits of online monitoring, the City needs to install a Supervisory, Control, and Data Acquisition (SCADA) System.

6.6 EVALUATION OF PLANT CONTROL SYSTEMS

The City's plant control system consists of an alarm panel that displays the following alarms:

- Main Pump Fail
- Variable Speed Control Fail
- Seal Water Fail
- Overflow
- Standby Generator M-6-1 Fail
- East Commercial High Level
- East Commercial Equipment Failure

- High Level West Galloway Lift Station
- West Galloway Equipment Failure
- Standby Generator M-6-2 Fail
- High Level in the Influent Channel
- High Level in Headworks Outlet
- High Torque in Clarifier 1
- High Torque in Clarifier 2
- High Level in Scum Pit
- Low Pressure Aeration Basin Main Air Line
- Lower Pressure Digester Main Air Line
- High Differential Blower Pressure
- High Level Splitter Box Inlet
- Failure of RAS pumps
- High Pressure Digested Sludge Pump No. 1
- High Pressure Digested Sludge Pump No. 2
- High Pressure Digested Sludge Pump No. 3
- Chlorine Leak
- Low Level Polymer Tank No. 2
- Lower Pressure No. 3 Water
- High Pressure No. 3 Water
- High Pressure Auto Basket Strainer
- High Level DAFT Float Sludge Tank
- DAFT Pressurization Fail
- Chlorinator Low Vacuum
- Chlorinator High Vacuum
- Low Pressure Chlorination Water Supply
- Recycle Pump Seal Fail
- High Level Recycle Pump Station
- DAFT Pumping Fail
- Clarifier Low RAS
- Clarifier Fail
- Safety Alarm Chlorine
- Safety Alarm Sludge Pumping
- Safety Alarm No. 3 Water Pump Station
- Water Plant Failure
- No. 3 Digester High Level
- No. 3 Digester Electrical Failure
- No. 3 Digester Moisture in Motor

If an alarm light is lit, an operator must manually acknowledge the alarm. If after a few minutes the alarm is not acknowledged, then the alarm is called out on the dialer.

There is no remote control of any equipment in the plant. All of the equipment can only be controlled from its local control panel.

A modern SCADA system combines monitoring and control systems into a computerized system that continuously monitors the plant via sensors and meters, stores this information on a data base, and provides alarms if any reading is below or above a set point. In addition, the system provides remote status of equipment including which equipment is running, hour meter readings, and the ability to turn equipment on and off remotely. The computer can be accessed remotely if an alarm occurs at night and the operator may be able to solve the alarm condition without going to the plant. A new SCADA system is highly recommended for the Weiser WWTP and will be discussed further in Chapters 7 and 8.

6.7 REVIEW OF THE EMERGENCY POWER SYSTEM

Power used in the treatment plant is fed through three main motor control centers (MCC). The motor control centers are referred to as MCC-1 (Blower Building), MCC-2 (Sludge &Chlorine Handling Building) and MCC–E1 (Blower Building). Power to the MCC is supplied from the utility service through the main switch gear. MCC-1 is fed through an 800 amp fused disconnect. MCC-2 and MCC-E1 are fed through separate 600 amp fused disconnects. MCC–E1 is also fed through an automatic transfer switch. The automatic transfer switch switches the source of supply for MCC– E1 from utility to the generator in the event of power failure. The generator capacity is 250 kilowatts. The generator is only capable of supplying power to MCC-E1. An additional generator is required to add any additional loads to the standby power system.

In the event of a power failure the generator supplies power to MCC-E1 only. MCC-1 and MCC-2 are not connected to the generator. The generator supplies power through MCC-E1 to the following pieces of equipment:

- Aeration Blowers 1 and 2
- Secondary Clarifiers 1 and 2
- RAS Pumps 1, 2 and 3
- Headworks Step Screen
- Recycle Lift Station Pumps 1 and 2
- No. 3 Water Pumps 1, 2 and 3
- Panel Board E1

The emergency power system will be re-evaluated after selection of the preferred alternative to determine if the generator has sufficient capacity.

6.8 SUMMARY

The City's WWTP has performed well for the last 29 years. The plant meets its permit limits every month. However, the loads to the plant have increased to the point that they exceed the original design capacity of the plant. The plant has reached the age that many components need to be replaced. The City has already replaced the headworks screen, chlorinators, and diffusers in the aeration basins and aerobic digesters. The City has also added a new dewatering belt press. Other components that need to be replaced or rehabilitated include the blowers, DAFT system, disinfection process, and 3W pumps.

The design criteria developed for the next 20 years show that there will be increasing flows and loads and more restrictive permit effluent limits. The plant will need to be evaluated process by process to determine the available options to meet the design criteria and then select the best option. These best options will then be assembled into the best available alternative for the City. This will be considered in detail in Chapter 7.

CHAPTER 7.0 – WASTEWATER TREATMENT AND DISPOSAL ALTERNATIVES

7.1 DISPOSAL ALTERNATIVES

Weiser currently disposes of their treated effluent as a surface water discharge under a National Pollutant Discharge Elimination System (NPDES) permit. Other possible effluent disposal alternatives include land application via slow rate (SR) land application, land application via rapid infiltration (RI), wetlands, reuse (Class A: domestic reuse, agricultural irrigation or Class B: golf course, agricultural irrigation), and deep well injection. A description of each alternative follows.

7.1.1 SURFACE WATER DISCHARGE

Discharge to the Snake River under a National Pollutant Discharge Elimination System (NPDES) permit allows convenient year-round discharge, provides agricultural reuse, provides water right banking, and eliminates the need for winter storage. As discussed in Chapter 3, the City has an existing NPDES permit issued by EPA that is in the process of being renewed. Discharge limits under NPDES permits require higher levels of treatment than for some other disposal options. The draft NPDES permit includes effluent limits for phosphorous (14 pounds per day (ppd) as a monthly average and 21 ppd as a weekly average). Since these are new limits, the draft NPDES permit has a 4 year 11 month period before the City must be in compliance with the new phosphorus limits. The advantages and disadvantages of this option are as follows.

Advantages:

- Simple low cost way of getting rid of treated wastewater
- Does not require land acquisition in addition to the treatment facility
- Can be done year round
- The City has an existing permit

Disadvantages:

- Requires additional treatment to meet changing discharge standards
- Requires adequate receiving stream flow
- Extensive monitoring and reporting requirements

7.1.2 SLOW RATE LAND APPLICATION

Slow rate (SR) land application involves application of treated wastewater to crops that are not consumed by humans (alfalfa, hay, etc.). Slow rate systems, by application of wastewater to crops, provide treatment via plant uptake and percolation through the soil and, therefore do not require as high a degree of pre-application treatment as RI systems. Nitrogen removals of 66-94% and total phosphorus removals of 76-99+% have been reported for SR systems.

Slow rate land application systems are commonly used in Idaho. Pretreatment of wastewater to be land applied via a SR system is needed to prevent operating problems in the irrigation equipment, protect public health, and prevent odor generation during storage. Either a facultative (non-aerated) or an aerated lagoon could be used to provide the required level of pretreatment. Consequently, the current wastewater treatment meets the removal requirements to accommodate SR land application. Irrigation of crops is typically done only during the growing season which would coincide with a seasonal effluent limit for phosphorus. Soils in the Weiser area are suitable for SR. The land requirement for SR to serve the projected 2030 population of approximately 6,300 people has been estimated at approximately 400 acres for irrigation and either a 580 acre-foot winter storage pond (60 acres lagoon) for full winter storage to eliminate surface water discharge or a 100 acre-foot summer storage pond. The advantages and disadvantages of this option are as follows.

Advantages:

- Simple system
- Water quality requirements less stringent than NPDES limits
- Water is utilized as a crop amendment
- Potential economic return by selling crop
- Good for small communities
- Could utilize lagoon treatment and abandon the activated sludge plant if a winter storage lagoon is utilized

Disadvantages:

- Requires additional operation and maintenance to ensure crop watering, harvesting, and sampling
- Adequate soil and site characteristics are needed
- Requires large basins to store wastewater during the non-growing season
- Requires significant land purchase
- No land available adjacent to treatment plant site

- Closest land is at least two miles from the City limits
- Requires pumping equipment and piping to land application site
- May require a supplemental irrigation system

7.1.3 RAPID INFILTRATION

Rapid infiltration requires several shallow basins that are used to allow water to percolate into the soil. Since percolation rates used for RI are much higher than those for SR land application, substantially less land is required for RI than for SR systems. The land requirement for disposal to accommodate the projected 2030 population of approximately 6,300 people has been estimated to be approximately 85 acres.

For RI, a high quality effluent must be obtained from the treatment plant in order to prevent groundwater contamination. In order for RI to be considered a viable wastewater disposal option, a minimum of four feet of soil is required between the infiltration basin floor and the high groundwater level. RI systems have reported phosphorus removals of 29-99%, correlating to travel distance through the soil. RI has been reported to achieve 10-93% nitrogen removal, depending on numerous factors such as pre-application treatment, wastewater BOD:N ratio, hydraulic loading rate, wet/dry cycles, soil temperature and pH. Nitrogen removal is inversely proportional to soil permeability. Because of the potential variability in RI performance, a high level of pre-application treatment for nitrogen and phosphorous removal will likely be required by the regulatory agencies to insure reliable groundwater protection. The advantages and disadvantages of this option are as follows.

Advantages:

- Utilizes gravity
- No chemicals needed
- Simple process
- Can be discharged year round
- Recharges aquifer (may be able to obtain a shallow aquifer water right credit)

Disadvantages:

- Requires sufficient pretreatment to ensure groundwater quality is not impacted
- Annual removal of accumulated solids
- Potential for soil clogging if not properly operated
- Requires additional land

- No sites available adjacent to treatment plant site
- Closest sites are approximately 5 miles from the plant
- Piping to RI site required
- Infiltration rate is dependent on soil conditions

7.1.4 WETLANDS

Engineered wetlands could be designed and constructed to dispose of treated effluent. Wetlands consist of a soil environment completely saturated with water and populated with various types of vegetation. These systems can have a free water surface where the water is exposed to the atmosphere or they can consist of a subsurface flow layer where all of the water is encompassed in the soil environment. The primary use of wetlands is for polishing wastewater previously treated by another type of treatment process. Wetlands are able to remove (treat) chemical constituents found in wastewater by using bacteria in the soil/water environment to break down the constituents and plants to uptake and remove the constituents. The advantages and disadvantages of this option are as follows.

Typical wetland

Advantages:

- No energy requirement for aeration
- Easy to operate
- Good for small communities
- Good when used for polishing

Disadvantages:

- Large land requirement
- Little operator control of the system
- Potential for accumulation of phosphorus and metals
- Seasonal climate changes can greatly affect treatment and disposal efficiency
- Land not available near treatment plant site
- Closest land approximately 5 miles from WWTP
- Long pipeline required to reach any likely site

7.1.5 REUSE

Reuse of treated wastewater effluent requires a wastewater reuse permit from DEQ. A pending rule by DEQ proposes modifications to the wastewater reuse permit rules to expand the options for wastewater effluent reuse. The proposed rules specify pretreatment requirements based on use of the treated wastewater. Treatment requirements and uses for reclaimed water by classification (Class A through E) are shown in Table 3.1. Weiser's current effluent quality at the WWTP meets Class B requirements and reuse options available to Weiser are irrigation of golf courses or parks. In order to meet Class A requirements, the City would need to add redundancy, process testing instrumentation, automatic valves, 7-days of storage volume or automated alternative discharge mechanism, and alarms to meet the redundancy and reliability requirements. Other examples of reuse water are irrigation of cemeteries, residential yards, or other landscaped areas, water hazards at golf courses, aesthetic impoundments (manmade water body), vehicle-washing facilities, dust control, and fire protection.

Treated effluent could be recycled for industrial use, such as cooling water, process water, or irrigation of facility grounds. However, no current industry in the Weiser area has been identified that could utilize effluent water. Therefore, the industrial reuse option is eliminated from further evaluation. The advantages and disadvantages of this option are as follows.

Advantages:

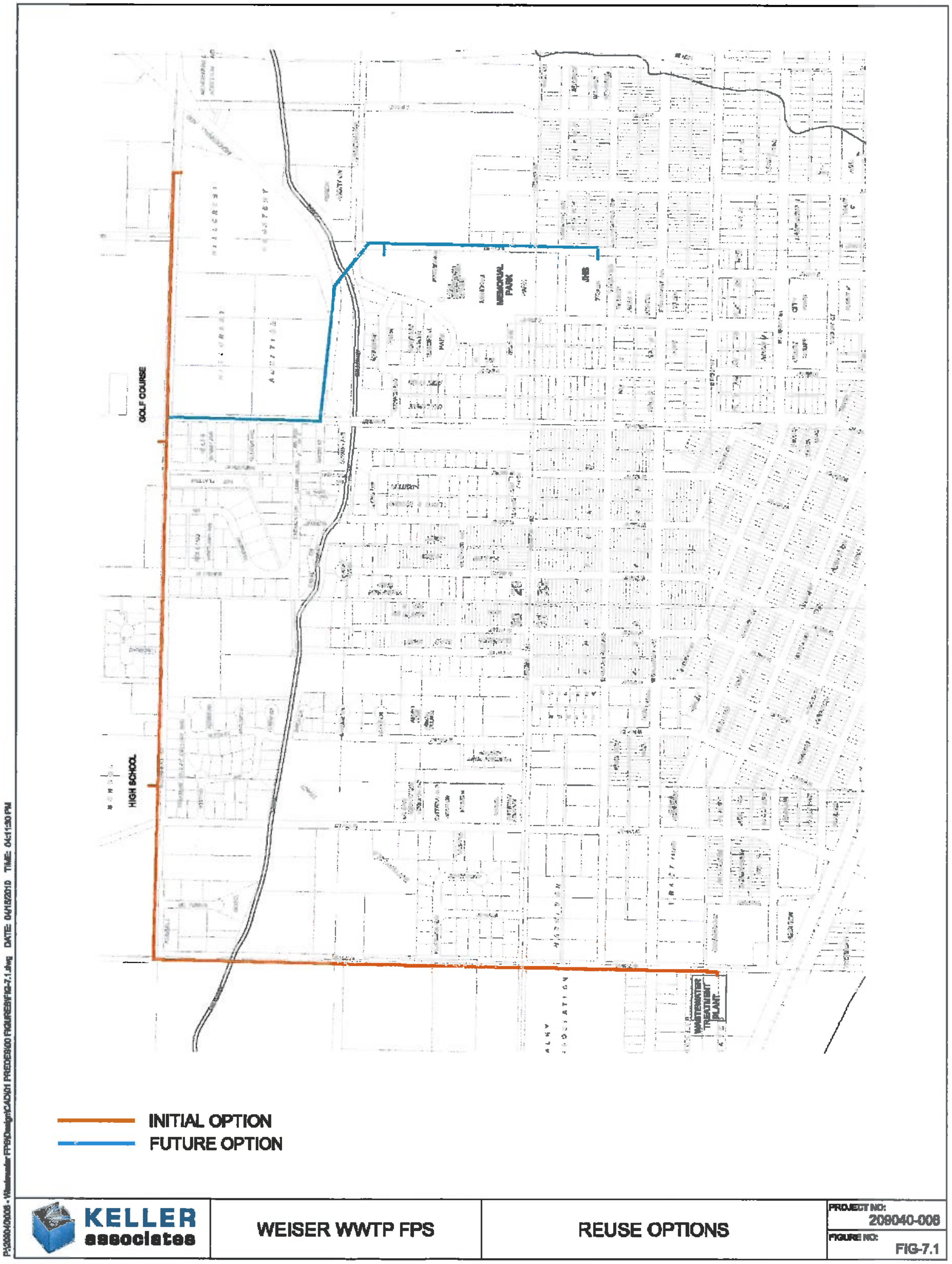
- Nutrient removal not required if reuse is not in a nitrate priority area
- Surface and groundwater conservative
- Beneficial reuse
- Surface irrigation supplement during drought years

Disadvantages:

- Cost of transmission piping and pump
- Winter storage or other disposal required
- Extensive monitoring required for residential reuse
- City purchases, owns, and manages piping systems
- Significant plant improvements required for Class A reuse
- Extensive redundancy in many processes throughout the plant

One option for reuse for Weiser is presented in Figure 7.1. This shows a reuse pipeline down West 9th Avenue and Indianhead Road. This pipeline would provide water for irrigation at the High School (15 acres), golf course (60 acres), and cemetery (17 acres with expansion to 40 acres). A future pipeline could

FIGURE 7.1
Reuse Options



provide reclaimed water to Memorial Park (17 acres) and the Junior High School (3 acres). Based on the estimated irrigation areas for each of the first three parcels, Keller has estimated that an average of approximately 400,000 gpd could be used on these parcels during the irrigation season. Based on the estimated irrigation areas for each of the last two parcels, Keller has estimated that an average of approximately 85,000 gpd could be used on these parcels during the irrigation season. Thus an average of approximately 485,000 gpd could be used on all five parcels. Since the irrigation season corresponds with the expected period for phosphorus limits, reuse provides benefits to the City in terms of chemical usage and reduced loading to the Snake River. However, since the irrigation rate is much less than the plant influent flow rate, this option does not eliminate the need for another discharge option such as a NPDES permit.

7.2 TREATMENT ALTERNATIVES

Each disposal option discussed above requires a different level of treatment. Thus, determination of the disposal alternative in large degree determines the feasible treatment alternatives. Anticipated wastewater effluent limits were discussed in Chapter 3 and are summarized in Table 7.1 for each disposal alternative. Section 7.2.1 will describe the lagoon treatment option that could be utilized with the slow rate land application. The rest of Section 7.2 will describe options for upgrading the existing treatment plant to address deficiencies in the existing plant equipment/process discussed in Chapter 4 or to add treatment improvements to meet the new permit.

TABLE 7.1
Anticipated Limits for Disposal Options

Element	Slow Rate (current permit)	RI	NPDES (Snake River)	Class A Reuse	Deep Well Injection
BOD (mg/l)	--	--	< 30	< 5	--
COD (mg/l)	< 50 lbs/ac/da	--	--	--	--
TSS (mg/l)	--	< 15	< 30	--	--
Dissolved Oxygen (mg/l)	--	--	> 6	--	--
Chlorine Residual (mg/l)	--	--	< 0.1	--	--
E. Coli (MPN/100ml)	< 2.2 (0' setback) < 23 (50' setback) < 230 (300' setback)	--	<126/406	< 2.2	--
Fecal coliform (MPN/100ml)			--		--
pH	--	6-8	6.5-9.5	6-9	--
Total Nitrogen (mg/l NO_3-N)	150% of crop uptake	< 1 increase in GW across property	--	<10	< 5 OR Background
P (mg/l)	125% of crop uptake	< 2.0	< 14 ppd	2.0	--
Other	IDWR Regs	IDWR Regs	IDWR Regs	IDWR Regs	IDWR Regs

Notes: Setbacks are from public access

7.2.1 LAGOON TREATMENT

If the City decides to select slow rate land application as the disposal method, then the City could switch to lagoon treatment prior to the land application. There are several types of lagoon treatment processes. These are typically area dependent and require that a piece of property be located that is the right area and located close to the City. The lagoon treatment options are described next.

Complete Mix Aerated Lagoon

Complete mix aerated lagoons are common throughout the United States. Aeration for these lagoons is supplied by mechanical or diffused aeration systems with sufficient capacity to mix an entire cell and keep solids in suspension. Depths of these lagoons are typically ten or more feet deep and detention times range from 5 to 15 days. Power costs associated with complete mix aeration can be as much as ten times the cost associated with a partial mix aerated lagoon. Of all lagoon type systems, the complete mix system requires the least area to provide a given level of treatment.


Diffused aeration in lagoons

Pros:

- Requires less area than any other lagoons alternative
- Relatively easy to operate (lower man-hour requirements)

Cons:

- Needs to be combined with other treatment processes for proper nutrient removal
- Requires high energy input for aeration
- Little operator control of the system
- Treatment efficiency is affected by seasonal climate changes;
- Moderate area requirement (more than the City currently owns)

Partial Mix Aerated Lagoon

Partial mix aerated lagoons are commonly found in small, rural communities treating low to medium strength wastewater. Oxygen is supplied to these lagoons by mechanical or diffused aeration in sufficient quantities to satisfy only the needs of the system but not to keep solids in suspension. These lagoons require more land area than complete mix aerated lagoons. These systems are usually ten or more feet deep with detention times ranging from 15 to 30 days with 20 days being typical.


Partial aeration in lagoon

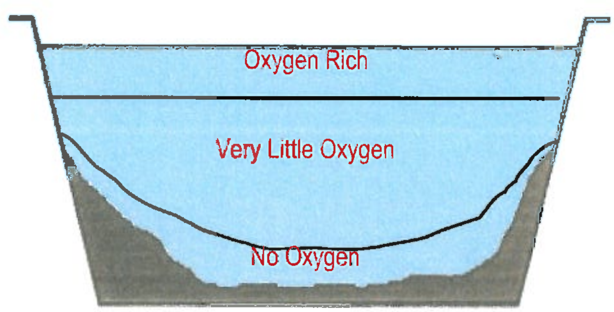
Pros:

- Requires less area than facultative / anaerobic lagoons
- Requires less energy input than completely mixed lagoons
- Relatively easy to operate

Cons:

- Needs to be combined with other treatment processes for nutrient removal
- Little operator control of the system
- Moderate area requirement (more than the City currently owns)
- Requires high energy input for operation
- Seasonal climate changes can affect treatment efficiency

Facultative Lagoon



Facultative lagoon

Facultative lagoons are usually four to eight feet deep and do not provide mechanical mixing. The layer of water near the surface of these lagoons contains oxygen due to oxygen diffusion from the atmosphere, algal respiration during daylight, and mixing caused by wind. Under the aerobic layer is the facultative zone which contains very little oxygen. The bottom layer is termed the anoxic zone and contains no oxygen. This is the zone where the sludge settles. Each of the three zones in the facultative lagoons supports different types of bacteria depending on the amount of oxygen available. Typical detention times for a facultative systems ranges from 30 – 180 days depending on climate. There is no mechanical aeration provided in these lagoons. Facultative lagoons require the largest land area of the other lagoons system presented.

Facultative lagoons process does not treat effluent to a sufficiently high degree of treatment to allow state requirements for discharge into rivers. Treated effluent from the lagoons is further treated by application to crops that take up nutrients and the water through the evapo-transpiration process as an integral part of the treatment process.

Pros:

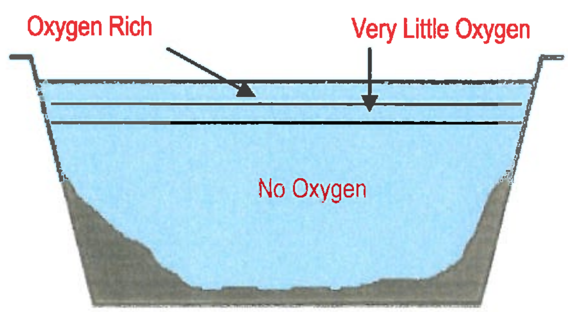
- Very reliable
- Relatively small operating and maintenance costs
- Low energy costs

Cons:

- Irrigation systems require considerable management
- Moderate area requirement (more than the City owns)
- Effluent cannot be released to receiving bodies of water
- Further treatment is needed before discharge

Anaerobic Lagoon

Anaerobic lagoons are deep lagoons (8 – 20 feet deep) that are void of oxygen. These lagoons are typically followed by a combination of aerobic and/or facultative cells. Anaerobic lagoons are typically used to treat high strength organic wastewater, often for industrial wastes. Detention times in these lagoons range from 2 – 50 days.



Anaerobic lagoon

Pros:

- Simple operation
- Effective for stabilizing wastewater with high organic strength

Cons:

- Little operator control of the system
- Must be lined
- Freezing climate negatively impacts performance
- Land purchase or lease required
- Potential for foul odors
- Often covered which adds cost

Since Weiser does not have high strength wastewater, this option is not applicable to Weiser and is not considered further.

Total Containment Lagoon

Total containment lagoons contain an inlet and no outlet except for emergency overflows. These lagoons are used as storage basins to sufficiently hold all wastewater until it can be evaporated.

Pros:

- Simple system
- Requires very little operation and maintenance
- Some ancillary treatment occurs

Total containment lagoon

Cons:

- Requires a very large amount of area (more than the City currently owns)
- Relies on climate for wastewater disposal

Weiser does not have sufficient land available or appropriate weather for this option and thus, this option is not considered further.

Lagoon system

Combination of Lagoon Types

Most land-based wastewater treatment facilities contain a combination of the above mentioned technologies to combine both aerobic and anaerobic processes to effectively treat the wastewater. Typical lagoon treatment facilities will include non-aerated facultative cells followed by aerated treatment cells or an anaerobic cell followed by aerated cells. However, specific performance of the lagoons depends upon the types of cells used and the configuration and the design parameters used.

Pros:

- Proper design could provide good BOD and nutrient removal
- Easy to operate

Cons:

- Little operator control of the system
- Moderate area requirement (more than the City currently owns)
- Increased energy costs
- May not be capable of producing a polished effluent

<u>Enhanced Lagoon Process</u>
This process includes the utilizing a combination of anaerobic cells and complete mix aerated cells followed by a settling cell. The entire lagoon system may be covered to reduce heat loss during the colder months, to provide increased BOD and nutrient removal, and to minimize algae growth.

Pros:

- Alternative for upgrading an existing lagoon system
- Increases plant treatment efficiency during the winter months
- Easy to operate


Lagoon cover

Cons:

- Less process control relative to a mechanical treatment system
- Moderate land requirement
- Increased energy costs compared to non-aerated lagoons
- Highest lagoon system cost

7.2.2 HEADWORKS

The deficiencies at the existing headworks include no grit removal and a small headworks building that prohibits maintenance of the step screen. A grit removal system cannot be added into the existing headworks. Options to correct these deficiencies are discussed next.

<u>Upgrade Existing Screen Building</u>
A new headworks building could be constructed at the existing screen to provide sufficient room for maintaining the existing screen. This would be constructed on the existing channels and walkways. The estimated cost to implement this option is approximately $250,000. The advantages and disadvantages of this option are as follows:

Advantages:

- Least expensive
- Allows maintenance of screen

Disadvantages:

- Does not provide grit removal solution
- Construction must occur while headworks remain in service

New Headworks Located East of Existing Headworks
New headworks including screening, grit removal, flow measurement, and a building could be constructed adjacent to the existing headworks on the east side. This would be constructed on a new structure at the same elevation as the existing headworks. This structure would use space to the east of the existing headworks. The screen, grit system, and flow measurement would be sized for the peak flow of 5.2 mgd. The estimated cost to implement this option is approximately $1,030,000. The advantages and disadvantages of this option are as follows:

Advantages:

- Provides a new screen and grit system
- Allows continued use of existing headworks during construction
- City owns sufficient land at the west end of the site
- New headworks would be at ground level and access for maintenance would be best

Disadvantages:

- Uses more land at the east end of the plant
- New headworks are 16 feet above grade and require a crane to remove screening equipment for major maintenance

New Headworks Located at West End of Site
New headworks including screening, grit removal, flow measurement, and a building could be constructed on city land located at the west end of the plant site. A new pump station would be required to pump the screened and gritted wastewater back to the aeration tanks. The screen, grit system, flow measurement, and pump station would be sized for the peak flow of 5.2 mgd. The estimated cost to implement this option is approximately $1,160,000. The advantages and disadvantages of this option are as follows:

Advantages:

- Provides a new screen and grit system
- Allows continued use of existing headworks during construction
- City owns sufficient land at the west end of the site

- New headworks would be at ground level and access for maintenance would be best

Disadvantages:

- Does not provide grit removal solution
- Requires pumping twice
- Most expensive option
- Piping would be installed to the back of the plant site and then back to the front

7.2.3 PRIMARY CLARIFIER

As discussed below in the biological phosphorus removal section, a primary clarifier with fermentation to produce volatile fatty acids (VFA) is a requirement for good phosphorus removal. The primary clarifier would be installed between the headworks and the activated sludge tanks. The estimated cost to implement this option is approximately $700,000. The advantages and disadvantages of this option are as follows:

Advantages:

- Removes explosion proof limitations on aeration tanks and secondary clarifiers
- Provides primary sludge that can be fermented to provide volatile fatty acids to enhance biological phosphorus removal
- Can be designed to not reduce loading to activated sludge process

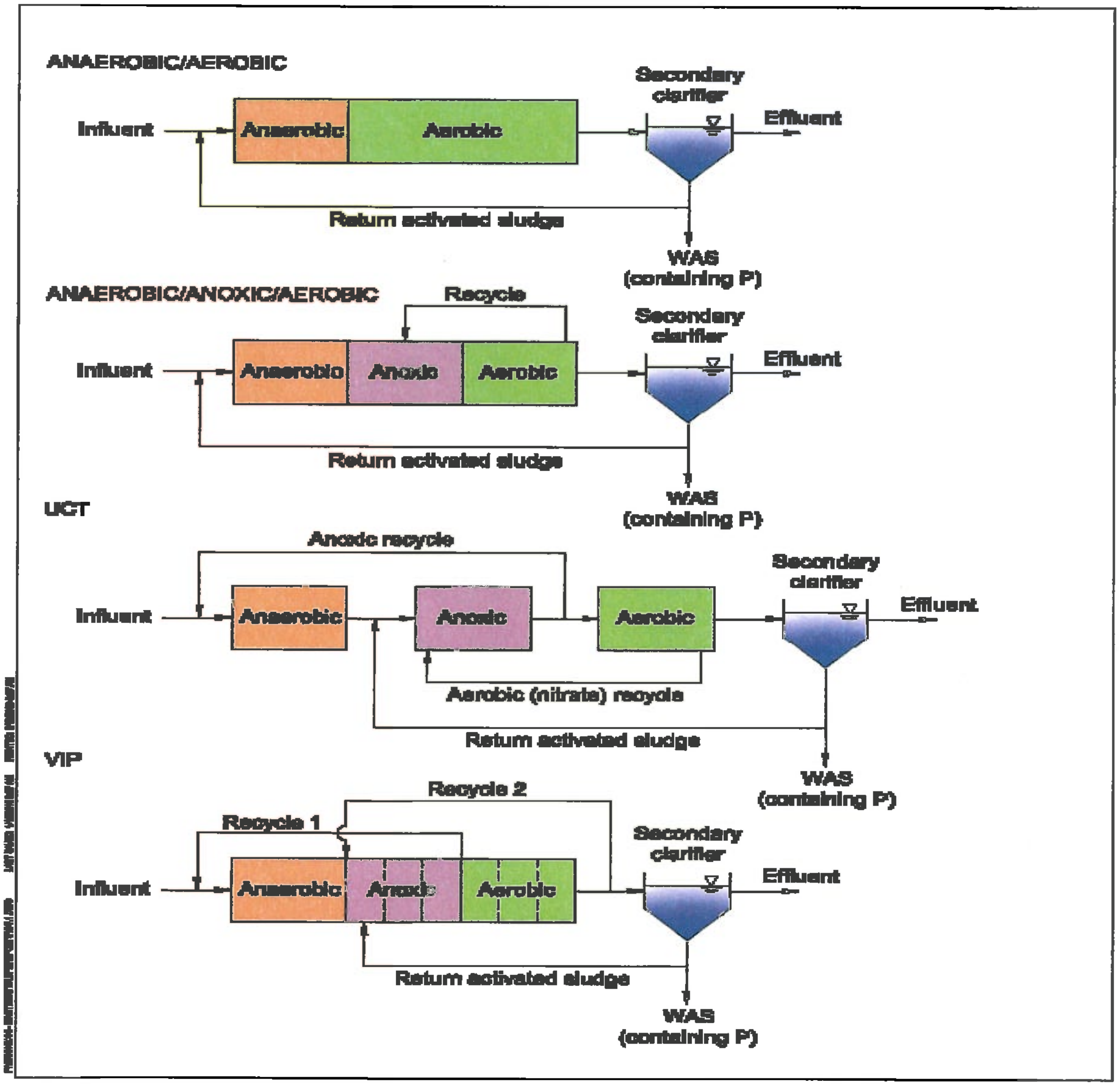
Disadvantages:

- Must be installed between headworks and aeration tanks which will require an elevated clarifier to prevent pumping flow again
- Changes loading to aerated digesters
- Adds cost

7.2.4 BIOLOGICAL PHOSPHORUS REMOVAL

In order to meet the new effluent phosphorus limit, processes to remove phosphorus will have to be added to the plant. These processes are divided into biological and chemical processes. This section discusses biological phosphorus removal. There are several treatment processes used for biological phosphorus removal (BPR) and each uses an anaerobic zone(s) followed by aerobic zone(s). Phosphorus storing bacteria release phosphorus in the anaerobic zone and, because they are starved for phosphorus, absorb excess phosphorus in the aerobic zone. Four commonly used configurations include the anaerobic/aerobic, the anaerobic/anoxic/aerobic, the UCT (a modified anaerobic/anoxic/aerobic developed at the University of Cape Town, also called the Johannesburg process), and the VIP (Virginia Initiative Plant). A schematic for each of these processes is presented in Figure 7.2.

FIGURE 7.2
BPR Process Options



Source: Metcalf & Eddy, 4th Edition

Activated Sludge

Process Design Considerations: The process design considerations for BPR processes are wastewater characteristics, anaerobic contact time, sludge retention time (SRT), waste sludge processing methods, chemical addition, concentration of nitrate and dissolved oxygen in recycle flows, and plant effluent suspended solids. These considerations are discussed below.

Wastewater Characteristics: The wastewater characteristics that are important are the ratio of BOD to phosphorus in the influent. Soluble BOD is converted to VFAs fairly quickly in the anaerobic zone and the phosphorus-storing bacteria in the absence of oxygen absorb the VFA, release phosphorus, and convert the VFA to carbon storage products that provide energy and growth in the subsequent anoxic and aerobic zones. The more VFA that is available, the more cell growth will occur, and thus the more phosphorus is removed in the aerobic zone. Typically 20 to 25 mg of BOD in the influent are required per mg of phosphorus removed. Due to the low BOD loading at the Weiser WWTP, it is likely that periods of low VFA concentrations will occur. To avoid this condition, supplemental VFA addition or primary sludge fermentation is required. (Metcalf & Eddy, 4th Edition)

Anaerobic Contact Time: The anaerobic contact time should be between one hour and three hours to provide sufficient time for conversion of BOD to VFA but insufficient time to prevent secondary phosphorus release.

SRT: The BPR systems with longer SRT are less efficient at phosphorus removal than those with shorter SRT designs. Two adverse effects on phosphorus removal efficiency are associates with low loadings and long SRT. First low loadings produce lower phosphorus-storing bacteria biomass production which reduces the amount of phosphorus removed. Second, at long SRTs the phosphorus bacteria are in a more extended endogenous phase which depletes more of their intracellular storage products and make the BPR process less efficient. Because the Wieser WWTP has low loadings, the Weiser BPR system will be designed with a short SRT of between 7 and 15 days.

Waste Sludge Processing Methods: Phosphorus is removed from the system in the sludge wasted from the BPR process. Thus the recycle flows from the waste sludge processing methods have to be investigated to reduce the potential for recycling phosphorus back to the BPR process. Phosphorus is released whenever the bacteria that contain phosphorus are subject to anaerobic conditions. Conditions in the thickening, digesters, and the dewatering processes can cause release of substantial phosphorus that could be recycled back to the BPR process. This recycle would increase the influent phosphorus concentration and then more soluble BOD would be required to provide the same phosphorus removal. For reducing phosphorus from thickening, drum thickeners, dissolved air flotation thickeners (DAFT), and belt thickeners (BT) are preferred over gravity thickeners. Thus a gravity thickener will not be considered later in this report when discussing replacement of the existing DAFT. For digestion, aerobic digestion is preferred and is the type of digestion that Weiser currently utilizes. Extra monitoring was conducted at the Weiser WWTP this fall and winter to provide data for soluble phosphorus in the RAS and under flow from the DAFT and the BT and this data is presented in Table 7.2.

TABLE 7.2
Soluble Phosphorus Concentrations in Recycle Flows

Date	DAFT P mg/L	Belt Press P mg/L	RAS P mg/L
10/16/2009	0.81		
10/30/2009	2.37		
11/6/2009			
11/24/2009	2.27		
12/10/2009	1.70		
23-Feb-10	2.75	82	
3-Mar-10	0.87		
16-Mar-10	1.92		
21-Apr-10	1.90		
28-Apr-10			
12-May-10	1.61		
25-May-10	3.92		
26-May-10		70	6.5
2-June-10			4.7
9-June-10			5.4
16-June-10			5.10
23-June-10			3.35
30-June-10			3.89
Average	2.48	76	4.8

As indicated in Table 7.2, the Belt Press underflow contains elevated concentrations of phosphorus. Thus, treatment of this recycle flow to chemically bind the phosphorus before the recycle flows reach the anaerobic zone should be provided as an option in the design to provide flexibility to meet the low effluent limit for phosphorus.

Chemical Addition: It is not unusual for BPR plants to have chemical addition to provide additional treatment to meet low effluent limits. Chemicals that are added to remove phosphorus are metal salts and include alum, ferric chloride, ferric sulfate, and sodium aluminate. When these chemicals are added to the wastewater, they react with the phosphorus and form compounds with very low solubility that are removed by settling or filtering. There are several places within the plant that these chemicals can be applied: primary clarifier, secondary clarifiers, filters, and recycle flows (underflow from thickening and dewatering equipment). Once the phosphorus compounds are formed the phosphorus is bound up basically permanently even in anaerobic conditions. For Weiser we will look at adding alum or ferric chloride (which ever is least expensive) in the recycle flows from the thickener and belt press and prior to a filter, if added to the plant.

Concentration of Nitrate and Dissolved Oxygen in Recycle Flows: Several different flows are recycled within the plant. The solids handling flows have the most potential for recycling phosphorus and these flows were discussed previously. Other recycle flows include return activated sludge (RAS), filter backwash, and floor drains. Recycle streams with significant concentrations of nitrate or dissolved oxygen can have an adverse impact on phosphorus removal. Filter backwash flows may contain measurable amounts of dissolved oxygen and should be directed to the aerobic zones. Floor drains may contain plastics and other materials and are usually directed to the headworks for screening. These flows are usually small and should not have an impact on the BPR process. However, since each mg of dissolved oxygen will oxidize approximately 2.5 mg of soluble BOD, the amount of dissolved oxygen in the recycled floor drains should be monitored to prevent adverse impacts on BPR performance. The principal flow recycled to the anaerobic zone will be RAS. RAS does not contain dissolved oxygen due to the high concentration of bacteria in the RAS. However, RAS can contain significant nitrate concentrations. The Weiser plant nitrifies (converts ammonia to nitrate). Monitoring of the RAS for nitrate was conducted and the results provided in Table 7.3.

TABLE 7.3
Nitrate Concentrations in RAS

Date	DAFT NO_3 mg/L	Belt Press NO_3 mg/L	RAS NO_3 mg/L
23-Feb-10	13.3	419	5.24
3-Mar-10	10.5		2.78
16-Mar-10	10.5		3.59
2-Apr-10	11.5		0.37
7-Apr-10	13.3		<0.30
14-Apr-10	7.80		8.25
21-Apr-10	1.9		<0.30
28-Apr-10			0.40
12-May-10	6.8		<0.30
26-May-10		304	<0.30
9-June-10			<0.30
16-June-10			<0.30
23-June-10			<0.30
30-June-10			<0.30
Average	9.8	362	1.56

As indicated in Table 7.3, the nitrate concentrations in the DAFT and belt press recycle flows are significant. Each mg of nitrate introduced to the anaerobic zone will oxidize approximately 6.5 mg of soluble BOD thus reducing the amount of phosphorus that can be removed. Thus the plant will have to be upgraded to de-nitrify in order to reduce the amount of nitrate in these recycle flows. It may also be necessary to provide denitrification of the Belt Press underflow or store and meter in the flow (since dewatering only occurs every 3 months) in order to prevent recycle of excessive nitrate to the anoxic zone.

Plant Effluent Suspended Solids: The phosphorus content in the mixed liquor suspended solids (MLSS) of BPR systems is higher than the phosphorus content of MLSS in a normal secondary treatment process such as the existing Weiser WWTP. The phosphorus content on a dry solids basis for BPR MLSS may be in the 3 to 6% range. Thus for a BPR effluent with 10 mg/L TSS, the total phosphorus concentration from the TSS alone (no soluble P) would be between 0.3 and 0.6 mg/L. For the Weiser WWTP, the average effluent TSS for 2009 was 2 mg/L and the maximum was 10 mg/L.

Assuming settling and effluent TSS remain the same at the Weiser WWTP with a BPR process installed, the P contribution from the average effluent TSS would be between 0.06 and 0.12 mg/L and for the peak TSS between 0.3 and 0.6 mg/L. The anticipated effluent phosphorus limit is 14 ppd. For the average flow of 1.5 mgd, this represents a maximum acceptable effluent phosphorus concentration of 1.11 mg/L. For the maximum month flow of 2.7 mgd, this represents a maximum acceptable effluent phosphorus concentration of 0.62 mg/L. Since the total effluent phosphorus consists of soluble phosphorus and particulate phosphorus (part of TSS) it may be necessary to add filters to prevent effluent violations when the maximum month flows approach 2.7 mgd and to provide additional security in preventing an effluent phosphorus violation due to an upset at the plant.

BPR Treatment Options: As discussed above, there are four commonly used configurations used for BPR including the anaerobic/aerobic, the anaerobic/anoxic/aerobic, the UCT, and the VIP. The pros and cons for each are as follows:

Anaerobic/Aerobic:

Advantages:

- Reliable P removal
- Longest used process

Disadvantages:

- Patented process
- No nitrification or de-nitrification

Anaerobic/Anoxic/Aerobic:

Advantages:

- Reliable P removal
- Nitrification possible

- Denitrification in the anoxic zone
- Reduced nitrate fed to anaerobic zone

Disadvantages:

- Proprietary process
- One internal recycle pump system required

UCT:

Advantages:

- Non-proprietary process
- Reliable P removal
- Nitrification possible
- Denitrification in the anoxic zone
- Minimizes effect of nitrate in weaker wastewaters
- Returning activated sludge to the anoxic stage, the introduction of nitrates to the anaerobic stage is eliminated
- Mixed liquor from anoxic stage contains soluble BOD but little nitrate providing optimal conditions for fermentation uptake in the anaerobic zone

Disadvantages:

- Two recycle pumping systems required
- Highest anoxic recycle rate
- Longer anaerobic zone detention time longer

VIP:

Advantages:

- Non-proprietary process
- Reliable P removal
- Nitrification possible
- Denitrification in the anoxic zone
- Returning activated sludge to the anoxic stage, the introduction of nitrates to the anaerobic stage is eliminated
- Mixed liquor from anoxic stage contains soluble BOD but little nitrate providing optimal conditions for fermentation uptake in the anaerobic zone

Disadvantages:

- Two recycle pumping systems required
- Short SRT time

***BPR Design Parameters*:** The design parameters for the UCT and VIP processes are as shown in Table 7.4.

TABLE 7.4
Typical Design Parameters

Design Parameter	Process	
	UCT	VIP
SRT, d	10 - 25	5 – 10
MLSS, mg/L	3,000 – 4,000	2,000 - 4,000
Anaerobic Zone, h	1 - 2	1 - 2
Anoxic Zone, h	2 - 4	1 - 2
Aerobic Zone, h	4 - 12	4 - 6
RAS, % of Influent Flow (Q_{Inf})	80 - 100	80 - 100
Anoxic Recycle Rate, % of Q_{Inf}	200 - 400	100 - 200
Aerobic Recycle Rate, % of Q_{Inf}	100 - 300	100 - 300

***Sizing Anaerobic Zone*:** Based on Table 7.4 and the maximum month flow of 2.7 mgd, the anaerobic zone would be sized between approximately 112,000 and 224,000 gallons for both the UCT and VIP configuration.

***Sizing Anoxic Zone*:** Based on Table 7.4 and the maximum month flow of 2.7 mgd, the anoxic zone would be sized between approximately 224,000 and 448,000 gallons for the UCT configuration and between approximately 112,000 and 224,000 gallons for the VIP configuration.

***Sizing Aerobic Zone*:** Based on Table 7.4 and the maximum month flow of 2.7 mgd, the aerobic zone would be sized between 448,000 and 1,350,000 gallons for the UCT configuration and between 448,000 and 675,000 gallons for the VIP configuration.

***Existing Tanks*:** The existing aeration tanks at the Weiser plant consist of four tanks each with a volume of approximately 233,600 gallons. There is space to the west to add one more tank of the same volume. In order to provide the treatment schematic for a UCT or VIP system shown in Figure 7.2, the existing tanks will have to be set up to operate in series. The first tank can be divided into cells to provide for approximately 103,100 gallons of anaerobic zone and 215,400 gallons of anoxic zone. This would leave the last three tanks for an aerobic volume of approximately 803,500 gallons. Another alternative is to provide an additional anoxic zone at the start of the second tank and add the fifth tank for additional aeration. Table 7.5 contains a preliminary design that incorporates the fifth tank and an anoxic cell in the second tank. This conceptual design utilizes the existing tanks and provides retention times in the ranges for the UCT and VIP processes. This design will be finalized during the preliminary design phase.

TABLE 7.5
Design Alternatives

Parameter	Volume	Hydraulic Retention Time, h Average Day	Max Month	2009 Average Day
Influent Flow, mgd		1.50	2.70	1.21
Anaerobic Zone	103,100	1.65	0.92	2.23
Anoxic Zone	215,400	3.45	1.91	4.72
Aerobic Zone	803,600	12.86	7.14	16.22

The layout for the above design utilizing the existing tanks plus a new fifth tank is provided in Figure 7.3 (located at end of chapter). The layout shows that each of the zones divided into cells as reactors in series can provide greater treatment efficiency than a single complete-mix rector of the same volume (Metcalf & Eddy, 4th Edition). The sizing for the anaerobic cells is based on the high F/M selector design and results in three tanks, the first two at 25,500 gallons each and the third at 52,100 gallons. The sizing of the anoxic cells is based on denitrification. There are two anoxic cells, the first is the volume remaining in the first tank from the anaerobic cells and the second is the volume remaining from the first aerobic tank. There are seven aerobic cells each one half of an existing tank except the first aeration tank which is sized to provide sufficient area for the number of diffusers needed to meet the oxygen demand in the first cell.

Aeration Requirements and Diffuser Layout: The aeration requirement for the aerated tanks in the BPR process requires tapering the aeration to provide the aeration needed in each cell. A preliminary calculation for aeration for the peak day indicates that 3,400 cfm is required to meet the maximum month and peak day load. Table 7.6 provides a preliminary aeration design to provide nitrification and BOD removal.

TABLE 7.6
Preliminary Aeration Design

Cell	Volume	cfm	No. of 12" diam. Diffusers	No. of 3" Diffusers
Cell 1	132,000	1,200	400	120
Cell 2	112,000	775	260	80
Cell 3	112,000	580	190	60
Cell 4	112,000	370	120	36
Cell 5	112,000	210	75	22
Cell 6	112,000	140	50	14
Cell 7	112,000	135	75	14
TOTAL	804,000	3,400	1,140	350

These theoretical numbers of diffusers have to be modified to account for a maximum diffuser density of 30% of the floor area. A preliminary layout is provided in Figure 7.4 (located at end of chapter).

New Blowers with VFD: New blowers will be required to provide the 3,400 cfm aeration requirement. The new blowers will be controlled by VFD and the influent flow meter. Butterfly valves will control the flow to each cell. The butterfly valves can be adjusted manually in conjunction with a portable flow meter or automatically with actuated butterfly valves and in-line flow meters. The options for blowers are discussed next.

Positive Displacement Blowers: New positive displacement blowers could provide the 3,400 cfm aeration requirement. The pros and cons for each are as follows:

Advantages:

- Less expensive
- Operation and maintenance familiar to staff

Disadvantages:

- Less efficient
- Higher power costs
- Extremely loud

Turbo Blowers: New turbo blowers could provide the 3,400 cfm aeration requirement. The pros and cons for each are as follows:

Advantages:

- More efficient
- Quiet operation
- Lowest power costs
- Lowest present value
- Reimbursement from Idaho Power due to long term power savings

Disadvantages:

- Higher capital cost
- Operations and maintenance new to staff

Blower Recommendation: Keller recommends installation of turbo blowers due to the lower power costs, lower noise levels, smaller foot print, and lower net present value compared to positive displacement blowers with VFD.

BPR Treatment Cost Estimate: The estimated cost for BPR treatment using the layout in Figures 7.3 and 7.4 and using turbo blowers is approximately $1,525,000.

Sequencing Batch Reactor

The aeration tanks at the Weiser WWTP could be converted into a sequencing batch reactor (SBR) system. SBR systems utilize a single tank with cycles for fill, react, settle, decant, and idle to provide complete secondary treatment in a single tank. A minimum of two tanks are utilized to provide for filling of one tank at all times. Sludge is wasted from the SBR during the idle cycle.

To provide for bulking control a selector cell is added to the system. This selector cell receives the influent flow and is continuously mixed. Then during the fill cycle for an SBR tank, the contents of the selector cell are pumped rapidly into the SBR with the SBR in a mixing mode with out aeration. This allows the MLSS to absorb the soluble BOD in an anaerobic to anoxic environment. Since filamentous bacteria are not capable of absorbing soluble BOD with out aeration, the filamentous bacteria are starved out and their population declines precipitously. This improves the settling characteristics and thus improves the performance of the SBR system.

The react stage in the SBR can consist of aeration with complete mixing to provide treatment for BOD and ammonia (nitrification) and mixing without aeration to provide denitrification of nitrate to nitrogen gas. During the mixing without aeration cycle, BOD is still removed but the bacteria obtain the oxygen required from NO_3 and not from dissolved oxygen.

To provide for phosphorus removal, a selector cell would be provided and the SBR would be operated to provide for complete nitrification and denitrification so that during the fill cycle anaerobic conditions can be established that provides the environment necessary for soluble BOD uptake and storage of phosphorus.

Unfortunately, a preliminary design of a SBR system indicates that the existing tanks plus one new tank would be insufficient for a SBR system due to the additional volume required for decanting. Approximately four additional tanks the size of the existing tanks plus the selector cell would be required. The pros and cons for SBR are as follows:

Advantages:

- Does not require secondary clarifiers
- Good BOD, TSS, and nitrogen reduction
- Can reduce phosphorus

- Selector cell will provide good settling

Disadvantages:

- Complicated process requiring programmable logic controller to control pumps and gates
- Requires more operator attention
- Since secondary clarifiers are existing, there is no cost benefit
- Requires effluent equalization tank for UV disinfection to reduce flow rate to UV system and reduce UV capital cost. This requires pumping of effluent
- Without equalization, chlorine dosing will be higher which will increase the size of injector system (pumps for liquid and injectors for gas)
- Not as efficient as multi-cell activated sludge reactors
- Existing tankage insufficient and space for required tankage not available

SBR Treatment Cost Estimate: Since there is insufficient land available at the existing plan site for the SBR option, it was determined to be infeasible and a cost estimate was not prepared.

Membrane Bioreactor (MBR)

The MBR process consists of a suspended growth biological reactor integrated with an ultrafiltration or microfiltration membrane system. The membrane is submerged in the aeration basin in direct contact with the mixed liquor. A vacuum is created using a vacuum pump to draw the treated water through the membrane fibers. The solids remain on the outside of the fiber while the clean treated water is pulled through to the inside of the membrane fiber. Air from membrane scour blowers is passed over the surface of the membranes to prevent solids from accumulating on the membranes. Periodic chemical cleaning is required to maintain the design flow of water through the membrane (termed flux rate).

Some important aspects of the biological process include (1) maintaining dissolved-oxygen levels in the aeration tanks, (2) regulating the amount of return activated sludge (RAS), (3) controlling the waste activated sludge (WAS) and (4) maintaining parameters such as pH and temperature to ensure a proper environment for microorganisms to biologically treat the wastewater. Dissolved oxygen levels are maintained in the aeration tanks by adding the appropriate amount of air. The amount of air is controlled adjusting the blower speed using variable speed drive controllers. The RAS is important to recycle the appropriate amount of microorganisms to digest the incoming waste stream. Use of variable speed RAS pumps will allow the RAS flow to be controlled by adjusting the speed of the RAS pumps. WAS pumps are constant speed pumps as the mixed liquor suspended solids (MLSS) concentration in the biological stream is controlled by adjusting the amount of time the WAS pumps run.

In order to provide for biological phosphorus removal, the treatment tanks would have to be set up similar to what was described above for activated sludge. The final tank (or Cell) would be the membrane tank. The MBR system can be operated at mixed liquors of up to 15,000 mg/L. This will allow less tank volume as there is more biomass. Thus installation of the fifth tank would likely not be necessary. In essence the membranes would just be used for filtration. Since the expense of the activated sludge system would still be required, this will be the most expensive alternative. A less expensive option would be to use the activated sludge process and the secondary clarifiers, and use membranes for the filtration process. This will be discussed below under chemical treatment for phosphorus.

The pros and cons for MBR are as follows:

Advantages:

- Highest BOD, TSS, and nitrogen reduction
- Equal phosphorus reduction as BPR
- Provides micro- or ultra-filtration as part of process
- Could abandon the aerobic digesters and waste directly to the belt press

Disadvantages:

- Most expensive option
- Complicated process requiring programmable logic controller to control pumps and gates
- Requires more operator attention
- Abandons secondary clarifiers
- Would have to size the disinfection system to match peak influent rate as the MBR system will discharge at the same rate as the influent flow

***MBR Treatment Cost Estimate*:** The estimated cost for MPR treatment option is approximately $5,250,000.

7.2.5 CHEMICAL TREATMENT FOR REMOVAL OF PHOSPHORUS

Phosphorus may be removed from wastewater by adding multivalent metal ions to form metal phosphates that have low solubility and precipitate out of the wastewater. The precipitates are separated by settling or filtration. The multivalent metal ions most commonly used are calcium (Ca(II)), aluminum (Al(III)), and iron (Fe(III)). Polymers have been used with lime ($Ca(OH_2)$) and alum ($Al_2(SO_4)_3$ as flocculent aids. Lime is not used much for phosphorus removal due to the much greater production of sludge and the problems with handling, storing, and feeding lime. Thus lime will not be considered further for Weiser.

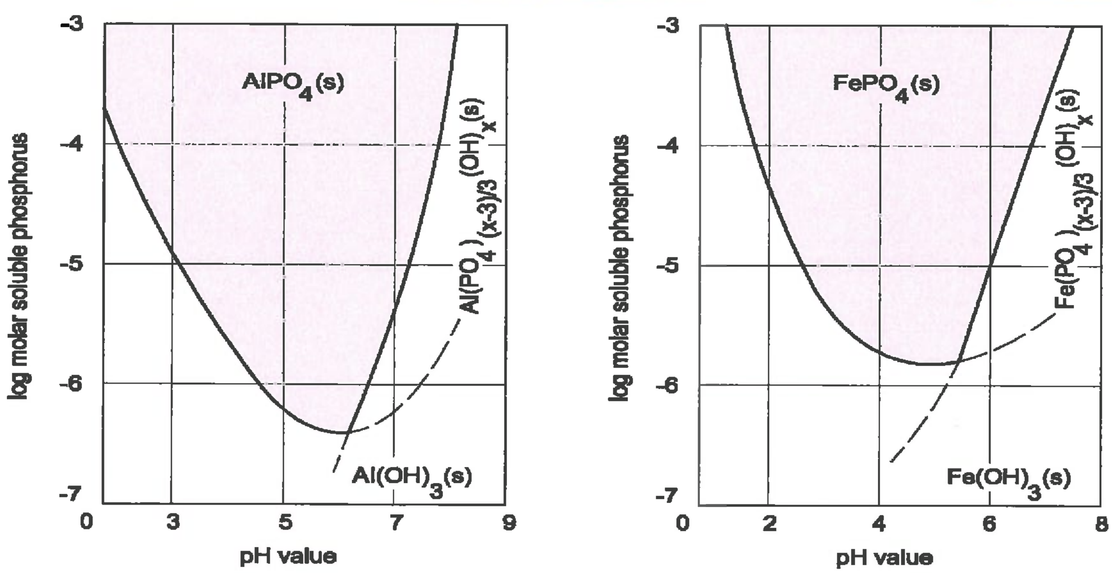
Phosphorus Precipitation with Aluminum and Iron
The reactions for the precipitation of phosphorus using aluminum (alum) and iron (ferric chloride or ferric sulfate) are as follows:

$Al^{3+} + H_nPO_4^{3-n} \Leftrightarrow AlPO_4 + nH^+$

$Fe^{3+} + H_nPO_4^{3-n} \Leftrightarrow FePO_4 + nH^+$

For alum and iron, one mole will precipitate one mole of phosphate. However, there are many other reactions going on and these formulas cannot be used to determine the metal ion dosage. Generally, the dosage is determined by bench or full scale testing. The total concentration of soluble phosphate in equilibrium with both insoluble $AlPO_4$ and $FePO_4$ is presented in Figure 7.3. As indicated in the figure, it is possible to produce lower effluent phosphorus concentrations using alum than with iron. However, both iron and alum will produce effluent phosphorus concentrations lower than that required by the new NPDES permit. Thus the selection of alum or iron will be based on price and operator preference.

FIGURE 7.3
Phosphate Solubility Curves

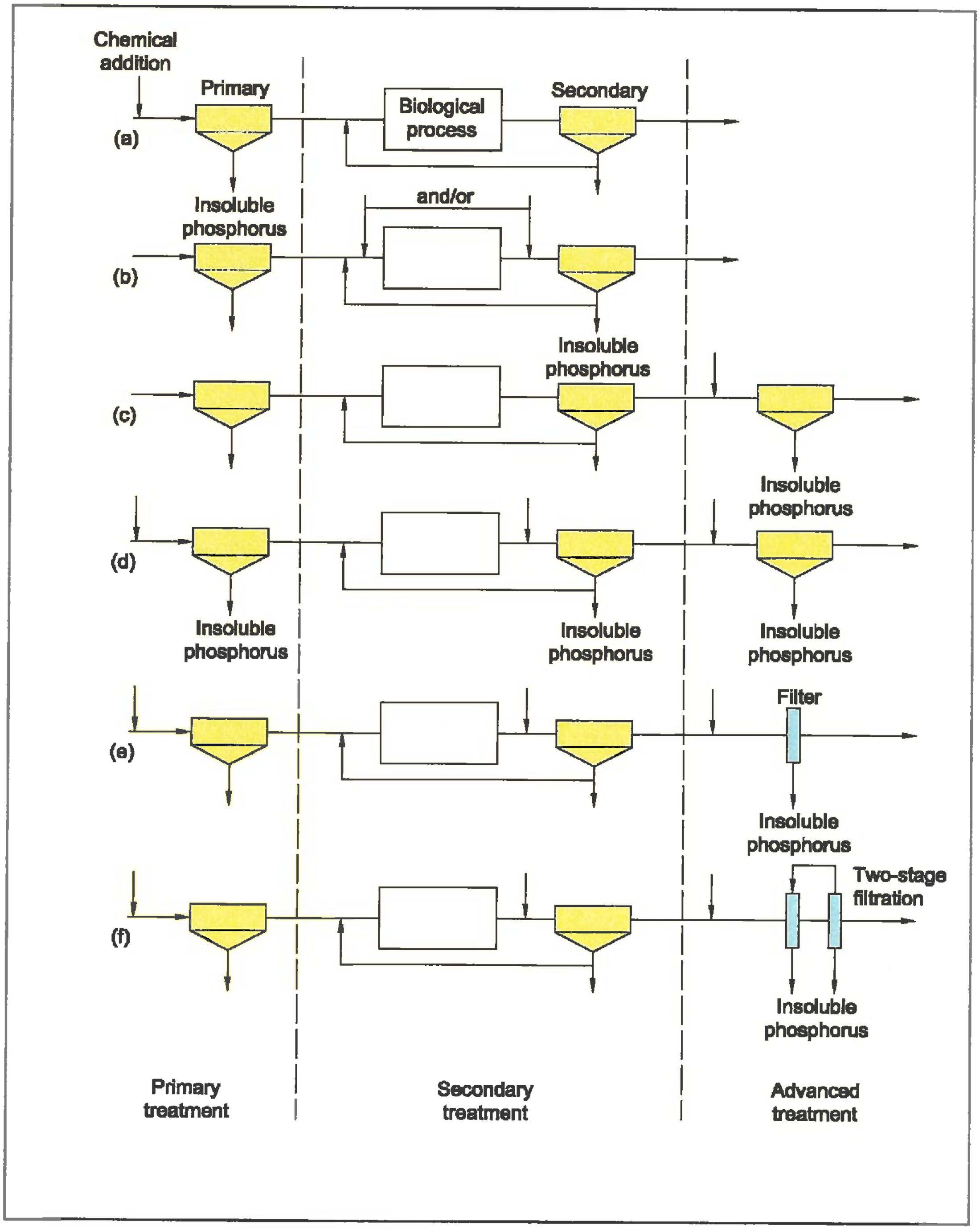


Source: Metcalf & Eddy, 4th Edition

Metal Salt Addition
The metal salts can be added in various places within the plant, see Figure 7.4. In addition to the locations shown in Figure 7.4, the metal salts can be added to thickener and belt press underflow. Because polyphosphates and organic phosphorus are less easily removed with chemicals than orthophosphate and polyphosphates, and organic phosphorus are converted to orthophosphate in the

secondary treatment process, adding alum or iron after secondary treatment usually provides the best removal. As indicated in Figure 7.4, metal salts could be added prior to the secondary clarifiers. Another option would be to add metal salts prior to tertiary filtration, if added to plant.

FIGURE 7.4
Chemical Addition Locations



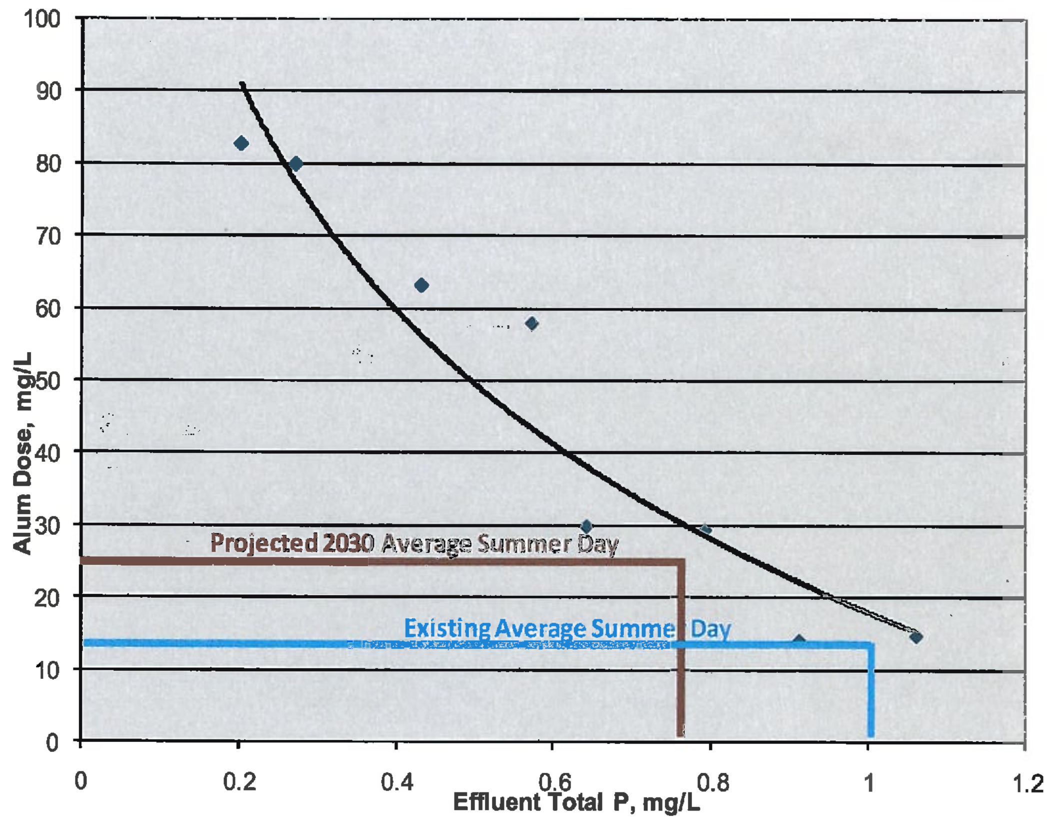
Alum Addition Pilot Study

In order to determine whether the City could meet the expected new effluent total phosphorus limits with chemical addition alone, the City conducted a pilot test of chemical treatment to remove phosphorus using alum. The pilot test provided data to correlate chemical dose with effluent total phosphorus concentration. The pilot test protocol, tables of the raw data, and various charts of the data are provided in Appendix E. A summary of the pilot test and the results are provided in this section.

The pilot test was conducted from August 30, 2010 to September 18, 2010. During that time, alum (48% liquid) was metered into the aeration basin overflow prior to the secondary clarifiers. The piping and splitter box were used as a flocculation chamber. Grab and composite samples of the plant influent and effluent were collected during each dose and analyzed for total phosphorus at Alchem Laboratory. The aeration basins effluent was dosed at 15 mg/L, then 30 mg/L, then 60 mg/L, and then 80 mg/L. The effluent total phosphorus at a dose of 15 mg/L averaged about 0.9 mg/L, at a dose of 30 mg/L averaged about 0.6 mg/L, at a dose of 60 mg/L averaged about 0.4 mg/L, and at a dose of 80 mg/L averaged about 0.2 mg/L. A dose/response curve of the composite sample data is provided in Figure 7.5.

As indicated in Figure 7.5, the alum dosage required to meet the permit limit during the summer of 2010 is 15 mg/L with effluent total phosphorus less than 1.1 mg/L at an average flow of 1.5 mgd. For the 2030 average summer day flow of 2.1 mgd, the required dose would be 30 mg/L to provide effluent total phosphorus of less than 0.8 mg/L. At the maximum month flow of 2.7 mgd, the required effluent would be less than 0.62 mg/L and an alum dose of around 40 mg/L. Thus based on the pilot study, it appears that chemical addition without filtration is a viable option for Weiser.

FIGURE 7.5
Effluent Total P vs. Alum Dose



Filtration

Since filters would be added to the Weiser WWTP solely for phosphorus removal in conjunction with chemical precipitation, filters are going to be included in the chemical removal section. There are a number of different types of filters, each with advantages and disadvantages as discussed below.

***Pressure or Gravity Sand Filter*:** This type of filter is very similar to a potable water treatment filter in which suspended material is captured on or just below the sand surface and the captured material is periodically removed by a high rate backwash. Typically four (4) or more filters are provided to allow backwash of the dirty filter using clean water from the other filter cells. Estimated construction cost is approximately $2,000,000.

Advantages:

- Proven long term reliable filtration technology

Disadvantages:

- Very high backwash rate and volumes required
- Requires pumps to move water through filters and additional pumps for backwashing

- At least four filters are needed to meet backwash needs
- More instrumentation piping and valves
- High capital cost
- Performance not as good as newer technologies
- Not used for phosphorus removal

Traveling Bridge Sand Filter: This type of filter is similar to the above gravity sand filter except it consists of 20-30 smaller (8-12" wide) parallel filter cells in one large sand filter bed which allow the filter to produce clean water while only using a fraction of that water to backwash the smaller individual cells. The cells are backwashed by a traveling bridge with a hood which continuously travels over the filter bed backwashing each individual cell as it traverses across the bed. Estimated construction cost is approximately $1,500,000.

Advantages:

- Used in numerous wastewater plants the last 30-40 years
- Relatively low backwash rate and headloss
- Filter operates continuously without shutdown for backwash
- Relatively low capital cost compared to other alternatives

Disadvantages:

- Traveling bridge has had history of binding on rails which requires periodic adjustments of wheels and rail
- The perforated underdrain system periodically clogs; requiring filter shutdown, sand removal, and acid wash of the underdrain plates
- Performance not as good as newer technologies
- Not used for phosphorus removal

Cloth Covered Drum Filter: This type of filter came on the market approximately 15 years ago first with membrane drum type media and then was upgraded with a cloth cover significantly improving backwash capability and solids removal performance. The filter consists of a series of cloth covered drums (6-12) mounted in a concrete basin or prefabricated steel tank. Solids are removed by filtering through the individual cloth covered drums. As buildup of solids occurs on the drums, a vacuum assisted shoe moves over the drum cleaning it while the other drums continue to operate. Each 12 drum filter module is capable of 3 MGD max day flow rate. Therefore, three 12 drum modules will be needed for this application to produce 6.0 MGD with a redundant filter. Estimated construction cost is approximately $1,300,000.

Advantages:

- Excellent TSS removal performance (75-80%)
- Minimal headloss
- Continuous operation during backwashing
- Low backwash rate
- Relatively lower capital cost
- Ability to handle intermittent flows from SBR's without blinding filters
- Smallest foot print
- More tolerant of high solid loads without filter break through

Disadvantages:

- If TSS loading is high (>30 mg/L) backwash volume can be high
- Cloth drum filter covers must be replaced approximately every 5-7 years
- Not often used for phosphorus removal because adding metal salts and polymers requires chemical cleaning of cloth filter material which increases O&M costs

Upflow Sand Filter: This type of filter introduces influent into the bottom of a sand bed and is conveyed upward through the sand to an effluent weir. The unique characteristic of this filter is the washing mechanism. Downward moving sand with filtered solids is collected at the bottom. An air scour system scours and separates the solids buildup in the sand bed. Clean sand is returned to the top of the bed through an airlift pipe. Estimated construction cost is approximately $1,570,000.

Advantages:

- Continuous washing mechanism without the use of pumps
- Very low water consumption for backwashing and wasting
- Relatively low headloss across filter
- Excellent TSS removal
- Used specifically for phosphorus removal with good performance
- Improved redundancy due to large number of filter cells

Disadvantages:

- Requires continuous wastewater flow to prevent compaction of sand and are not recommended for SBR applications

- Large number of individual filter cells (10 for 5 mgd) needed for filtering
- More collection piping and valves required due to number of individual cells
- Increased maintenance
- Higher capital cost
- High intermittent flows can blind filters
- Larger footprint due to number of filters

Membrane Microfiltration: These filters are typically used in potable water applications; however, they have also been used for tertiary filtration of wastewater for TSS and phosphorus removal applications to very low levels. The membranes provide microfiltration using a large number of membrane fibers contained in encapsulated tubes or plates. They are typically sold in manufactured pre-package systems. Cost for MBR treatment equipment for a maximum month capacity of 2.7 MGD and a peak capacity of 5.2 MGD by membrane microfiltration would be approximately $2,000,000. This cost does not include the concrete, mechanical, electrical, and civil costs for a MBR plant. These costs are discussed below in Section 7.3.2.

Advantages:

- Best removal performance
- Continuous operation during backwash
- Low backwash rate
- Small footprint

Disadvantages:

- Very high capital cost
- Relatively high headloss through filter
- Susceptible to blinding
- Requires chemical storage, handling, and feed for cleaning membranes
- High membrane replacement cost

Filter Recommendations: Keller Associates recommendation is that the City installs upflow filters by manufacturers with experience in phosphorus removal (Blue Water and Parkson). The filters should be sized for average day capacity of 1.5 MGD with the ability to pass the peak flow of 5.2 MGD. The filters should be designed for installation in concrete basins. In addition, the there will be chemical storage and feed facilities for chemical addition for phosphorus removal.

7.2.6 DISINFECTION

Weiser currently uses chlorination for disinfection. In general, there are two principal disinfection methods used at wastewater treatment plants chlorination and ultraviolet (UV) disinfection. Due to the hydraulic profile at the Weiser WWTP, UV facilities would have to be below grade or the secondary effluent would have to be pumped to new UV facilities. Weiser's chlorination facilities are gas chlorination facilities and the City has identified switching to a different source of chlorine as a priority. Chlorination usually requires de-chlorination facilities to reduce residual chlorine to an acceptable level for discharge. The design criteria for disinfection are an inlet water quality of <20 mg/L TSS and an effluent limit of <126 E. Coli/100 mL and a chlorine residual of 0.5 mg/L at a peak hour flow rate of 5.2 mgd. The City currently doses the effluent at between 1.5 and 2.0 mg/L in order to not exceed the effluent chlorine residual limit. The City does not have dechlorination facilities to control the effluent chlorine residual. Alternatives for chlorination and de-chlorination and UV are discussed below.

<u>Chlorination</u>
Chlorine Contact Chamber: The existing chlorination system at Weiser consists of chlorination using chlorine gas that is mixed with W3 water and injected into the flow prior to the chlorine contact basins. There are two existing chlorine contact chambers. Each chamber is 72" diameter concrete pipe that is 365 feet long and has a volume of 77,200 gallons. At the maximum monthly daily flow of 2.70 mgd this represents a contact time of 82 minutes and at the maximum hourly flow of 5.2 mgd this represents a contact time of 42 minutes. Thus the existing chambers provide sufficient contact time for the design peak flow.

Chlorine Gas: The existing chlorination system uses chlorine gas. The City has existing facilities to receive and transport chlorine cylinders. However, the City has eliminated chlorine gas as an alternative for the following reasons:

- Chlorine gas is a hazardous material that has the potential for serious injury to the operators and City residents in the event of an accident.
- The existing chlorine storage building requires substantial improvements to meet current hazardous materials storage requirements.
- The City's Hazardous Material Spill Response Plant requires updating to meet current requirements.

Sodium Hypochlorite: One alternative to using chlorine gas is a 12.5 percent solution of sodium hypochlorite. Sodium hypochlorite can be delivered to the site in 55-gallon drums, 275-gallon totes, or 4,300 gallon tankers. Assuming a dose of 5 mg/L and an average daily flow of 1.50 mgd, 21,900 gallons of 12.5% sodium hypochlorite will be required each year. For a 4,300 gallon tanker this represents five deliveries during the year. A 5,000 gallon storage tank would be provided to allow for a full tank load from a tanker truck. New chlorine storage facility would have to meet the current Fire Code for fire suppression, storage, secondary containment, and separation.

On-Site Chlorine Generation: A second alternative to using chlorine gas is on-site chlorine generation using salt as the source of chlorine. The on-site chlorine generators produce sodium hypochlorite from a solution of water and salt using electricity. The chlorine generator systems are modular, cost efficient and safe because they eliminate the handling of hazardous materials. The systems are sized according to the required pounds of chlorine per day. In order to provide a dosage of 5 mg/L at 3.0 mgd, 125 pounds per day of chlorine are required. The sodium hypochlorite produced is a 0.8 percent solution that is not considered hazardous and thus the storage amounts are not limited or subject to storage restrictions or fire suppression systems. For each pound of chlorine produced, three pounds of salt, 2 kWh of electricity and 15 gallons of water are consumed.

Summary of Chlorination Options: A summary of the usage and cost analysis for each chlorination alternative is provided below in Table 7.7. The present value is for twenty years at 6 percent discount rate.

TABLE 7.7
Estimated Chlorination Costs

	Chlorine Type	
Capital Costs	Sodium Hypochlorite	On-Site Generation
Equipment	$0	$158,000
Building	$90,000	$116,000
Concrete	$36,000	$43,000
Piping	$5,000	$5,000
Electrical	$60,000	$75,000
Total	**$232,000**	**$397,000**
O&M Costs		
Chemicals	$50,000	$15,400
Power	$1,500	$8,600
Labor	$1,500	$4,500
Total O&M	**$53,000**	**$31,500**
Present Value	**$839,000**	**$758,000**

De-Chlorination

De-chlorination systems use a strong reducing agent to reduce the residual chlorine to chloride. The reducing agents most commonly used at wastewater plants are sulfur dioxide gas and liquid sodium bisulfite. The dechlorination system will consist of a tank sized for a hydraulic residence time of two minutes with mixing. The dosage can be controlled by the effluent flow meter or chlorine residual analyzer.

Assuming an effluent chlorine residual of 3 mg/L, the dosage rate for the dechlorination agent will be approximately 5 mg/l to provide a reducing residual. The chemical costs are included in the cost summary analysis in Table 7.8.

TABLE 7.8
Estimated De-Chlorination Costs

Capital Costs	De-chlorination Type Sulfur Dioxide	Sodium Bisulfite
Equipment	$32,000	$0
Building	$120,000	$90,000
Piping	$8,000	$5,000
Electrical, controls	$60,000	$60,000
Total	**$220,000**	**$155,000**
O&M Costs		
Chemicals	$13,000	$23,200
Labor	$4,500	$1,650
Total O&M	**$17,500**	**$24,850**
Present Value	**$417,000**	**$438,000**

The least expensive option in the long run is on-site generation of sodium hypochlorite in a new building and dechlorination with sulfur dioxide gas using the existing chlorine storage room. The present value of the on-site chlorine generation and sulfur dioxide option is $980,000.

UV Disinfection

Ultraviolet light at the proper wavelength alters the genetic material (DNA) in cells so that bacteria, viruses, molds, algae and other micro-organisms can no longer reproduce. This inactivation of the micro-organisms achieves the required disinfection to satisfy environmental requirements as well as protect the river habitat.

The UV disinfection equipment would be sized for a peak flow rate of 5.2 MGD with redundant lamps. It is anticipated that a high intensity lamp UV system will be specified since the newer high intensity lamps are self cleaning systems and are operator friendly.

A UV system would have a minimum of two banks of lamps installed in series inside a stainless steel chamber. A horizontal orientation of the lamps is typical. The number of lamps, modules, and power requirements would be evaluated during design; however, the maximum power is not expected to exceed 15 kW. The equipment would be housed to provide better working conditions for maintenance during the winter season. Due to the hydraulic grade line, the UV equipment would have to be installed below grade which increases the building costs. A cost analysis for one of the two major manufacturers of UV equipment is provided below. The chlorine costs shown in the estimated UV costs are the costs to provide chlorine for the W3 water that would be necessary to add if UV was selected.

TABLE 7.9
Estimated UV Costs

Capital Costs	High Intensity Lamps
UV Equipment	$267,000
Building	$150,000
Chlorine Equipment	34,000
Piping	$10,000
Electrical, controls	$75,000
Total	**$534,000**
O&M Costs	
Power	$7,600
Lamp Replacement	$4,800
Labor	$10,800
Total O&M	**$23,200**
Present Value	**$800,000**

Summary of Disinfection Options

The following table is a summary of the advantages and disadvantages of the equipment described above:

TABLE 7.10

Summary of Advantages and Disadvantages of Disinfection Alternatives

	Advantages	Disadvantages
Chlorine	• Chlorination is a well-established technology. • Presently, chlorine is more cost-effective than either UV or ozone disinfection (except when dechlorination is required and fire code requirements must be met) • The chlorine residual that remains in the wastewater effluent can prolong disinfection even after initial treatment and can be measured to evaluate the effectiveness. • Chlorine disinfection is reliable and effective against a wide spectrum of pathogenic organisms. • Chlorine is effective in oxidizing certain organic and inorganic compounds. • Chlorination has flexible dosing control • Chlorine can eliminate certain noxious odors during disinfection.	• The chlorine residual, even at low concentrations, is toxic to aquatic life and may require dechlorination. • All forms of chlorine are highly corrosive and toxic. Thus, storage, shipping, and handling pose a risk, requiring increased safety regulations. • Chlorine oxidizes certain types of organic matter in wastewater, creating more hazardous compounds (e.g., trihalomethanes [THMs]). • The level of total dissolved solids is increased in the treated effluent. • The chloride content of the wastewater is increased. • Chlorine residual is unstable in the presence of high concentrations of chlorine-demanding materials, thus requiring higher doses to effect adequate disinfection. • Some parasitic species have shown resistance to low doses of chlorine, including oocysts of Cryptosporidium parvum, cysts, of Endamoeba histolytica and Giardia lamblia, and eggs of parasitic worms. • Long-term effects of discharging dechlorinated compounds into the environment are unknown.
UV	• UV disinfection is effective at inactivating most viruses, spores, and cysts. • UV disinfection is a physical process rather than a chemical disinfectant, which eliminates the need to generate, handle, transport, or store toxic/hazardous or corrosive chemicals. • There is no residual effect that can be harmful to humans or aquatic life. • UV disinfection is user-friendly for operators. • UV disinfection has shorter contact time when compared with other disinfectants (approximately 20 to 30 seconds with low-pressure lamps). • UV disinfection equipment requires less space than other methods.	• Low dosage may not effectively inactivate some viruses, spores, and cysts. • Organisms can sometimes repair and reverse the destructive effects of UV through a "repair mechanism," known as photo reactivation, or in the absence of light known as "dark repair." • A preventive maintenance program is necessary to control fouling of tubes. • Turbidity and total suspended solids (TSS) in the wastewater can render UV disinfection ineffective. UV disinfection with low-pressure lamps is not as effective for secondary effluent with TSS levels above 30 mg/L. • UV disinfection is not as cost-effective as chlorination, but costs are competitive when chlorination dechlorination is used and fire codes are met. • Will still need chlorine for the W3 system.

Although the most cost effective disinfection option uses a low pressure high intensity UV system installed in the filter building (PV of $800,000), the operators of the plant do not want a UV system. The reasons are that chlorine will still be needed at the site for the 3W system and for filamentous bacteria control in the RAS, chlorine is more reliable, and the UV lamps require too much manual labor to maintain. Based on operator preference and the need for chlorine at the plant, the chlorine regeneration system and de-chlorination using sulfur dioxide is the selected option (PV of $1,175,000).

7.2.7 NEW THICKENER

Process Objectives
The existing dissolved air flotation thickening (DAFT) facility for the plant is 30 years old. But it has been well maintained and performs well. Currently, the feed solids are approximately 1%, the feed rate is 2 pounds per square feet per hour, the DAFT sludge output is approximately 3 to 5%, and the thickened activated sludge (TAS) is pumped to the digesters by a single, plunger-type pump that has a capacity of 10 to 80 gpm.

Process Options
Solids thickening can be achieved by a number of different process options. These options, except the existing DAFT, would require that the existing DAFT be demolished and the existing space cleared for installation of the new thickener. Since there is no access to the DAFT, part of the building would have to be demolished and rebuilt. In addition, the WAS piping would be connected to the inlet of the new thickener and the TAS from the new thickener connected to the TAS pipe to the P-J-1-3 (thickened sludge pump). These costs are included in each option. Each option must be capable of thickening the WAS from approximately 0.4% to approximately 4.0% and not release excessive phosphorus back to the process tanks. The solids thickening alternatives will be discussed in further detail below.

Gravity Thickener: This option would require installation of a gravity thickener in the DAFT room. A gravity thickener looks like a circular clarifier. The WAS is fed to the center feed well and allowed to settle and compact. The thickened sludge would be withdrawn by the existing thickened sludge pumps. Conventional sludge collection mechanism would be installed in the bottom of the gravity thickener to gently nudge the sludge to a collection point. The supernatant overflows a perimeter weir and would be directed to the recycle pump station and pumped to the headworks.

Advantages:

- Uses gravity for thickening
- Simple operation
- Reliability of operation excellent

Disadvantages:

- Difficult to install inside the existing building
- Needs primary sludge to function reliably
- Higher potential for bulking solids and odors if solids are retained in storage for several days
- Will release phosphorus in overflow due to anaerobic conditions in the thickener

Due to the likely release of phosphorus back to the aeration tanks, this option is eliminated.

Gravity Belt Thickener: This option would require installation of a gravity belt thickener in the DAFT room. A gravity belt thickener consists of a gravity belt that moves over rollers driven by a variable speed drive. The sludge is conditioned with polymer and fed into a feed box that distributes the sludge evenly over across the belt. The water drains through the belt and is collected and discharged to the recycle pump station and pumped to the headworks. A series of plow blades helps water drain from the sludge through the belt. The sludge is collected on the belt and discharged to a hopper. The outlet from the hopper would be connected to the existing thickened sludge pumps. Estimated construction cost for this alternative is $550,000.

Advantages:

- Reliable means of thickening sludge solids up to 3-6%
- Similar to existing belt press

Disadvantages:

- Highest construction cost
- Complex mechanical device requiring detailed maintenance and higher mechanical skills
- Two gravity belt thickeners required for redundancy and reliability

Drum Thickener: This option would require a drum thickener be installed in the DAFT room. A drum thickener relies on a screening mechanism to retain solids with filtrate returned to the plant headworks via the recycle pump station. Sludge would be pumped from the WAS pumps to the drum thickener and polymer added. A flocculation tank at the drum thickener allows the solids to coagulate and flocculate. The thickened sludge screenings are collected on the screen and conveyed to a chute at the end of the drum. The chute would be connected to the existing thickened sludge pumps. Estimated construction cost for this alternative is $440,000.

Advantages:

- Least cost
- Simple operation
- Reliable means of thickening sludge solids up to 3-6%
- Lowest energy cost
- Low polymer usage

Disadvantages:

- Mechanical equipment capable of breakdown
- Two drum thickeners required for redundancy and reliability

***Dissolved Air Flotation Thickener*:** This option would require continued use of the existing DAFT. Due to the age of the equipment, 30 years, we recommend that the DAFT be rehabilitated. We obtained an estimate from the manufacturer, Tenco Hydro, Inc., and the cost for the parts, installation, and tank coating for rehabilitation is estimated at $130,000.

Advantages:

- Lowest capital cost
- Plant operators are familiar with its operation
- Can thicken sludge solids up to 2-5%

Disadvantages:

- Complex mechanical equipment capable of breakdown
- Highest operating costs
- Manufacturer no longer manufacturers the model that Weiser has but has the drawings and can manufacturer parts as needed
- Lowest thickening performance of options

***Solid-Bowl Centrifuge Thickener*:** This option would require a solid-bowl centrifuge thickener be installed in the DAFT room. A solid-bowl centrifuge thickener consists of a long bowl mounted horizontally and tapered on one end. Sludge is introduced into the unit continuously and the solids concentrate on the periphery. The internal helical scroll, spinning at a slightly different speed, moves accumulated sludge toward the tapered end where additional solids concentration occurs and the thickened sludge is discharged. The centrate is returned to the plant headworks via the recycle pump station. Estimated construction cost for this alternative is $540,000.

Advantages:

- Reliable means of thickening sludge solids up to 4-6%
- Requires least space

Disadvantages:

- Complex mechanical equipment capable of breakdown and requires skilled operators and repair technicians
- Substantial maintenance and power required
- Two centrifuges required for redundancy and reliability

Thickening Recommendation
It is recommended that the City continue with the existing DAFT for several key reasons:

- Least capital
- Operators familiar with process
- No piping changes
- Simple, reliable operation
- Existing 3-5% thickening of solids sufficient for aerated sludge basins

7.2.8 AERATED SLUDGE SYSTEM

Deficiencies
The deficiencies for the aerated sludge system are upgrading the diffusers in Digester No. 1 and No. 2, installing diffusers in Digester No. 3, and replacing the blowers for the digesters.

Repair Concrete
After reviewing the condition of the concrete in Digester No. 1 we have determined that no additional work is required for continued current use.

New Diffusers
Digesters No. 1 and 2 should have their diffusers upgraded to match those going into the aeration tanks to utilize common parts. The mixing pump should be removed from Digester No. 3 and replaced with diffusers. The number of diffusers in Digesters No. 1 and 2 can remain the same. The estimated number of diffusers needed in Digester 3 is 50.

Blowers
As indicated in Chapter 6, the blowers for the digesters need to be replaced to provide the aeration needed for mixing into the future. The options and pros and

cons for these options are the same as discussed above in Sections 7.2.3.1.6 and 7. Again we recommend replacing the existing blowers with turbo blowers.

Recommendation
There is no reasonable alternative to replacing the diffusers. Keller recommends replacing the diffusers and installing new turbo blowers for the aerated sludge digesters. The estimated cost to replace the blowers with new turbo blowers, install diffusers in Digester No. 3, install air piping to digester No.3, install DO analyzers in each tank, actuators on each butter fly valve, and provide the SCADA programming to control the aeration based on DO is estimated at $570,000.

7.2.9 SLUDGE DRYING BEDS

Deficiencies
As discussed in Chapter 6, the sludge drying beds need to be expanded and a second water storage pond constructed.

Bed Expansion
The plant will produces approximately 865,000 pounds per year (ppy) of dried solids in 2030. At the Weiser evaporation rate of 35 inches per year, a percent solids applied of 18% (solids from the belt press), and a goal of 95% solids, the plant needs approximately 2.8 acres of drying beds for the existing flow compared to 1.13 acres in the existing system. The beds would be expanded by extending the drying beds to the north.

The existing drying bed generates approximately 392,000 gallons of runoff during the year. The existing storage pond holds approximately 212,000 gallons and will evaporate approximately 122,000 gallons per year. The difference between the runoff and evaporation plus storage is approximately 58,000 gallons. Thus the existing water storage pond is undersized.

The expanded drying bed system will generates approximately 924,000 gallons of runoff during the year. The additional storage required to is approximately 415,000 gallons. The total storage available would be approximately 627,000 gallons and the total annual evaporation would be approximately 362,000. Thus the storage ponds would be oversized by about 65,000 gallons.

The estimated cost to construct a new, additional 1.67 acre sludge drying bed is estimated at $700,000. The estimated cost to construct a new 415,000 gallon water storage pond is estimated at $360,000. Thus the total estimated cost for the additional sludge drying bed required is approximately $1,060,000.

The estimated operating costs for the sludge drying bed are approximately $20,000 per year for hauling sludge quarterly, spreading sludge quarterly, and disposing of the dried sludge quarterly.

Sludge Dryer
An alternative to expanding the sludge drying beds would be to install a sludge dryer at the plant. A sludge dryer reduces the volume of the dewatered sludge and provides a Class A sludge. In addition, volume reduction reduces the onsite area for storage during the winter months when it cannot be spread.

The dewatered sludge from the existing belt press would be conveyed by auger into a hopper which feeds the dryer. The hopper would be sized for several days sludge production. The solids then pass through the dryer process and are dried to approximately 90% solids content. They would then be conveyed to a storage room for future pickup or sale to interested users.

There are several different types of sludge dryer including screw heat exchanger, solar, furnace dryer, and belt dryer. The cost of the sludge drying process is estimated at approximately $2.3 to $3.5 million depending on the option. This preliminary cost estimate includes the cost of the equipment, building, and installation. The operation and maintenance cost for these sludge dryers range from $43,000 to $136,000 per year.

Recommendation
Since the capital and operating costs for the expanded sludge drying bed are less than the capital and operating costs for the sludge drying options, the present value of the expanded sludge drying beds is the least. Thus Keller recommends expanding the sludge drying beds.

7.2.10 W3 PUMPS

Deficiencies
As discussed in Chapter 6, the W3 pumps and strainer system need to be replaced. Options for new pumps are discussed below.

Vertical Turbine
The existing vertical turbine pumps could be rebuilt or new vertical turbine pumps with VFD could be purchased. The advantage to installing new pumps is that VFD could be added to provide more control and power savings. A pressure sensor on the outlet piping would be used to control the pump speed to maintain pressure. A control panel and new MCC would be designed for the VFD and PLC to control the pump operations. The estimated cost to rebuild the existing three vertical turbine pumps is $30,000. The estimated cost to add VFD, frequency filters, sensor, PLC and programming is approximately $75,000. The cost to install two new vertical turbine pumping system with pumps, VFD, inlet strainer, and controls is approximately $115,000. This system has two 30 hp pumps each rated at 350 gpm, one is a back up to the other.

Multi-Stage Centrifugal

Several manufacturers fabricate systems using multi-stage centrifugal pumps on a skid with integral piping, valves, instrumentation, and control panels. The skids come with three to seven pumps depending on the flow range. The control panel(s) has a VFD for each pump. The pump controls ramp the pumps up and down to maintain the pressure in the outlet piping. A pneumatic tank is normally included to provide for some system storage. The pumps can be installed in the same location with the pump inlets extending into the effluent sump. The power requirements are 240/480 V, 3 phase, 60 Hz. The estimated cost for a new 350 gpm pumping system complete with 3 15 hp pumps, header pipe, instruments, control panel and installation is approximately $50,000. Note that this system has a maximum flow of 300 gpm with all three pumps at 100%.

VFD W3 pump system

Strainer

The existing strainer is a S. P. Kinnery 8"-A. It can be sent back to the manufacturer in Pittsburg, Pennsylvania and rebuilt for approximately $17,000. The strainer is a 300 micron strainer. S.P. Kinney provides a one year warranty after rebuilding. A new 300 micron strainer would cost about $25,000. If the selected alternative includes effluent filters then a filter would not be required. If there is no filter, than the strainer will either be rebuilt or replaced.

Recommendation

Keller Associates recommends the multi stage centrifugal system with the rebuilt strainer. The total cost of the system would be approximately $70,000. This system will have lower power costs because it utilizes three smaller pumps that can provide a flow range from 30 gpm to 350 gpm.

7.2.11 SCADA

General

The SCADA system is designed to provide full control and data acquisition. A typical design would install PLC around the plant to control local equipment and then network these PLC to a SCADA PC in the control room with Ethernet cable or fiber optics. The SCADA PC could access each PLC to monitor the plant equipment and download data and could be used to change set points and turn equipment on and off. Two examples of how the system would work follows.

A PLC in the blower building would control the aeration blowers and the digester blowers. The PLC would be connected to dissolved oxygen probes, valve actuators, and the blower VFD. Set points in the PLC would allow the PLC to control the DO within the aeration basins and digesters by controlling the speed of the blowers and positions of the valves.

A PLC in the solids handling building would control operation of the RAS and WAS pumps, the DAF system, and the belt press. Pressure sensors, flow meters, MCC, equipment control panels, and actuators would be connected to the PLC to provide data and control. The DAF and belt press equipment would be turned on manually due to the complexity involved in starting up these pieces of equipment.

7.3 TREATMENT AND DISPOSAL SCREENING

7.3.1 SHORT TERM ASSET REPLACMENT

Keller recommends that the replacement or rebuild of the W3 pumps and the rehabilitation of the DAFT be removed from the WWTP Improvement Project and included in the City's short asset replacement program and incorporated into the annual replacement budget in the next couple years. The W3 pumps need to be addressed as soon as possible since two of the three pumps have failed. The rehabilitation of the DAFT would be completed by the equipment manufacturer and does not require a general contractor to complete the work. The cost estimates for the final treatment alternative screening does not include the cost for these two items.

7.3.2 DISPOSAL SELECTION

To assist in narrowing the wide range of disposal alternatives discussed above, a matrix was generated to compare each alternative in regards to their advantages (lowest score represents most favorable). This matrix is presented in Table 7.11.

TABLE 7.11

Wastewater Disposal Alternative Relative Comparison Matrix

Parameter	Rapid Infiltration	Slow Rate Application	Direct Discharge (NPDES)	Reuse	Wet Lands
Operator Attention	2	2	1	3	3
Land Requirements	2	3	1	3	3
General Aesthetics	2	2	3	1	1
Treatment Requirements	2	1	2	3	1
Cost	2	1	1	3	2
TOTAL	10	**9**	**8**	13	10

1 – Most Favorable
2 – Moderately Favorable
3 – Least Favorable

Thus the recommended discharge alternatives are land application or continuing with the NPDES discharge permit. If the plant continues with the NPDES discharge, we recommend that the City incorporate reuse into their facilities and master planning in order to install a reuse piping system over the long term. Developers can be required to install reuse piping in roads near their property and installation of reuse piping can be included when installing new sewer mains.

7.3.3 TREATMENT SELECTION

Treatment for Land Application

For the land application alternative, the least expensive of the lagoon options for the City to install would be the facultative lagoon system. This is because the additional land requirements are offset by the lack of aeration equipment. In addition the operations costs are the least due to the low power cost. Thus the present value of the facultative lagoon is the lowest of the lagoon alternatives. All of the lagoon options require the same winter storage lagoon and land application site. The effluent from the lagoon would be disinfected with chlorine prior to land application. This option is described in more detail below in Section 7.4.

A second option is to provide treatment at the WWTP for disposal via land application during the summer and NPDES discharge during the winter. Thus the improvements to the plant required for this option would not include phosphorus removal. This option is described in more detail below in Section 7.4.

Treatment for NPDES Discharge

The treatment processes for continuing with NPDES discharge will require phosphorus removal and alternatives that address the deficiencies discussed above. A selection of the preferred alternative for each process follows.

Headworks

TABLE 7.12
Headworks Treatment Alternatives Relative Comparison Matrix

Parameter	New Building on Existing	New Headworks adjacent to Existing	New Headworks on North end of Site
Capital Cost	1	3	3
O & M Costs	2	1	3
Operator Attention	3	1	2
Footprint	1	2	3
Screenings Removal	1	1	1
Grit Removal	3	1	1
Odor	1	1	1
Expandability	3	3	1
Process Complexity	2	1	1
Longevity	3	3	1
Reliability	2	1	1
General Aesthetics	2	2	1
TOTAL	24	20	**19**

1 - Most Favorable
2 - Moderately Favorable
3 - Least Favorable

Thus the selected option is installation of new headworks on the west side of the site.

Phosphorus Removal Process

TABLE 7.13
Phosphate Treatment Technologies Relative Comparison Matrix

Parameter	BPR	Sequencing Batch Reactor	Membrane Bio-Reactor
Capital Cost	1	2	3
O & M Costs	1	2	3
Operator Attention	2	3	1
Footprint	2	3	1
Organic Removal	1	1	1
Nitrogen Removal	1	1	1
Phosphorus Removal	1	2	1
Expandability	2	3	1
Process Complexity	1	2	3
Reliability	1	2	1
General Aesthetics	1	1	1
TOTAL	**14**	22	17

1 - Most Favorable
2 - Moderately Favorable
3 - Least Favorable

Thus the selected option is installation of a BPR system. Due to the cost of rehabilitation of the existing concrete aeration basins, the cost of replacing the existing, failing sluice gates, the difficulty of working in the existing aeration basins while continuing to operate the basins, the BPR system is recommended to be constructed on the west end of the site.

Tertiary Treatment Process

TABLE 7.14
Filter Comparison Matrix

Parameter	Pressure/ Gravity Filter	Traveling Bridge Sand Filter	Cloth Drum Filter	Upflow Filter	Membrane Microfilter
Headloss	3	1	1	2	3
Backwash Rate	3	2	2	1	2
Backwash Volume	2	3	2	2	1
Footprint	2	3	1	2	1
TSS Performance	3	3	2	2	1
P Performance	3	3	3	1	1
Maintenance	2	3	2	1	3
Capital Cost	1	1	2	2	3
Reliability	3	3	2	1	1
General Aesthetics	3	3	2	1	1
TOTAL	25	25	18	**15**	17

1 – Most Favorable
2 – Moderately Favorable
3 – Least Favorable

Thus the selected option is the continuously backwashing upflow sand filter.

Disinfection Process

TABLE 7.15
Disinfection Comparison Matrix

Parameter	Sodium Hypochlorite	On-Site Generation	UV
Capital Cost	1	2	3
O & M Costs	3	2	1
Operator Attention	3	2	1
Footprint	3	2	2
Disinfection Performance	1	1	2
Process Complexity	1	2	3
Provides Chlorine for W3	1	1	3
Chlorination Byproducts	3	3	1
Requires De-chlorination	3	3	1
Reliability	1	1	3
General Aesthetics	3	2	1
TOTAL	22	**21**	21

1 – Most Favorable
2 – Moderately Favorable
3 – Least Favorable

The City prefers to continue with chlorination and add dechlorination because they use chorine for their 3W system and in the RAS to control filamentous bacteris. If the City used UV for disinfection, the City would still need a chlorination system for the W3 water and would thus be operating two systems.

De-Chlorination

TABLE 7.16
De-Chlorination Comparison Matrix

Parameter	Sodium Bisulfite	Sulfur Dioxide
Capital Cost	2	1
O & M Costs	2	1
Operator Attention	1	1
Footprint	2	1
De-chlorination Performance	1	1
Process Complexity	1	1
Reliability	1	1
General Aesthetics	1	1
TOTAL	11	**8**

1 – Most Favorable
2 – Moderately Favorable
3 – Least Favorable

The selected dechlorination option is sulfur dioxide.

WAS Thickening Process

TABLE 7.17
Sludge Thickening Technologies Relative Comparison Matrix

Parameter	Gravity Thickener	Drum Thickener	Belt Thickener	Wide Bowl Centrifuge	DAFT
Capital Cost	3	3	3	3	1
O & M Costs	1	2	3	2	2
Operator Attention	1	2	2	3	2
Footprint	3	1	2	1	1
Thickening	3	2	2	1	2
Phosphorus Release	3	1	1	1	1
Expandability	3	2	3	1	1
Process Complexity	1	2	3	3	2
Reliability	1	1	1	1	1
General Aesthetics	1	1	1	1	1
TOTAL	19	16	21	18	**14**

1 - Most Favorable
2 - Moderately Favorable
3 - Least Favorable

Thus DAFT is the selected process and rehabilitation of the DAFT by the manufacturer is the selected alternative. As discussed above, this work should be included by the City in its operation and maintenance budget for long term asset replacement and conducted as soon as the budget is approved.

7.4 TREATMENT RECOMMENDATIONS

The treatment processes discussed above for land application and NPDES discharge have been combined into treatment alternatives and a cost estimate prepared for each alternative. The first two alternatives involve land application year round (Option 1) or during the May 1 to October 30 period (Option 2) and four options for year round discharge under the NPDES permit.

1. The option that would eliminate discharge under NPDES permit year round includes a facultative lagoon, winter storage lagoon, and a land application site. The facultative lagoon option would require the City to acquire approximately 600 near the City, install a pipeline from the City to the site, construct a headworks system, facultative lagoon, winter storage lagoon, and disinfection system and install irrigation equipment on the land application site. The headworks would consist of a fine screen, flow metering, and building. The disinfection system would consist of a chlorine generator system, chlorine contact chamber, and irrigation pumping facilities. Under this option the sludge drying beds would be abandoned and not expanded.

2. A second land application option would be to treat the wastewater at the plant and pump the effluent to the land application site from May to October 30 and discharge to the river from November 1 to April 30. The land application facilities would include a booster pump station and pipeline from the City to the site, summer storage lagoon, booster pump station, land application site, and irrigation equipment on the land application site. The existing wastewater plant would be upgraded to address the deficiencies discussed in Chapter 6 and to meet the NPDES permit during the period November 1 to April 30 (no phosphorus limit). The facilities required include new headworks; upgrades to the aeration basins including new gate valves, electrical actuators, new blowers and VFD, electrical actuators for the air control valves, concrete repair, dissolved oxygen sensors for each tank, and a control system; upgrades to the disinfection system, upgrades to the aerated sludge storage tanks, and expansion of the sludge drying beds.

3. This mechanical treatment option would include new headworks building on the existing screen, rehabilitation of the existing aeration basins, biological phosphorus removal, upgrading the blowers, continued use of the secondary clarifiers, installation of upflow sand filters for additional phosphorus removal, installation of chlorine generator and de-chlorination,

installation of diffusers in Digester No. 3, upgrading the digester blowers, installation of a SCADA system to provide more automated control and data acquisition, and expansion of the sludge drying beds.

4. This mechanical treatment option would include new headworks adjacent to existing, biological phosphorus removal in existing aeration basins, upgrading the blowers, continued use of the clarifiers, installation of tertiary membrane filters for additional phosphorus removal, installation of UV disinfection, installation of diffusers in Digester No. 3, upgrading the digester blowers, installation of a SCADA system to provide more automated control and data acquisition, and expansion of the sludge drying beds.

5. Installing a new headworks, membrane bioreactor (in the existing aeration basins), upgrading the blowers, discontinue use of the clarifiers, installation of UV disinfection, installation of diffusers in Digester No. 3, upgrading the digester blowers, installation of a SCADA system to provide more automated control and data acquisition, and expansion of the sludge drying beds.

6. This mechanical treatment option would include new headworks, new primary clarifier, and new enhanced biological phosphorus removal basins all located on the west end of the existing site and upgrading the blowers, continued use of the clarifiers, installation of upflow sand filters for additional phosphorus removal, installation of UV disinfection, installation of diffusers in Digester No. 3, upgrading the digester blowers, installation of a SCADA system to provide more automated control and data acquisition, and expansion of the sludge drying beds.

Construction cost estimates for each alternative are summarized in Table 7.18. These costs are budgetary estimates only, and are used here for comparison purposes to aid in selection of a preferred treatment alternative. It should be noted that these costs include components common to all alternatives that would be included in the overall project (e.g. headworks, disinfection, digesters, etc.).

TABLE 7.18
Treatment Alternative Cost Comparisons

Option	Treatment Alternative	Total Capital Expenditure[1]	Annual O&M Costs[2]	Total Annualized Cost[3]
1	Lagoon and Land Application System	$ 14,200,000	$ 98,500	$ 919,000
2	Plant Improvements and Land Application Site	$ 15,100,000	$ 144,000	$ 1,015,000
3	BPR using Existing Basins with Up-Flow Filters	$ 11,650,000	$ 156,000	$ 830,000
4	BPR using Existing Basins with Membrane Filters	$ 15,720,000	$ 203,000	$ 1,112,000
5	New Membrane Bioreactor (MBR) at west end of site	$ 15,480,000	$ 216,000	$ 1,111,000
6	New BPR with Up-Flow Filters at west end of site	$ 14,730,000	$ 165,000	$ 1,015,000

[1] Capital costs include engineering and contingency; see Appendix C for detailed breakdown of each alternative.
[2] Including power costs at $0.06/kwh and labor costs at $20/hr (labor for processes only).
[3] Capital cost annualized at 4%, 30 yrs.; plus annual O&M.

7.4.1 BIO-SOLIDS TREATMENT AND DISPOSAL ALTERNATIVES

If the City selects alternative 1, then the solids handling processes will be abandoned and sludge will accumulate in the facultative lagoon. If the City selects one of alternative 2 through 6,the WWTP plant will produce a sludge that is stabilized and able to be dewatered by the existing belt press. As discussed above in Section 7.2.8, the City should install new diffusers in Digesters 1 and 2, remove the mixing pump in digester 3, and install diffusers in Digester 3, and install new turbo blowers for the three digesters. The City owns a sludge drying bed system and this system has produced sludge that is dried to at least 95% solids thus meeting Class A sludge requirements. The sludge drying beds need to be expanded as discussed above in Section 7.2.9. Considering the above, Keller recommends that the City continue with the current solids handling system with the improvements to the aerated sludge storage tanks and drying beds made above. The costs for the solids handling improvements have been added to alternatives 2 through 6 above.

7.4.2 BEST APPARENT ALTERNATIVE

Based on the alternative with the lowest present value, Keller recommends that the City implement Alternative 3 for the WWTP Improvements project. Chapter 8 will discuss the Best Apparent Alternatives in more detail.

CHAPTER 8.0 – BEST APPARENT WWTP IMPROVEMENT ALTERNATIVE

This chapter discusses the recommended alternatives for plant improvements to prepare the plant to meet the discharge limits in the City's new NPDES permit and to remedy the process problems discussed in Chapter 4.

8.1 MAIN LIFT STATION BEST APPARENT ALTERNATIVE

Recent upgrades to the Main lift station were completed in April 2011 which is expected to extend the useful life of the existing mechanical and electrical equipment. However, upgrades to the structural integrity of the lift station are needed in the next twenty years as the 150 HP pumps and motors begin to fail. The preferred alternative is to construct a parallel lift station facility directly adjacent to the existing lift station with a 12-foot diameter wet well. To eliminate some of the access challenges that exist with a dry well/wet well configuration, the City could consider using a wet well configuration with submersible pumps. The lift station could be equipped with an overhead crane if the City does not have a boom truck capable of lifting the proposed pumps. A three or four pump arrangement is recommended to improve redundancy and more accurately match pump capacity with typical flows. As an example, a three pump system would include (3) 75-hp pumps, motors, and VFDs. Two pumps would be capable of meeting peak wastewater flows with the third pump as backup. One 75-hp pump would be capable of meeting flows a majority of the time. New electrical, controls, standby power, and SCADA would be housed in a new control building or inside the existing lift station building with renovation. The City would likely have to acquire additional railroad right-of-way. The new lift station could be constructed without affecting existing lift station operations and flows could be diverted to the new wet well when complete. The existing wet well could be used for additional emergency wet well storage if determined structurally adequate. This alternative is estimated to cost approximately $712,100.

8.2 TREATMENT PLANT

This section discusses the recommended improvements for the WWTP. The improvements will be installed in three phases based on priority.

8.2.1 GENERAL

The treatment plant will be improved to correct deficiencies noted in Chapter 4, to provide increased capacity for 2030 loads, and to provide chemical treatment facilities to meet the new phosphorus limits. The selected alternative will be constructed in three phases as part of a long term capital improvements plan. The first phase or priority will include a new building over the existing headwork's screen, rehabilitation of the existing aeration basins concrete, installation of a new channel on the south side of the aeration basins to provide an alternative to the failing sluice gates and for better flow control, new aeration system for the aeration basins, new biological phosphorus control basins including one anaerobic cell and one anoxic cell with submersible mixers and recycle piping and propeller pumps, chemical storage and dosing facilities, disinfection upgrades including onsite chlorine generation and dechlorination facilities, and rehabilitation of the dissolved air flotation thickener (DAFT). Figure 8.1 provides a plan view of the selected alternative and the phasing for installation of the components of the selected alternative. These improvements will be discussed in more detail below.

8.2.2 HEADWORKS

The headworks will be improved by demolishing the existing building and constructing a new building that provides sufficient room around the existing step screen to maintain the screen. A winch will be provided to rotate the screen out of the channel for maintenance. The Headworks Building will be constructed with fire resistant materials to meet the requirements of a Class 1 Division 1 environment required for headworks. During design, options will be evaluated for providing a means to remove and replace the step screen for its eventual replacement. The existing method for transporting the washed screenings to the ground floor for disposal will be continued. A pH and temperature analyzer will be installed in the influent channel to provide continuous temperature and pH measurement. The pH, temperature, and influent flow data as well as status and alarms from the screen control panel will be provided to the SCADA system. This improvement will be included in Phase 1.

8.2.3 AERATION BASINS

The new treatment plant improvements will require any reused structures to have a useful life of at least 30 years. The existing concrete in the aeration basins is not likely to last 30 more years if used as is. It will require rehabilitation to extend the life of the concrete another 30 years. The concrete is sound but leaks and leaking joints will require repair and a coating will be required to protect the concrete from deteriorating elements. The cracks around the gate operators are minor and can easily be repaired. Different gate operators are planned for the new basin layout so the repaired areas will not be affected by the new gate operators.

The main rehabilitation work necessary is to stop or greatly reduce the leakage through the basin walls and expansion joint. The leaks currently visible in the walls are not severe and should be repairable with modern concrete repair products. The existing coating on the interior of the basin walls is in fair to good condition but isn't flexible which allows coating cracks to form if the underlying concrete cracks. The cracks in the coating allow seepage of the wastewater through the cracks and become visible on the outside of the basin.

The interior of all the basins will require recoating with a flexible coating. This requires complete removal of the existing coating by blasting down to sound concrete. During blasting some areas of weakened concrete will likely be exposed and will require concrete repair work before the coating is applied. The concrete repair can be made using a polymer modified repair mortar.

The floor of the basins is not currently coated but is grouted to provide slope to the grit removal trenches at the center of the basins. The grit trenches will be retained for collection and removal of grit. The entire floor will be sandblasted, grouted as necessary, and coated with the same product as used on the walls. This will reduce the deterioration of the floor in the future.

The influent piping will be changed to provide the correct flow pattern for the new process. The influent will flow into the basins through a new channel constructed along the north side of the existing basin walls. The channels allow flow into the basins through slide gates rather than the huge sluice gates currently being used. The slide gates are typically fabricated from stainless steel and are much lighter than the large cast iron gates. This results in easier operation with less stress on the gates and structure. Repair or replacement of the gates in the future is much easier than replacing the heavy sluice gates located in the bottom of the deep basins.

New weir gates will be installed on the openings on the south side of the basins and new stop gates will be provided as necessary to allow for plug flow through the aeration basins from basin 1 to 2 to 3 to 4.

Basin 1 will be converted to one anaerobic cell and one anoxic cell by installing a concrete wall across the center of the basin. The wall will have an overflow weir. Each cell will have a submersible mixer(s) to keep the cell completely mixed. The RAS piping will be redirected to enter the anoxic cell at the same location as the overflow weir. Recycle piping will be installed from the outlet end of the anoxic cell to the inlet end of the anaerobic cell. Submersible propeller pumps will be used to provide the recycle flow. A slide gate will be installed over the outlet of the recycle piping to isolate the piping if the recycle pump is turned off.

A second recycle pipe will be installed from the outlet end of the aeration basin 4l to the inlet end of the anoxic cell to provide additional nitrate for de-nitrification. A submersible propeller pump will be used to provide the recycle flow. A slide gate will be installed over the outlet of the recycle piping to isolate the piping if the recycle pump is turned off.

The anaerobic and anoxic cells may be taken off line for cleaning and maintenance during the off season for phosphorus limits (anticipated to be October 1 to April 30). Each of the aeration basins can be taken offline for several days to maintain the diffusers and clean the grit channel.

This improvement will be included in Phase 1. Temporary bypass of the influent flow to the aeration basins will be required during construction.

8.2.4 AERATION SYSTEM

The aeration system improvements will provide an aeration system that provides the air necessary to maintain dissolved oxygen in the aeration basins as set in the SCADA control system. The design criteria for the aeration system will be to provide air for the maximum month BOD loading with the ability to ramp up for the peak day BOD load. Specific improvements will include new blowers, stainless steel air piping, actuated butterfly valves, air flow meters, fine bubble diffusers, dissolved oxygen sensors in each aeration basin, and all appurtenances necessary. Existing stainless steel piping and butterfly valves will be reused, if their condition and pipe diameters are sufficient, to save cost. The blowers will be turbo blowers with VFD to lower energy consumption. The diffuser system will be sized to allow basins to be taken offline for maintenance and to provide tapered aeration using headers with actuated valves. The control of the blowers and actuated valves will be through the SCADA system. The dissolved oxygen sensors will be connected to the SCADA system. This improvement will be included in Phase 1.

The diffusers will be installed after the basins have been rehabilitated and the coating cured. Coordination will be required to install one blower and start it up so that aeration with a backup blower is provided at all times.

8.2.5 CONSTRUCTION OF AERATION BASIN 5

A fifth aeration basin can be readily added to the existing 4 aeration basins as this was planned as part to the original design for the aeration basins. The fifth basin would be constructed to be identical to the existing basins and installed adjacent and west of basin 4. The channels on the north and south sides would be add to the 5th basin and a walkway around the basin provided. Diffusers would be installed in the aeration basin and the air piping connected to the existing aeration system. The airlines would have actuated valves for aeration control. The basin would have a dissolved air sensor installed and connected to the SCADA system. The recycle pipe would be extended from basin 4 to basin 5 and the propeller pump moved to basin 5. The outlet from basin 5 would be connected to the existing piping to the secondary clarifier splitter box. The control of the aeration to basin 5 will be through the SCADA system. This improvement will be included in Phase 3.

8.2.6 CHEMICAL TREATMENT

The chemical treatment system will be installed outdoors as it will only be used from mid-March to October 1. The chemical treatment system will consist of one 5,000 gallon alum storage tank, dual chemical feed pumps, and controls. The chemical storage tank will be heat traced and insulated with an access ladder, level sight gauge, inlet and outlet quick connections with isolation valves, and a man way access port at the top. The chemical storage tank is sized to provide capacity to hold the approximate volume of a tanker truck (4,000 gallons) so the City can obtain the best chemical price. The chemical feed pumps will be peristaltic pumps that are flow paced by the influent flow rate (delayed for the hydraulic retention time in the aeration basins). The flow pacing signal will come from the SCADA system. The chemical feed pumps will be sized to provide dosages from 15 to 90 mg/L. This improvement will be included in Phase 1.

8.2.7 FILTERS

The plant will have a continuously backwashing, up flow sand filter installed between the secondary clarifiers and the contact basins. There is sufficient head to provide for gravity flow through the filters. The filters will either use the existing chemical treatment system discussed in paragraph 8.2.6 above to provide alum or other metal salt for phosphorus removal. The filters will be installed in concrete tanks and be underground and outdoors. The air compressor and control panels will be installed indoors. The filters will be designed to process the peak day flow and will have an overflow for excess flows. This improvement will be included in Phase 2.

8.2.8 DISINFECTION

The disinfection improvements will provide a chlorine generation system to provide the chlorine needed for disinfection, the W3 system, and chlorination of the RAS for bulking control. The existing chlorine gas facilities will be demolished and the chlorine building expanded to house the chlorine generation facilities. The chlorine generation system will be provided with chemical feed pumps. Any outdoor storage tanks included in the system will be heat traced and insulated. The existing piping to the chlorine contact chamber, W3 system, and RAS piping will be reused. The chlorine dosing will be flow paced by the SCADA system based on the influent flow rate.

The de-chlorination system will consist of one 5,000 gallon sodium bisulfite (or other de-chlorination chemical) storage tank, dual chemical feed pumps, and controls. The chemical storage tank will be heat traced and insulated with an access ladder, level sight gauge, inlet and outlet quick connections with isolation valves, and a man way access port at the top. The chemical feed pumps will be peristaltic pumps that are flow paced by the influent flow rate (delayed for the hydraulic retention time in the aeration basins and secondary clarifiers) and by the effluent chlorine residual meter. The flow pacing signal will come from the SCADA system.

Effluent residual chlorine, oxygen reduction potential (ORP), pH, and temperature sensors and meters will be provided and connected to the SCADA system.

This improvement will be included in Phase 1. A temporary chlorine disinfection system will be required during construction.

8.2.9 THICKENING

The dissolved air flotation thickener (DAFT) is 30 years old and, even though it is in good condition, is due for rehabilitation. The project will include a complete rehabilitation by a contractor using parts provided by the manufacturer, Tenco Hydro, Inc. During the rehabilitation, the existing equipment will be removed from the tank, the tank sand blasted and recoated, and all new equipment installed in the tank. The system will be upgraded to the new style currently manufactured by Tenco. New control panels will be provided by Tenco as well. The DAFT will be connected to SCADA to provide status of the operations. This improvement will be included in Phase 1.

During construction, a portable thickener will be provided by the contractor for continued WAS thickening during construction.

8.2.10 DIGESTER IMPROVEMENTS

The digester improvements will include replacing the fine bubble diffusers in digesters 1 and 2, improving digester 3 by removing the existing aeration and mixing system and adding fine bubble diffusers to match digesters 1 and 2, installing air piping to digester 3, installing actuated valves in the aeration piping, installing dissolved oxygen sensors in all three digesters, installing new blowers with VFD, and installing dissolved oxygen control of the digester aeration system. The diffusers will be added to the aeration system with piping extended from digester 2 to 3. This improvement will be added in Phase 2.

8.2.11 SLUDGE DRYING BEDS

The existing sludge drying beds at the Washington County Transfer Station will be expanded by adding 1.67 acres of sludge drying beds and a new 415,000 gallon water storage pond. The new sludge drying beds will be constructed with asphalt beds sloping towards the middle. Down the middle, a channel will be constructed and filled with sand. At the bottom of the channel a perforated under drain pipe will carry the filtered water to the storage lagoon. The City will haul dewatered sludge to the site, spread the sludge on the bed, and turn the sludge over periodically to aid in drying. When the sludge has dried to >90% solids, it may be disposed on farmland. The existing fencing will be extended around the new beds. This improvement will be included in Phase 3. The City will utilize the existing sludge drying beds at the plant to augment the sludge drying beds at the Washington County Transfer Station and haul dried sludge to Clay Peak landfill as necessary until the sludge drying bed expansion is complete.

8.2.12 SCADA SYSTEM

A supervisory, control, and data acquisition (SCADA) system will be added to the Weiser WWTP during this project phase. The SCADA system will provide status of all new equipment and equipment with new facilities: head works screen, aeration blowers (aeration basins and digesters), aeration system actuators, alum feed pumps, chlorine generator, chlorine feed pumps, dechlorination feed pumps, and dissolved air thickener. Other equipment may be added in depending on the available funding including: secondary clarifiers, RAS pumps, WAS pumps, and belt press.

The SCADA system will provide control of some of the equipment including aeration blowers and chemical feed pumps. The aeration blowers for the aeration tanks will be controlled based on the dissolved oxygen level in the aeration tanks. The SCADA system will control both the actuated valves in the air lines and the blower VFD in order to maintain preset dissolved oxygen levels. The preset level can be changed from the SCADA system. The alum, chlorine, and de-chlorination chemical feed pumps will be flow paced depending on the influent flow rate. The de-chlorination feed pumps will also be controlled utilizing the effluent chlorine residual meter.

The SCADA system will provide data acquisition by collecting and storing data from the influent flow, ph, and temperature meters, the aeration tank dissolved oxygen meters, aeration system air flow meters, and effluent flow, pH, temperature, and chlorine residual meters. The data can be downloaded or printed to reports.

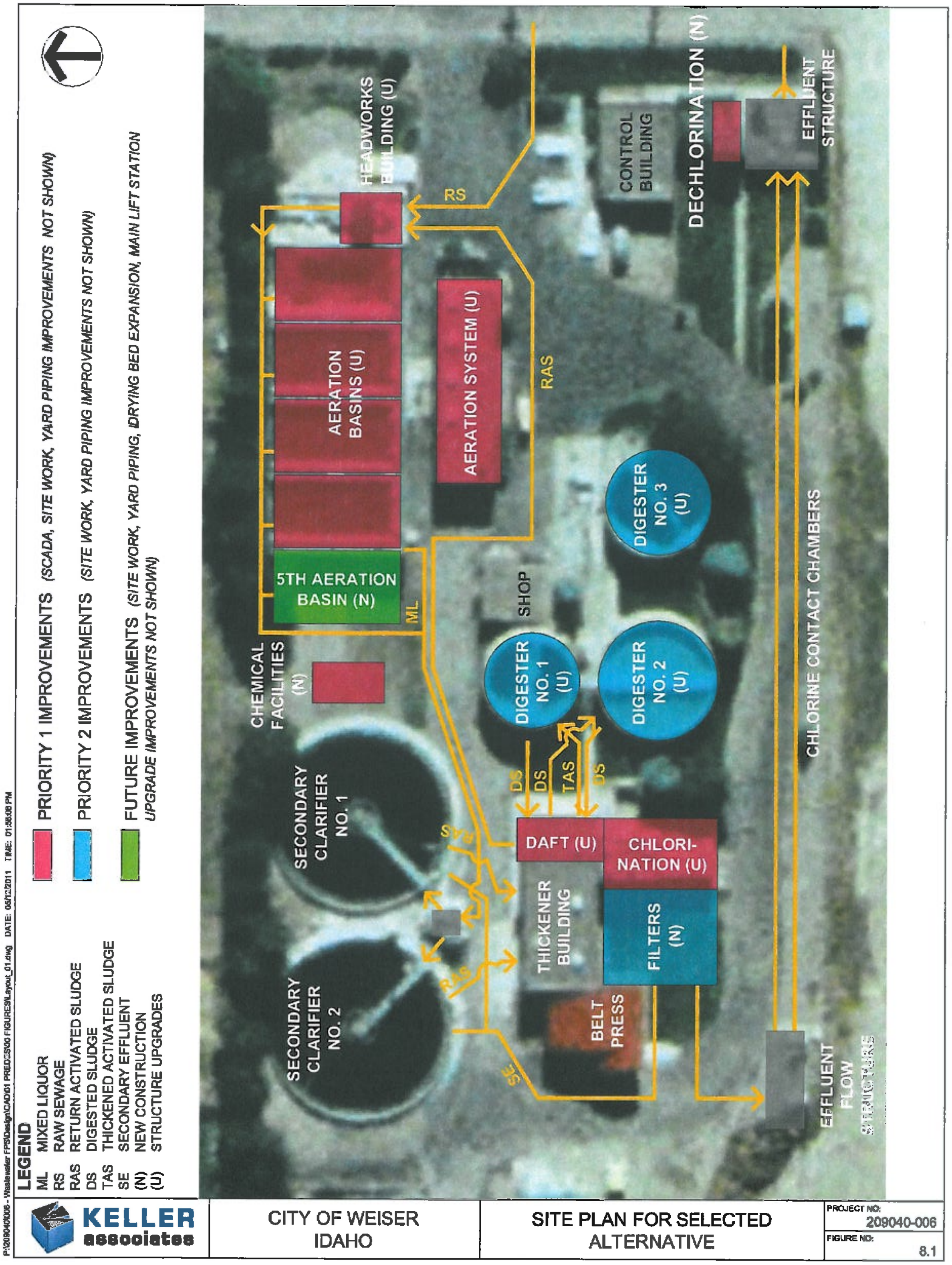
The SCADA system will receive alarms from equipment control panels and generate its own alarms for low or high effluent pH, high temperature, high chlorine residual, and flow. The alarms will be called out to the on call operator.

This improvement will be included in Phase 1.

8.2.13 ESTIMATED CAPITAL COST

Figure 8.1 illustrates the recommended improvements and their priority.

FIGURE 8.1
Proposed Improvements



The opinion of probable cost for the priority 1 project is provided in Table 8.1. A schedule for implementation is provided in Figure 8.1.

TABLE 8.1
Estimated Capital Cost for
Priority 1 Best Apparent Alternative

Description	Capital WWTP Costs
Earthwork	$ 108,000
Sitework	82,000
Yard Piping	102,000
Headworks Building	292,000
Aeration Tanks Rehabilitation	1,161,000
Aeration System Upgrades	1,044,000
Chemical Facilities	193,000
Disinfection Improvements	590,000
DAFT Rehabilitation	125,000
SCADA Improvements	125,000
Subtotal	**$ 3,821,000**
Mobilization, Overhead & Profit (15%)	573,000
Contingency	220,000
Construction Total	**$ 4,613,000**
Engineering and Administration (18%)	830,000
Funding and Inflation Contingency (10%)	600,000
TOTAL PROJECT COST	**$ 6,000,000**

CHAPTER 9.0 – WWTP OPERATIONS EVALUATION

This Chapter discusses the current plant operations and challenges, provides operational recommendations until plant upgrades can be completed, and provides long-term recommendations for upgrades to the plant that will allow improved operations. The findings are based on visits to the plant and interaction with plant operators.

9.1 CURRENT PLANT OPERATIONS

The influent flow and loads are presently about 50% of the original plant design. Because of this, the WWTP has been able to nitrify even though the process was not designed for nitrification. The plant provides a high quality effluent is has met all permit effluent limits with the exception of effluent chlorine residual over the last 5 years. However, the plant cannot meet the proposed phosphorus effluent limit.

In addition to the challenge of meeting the proposed phosphorus limit, there are many other issues with old equipment that create additional operational challenges. These issues were presented in Chapter 4 in a discussion of each plant component. Our recommendations for the operations of the existing old equipment are provided below and fall into two main categories. Recommendations for operational improvements are given in the next section.

1. We recommend that the City continue with the existing arrangement for the following equipment until the FPS is completed and a recommendation for the specific equipment accepted:

    - Step screen
    - Grit removal
    - Influent sluice gates
    - Chlorine gas system
    - Sludge drying beds

2. We recommend that the City add funds to the WWTP Operations and Maintenance budget to repair the following items as soon as they can. Our recommended priority is in parenthesis.

    - Distribution of air to the aeration basins is adjusted manually and several valves need to be replaced to provide better control (1)
    - DAFT needs to be rehabilitated by the manufacturer (2)
    - The W3 pumps are failing, require nearly continual maintenance and need to be replaced (1)

- The W3 strainer is failing, requires nearly continual maintenance, and needs to be rehabilitated by the equipment manufacturer (1)

9.2 EXISTING PLANT OPERATIONAL RECOMMENDATIONS

The operating goal for the existing plant should be to maintain a lower SRT and chlorinate the RAS to improve settling. This provides a low effluent TSS that allows the City to meet its coliform limits without exceeding its chlorine limits.

The following operational procedures are proposed to try and optimize the effective capacity of the WWTP:

- Adjust the air distribution in the aeration basins to balance the air flow to each tank to maintain maximum dissolved oxygen of 2 mg/L. This can be accomplished by using the manual air flow meter and manually adjusting the inlet valves to provide equal flow to each tank. The butterfly valves on the third tank will have to be replaced. Once the flow is balanced, the aeration valve positions can be "tweaked" to get the desired dissolved oxygen (DO). The DO in each tank should be in the range of 0.75 - 2.0 mg/l. Once the City has the valves replaced and control of the dissolve oxygen levels, the City should lower the DO to 1.5 mg/L and then to 0.75 mg/L. This will promote simultaneous denitrification.
- Continue chlorinating the RAS to maintain sludge settleability at a dose rate of 10 lb Cl_2/1,000 lb MLSS.
- Keep the RAS flow less than 650 gpm per clarifier.
- Adjust the MLSS concentration on a seasonal basis to maintain nitrification. It is estimated that a MLSS concentration of about 4,500 mg/l will be required from about the middle of December to the end of February each year and at about 2,500 mg/l during the summer (July – August). The MLSS should be adjusted gradually during the shoulder periods.
- Control sludge wasting to maintain desired SRT of 12 days. Make adjustments to wasting rate slowly to not over waste.
- Use a five-day running average of the MLSS concentration as the basis for determining the wasting required.
- Maintain current chlorination dose control to operate at the maximum chlorine dose without exceeding the effluent chlorine residual concentration.
- Provide full aeration in the digesters and include periods with the aeration off to allow the digesters to de-nitrify and recover alkalinity and increase the pH. The city could start with four hour periods with the aeration off twice a week and increase to overnight if odor is not a problem.

9.3 FUTURE PLANT OPERATIONAL UPGRADES

The recommended improvements will enhance the operation of the WWTP. The following describes some operational goals that would be desirable as part of the upgrade to the WWTP.

9.3.1 INFLUENT PUMP STATION

- Provide a third, smaller vertical turbine pump on a VFD to provide a lower horse power pump that can provide a majority of the pumping. This will reduce energy usage and save the City money. Keep the existing pumps to provide for high flow pumping and redundancy. Replace the motors on the existing pumps with premium efficiency motors.

9.3.2 HEADWORKS

- Provide access to the screen to allow room for the operator to maintain the screen.
- Provide automatic grit removal to eliminate the manual grit removal that is occurring now.

9.3.3 AERATION BASINS

- Provide new sluice gates at west north end and new weir gates at the south end of each basin to allow for a plug flow configuration.
- Provide automated control for the blowers based on dissolved oxygen levels in the aeration basins.
- Provide new diffusers designed for tapered aeration to provide the dissolved oxygen needed in each basin determined by the load to each basin.
- Provide an anaerobic and an anoxic cell at the front of the aeration tanks to provide biological phosphorus removal and denitrification for nitrate removal.
- Provide new blowers with variable frequency drives (VFD) for power savings.

9.3.4 CLARIFIERS

- No modifications to the clarification equipment are planned. The City should continue their maintenance program for the clarifiers and keep them running as long as they can. At some point in the future the clarifier mechanisms will need to be replaced.

9.3.5 DISINFECTION SYSTEM

- Increase the chlorine dose to the effluent slightly and utilize flow pacing to maintain a constant dose as the flow rate changes.
- Automate the sulfur dioxide dose to maintain chlorine residual below the effluent limits. Automate the dosing by utilizing flow pacing to maintain a constant dose as the flow rate changes.

9.3.6 SOLIDS HANDLING

- Rehabilitation of the dissolved air flotation thickener (DAFT) will provide for improved performance and longevity.
- Installation of new diffusers in Digester No. 3 will provide for additional storage of sludge during the winter and additional redundancy.
- Replacement of the diffusers in Digesters 1 and 2 will provide for uniformity of diffusers for ease of maintenance.
- Installation of new blowers with VFD will allow dissolved oxygen control and provide energy savings.

9.4 CLASSIFICATION OF WWTP

Keller Associates completed the Idaho Public Wastewater Treatment Plant Classification Worksheet for the proposed alternative and determined that the classification of the Weiser WWTP, once all improvements are implemented, will be Class IV as compared to its current Class III status.

9.5 STAFFING LEVELS

The plant is currently manned Monday through Friday by a full-time staff of seven from 7:00 a.m. to 4:00 p.m. Two operators come in for a regular shift (8 hours) on Saturdays and Sundays. The wastewater staff includes the following:

- Wastewater Supervisor (Grade 4)
- Wastewater Operators (2 at Grade 3, 2 at Grade 1, 1 at OIT, 1 laborer)

The current wastewater staff of seven is allocated to both the sewer collection system and the wastewater treatment plant. One plant operator also serves as a lab technician. The staff also cleans the City's collection system and pump stations and hauls biosolids from the WWTP to the sludge drying beds. The City's wastewater supervisor estimates approximately 70% of the time is used for wastewater plant O & M and 30% for the sewer collection systems.

9.5.1 RECOMMENDED STAFFING LEVEL

EPA publishes a manual entitled "Estimating Staffing for Municipal Wastewater Treatment Facilities". Staff operation and maintenance hours can be projected based on the size of the plant, type of plant, unit processes employed, type of waste treated and adjustments for local conditions. Local adjustments are made for plant layout, climate, training, type of waste stream treated, etc. The EPA staffing estimates are based on a survey of staffing levels for 35 small to large wastewater treatment facilities across the country.

Using the manual, a staffing worksheet was filled out as applicable to the City of Weiser WWTP. The worksheet was filled out for two different conditions, existing and future (2030). Future conditions reflect proposed additional facilities to be added and projected higher flow rate, each of which requires additional operator hours. The worksheet is shown on Tables 9.1 and 9.2.

TABLE 9.1
Environmental Protection Agency
Staffing Estimate Worksheet
Annual Manhours

ENVIRONMENTAL PROTECTION AGENCY
STAFFING ESTIMATE WORKSHEET

Annual Manhours

Unit Process	Annual Hours											
	Operation		Maintenance		Supervisory		Clerical		Laboratory		Yardwork	
	Exist	2030	Exist	2030	Exist	2030	Exist	2030	Exist	2030	Exist	2030
Raw Sewage Pump Sta.			320	350								
Screening	45	80	17	20								
Grit Removal	200	250	22	25								
Anoxic Basins		150		150								
Aeration Basins	520	650	420	550								
Secondary Clarifiers	160	250	330	250								
UV Disinfection	100	150	140	250								
Sludge Pumping	75	100	100	150								
Thickener		140		120								
Aerobic Digester	80	100	16	20								
Dewatering	830	1000	500	400								
Sludge Hauling	250	400										
Total	2260	3270	1445	2285	500	700	50	90	600	750	460	600
Adjustment Factor for Local Conditions	1.10	1.075	1.15	1.075	1.00	1.00	1.00	1.00	1.025	1.025	1.00	1.00
Adjustment	226	245	215	171	0	0	0	0	15	20	0	0
Adjusted Total	2486	3515	1660	2456	500	700	50	90	615	770	460	600
Total Manhours Existing	**5771**											
Total Manhours 2030	**8133**											

TABLE 9.2
Environmental Protection Agency
Staffing Estimate Worksheet
Adjustment for Local Conditions

ENVIRONMENTAL PROTECTION AGENCY
STAFFING ESTIMATE WORKSHEET

By: Dennis Suihkonen
Date: 2/23/2010

Plant: Clarkston WWTP

Type: Activated Sludge Plant
Ave Flow: 1.0 MGD Exist
1.5 MGD Future (2030)

Adjustment For Local Conditions

Local Condition	Adjustment													
	Comment	Operation		Maintenance		Supervisory		Clerical		Laboratory		Yardwork		
		Exist	2030	Exist	2030	Exist	2030	Exist	2030	Exist	2030	Exist	2030	
Plant layout	Average													
Unit Processes	Standard													
Level of Treatment	Secondary													
Type of Removal Requirement	Percentage													
Industrial Wastes	Minimal													
Productivity	Good													
Climate	Cold Winters	+2.5%	+2.5%											
Training	Amount/Certification	+5%	+2.5%	+5%	+2.5%									
Auto. Monitoring	Good													
Auto. Sampling	Some grab	+2.5%	+2.5%											
Laboratory	Some offsite									+2.5%	+2.5%			
Off-Plant Maintenance	None													
Age of Equipment	Old			+10%	+5%									
Storm, Infiltration	Minimal													
Present Flow	Under Design													
TOTAL		**+10%**	**+7.5%**	**+15%**	**+7.5%**					**+2.5%**	**+2.5%**			

It should be noted the guideline manual is only for staffing of the wastewater treatment plant and does not include the collection system. Since approximately two operators currently work on the collection system (actually three operators for three days per week), that leaves five current staff working on the wastewater treatment plant.

The evaluation indicates the following:

	Existing	Year 2030
Existing plant operators	5	--
Operators needed per EPA manual*	5	6
Additional operators needed*	0	1

*Based on 1,752 working hours per year per operator allowing for vacations, sick leave, holidays, etc.

Per the EPA staffing guideline manual, the City is currently at the required number of operators now and will require 1 additional operator by the year 2030 for the treatment plant.

9.6 SUMMARY

In addition to making the necessary process upgrades, improvements to the Weiser WWTP should focus on improving the operational efficiency. Recommendations provided to date have improved the current operations of the plant. Incorporating the recommendations provided herein will further improve the plant operations and efficiency.

CHAPTER 10.0 – IMPLEMENTATION AND FINANCING

The wastewater treatment/disposal alternative selected by the City includes continuing with a surface water discharge under a NPDES permit and implementing upgrades to the existing activated sludge wastewater treatment plant to comply with current water quality standards including a phosphorus load limit. Recommended upgrades to the Main lift station include construction of a parallel wet well and mechanical, structural, and electrical upgrades. The following section provides a projection of when various facilities may be needed, along with associated costs and options for implementing and financing the project.

10.1 WWTP IMPROVEMENTS AND PHASING

A wastewater treatment plant improvements phasing plan has been developed that presents the best alternative methods of treating and disposing of wastewater for the study area. Capital improvement plan includes Priority 1, 2 and future improvements and is presented in Table 10.1. These improvements are summarized below.

10.1.1 PRIORITY 1 IMPROVEMENTS

Priority 1 improvements should be completed within four years and eleven months of the issuance of the new NPDES permit which is expected to be issued in the spring of 2011. Consequently, Priority 1 improvements should be implemented and operational by the spring of 2016. These improvements generally include the following and are explained in more detail in Chapter 8:

- Aeration tank upgrades to correct structural and seepage deficiencies with concrete repair. Flow through tanks will be changed to plug-flow pattern with gates and valves to create biological phosphorus removal (BPR).
- Chemical dosing and storage equipment for chemical phosphorus treatment.
- Implement a wastewater system-wide SCADA system with a programmable logic control, and instrumentation for data retrieval and remote system control.
- Replacement of disinfection equipment including onsite chlorine generation, de-chlorination equipment, and W3 pump system upgrades.
- Construction of a building over the headworks screen.
- Upgrades to the aeration equipment including VFDs, piping, valving, diffusers, pipe headers, mixers, and blowers.
- Rehabilitation of the dissolved air flotation thickener (DAFT).

10.1.2 PRIORITY 2 IMPROVEMENTS

Priority 2 improvements are recommended as flows increase into the WWTP and based on performance of the WWTP in removing phosphorus and treating sludge and include the following which are explained in more detail in Chapter 8:

- Construction of a upflow sand filter towards the back of the WWTP site that will provide greater control and redundancy for phosphorus removal.
- Rehabilitate the existing Digester #3 with new blowers, mixers, and piping.

10.1.3 FUTURE IMPROVEMENTS

The timing of future improvements will largely be driven and funded by available funding and development. These improvements generally include the following and are explained in more detail in Chapter 8.

- Construction of a 5th aeration tank.
- Expansion of the drying bed at the Transfer Station including construction of additional water storage volume. This improvement will require the purchase or lease of additional property.
- Construction of upgrades at the Main lift station with a parallel wet well and mechanical, structural, and electrical upgrades.

10.2 CAPITAL IMPROVEMENT PLAN

The Capital Improvement Plan (CIP) outlines priority improvements to the WWTP and Main lift station. The estimated capital costs for these improvements are presented in Table 10.1.

TABLE 10.1
Estimate of Most Probable Cost (2010 Dollars)

Item	Priority 1 2012	Priority 2 2016+	Future 2020+	TOTAL
Priority 1 (2012)				
Earthwork	$ 108,000	$ 75,000	$ 56,000	
Site Work	82,000	41,000	41,000	
Yard Piping	102,000	34,000	34,000	
Headworks Building	292,000			
Aeration Tank Rehabilitation	1,161,000			
Aeration System Upgrades	1,044,000			
Chemical Treatment Facilities	193,000			
Disinfection Improvements	590,000			
DAFT Rehabilitation	125,000			
SCADA Improvements	125,000			
Mobilization, Overhead, Profit (15%)	573,000			
Contingency	220,000			
Engineering (18%)	830,000			
Funding and Inflation Contingency	600,000			
TOTAL PRIORITY 1 Improvements	**$ 6,000,000**			
Priority 2 (2016+)				
Up-flow Sand Filter		$ 1,878,000		
Digester Rehabilitation		622,000		
Mobilization, Overhead, Profit (15%)		398,000		
Contingency		152,000		
Engineering (18%)		576,000		
TOTAL PRIORITY 2 Improvements		**$ 3,776,000**		
Future (2020+)				
Aeration System Upgrades (5th cell)			$ 877,000	
Expand Sludge Drying Beds			1,560,000	
Mobilization, Overhead, Profit (15%)			385,000	
Contingency			148,000	
Engineering (18%)			558,000	
TOTAL FUTURE Improvements			**$3,658,000**	
TOTAL (rounded)	**$ 6,000,000**	**$ 3,776,000**	**$3,658,000**	**$13,434,000**

Notes*
1) All costs in 2010 Dollars. Costs include engineering and contingencies.
2) Timing of Priority 2 and Future Improvements depends on when growth occurs. Development participation anticipated.
3) The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids or actual construction costs will not vary from the costs presented herein.

10.3 FUNDING SOURCES

Many of the recommended improvements identified above will be necessary to accommodate demands created by future growth and address existing deficiencies. Consequently, adequate funds generated by hook-up fees from future connections, user rates from existing customers, grants, and long term financing options will be needed to fund these recommended improvements.

A variety of funding resources exist in both the private and public sector if projects meet certain criteria. Some of those grant and loan resources in the public field are listed below.

<u>Idaho Department of Environmental Quality (State Revolving Fund (SRF))</u>
The SRF program has experienced significant changes over the last few years. The SRF program is funded by a combination of repayment of loans previously made by DEQ and grant money supplied by EPA. Owners of public wastewater systems can apply for SRF funds annually through a competitive application process which generally has an application deadline around January of each year. Applications are ranked by state officials based on need, sustainability, water quality improvements, and other criteria. Davis-Bacon wages are required. Currently, loan terms can range from 20 to 30 years, and interest rates range from 0% to 2% depending on applicants user rates and median household income. Applicants may qualify for principal forgiveness or other subsidy programs. DEQ is required to commit a significant percentage of available loan funds to sustainable, energy efficient, and "green" infrastructure improvements. Consequently, elements that meet the "green" infrastructure qualifications may receive priority for funding. Voter approval in a bond election is required for this funding source.

<u>Department of Commerce and Community Development Block Grants (CDBG)</u>
The Department of Commerce offers a number of grant programs for public wastewater system improvements. Eligibility for these funds is dependent on economic development. Grants up to $500,000 are available through community programs. Applicants must secure the services of a certified grant administrator to administer grant money and follow other grams requirements. There is an annual application window for applying for these funds which generally has a deadline around November of each year.

<u>United States Department of Agriculture-Rural Development (USDA-RD)</u>
USDA-RD offers a grant and loan program for improvements to wastewater systems that serve rural communities which is defined as systems that serve less than 10,000 people. Grants up to 45% of the project cost are eligible depending on user rates. Applicants can apply for USDA-RD funds anytime during the year. Funds have many program requirements including the completion of a short-lived asset inventory, approved engineering report, and others. Voter approval in a bond election and interim financing are required with this funding source.

Idaho Bond Bank

A bond bank is a state level entity which lends money to local governments within the state, with the goal of providing funds for their infrastructure needs and access to the capital markets at competitive interest rates. Under the Idaho Bond Bank program "IBBA", a municipality obtains a loan from the Bond Bank secured by either the municipality's bond or a loan agreement with the Bond Bank. The Bond Bank pools several loans to municipalities into one bond issue. The municipalities then repay the loan, and those repayments are used to repay the revenue bonds. The Bond Bank can obtain better credit ratings, more attractive interest rates, and lower underwriting costs than municipalities could achieve individually. The Bond Bank is able to pledge certain state funds as additional security for its bonds, further reducing interest costs. The Idaho Bond Bank Authority can open doors to municipalities that were previously barred from the capital markets due to the high costs of financing or challenging credit situations. The current underlying rating from Moody's Rating Agency is Aa1.

Local & Private

In addition to federal and state funding programs, there are local and private funding sources available to communities to fund. Some of these include a local improvement district (LID), the municipal bond market with voter approval, a business improvement district (BID), urban renewal district, connection fees, development agreements with developers, and others.

10.4 POTENTIAL RATE AND CONNECTION FEE IMPACTS

Presented below are potential rate impacts and a brief discussion of connection fee charges.

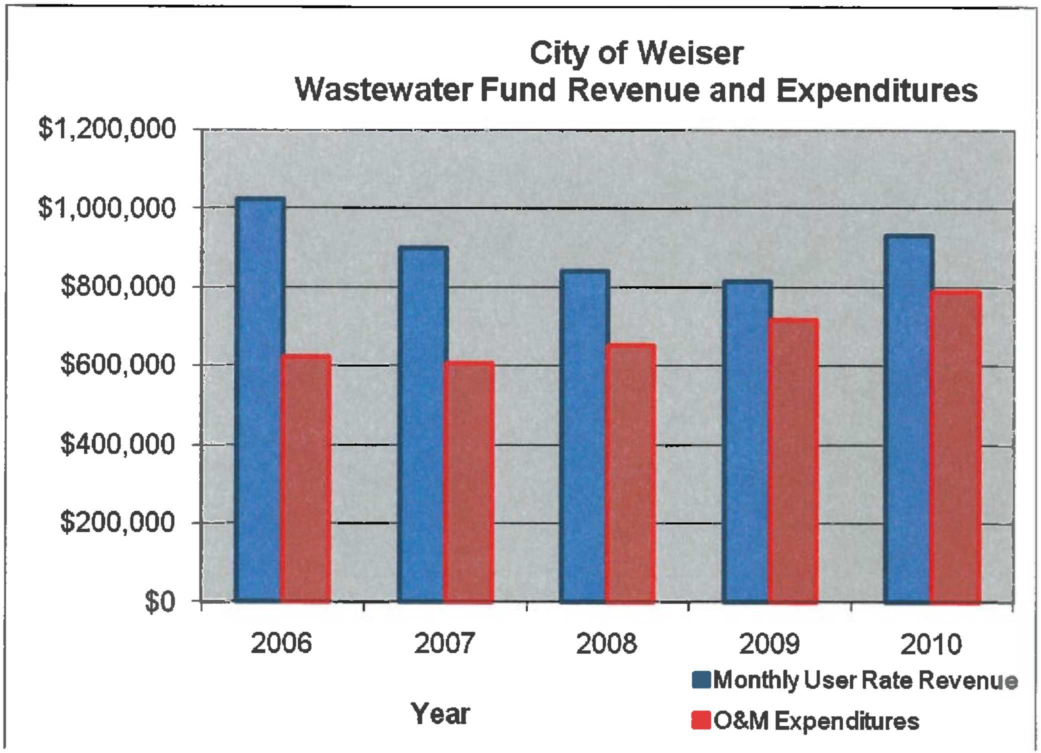
10.4.1 MONTHLY USER-RATE IMPACTS

Monthly user rates are funds gathered from existing users of the wastewater system. These funds should be adequate to cover operation, maintenance, and replacement costs for each component of the existing wastewater system.

The City's current residential wastewater rate structure includes a base rate of $19.00 per EDU (for a ¾" water meter) per month plus $1.45 per 100 cubic feet of monthly potable water consumption averaged over the four months from November through February. The average monthly wastewater bill for a residential customer is typically around $27.50. See Appendix F for detailed city budget, audit, and user rate ordinance documentation.

Monthly user rate revenue versus system operation, maintenance, and replacement costs were compared over the last five years. Chart 10.1 illustrates the comparison between the revenue and expense.

CHART 10.1
Annual Wastewater Fund Revenues and Expenditures



Notes:
1. Years reflect the ending of the fiscal year.

Based on the comparison between annual revenues and expenditures, the monthly user rate revenue has been historically adequate to cover in its ability to cover operation, maintenance, and replacement costs. However, there are some concerning trends illustrated above including a general decline in revenue and a general incline in operational expenditures. In response to the general decline in revenue caused by the reduction of water consumption, the City raised the monthly base rate by $4.80 (3/4" water meter) in April 2009 which had the desired effect as illustrated by the increase in the revenue in 2010. The general incline in operational expenditures is generally due to inflation in material, fuel, and equipment costs in additional to raises in personnel salaries and benefits.

It is important to note, that the City does not currently set aside money into a replacement account for future equipment and infrastructure replacement. A short-lived asset (useful life of 15 years or less) replacement inventory was conducted (see Appendix C for detailed inventory). In addition to historical expenditures, it is recommended that the City set aside an annual replacement budget of $170,000 for repair or replacement of short lived assets as they reach the end of their useful life. If revenue patterns in 2010 continue, user rates should be sufficient to cover existing operation and maintenance expenditures, but would not be sufficient to fund a $170,000 short-lived asset replacement budget which would require approximately a $5 increase to the base rate.

Once operational, the proposed Priority 1 improvements will also increase the operation and maintenance costs at the WWTP due to increased energy demands, chemical costs, and monitoring expenses. Table 10.2 illustrates the estimated operational and maintenance costs. Future sewer user rates will need to offset increases in operation and maintenance costs.

TABLE 10.2
Projected Wastewater Fund O&M Costs

O&M Component	2010	2013 [1]	2030	Notes
Labor	$ 290,000	$ 290,000	$ 374,000	Salary Increases
Labor Overhead	$ 145,000	$ 145,000	$ 187,000	Benefits
Power	$ 77,000	$ 90,930	$ 98,769	Increased Aeration
Chemical	$ 9,000	$ 26,000	$ 47,000	Chlorine, Sulfur Dioxide, Alum
Laboratory	$ 25,000	$ 30,000	$ 40,000	Additional NPDES Monitoring
Collection System, Other	$ 279,579	$ 296,177	$ 379,266	
Total	**$ 825,579**	**$ 878,107**	**$ 1,126,035**	
Additional O&M costs over 2010		**$ 52,528**	**$ 300,456**	
Additional WWTP O&M Costs over 2010		**$ 35,930**	**$ 200,769**	

[1] Assumes Priority 1 improvements at WWTP will be operational in 2013.

Since the City does not have sufficient reserves in the wastewater fund to pay for priority improvements, a financing package which will include loan(s) will likely be required to complete priority improvements in the capital improvement plan. The loan repayment amount will depend on the improvements that are constructed, the source of funding agency, the interest rate, the term of the loan, and the final construction cost. Table 10.3 illustrates a few different funding scenarios and impacts to the water rates. It is recommended the City reevaluate user rates once final funding arrangements are made. **It is further recommended that the City implement rate increases at least one year prior to the first annual bond payment in order to establish a one-year annual payment reserve fund.** It is also recommended that the City consider a phased approach to raising rates to reduce the impacts of significant rate increases to the public.

TABLE 10.3
Funding Scenarios

Loan Term	Scenarios				
Funding Sources	DEQ	DEQ/CDBG	DEQ/CDBG	USDA	USDA/CDBG
Priorities Included	Priority 1	Priority 1 [1]	Priority 1 [2]	Priority 1	Priority 1 [2]
Interest Rate	2.0%	2.0%	2.0%	3.50%	3.50%
Term	30	30	30	30	30
Project Cost	$6,000,000	$6,000,000	$ 6,000,000	$6,000,000	$6,000,000
Grant	$0	$500,000	$1,500,000	$0	$1,500,000
Project Loan	$6,000,000	$5,500,000	$ 4,500,000	$6,000,000	$ 4,500,000
Annual Payment	$267,900	$245,575	$200,925	$326,228	$244,671
Approximate Monthly User Rate Increase	$10	$9	$7	$12	$9

Assumptions:
[1] Assumes $500k CDBG
[2].Assumes $1,500,000 grant

Table 10.4 illustrates the wastewater fund revenue, expenditure, and user rates forecast assuming the City obtains a loan for $6,000,000 which is the estimated project cost for Priority 1 improvements with a 30 year term and 2.0% interest rate. This forecast is conservative since it is likely that the City will qualify for some grant funds, but will enable the City to plan for future rate adjustments. The forecast also includes inflation adjustments for O&M costs, the recommended short-lived asset replacement fund, and additional O&M costs at the WWTP when the new improvements are expected to be operational. As is illustrated in Table 10.4, a recommended user rate increase of approximately $20 is recommended over the next five years in order to fund the proposed improvements and O&M costs if no grant funds are obtained. It should be noted that the City has one outstanding sewer loan which requires an annual payment of $37,095 which will be paid off in August 2017.

TABLE 10.4
Annual O&M Cost Projections and User Rate Recommendations

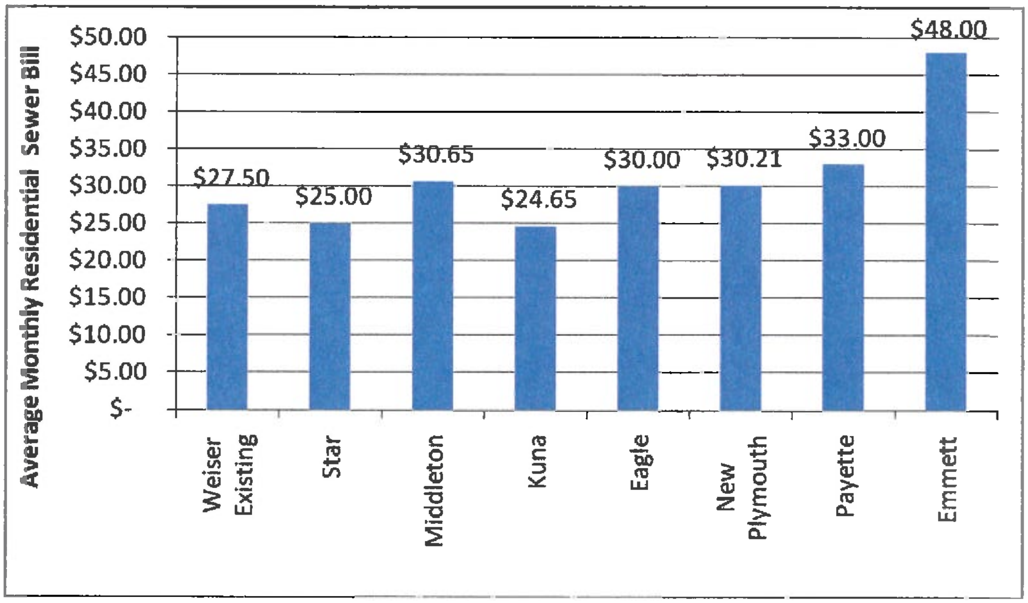
Projected Connections	2011	2012	2013	2014	2015
New Growth (EDUs) [4]	19	19	19	19	19
Beginning # of EDUs	2,333	2,352	2,371	2,390	2,409
Annual Costs-O, M & R					
Existing O&M [1]	$ 866,800	$ 910,100	$ 955,600	$ 1,003,400	$ 1,053,600
New WWTP Improvements O,M&R [1,2]	--	--	$ 35,930	$ 37,700	$ 39,600
New WWTP Bond Payment [6]	--	--	$ 267,900	$ 267,900	$ 267,900
Short-Lived WWTP Asset Replacement [3]	$ 170,000	$ 170,000	$ 170,000	$ 170,000	$ 170,000
Total O, M & R Costs	**$1,036,800**	**$1,080,100**	**$ 1,429,430**	**$ 1,479,000**	**$ 1,531,100**
Minimum Recommended					
Typical Monthly User Rate/EDU [5]	$ 32.50	$ 33.50	$ 43.75	$ 44.89	$ 46.05
User Rate Income					
Revenue	**$1,046,351**	**$1,087,330**	**$ 1,431,491**	**$ 1,480,480**	**$ 1,531,048**
Net Revenue	$ 9,550	$ 7,230	$ 2,062	$ 1,480	$ -52
Accumulated Reserve (end of year)	$ 416,632	$ 423,861	$ 425,923	$ 427,043	$ 427,351

Projected Connections	2020	2025	2030
New Growth (EDUs) [4]	98	102	106
Beginning # of EDUs	2,507	2,609	2,715
Annual Costs-O, M & R			
Existing O&M [1]	$ 1,344,700	$ 1,716,200	$ 2,190,400
New WWTP Improvements O,M&R [1,2]	$ 82,670	$ 141,719	$ 200,769
New WWTP Bond Payment [6]	$ 267,900	$ 267,900	$ 267,900
Short-Lived WWTP Asset Replacement [3]	$ 170,000	$ 170,000	$ 170,000
Total O, M & R Costs	**$ 1,865,269**	**$ 2,295,819**	**$ 2,829,068**
Minimum Recommended			
Typical Monthly User Rate/EDU [5]	$ 54.30	$ 64.03	$ 75.50
User Rate Income			
Revenue	**$ 878,705**	**$ 2,305,318**	**$ 2,828,648**
Net Revenue	$ 13,436	$ 9,499	$ -420
Accumulated Reserve (end of year)	n/a	n/a	n/a

1 O&M costs increased by 5% per year to offset inflation
2 See Table 10-2 for details regarding additional O&M costs for new WWTP improvements
3 See Appendix C for details of short-lived asset inventory.
4 Based on a 0.8% growth rate for projected years
5 Based on an average monthly winter water consumption of 4,500 gallons per EDU.
6 Assumes the City obtains a 30 year loan for $6,000,000 at 2% interest rate

A table comparing monthly water bills for communities in the Weiser area is presented in Chart 10.2.

CHART 10.2
Monthly Residential Sewer Bill Comparisons

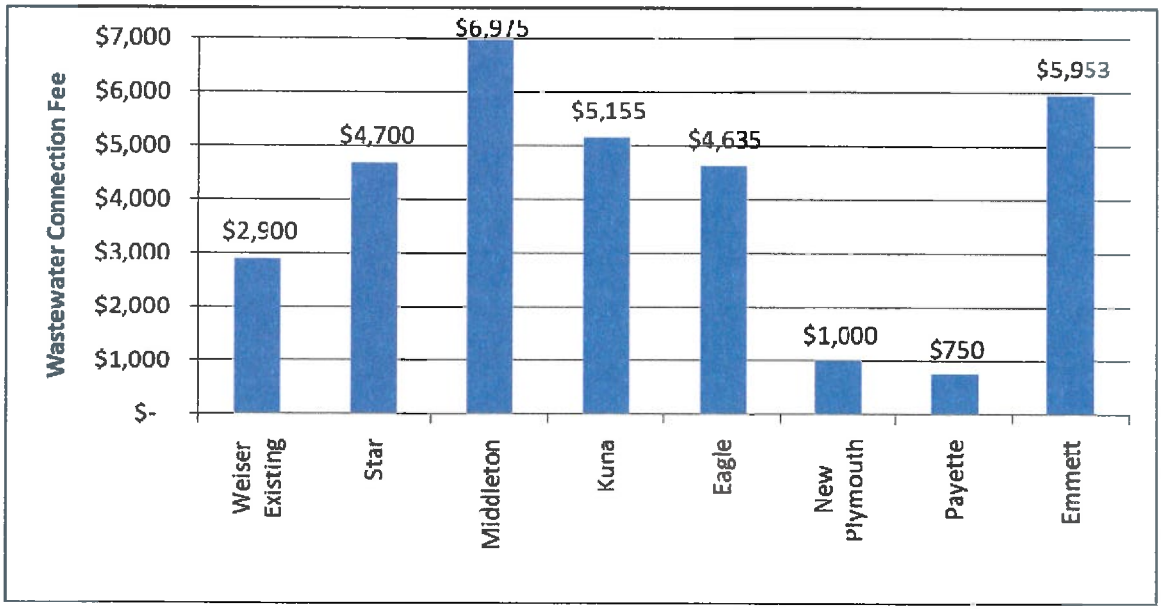


10.4.2 CONNECTION FEES

The City's current connection (hook-up) fee per EDU is $2,900. The City's current policy is that the connection fee covers primarily WWTP infrastructure costs, not collection system costs. Developers are required to construct collection system improvements as development occurs. Consequently, in order for growth to fund itself, enough revenue needs to be generated from connection fees to cover WWTP expansion costs with connection fees generated by an additional 360 EDUs which correlates to the number of additional EDUs by 2030. Based on the percent of the improvement costs that benefit growth, a connection fee of $3,430 per EDU is recommended. **Keller Associates recommends that the City increase the water connection fee from $2,900 per EDU to $3,430 per EDU**.

A comparison of other city connection fees in the area is included in Chart 10.3

CHART 10.3
Connection Fee Comparison



10.5 ANTICIPATED NPDES PERMIT COMPLIANCE SCHEDULE

This section outlines the anticipated NPDES permit compliance schedule that EPA will require the City to comply with as the City implements the WWTP Priority 1 improvements.

CHART 10.4
Anticipated NPDES Permit Compliance Schedule

Task No.	Completion Date	Task Activity
1	October 1, 2011	Facility Planning Study Deliverable: The permitee must provide EPA with written notice that the study is complete.
2	June 1, 2013	Obtain funding for Wastewater Treatment Plant Improvements. The permittee must provide EPA with written notice that the necessary funding has been obtained.
3	August 1, 2013	Deliverables: The permitee must provide EPA with written notice of the permittee's final selection of either Option 1 (cessation of discharge) or Option 2 (treatment and continuation of discharge).
4	June 1, 2014	Complete Environmental Report Deliverable: The permittee must provide EPA with written notice that the final environmental report is complete.
5	August 1, 2014	Complete Preliminary Design Report Deliverable: The permittee must provide EPA with written notice the preliminary design report is complete.
6	February 1, 2015	Complete Final Design Deliverable: The permitee must provide EPA with written notice that the final design is complete.
7	May 1, 2015	Complete Bidding Deliverable: The permittee must notify the EPA in writing on completion of the bidding.
8	May 1, 2016	Complete Construction Deliverable: The permittee must notify the EPA in writing on completion of construction.
9	July 1, 2016	Achieve Final Effluent Limitation Deliverable: The permittee must achieve compliance with the final effluent limitations.

APPENDIX A

NPDES Permits

★Capital NATIONAL OLDTIME FIDDLERS' CONTEST

THE CITY OF WEISER, IDAHO

55 WEST IDAHO 83672 • (208) 414-1965

OFFICE OF THE MAYOR

April 14, 2011

United States Environmental Protection Agency (EPA) - Region 10
Office of Water and Watersheds OWW-130
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Re: **City of Weiser, Idaho – Revised National Pollution Discharge Elimination System (NPDES) Permit #ID-002029-0**

Dear Director:

On behalf of the City of Weiser, Idaho we are writing to submit comments to the City's draft NPDES permit published for public comment on March 31, 2011. The comments are numbered, state the section and part of the permit, show the change, addition/deletion requested (in bold), and include an explanation for why the comment is provided.

General Comments:

1. Address future correspondence regarding the Weiser Wastewater Treatment Plant to Jim Edwards, Superintendent Wastewater Treatment Plant.
2. Change all references from "Jon-Lin Foods, LLC" to "Fry Foods".
3. The City respectfully requests two permit cycles (9 years and 11 months) to comply with the new phosphorus load limits in the new permit. The costs for implementing the necessary infrastructure improvements are substantial and will require time to build public support for passing a bond election which is required in the state of Idaho to acquire debt. This is made particularly difficult by the current economic conditions in Weiser and throughout Idaho.

Specific Comments:

1. **Schedule of Submissions and Section III.B.1.** Date of submission each month:

   There is a discrepancy in the required monthly date of submission of DMRs. This location says the 10th and another location (III.B.1) says the 15th. The City respectfully requests the date to be the 15th to provide time to process the necessary tests to be submitted with the DMR reports.

2. **Section I.C Table 3**

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Tasks Required Under the Total Phosphorus Schedule of Compliance for Cessation of Discharge.

The completion date for Task 1 is not feasible since it has already occurred. The completion date should be changed to June 1, 2011 and the task activity clarified to read, "*Facility Planning Study, Deliverable: The permittee must provide EPA with written notice that the study is complete and submitted to the Idaho Department of Environmental Quality (IDEQ)*". Completion of the facility planning study has been delayed until the final permit is issued to confirm what the regulatory requirements will be moving forward.

We look forward to EPA's response to our comments.

Sincerely,

City of Weiser, Idaho

Mayor John Walker

cc: File
DEQ, Craig Shepard
City of Weiser (Nate Marvin, Rod Millbrook, Jim Edwards)
Cc Glen Holdren Keller and Associates

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

MAR 31 2011

Reply to: OWW-130

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Brad B. Hansen, Superintendent Wastewater Treatment Plant
City of Weiser
55 West
Weiser, Idaho 83672

Re: City of Weiser, NPDES Permit Number: ID-002029-0

Dear Mr. Hansen:

Enclosed for your information is a copy of a draft National Pollutant Discharge Elimination System (NPDES) permit which we propose to reissue to the City of Weiser, a fact sheet, and the public notice as it will appear in the local newspaper. EPA is reopening the public comment period on the draft permit. Pursuant to 40 CFR 124.14(c), "Comments filed during the reopened comment period shall be limited to the substantial new questions that caused its reopening."

EPA is seeking public comment only on the question of a seven and one half year compliance schedule and an antidegradation analysis in the draft NPDES permit and fact sheet. The original public comment period was January 28, 2010 to March 3, 2010.

Technical questions regarding the permit may be referred to John Drabek at 206-553-8257 or 1-800-424-4372 ext. 8257, or via email at drabek.john@epa.gov.

Sincerely,

Michael J. Lidgard
Manager, NPDES Permits Unit

Enclosures

Public Notice

United States Environmental Protection Agency (EPA)
Region 10
Park Place Building, 13th Floor
1200 Sixth Avenue, Suite 900, OWW-130
Seattle, Washington 98101
(206) 553-0523 or
1-800-424-4372 (within Region 10)

NOTICE OF PROPOSAL TO REISSUE A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT ISSUED TO

The City of Weiser
Wastewater Treatment Plant

TO DISCHARGE TO WATERS OF THE UNITED STATES,

Public Notice No.: Permit No. ID-002029-0
Technical Contact: John Drabek
(206) 553-8257
1-800-424-4372 (within Region 10)
drabek.john@epa.gov

Public Notice Issuance Date: March 31, 2011
Public Notice Expiration Date: May 2, 2011

1. Applicant

City of Weiser
55 West
Weiser, Idaho 83672

Permit No. ID-002029-0

EPA is reopening the public comment period on the draft permit for the facility referenced above Pursuant to 40 CFR 124.14(c), "Comments filed during the reopened comment period shall be limited to the substantial new questions that caused its reopening".

EPA is seeking public comment on the following issues:

- The 7.5 year compliance schedule to allow for land application to meet the phosphorus limits in the permit; and
- The antidegradation analysis and
- changing the annual total phosphorus effluent limitations to seasonal limits.

The original public comment period was January 28, 2010 to March 3, 2010.

A fact sheet is available.

2. Tentative Determination

The Region 10 Office of the EPA has tentatively determined to reissue a draft permit to include a seven and a half year compliance schedule.

3. Document Availability

The draft NPDES permit and fact sheet can be reviewed or obtained by visiting or contacting the EPA Region 10 Office in Seattle at 1200 Sixth Avenue, Suite 900, OWW-130, Seattle, Washington 98101. The draft permit and fact sheet are also available from EPA's Idaho Operations Office at 1435 No. Orchard St, Boise, ID 83706. Both documents can be downloaded from EPA's internet website at http://yosemite.epa.gov/r10/WATER.NSF/NPDES+Permits/DraftPermitsID . They may also be requested by e-mail from washington.audrey@epa.gov or drabek.john@epa.gov .

4. Public Comments

Persons wishing to comment on the tentative determination described above or wishing to request that a public hearing be held, may do so in writing, within 30 days of the date of this public notice. A request for a public hearing shall state the nature of the issues to be raised as well as the requester's name, address and telephone number. Comments must be received within this 30-day period to be considered in the formulation of final determinations regarding the modification. All comments should include the name, address and telephone number of the commenter and a concise statement of the exact basis of any comment and the relevant facts upon which it is based. All written comments and requests should be submitted to EPA Region 10, Office of Water and Watersheds OWW-130, 1200 Sixth Avenue, Suite 900, Seattle, WA 98101. Comments may also be submitted via email to drabek.john@epa.gov. After the expiration date of the Public Notice, the Director of the Office of Water and Watersheds, EPA Region 10, will make a final determination with respect to issuance of the permit. At the close of this comment period, EPA will respond to comments received during this comment period as well as the previous comment period.

Disability Reasonable Accommodation Notice:
If you need a reasonable accommodation for a disability, please contact John Drabek at 206-553-8257 (voice). TTY/TDD users please dial Washington Relay Service at 1 (800) 833-6388. Please provide one week advance notice for special requests not related to ongoing programs and services.

EPA

FACT SHEET

Public Comment Period Start Date: March 31, 2011
Public Comment Expiration Date: May 2, 2011

The United States Environmental Protection Agency (EPA)
Plans To Reissue A Draft National Pollutant Discharge Elimination System (NPDES) Permit

The City of Weiser
Wastewater Treatment Plant

Technical Contact:

John Drabek
Email: drabek.john@epa.gov
Phone: 206-553-8257 800-424-4372, ext. 8257

Permit No. ID002029-0

EPA is Reopening for Public Comment a Draft NPDES Permit

EPA is reopening the public comment period on the draft permit for the facility referenced above, pursuant to 40 CFR 124.14(c).

EPA is seeking public comment on the following issues:

- The 7.5 year compliance schedule that allows the City to land apply to meet the phosphorus effluent limits in the permit; and
- The antidegradation analysis.
- Changing the annual total phosphorus limitations to seasonal limitations.

The original public comment period was January 28, 2010 to March 3, 2010.

State Certification for Facilities that Discharge to State Water

Section 401 of the federal Clean Water Act requires EPA to seek State certification before issuing a final permit. On November 30, 2010 the Idaho Department of Environmental Quality issued a final Section 401 Water Quality Certification for the reissuance of the City of Weiser NPDES permit. IDEQ certified both the 7.5 year compliance schedule, the antidegradation analysis and the seasonal total phosphorus limitations comply with the water quality standards of the State of Idaho.

Description of the Facility

The City of Weiser owns, operates and has maintenance responsibility for a facility that treats domestic sewage that is primarily from local residents and commercial establishments through a separated sanitary sewer system. Jon-Lin Foods, LLC formerly Appleton Produce, Inc. is the only industrial discharger to the system and discharges approximately 0.046 million gallons per day (mgd) to the treatment system. They produce onion rings and other frozen food products.

Primary treatment consists of screening. Secondary treatment is biological using the activated sludge process in four aeration basins where wastewater is vigorously mixed with air and microorganisms acclimated to the wastewater in a suspension for several hours. This suspended growth process is designed to remove biodegradable organic material and organic nitrogen-containing material by converting ammonia nitrogen to nitrate. The microbial growth is suspended in the aerated water mixture where the air is pumped in to allow oxygen transfer. The suspended growth process speeds up the work of aerobic bacteria and other microorganisms that break down the organic matter in the sewage by providing a rich aerobic environment where the microorganisms suspended in the wastewater can work more efficiently. The microorganisms grow in number and the excess biomass is removed by settling in the secondary clarification tanks. Now activated with millions of additional aerobic bacteria, some of the biomass is used again by returning it for mixing with incoming wastewater. Disinfection is by chlorination.

Digested solids are treated by a dissolved air floatation tank and three aerobic digesters, Solids and filtrate are separated with the filtrate returning to the headworks and the pressed solids hauled to a landfill for final disposal.

The facility serves a population of 5,500 and has a design flow rate of 2.43 mgd. The annual average daily flow reported in the permit application is 1.20 mgd, while the maximum daily flow rate was 1.40 mgd.

Public Comment

Persons wishing to comment or request a Public Hearing on the 7.5 year compliance schedule, the antidegradation analysis or the change from annual effluent limitations to seasonal limits may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, EPA's Regional Director for the Office of Water and Watersheds will make a final decision regarding the reissued permit. EPA received comments during the previous public comment period on this permit. EPA will address these comment along with any comment received during this comment period before issuing the final permit to the facility. The permit will become effective 30 days after the date of issuance, unless an appeal is submitted to the Environmental Appeals Board within 30 days.

Documents are Available for Review.

The draft permit and fact sheet are posted on the Region 10 website at http://yosemite.epa.gov/r10/WATER.NSF/NPDES+Permits/DraftPermitsID Copies may also be requested by writing to EPA at the Seattle address below, by e-mailing washington.audrey@epa.gov, or by calling Audrey Washington at 206-553-0523 or (800) 424-4372 ext 0523 (within Alaska, Idaho, Oregon, & Washington). Copies may also be inspected and copied at the offices below between 8:30 a.m. and 4:00 P.M., Monday through Friday, except federal holidays. In Seattle, visitors report to the 12th floor Public Information Center.

EPA Region 10 (206) 553-0523
1200 Sixth Avenue, Suite 900, OWW-130
Seattle, Washington 98101-3140

EPA Idaho Operations Office (208) 378-5746
1435 North Orchard Street
Boise, Idaho 83706

Idaho Department of Environmental Quality (208) 736-2190
Twin Falls Regional Office
1363 Fillmore Street
Twin Falls, ID 83301

Basis for Reopening Public Comment Period

Additional Compliance Schedule

During the original public comment period, the City of Weiser (City) proposed a second compliance schedule to allow for land application to meet the phosphorus limits in the draft permit. Specifically, the City stated the following:

Due to the time required to locate suitable property, negotiate and complete a purchase, and complete environmental impact study for the new site, the City would not be able to consider a new plant site as an option with a five year compliance schedule. More specifically the two options being considered would reduce or remove effluent flow to the Snake River.

"One option is to purchase new property and build an entire new lagoon treatment system at a new location. The new treatment system would consist of a facultative lagoon, winter storage lagoon and a land application site. Wastewater would be treated year round in the facultative lagoon and discharged to the winter storage lagoon. The effluent in the winter storage lagoon would be used to grow alfalfa or other suitable crops on the land application site during the summer. All of the stored water would be used each summer. Thus, discharge to the Snake River would be eliminated year-round.

A second option would be to upgrade the existing plant and purchase new property for land application during the summer. The treatment system upgrades would be those necessary to keep the plant operating for 20 plus years to meet all the permit limits during the period when phosphorus limits do ~~not~~ apply ~~(May 1 to September 30).~~ Water would be treated at the plant year-round and discharged to the Snake River from October 1 to April 30 and to a summer storage lagoon from May 1 to September 30. The water in the summer storage lagoon would be used to grow alfalfa (or other suitable crops) on the land application site during the summer. All the stored water would be used each summer. This discharge to the Snake River would be eliminated from May 1 to September 30." The city finds acceptable a compliance schedule of seven years and six months shown in the figure below.

isk Description	2010				2011				2012				2013				2014				2015				2016				2017			
	Qrt 1	Qrt 2	Qrt 3	Qrt 4	Qrt 5	Qrt 6	Qrt 7	Qrt 8	Qrt 9	Qrt 10	Qrt 11	Qrt 12	Qrt 13	Qrt 14	Qrt 15	Qrt 16	Qrt 17	Qrt 18	Qrt 19	Qrt 20	Qrt 21	Qrt 22	Qrt 23	Qrt 24	Qrt 25	Qrt 26	Qrt 27	Qrt 28	Qrt 29	Qrt 30	Qrt 31	Qrt 32
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EPA has determined that it will add an alternative compliance schedule to the final permit pursuant to 40 CFR 122.47(b)(3). The City is proposing the option of eliminating the discharge to the Snake River all year or during the period when the seasonal phosphorus limits apply, May 1 to September 30. The alternative is to meet the effluent limitations by treatment using the existing facility. This alternative continues the NPDES regulated activity of discharge to the Snake River.

40 CFR 122.47(b)(3) allows for alternative schedules of compliance in a NPDES permit as long as the following conditions are met:

(i) Both schedules contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities;

(ii) One schedule lead to timely compliance with applicable requirements, no later than the statutory deadline;

(iii) The second schedule shall lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements no later than the statutory deadline;

(iv) Each permit containing two schedules shall include a requirement that after the permittee has made a final decision under paragraph (b)(3)(i) of this section it shall follow the schedule leading to compliance if the decision is to continue conducting regulated activities, and follow the schedule leading to termination if the decision is to cease conducting regulated activities.

In addition, "[t]he applicant's or permittee's decision to cease conducting regulated activities shall be evidenced by a firm public commitment satisfactory to the Director, such as a resolution of the board of directors of a corporation." The commitment must be evidenced by a letter submitted by July 1, 2013 to EPA signed by either a principal executive officer or ranking elected official.

The permit meets the requirements of 40 CFR 122.47(b)(3) in the following way:

(i) The permit establishes two compliance schedules with an identical interim deadline requiring a final decision on whether to cease conducting regulated activities by July 1, 2013. The regulated activity is discharge to the Snake River during the period from May 1 through September 30 or all year. The deadline to decide to continue with this regulated activity is July 1, 2013. Based on the City's letter of June 7, 2010 comment and a follow-up phone call with Glen Holdren, Project Manager with Keller Associates, EPA believes that this deadline leaves sufficient time to comply with the applicable requirements in the permit in a timely manner if the City's decision is to continue the discharge to the Snake River. The treatment option deadline in Condition I.C.1. is four years and eleven months from the effective date of the permit.

(ii) The permit refers to a timely compliance schedule for the non-cessation option which in this case is treatment. The compliance schedule implements a WLA from the TMDL. The four year eleven month deadline in Condition I.C.1. is a common period for installation of treatment systems under NPDES permits and is therefore timely.

(iii) The permit establishes a deadline for cessation of the discharge to the Snake River of January 1, 2018 in Condition I.C.2. This discharge ensures timely compliance with applicable CWA requirements. This is based on submission of the above timeline, consultation with IDEQ's land application specialist, discussions with the City and not allowing the margin of safety requested by the City.

(iv) The permit requires the City to follow the compliance schedules for the selected option. If the option is to continue with the discharge, the City must follow the compliance schedule in Condition I.C.3.c. If the decision is to cease the discharge to the Snake River with the land application option, the City must follow the schedule leading to termination during either the period May 1 through September 30 or all year in Condition I.C.3.b.

In addition, pursuant to 40 CFR 122.47(b)(4), EPA has required that "[t]he City's decision to cease conducting the discharge to the Snake River shall be evidenced by a firm public commitment satisfactory to EPA no later than July 1, 2013."

Pursuant to 40 CFR 122.47(a)(3), a permit with a compliance schedule must have interim requirements and dates for achievement. EPA has included interim requirements and dates for their achievement.

Pursuant to 40 CFR 122.47(a)(1), "Any schedules of compliance under this section shall require compliance as soon as possible." The permit meets this requirement by not allowing the requested margin of safety for the cessation of discharge option.

To ensure consistency with the SR-HC TMDL, the interim and final phosphorus limits have been changed to seasonal from May 1 to September 30 and no limits from October 1 to April 30. Compliance monitoring is required from May 1 to September 30. In addition, monitoring is also required from October 1 to April 30 to gather data for the next permit cycle.

Antidegradation

EPA is required under Section 301(b)(1)(C) of the Clean Water Act (CWA) and implementing regulations (40 CFR 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure compliance with State water quality standards, including antidegradation requirements. The fact that the State of Idaho has not identified methods for implementing its antidegradation policy does not prevent EPA from establishing such conditions.

As explained below, the City of Weiser NPDES permit contains limits as stringent as necessary to ensure compliance with all applicable water quality standards, including Idaho's antidegradation policy (IDAPA 58.01.02.051). As explained in detail below, the reissued permit ensures that "the existing in stream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected" consistent with the requirements of 40 CFR 131.12(a)(1) and IDAPA 58.01.02.051.01. Relative to the prior permit issued in 2001, the reissued permit does not allow lower water quality for those parameters where the receiving water quality "exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water," therefore, the reissued permit maintains and protects the existing level of water quality, consistent with 40 CFR 131.12(a)(2) and IDAPA 58.01.02.051.02. Finally, the antidegradation policy for outstanding resource waters is inapplicable in this reissued permit because no waters of the State of Idaho are designated as "outstanding resource waters" (IDAPA 58.01.02.051.03).

The reissued permit ensures compliance with the State of Idaho's antidegradation policy and CWA regulations because the permit conditions ensure protection of existing uses and do not allow lower water quality relative to the prior permit. Under the circumstances of this reissued permit, EPA may issue an NPDES permit even though the State has not yet identified methods for implementing its antidegradation policy. In its antidegradation analysis below, EPA is applying a parameter-by-parameter approach in determining compliance with Idaho's antidegradation requirements.

EPA Antidegradation Analysis

Protection of Existing Uses (IDAPA 58.01.02.051.01 and 40 CFR 131.12(a)(1))

Idaho Water Quality Standards (WQS) summarize the surface water use designations for the State of Idaho: that all waters of the State of Idaho are protected for the uses of industrial and agricultural water supply (IDAPA 58.01.02.100.03.b and c), wildlife habitats (IDAPA 58.01.02.100.04) and aesthetics (IDAPA 58.01.02.100.05). The receiving water is the Snake River between the Weiser River and Scott Creek and is protected for cold water aquatic life. Cold water is water quality appropriate for the protection and maintenance of a viable aquatic life community for cold water species. This segment of the Snake River is also designated for domestic water supply and primary contact recreation for water quality appropriate for prolonged and intimate contact by humans or for recreational activities when the ingestion of small quantities of water is likely to occur. Such activities include, but are not restricted to, those used for swimming, water skiing, or skin diving. As there is no available information indicating the presence of any existing uses other than the designated uses discussed above, EPA believes the permit ensures that the level of water quality necessary to protect the designated and existing uses is maintained and protected in compliance with IDAPA 58.01.02.051.01 and 40 CFR 131.12(a)(1)).

Specifically, the Snake River is listed for phosphorus, TSS, temperature, mercury, pH and bacteria under CWA section 303(d). The State of Idaho developed the *Snake River Hells Canyon TMDL,* June, 2004 which was approved by EPA in September, 2004. The TMDL developed allocations for phosphorous, temperature and TSS (sediment). The effluent limits in the permit for phosphorus, TSS, and temperature are consistent with the approved wasteload allocations (WLAs) in the TMDL and ensure compliance with the Idaho water quality standards. The TMDL does not provide allocations for mercury, pH and bacteria. However, the permit does address these pollutants.

The permit contains a requirement for monitoring mercury because there was insufficient data to perform a reasonable potential analysis. Both IDEQ and EPA found the mercury monitoring data available did not meet the necessary precision to determine reasonable potential to violate water quality standards. EPA requires a minimum level of detection (ML) of 0.005 µg/L (Analytical Methods for Mercury in National Pollutant Discharge Elimination System (NPDES) Permit, James A Hanlon, August 23, 2007). The ML for the mercury monitoring submitted by Weiser was not adequate to meet the necessary ML required by EPA; it varied between 0.01 and 0.2 µg/L. To address this requirement, the permit contains a requirement for monitoring mercury with methods that achieve the lower ML.

Although the TMDL does provide an allocation for pH and bacteria, the permit contains effluent limits for these pollutants that are set at levels that will ensure protection of the designated and existing uses. See Appendix B of the Fact Sheet pages 26 and 28. The effluent limits for pH are 6.5 to 9.0 that are identical to the prior permit. The effluent monthly limits for *E-coli* is 126 colonies per 100 mL and the instantaneous limitation is 406 colonies per 100mL. These limits are identical to the limits in the prior permit.

High Quality Waters (IDAPA 58.01.02.051.02 and 40 CFR 131.12(a)(2))

For all parameters other than those identified above as listed on the CWA 303(d) list, EPA is assuming that the receiving water is high quality water with water quality levels that exceed "levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water." Therefore, EPA considers the provisions of IDAPA 58.01.02.051.02, for high quality waters, to be applicable to the receiving waters for all parameters except phosphorus, TSS, temperature, mercury, pH and bacteria.

All of the effluent limits for parameters not on the 303(d) list in the reissued permit are as stringent as or more stringent than the corresponding limits in the prior (2001) permit. These pollutants are BOD_5, TSS and total residual chlorine. Therefore, for those pollutants for which the receiving water is high quality, the reissued permit does not authorize an increased discharge of any pollutant that was limited in the prior permit because the limits are unchanged.

As to those pollutants present in the discharge for which there are no effluent limits in both the reissued permit and the prior permit, there is no factual basis to expect that those pollutants will be discharged in greater amounts under the reissued permit than were authorized in the prior permit. Similarly, there is no factual basis to expect that the effluent contains any new pollutants that have not been discharged previously. EPA reached these conclusions because the permit application and the discharge monitoring report data indicate no changes in the design flow, actual flow, influent quality or treatment processes that could result in a new or increased discharge of pollutants.

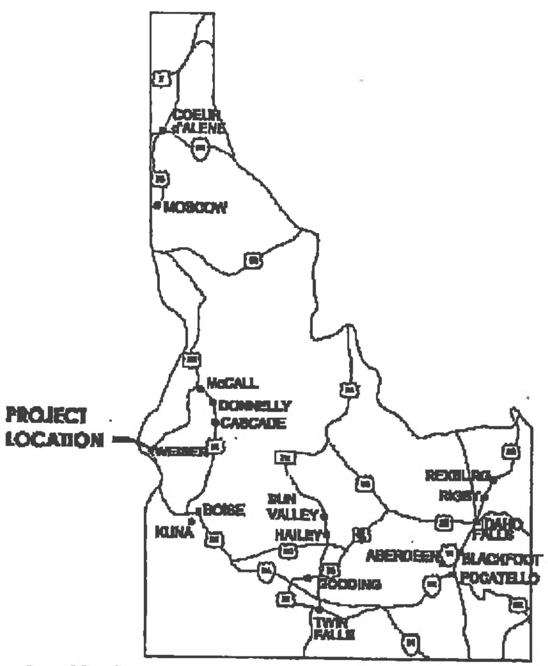
Summary

In summary, the effluent limits in the reissued permit are as stringent as or more stringent than the corresponding limits in prior 2001 permit for all parameters for which the receiving water quality "exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water." Furthermore, the reissued permit will not authorize an increased discharge of any pollutants that were not subject to effluent limits under the prior permit.

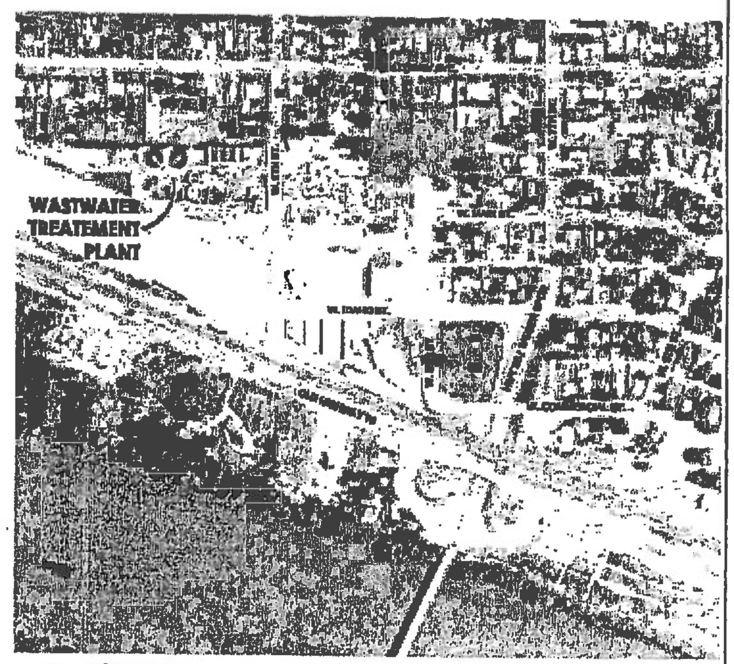
The reissuance of the City of Weiser NPDES permit will therefore not allow lower water quality relative to the prior permit. Consequently, there is no need for the State of Idaho to make a finding that "allowing lower water quality is necessary to accommodate important economic or social development" under IDAPA 58.01.02.051.02. Under these circumstances, EPA may issue an NPDES permit even though the State of Idaho has not yet identified methods for implementing its antidegradation policy.

The State of Idaho issued a final certification stating the effluent limitations in the draft permit for the City of Weiser are set at levels that ensure the State's numeric and narrative criteria will be met.

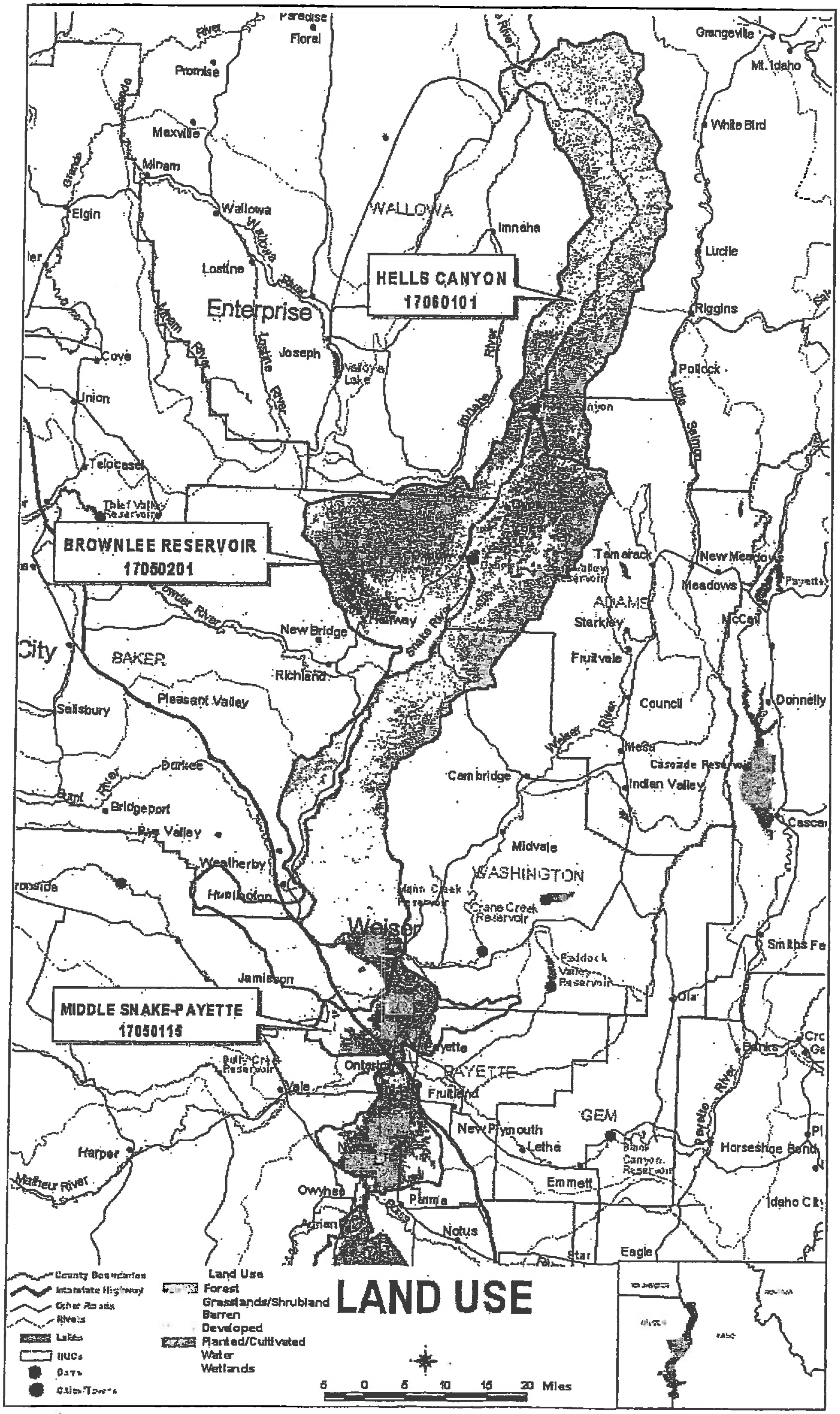
CITY OF WEISER, IDAHO
WASTEWATER TREATMENT PLANT



A1 LOCATION MAP



A4 VICINITY MAP



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ADAMS
WASHINGTON
PAYETTE
GEM
Enterprise
Weiser
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Forest
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Idaho Department of Environmental Quality

FINAL §401 Water Quality Certification

November 30, 2010

NPDES Permit Number: City of Weiser Wastewater Treatment Plant, **ID-002029-0**

Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended, 33 USC Section 1341 (a)(1), and Idaho Code §§ 39-101 et.seq., and 39-3601 et.seq., the Idaho Department of Environmental Quality (DEQ) has authority to review National Pollutant Discharge Elimination System (NDPES) permits and issue water quality certification decisions.

Based upon its review of the above-referenced permit and associated Fact Sheet, DEQ certifies that if the permittee complies with the terms and conditions imposed by the permit along with the conditions set forth in this water quality certification, then there is reasonable assurance the discharge will comply with the applicable requirements of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, including the Idaho Water Quality Standards (WQS) (IDAPA 58.01.02) and other appropriate water quality requirements of State law.

This certification does not constitute authorization of the permitted activities by any other state or federal agency or private person or entity. This certification does not excuse the permit holder from the obligation to obtain any other necessary approvals, authorizations or permits.

MIXING ZONES

Pursuant to IDAPA 58.01.02.060, DEQ authorizes a mixing zone that utilizes up to 25% of the critical flow volumes of the Snake River for chlorine, ammonia, and whole effluent toxicity.

COMPLIANCE SCHEDULE

Pursuant to IDAPA 58.01.02.400.03, DEQ may authorize compliance schedules for pollutants which have water quality based effluent limits in a permit for the first time. The City of Weiser cannot immediately achieve compliance with the final effluent limits for phosphorus; therefore, the City shall comply with the interim limits and requirements set forth in the permit. The final total phosphorus limits shall become effective four years and eleven months after the effective date of the permit if compliance is by treatment and the permittee continues to discharge to the Snake River. The permittee must achieve compliance with the final total phosphorus limits no later than January 1, 2018 if compliance is by cessation of discharge to the Snake River. The compliance schedule provides the permittee a reasonable amount of time to achieve the final effluent limitations as specified in the permit, while at the same time, it ensures compliance with the final effluent limitations is accomplished as soon as possible.

ANTIDEGRADATION

Idaho WQS provide that existing uses and the water quality necessary to protect the existing uses shall be maintained and protected (IDAPA 58.01.02.051.01). In addition, where water quality exceeds levels necessary to support uses, that quality shall be maintained and protected unless the Department finds, after intergovernmental coordination and public participation, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located (IDAPA 58.01.02.051.02).

The City of Weiser discharges its treated wastewater to the Snake River (assessment unit ID17050201SW004_08), which is listed in Idaho for sediment, phosphorus, dissolved oxygen, and temperature. The *Snake River – Hells Canyon TMDL* (2004) addresses each of these pollutants and has been approved by EPA.

The effluent limitations in the final draft permit for the City of Weiser are set at levels that ensure the State's numeric and narrative criteria will be met. The numeric and narrative criteria are set at levels which protect and maintain designated and existing beneficial uses. Therefore, the limits in the final draft permit protect and maintain the applicable designated and existing beneficial uses in the Snake River.

Additionally, the effluent limitations in the final draft permit for the City of Weiser are the same or more stringent than the limits in the existing permit. The limits for phosphorus and temperature are new and are consistent with the *Snake River – Hells Canyon TMDL*. Limitations for pH are new and comply with Idaho WQS at the end-of-pipe. The TSS limitations are the same as the previous permit and are consistent with the *Snake River – Hells Canyon TMDL*. The limits in the final draft permit, therefore, ensure that the existing level of water quality in the Snake River is maintained.

In summary, because the final draft permit includes limits that comply with the state's numeric and narrative criteria and limits that are the same as or more stringent than those in the existing permit, the permit (a) protects and maintains existing uses and the level of water quality necessary to protect existing uses in accordance with IDAPA 58.01.02.051.01 and (b) maintains and protects the existing water quality in accordance with IDAPA 58.01.02.051.02.

OTHER CONDITIONS

The certification is conditioned upon the requirement that any material modification of this permit or the permitted activities including without limitation, any modifications of the permit to reflect new or modified TMDL waste load allocations or other new information, shall first be provided to DEQ for review to determine compliance with WQS and to provide additional certification pursuant to section 401.

RIGHT TO APPEAL FINAL CERTIFICATION

The final Section 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5), and the Rules of Administrative Procedure Before the Board of Environmental Quality, IDAPA 58.01.23, within 35 days of the date of the final certification.

Questions regarding the actions taken in this certification should be directed to Craig Shepard, DEQ (Boise Regional Office) at (208) 373-0550.

Tiffany Floyd for

Pete Wagner
Administrator, DEQ Boise Regional Office

RESPONSE TO COMMENTS

City of Weiser Wastewater Treatment Facility
NPDES Permit # ID-002029-0

Idaho Department of Environmental Quality

1. ICL commented that the State has not conducted a lawful antidegradation analysis.

Response: Contrary to ICL's comment, DEQ believes it has conducted the review necessary to certify that there is a reasonable assurance that the discharge authorized by the proposed NPDES permit for the city of Weiser meets Idaho and federal antidegradation provisions. EPA issues NPDES permits in Idaho, and DEQ's role is to make certification decisions with respect to the permits in accordance with section 401 of the Clean Water Act. Section 401 and the federal implementing regulations provide that states must certify that there is a reasonable assurance that the discharge at issue will comply with state Water Quality Standards ("WQS"). With respect to the Weiser permit, DEQ has properly certified that there is a reasonable assurance that the discharge will comply with the antidegradation provisions of the state WQS. Further support for DEQ's conclusion with respect to compliance with antidegradation provisions is contained in this response to comments and in the attached Antidegradation Review document.

2. ICL stated that it is incorrect to conclude that new limits (where no limits existed previously) or the continuation of existing limits does not result in or contribute to degradation in the receiving water.

Response: DEQ disagrees. The existing limits comply with the narrative and numeric criteria and when coupled with the design flow of the facility, are used to estimate receiving water quality. Because the existing limits are being retained in the proposed permit and the facility's design flow is not increasing, it is appropriate to conclude that the proposed permit will not allow for any degradation when compared to the current permit. Secondly, the new limits are included in the permit as a direct result of the EPA-approved *Snake River – Hells Canyon TMDL* (DEQ, 2004). TMDLs are designed to establish wasteload allocations for point sources that will help restore the water body to a condition that supports existing and designated beneficial uses. The new limits will improve rather than degrade water quality.

3. ICL questioned whether the interim and final phosphorus limits are set at levels that are required by the antidegradation requirements.

Response: The *Snake River – Hells Canyon TMDL* established a total phosphorus wasteload allocation for the City of Weiser WWTP. This wasteload allocation has been determined to be necessary and sufficient for restoring the water body to a condition that supports existing and designated beneficial uses. The final effluent limitations for total phosphorus are consistent with the wasteload allocation established in the TMDL. DEQ has determined that the facility is not able to immediately achieve compliance with the final effluent limitations for total phosphorus, and has determined that a compliance schedule is appropriate. The interim phosphorus limits are established at levels that reflect the current discharge concentrations; therefore, the discharge will not contribute to further degradation in the Snake River when compared to the current permit.

4. ICL commented that there is no assurance that the receiving water will not be degraded by total ammonia-nitrogen discharged from the Weiser facility, especially since the permit does not contain limits for this pollutant.

Response: The Snake River is considered a high quality water for ammonia; therefore, the existing water quality regarding ammonia in the Snake River must be maintained and protected, unless it is deemed appropriate and necessary to allow a lowering of water quality. Based on the information EPA and DEQ currently has, there is no reasonable potential for the Weiser discharge to cause or contribute to a violation of WQS for ammonia, so no limits for this pollutant is provided in the proposed permit. In addition, the Weiser facility design flow used in the proposed permit has not increased and the quality of influent is not expected to change. Therefore, it is reasonable to conclude that the ammonia concentrations in the effluent will not increase above the levels currently authorized. In sum, the currently existing levels of ammonia in the Snake River will be maintained and protected, and the permit meets the antidegradation requirements for this pollutant.

5. ICL stated that the issuance of a mixing zone for ammonia, which does not have an effluent limitation, is counter to the CWA requirements under antidegradation which requires that all appropriate best management practices be implemented before harm to uses is allowed.

Response: The CWA requirements for antidegradation regarding implementation of best management practices must be met when a permit or license authorizes degradation. DEQ has concluded that the proposed permit for Weiser will not result in degradation of the Snake River. Furthermore, the issuance of a regulatory mixing zone for ammonia is not pertinent in the antidegradation evaluation. Instead, the decision to authorize a regulatory mixing zone is based upon an evaluation of whether the mixing zone will unreasonably interfere with the existing and designated beneficial uses of the water body.

ANTIDEGRADATION REVIEW

NPDES Permit # ID-002029-0 City of Weiser Wastewater Treatment Facility

Idaho Department of Environmental Quality

Antidegradation

The Idaho Water Quality Standards (WQS) contain an antidegradation policy providing three levels of protection to water bodies in Idaho. The first level of protection applies to all water bodies and assures that existing uses of a water body will be maintained. The second level of protection applies to those water bodies that are considered high quality and assures that no lowering of water quality will be allowed unless it is deemed to be necessary to accommodate important economic or social development. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires activities to not cause a lowering of water quality.

Idaho has not designated any outstanding resource water bodies. In addition, Idaho is in the process of adopting antidegradation implementation procedures in its WQS. Until antidegradation implementation rules and guidance is developed, DEQ is taking a pollutant-by-pollutant approach to antidegradation implementation. Any water body that is impaired will not be considered high quality for the pollutant(s) causing the impairment. The water body will however be considered high quality for any pollutants not causing an impairment.

Pollutants of Concern
The City of Weiser Wastewater Treatment Facility (Weiser) discharges the following pollutants of concern: biological oxygen demand (BOD), total suspended solids (TSS), *E. coli*, pH, chlorine, ammonia, phosphorus, mercury, and temperature. Effluent limitations have been developed for BOD, TSS, E. coli, pH, total residual chlorine, temperature, and total phosphorus. Effluent limitations were not deemed necessary for mercury or ammonia; however, additional monitoring is necessary for these parameters.

Receiving Water Body Level of Protection
Weiser discharges to the Snake River (assessment unit ID17050201SW004_08). According to the federally-approved 2008 Integrated Report, this assessment unit is not fully supporting its cold water aquatic life beneficial use as a result of sediment, phosphorus, dissolved oxygen, and temperature. Therefore, the Snake River is considered high quality for all of the pollutants of concern except total suspended solids, total phosphorus, and temperature.

Protection and Maintenance of Existing Uses
The section of the Snake River that receives Weiser's discharge has been designated for the following beneficial uses: cold water aquatic life; primary contact recreation; domestic, industrial, and agricultural water supply; wildlife habitats; and aesthetics. There is no other information indicating the presence of existing beneficial uses beyond those uses already designated. In order to protect and maintain designated and existing beneficial uses, a permitted discharge must comply with Idaho water quality standards (WQS), which contain narrative and numeric criteria as well as other provisions of the WQS such as Section 054 which addresses

water quality limited waters. The numeric and narrative criteria are set at levels which ensure protection of existing and designated beneficial uses.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a watershed management plan, also known as a total maximum daily load (TMDL), must be prepared for any water quality limited water body. A central purpose of TMDLs is to establish wasteload allocations for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limitations that comply with the approved TMDL.

The Snake River is not supporting its cold water aquatic life beneficial use as a result of low dissolved oxygen levels, elevated total phosphorus and temperature, and sedimentation/siltation. The *Snake River – Hells Canyon TMDL* (2004) addresses each of these pollutants and has been approved by EPA. The proposed permit for Weiser contains effluent limits for total phosphorus, TSS, and temperature that are consistent with the TMDL (Table 1).

The effluent limitations and associated conditions contained in the Weiser permit and certification are set at levels that ensure compliance with the narrative and numeric criteria as well as the *Snake River – Hells Canyon TMDL*. Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the Snake River.

High Quality Waters

As indicated previously, the Snake River is considered a high quality water body for the following pollutants: BOD, pH, ammonia, nitrogen, temperature, bacteria, and mercury. As such, the quality of the Snake River must be maintained and protected, unless it is deemed appropriate and necessary to allow a lowering of water quality. Table 1 provides a summary of the existing permit limits and the proposed reissued permit limits.

The existing permit contains effluent limitations for fecal coliform as well as *E. coli*. The *E. coli* limits were in the permit to reflect the bacteria criterion that DEQ adopted to protect the contact recreation beneficial use (IDAPA 58.01.02.251.01). The fecal coliform limit was in the current permit because at the time the permit was issued, IDAPA 58.01.02.420.05 established a disinfection requirement for sewage wastewater treatment plant effluent. This requirement specified fecal coliform concentrations not exceed a geometric mean of 200/100 mL fecal based on a minimum of five samples in one week. This section of Idaho WQS was revised in 2002 to reflect an earlier change in the bacteria criterion from fecal coliform to *E. coli*. As such, the proposed reissuance permit for Weiser removes the fecal coliform limits. The *E. coli* limits are as or more protective of water quality than the old fecal coliform limits. In 1986, EPA updated its criteria to protect recreational use of water recommending an *E. coli* criterion as a better indicator of bacteria levels that may cause gastro-intestinal distress in swimmers than fecal coliform. DEQ changed its bacteria criterion from fecal coliform to *E. coli*, which as indicated earlier, is reflected in the current permit for Weiser. The proposed permit contains *E. coli* effluent limitations that comply with numeric criteria at the "end-of-pipe;" therefore, DEQ believes this discharge will not cause or contribute to a violation of the bacteria criteria in the Snake River.

Table 1. Comparison of proposed permit limits with current permit limits for Weiser.

		Proposed Permit			Current Permit		
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
Flow	MGD	2.4	-	-	-	-	-
Five-Day BOD	mg/L	30	45	-	30	45	-
	lb/day	600	900	-	600.5	900.7	-
	removal	85%	-	-	85%	-	-
TSS	mg/L	30	45	-	30	45	-
	lb/day	600	900	-	600.5	900.7	-
	removal	85%	-	-	85%	-	-
pH	s.u.	6.5 – 9.0 all times			6.5 – 9.0 all times		
Fecal coliform	#/100 mL	-	-	-	-	200	-
E. coli	#/100 mL	126 (geometric mean)	-	406 (instantaneous maximum)	126 (geometric mean)	-	406 (instantaneous maximum)
Total Residual Chlorine	mg/L	0.5	0.75	-	0.5	0.75	-
	lb/day	10	15	-	10.0	15.0	-
Total Phosphorus (interim)	lb/day	72	108	-	-	-	-
Total Phosphorus (final)	lb/day	14	21	-	-	-	-
Temperature	°F	72	-	-	-	-	-

The proposed permit limits in Table 1 are the same as, or more stringent than those in the current permit. Furthermore, there are no new pollutants present in the discharge that aren't currently being discharged and there is no reason to believe that existing pollutants will be discharged in quantities greater than that which is currently allowed to be discharged. Therefore, DEQ has concluded that the proposed permit does not allow for a new or increased water quality impact and will not cause a lowering of water quality. As such, the proposed permit will maintain the existing water quality in the Snake River.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

DEC - 3 2010

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

November 30, 2010

Mr. Michael J. Lidgard, Manager
NPDES Permit Unit
US EPA, Region 10
1200 Sixth Avenue
Seattle, WA 98101

RE: Final 401 Water Quality Certification for the City of Weiser NPDES Permit No. ID-002029-0

Dear Mr. Lidgard:

The Idaho Department of Environmental Quality (DEQ) has reviewed the final draft NPDES permit received November 8, 2010 for the City of Weiser Wastewater Treatment Plant. Enclosed with this letter is the State of Idaho's final water quality certification. Also enclosed are our antidegradation review and response to comments.

If you have any questions or need further information please contact Craig Shepard or me at 373-0550.

Sincerely,

Tiffany Floyd for

Pete Wagner
Regional Administrator
DEQ Boise Regional Office

cc: John Drabek, EPA R10
Dave Croxton – EPA R10
Leigh Woodruff – EPA IOO
Doug Conde, Deputy Attorney General
Craig Shepard, DEQ Boise Regional Office
Marti Bridges, DEQ State Office

United States Environmental Protection Agency
Region 10, Suite 900
1200 Sixth Avenue
Seattle, Washington 98101

Authorization to Discharge Under the National Pollutant Discharge Elimination System

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et seq.*, as amended by the Water Quality Act of 1987, P.L. 100-4, the "Act",

CITY OF WEISER
Wastewater Treatment Plant
West 9th Street
Weiser, Idaho 83672

is authorized to discharge from a facility located in the City of Weiser, Idaho, at the following location(s):

Outfall	Receiving Water	Latitude	Longitude
001	Snake River	44^0 14' 56" N	116^0 58' 53" W

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective ***insert date***

This permit and the authorization to discharge shall expire at midnight, ***insert date***

The permittee shall reapply for a permit reissuance on or before ***insert date***, 180 days before the expiration of this permit if the permittee intends to continue operations and discharges at the facility beyond the term of this permit.

Signed this day of , 2011,

Michael A. Bussell, Director
Office of Water and Watersheds

Table of Contents

Schedule of Submissions

The following is a summary of some of the items the permittee must complete and/or submit to EPA during the term of this permit:

Item	Due Date
1. Discharge Monitoring Reports (DMR)	DMRs are due monthly and must be submitted by the 10th day of the month. (see Part III.B.).
2. Operation and Maintenance (O&M) Plan	The permittee must provide EPA and Idaho Department of Environmental Quality (IDEQ) with written notification that the Operation and Maintenance Plan has been developed or updated and is being implemented within 180 days after the effective date of the final permit. The Plan must be kept on site and made available to EPA and IDEQ upon request (see Part II.A.).
3. Quality Assurance Plan (QAP)	The permittee must provide EPA and IDEQ with written notification that the Quality Assurance Plan has been developed and implemented within 90 days after the effective date of the final permit. The Plan must be kept on site and made available to EPA and IDEQ upon request (see Part II.B.).
4. Compliance Schedule	Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date (see Part III.J.).
5. Twenty-Four Hour Notice of Noncompliance Reporting	The permittee must report certain occurrences of noncompliance by telephone to (206) 553-1846 within 24 hours after the time the permittee becomes aware of the certain circumstances (see Part III.G.).
6. Emergency Response and Public Notification Plan	The permittee must provide EPA and IDEQ with written notification that the Plan has been updated and implemented within 180 days after the effective date of the final permit (see Part II.D.).
7. NPDES Application Renewal	The application must be submitted at least 180 days before the expiration date of the final permit (see Part V.B.).

I. Limitations and Monitoring Requirements

A. Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfall specified herein to the Snake River, within the limits and subject to the conditions set forth herein. This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams and operations that have been clearly identified in the permit application process.

B. Effluent Limitations and Monitoring Requirements

1. Effluent Limitations. The permittee must limit and monitor discharges from Outfall 001 as specified in Table 1, below. All limits represent maximum effluent limits unless otherwise indicated. The permittee must comply with the effluent limits in the tables at all times, unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

Table 1
Effluent Limitations and Monitoring Requirements Outfall 001

Parameter	Effluent Limitations			Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow, mgd	2.4	---	---	Effluent	Continuous	Recording
Biochemical Oxygen Demand (BOD_5)	30 mg/L	45 mg/L	---	Effluent	1/week	24-hour composite
	≥85% removal	---	---	Influent and Effluent[1]	---	Calculation[2]
	600 lbs/day	900 lbs/day	---	Effluent	1/week	Calculation[3]
Total Suspended Solids (TSS)	30 mg/L	45 mg/L	---	Effluent	1/week	24-hour composite
	≥85% removal	---	---	Influent and Effluent[1]	---	Calculation[2]
	600 lbs/day	900 lbs/day	---	Effluent	1/week	Calculation[3]
E. coli Bacteria	126 colonies/ 100 mL[4]	---	406 colonies/ 100 mL[5]	Effluent	5/month	Grab
pH	6.5 – 9.0 s.u.			Effluent	5/week	Grab

Table 1 Effluent Limitations and Monitoring Requirements Outfall 001						
	Effluent Limitations			Monitoring Requirements		
Parameter	Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
~~Total Phosphorus (interim)~~	~~72 lbs/day~~[6]	~~108 lbs/day~~[6]	—	~~Effluent~~	~~1/week~~	~~24-hour composite~~[3]
Total Phosphorus (interim) May 1 – September 30	72 lbs/day[6]	108 lbs/day[6]	—	Effluent	1/week	24-hour composite[3]
Total Phosphorus (interim) October 1 – April 30		—		Effluent	1/week	24-hour composite
~~Total Phosphorus (final)~~	~~14 lbs/day~~[7]	~~21 lbs/day~~[7]	—	~~Effluent~~	~~1/week~~	~~24-hour composite~~[3]
Total Phosphorus (final) May 1 – September 30	14 lbs/day	21 lbs/day	—	Effluent	1/week	24-hour composite
Total Phosphorus (final) October 1 – April 30			—	Effluent	1/week	24-hour composite
Temperature	72°F	---	---	Effluent	5/week	Grab
Total Residual Chlorine	0.5 mg/L	0.75 mg/L	---	Effluent	5/week	Grab[3]
	10 lbs/day	15 lbs/day				
Total Ammonia-Nitrogen[8], mg/L	---	---	---	Effluent	1/month	24-hour composite
Total Mercury[9] µg/L	---	---	---	Effluent	1/quarter	24-hour composite
NPDES Application Form 2A Effluent Testing Data	---	---	---	Effluent	1 each in 2nd, 3rd, & 4th years of the permit	See footnote 10

Table 1 Effluent Limitations and Monitoring Requirements Outfall 001						
	Effluent Limitations			Monitoring Requirements		
Parameter	Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
NPDES Application Form 2A Expanded Effluent Testing[11]	---	---	---	Effluent	1 each in 2^{nd}, 3^{rd}, & 4^{th} years of the permit	24-hr composite
NPDES Application Form 2A WET[12] TU$_a$	---	---	---	Effluent	Quarterly during last year of permit	24-hour composite

[1] Influent and effluent composite samples shall be collected during the same 24-hour period.
[2] Percent removal is calculated using the following equation: ((average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration) x100.
[3] Loading is calculated by multiplying the concentration (mg/L) by the flow (mgd) on the day sampling occurred and a conversion factor of 8.34.
[4] The monthly average for *E. coli* is the geometric mean of all samples taken during the month.
[5] This is an instantaneous maximum limit, applicable to each grab sample without averaging. A violation must be reported within 24 hours.
[6] Interim limits lasting until January 1, 2018 under Compliance Schedule Option 1 – Cessation of Discharge, or for four years and eleven months under Compliance Schedule Option 2 – Treatment and Continuing the Discharge (see Part I.C.)
[7] See Part I.C.
[8] Method 350.1 must be used. The permittee must achieve a ML of 10 μg/L. If the City fails to meet the ML and MDL the City must identify the reasons for the failure, the source of any interference and submit data showing interference.
[9] Methods 1631E or 245.7 must be used. The permittee must achieve a MDL of 1.8 ng/L and a ML 5.0 ng/L (0.005 μg/L).
[10] For Effluent Testing Data, in accordance with instructions in NPDES Application Form 2A, Part B.6.
[11] See NPDES Permit Application Form 2A, Part D for the list of pollutants to include in this testing.
[12] For WET testing, in accordance with instructions in NPDES Application Form 2A, Part E. and Part I.D.

Table 2 Minimum Levels	
Parameter	ML
Total Mercury	5.0 ng/L (0.005 μg/L)
Total Ammonia Nitrogen	10 μg/L

2. The permittee must report within 24 hours to EPA at (206) 553-1846 any violation of the maximum daily limits for *E. coli*. The permittee must report violations of all

other effluent limits at the time that discharge monitoring reports are submitted (See Part III.B. and Part III.G., below).

3. The permittee must not discharge any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water.

4. The permittee must collect effluent samples from the effluent stream after the last treatment unit prior to discharge into the receiving waters.

5. Minimum Levels. For all effluent monitoring, the permittee must use methods that can achieve a minimum level (ML) less than the effluent limitation. For parameters that do not have effluent limitations, the permittee must use methods that can achieve MLs less than or equal to those specified in Table 2. For purposes of reporting on the Discharge Monitoring Report (DMR) for a single sample, if a value is less than the MDL, the permittee must report "less than {numeric value of the MDL}" and if a value is less than the ML, the permittee must report "less than {numeric value of the ML}."

6. For purposes of calculating monthly averages, except for *E. coli*, zero may be assigned for values less than the MDL, and the {numeric value of the MDL} may be assigned for values between the MDL and the ML. If the average value is less than the MDL, the permittee must report "less than {numeric value of the MDL}" and if the average value is less than the ML, the permittee must report "less than {numeric value of the ML}." If the average value is equal to or greater than the ML, the permittee must report the actual value. The resulting average value must be compared to the compliance level, the ML, in assessing compliance.

C. Schedule of Compliance

The permittee must comply with all effluent limitations and monitoring requirements in Part I.B. of this permit immediately upon the effective date of this permit except the final effluent limitations for total phosphorus.

1. The permittee must achieve compliance with the final total phosphorus ~~no later than~~ effluent limitations of Part I.B.1. four years and eleven months after the effective date of this permit if compliance is by treatment and the permittee continues to discharge to the Snake River.

~~2. While the schedule of compliance is in effect, the permittee must comply with the following interim requirements:~~

   a) ~~The permittee must comply with the interim effluent limitations and monitoring requirements in Part I.B of this permit.~~

   b) ~~By one year after the effective date of the final permit, and annually thereafter until compliance with the final effluent limits are achieved, the permittee must submit to EPA and IDEQ a report of progress toward completion of upgrades necessary to meet the phosphorus limits.~~

2. The permittee must achieve compliance with the final total phosphorus effluent limitations of Part I.B.1. no later than January 1, 2018 if compliance is by cessation of discharges to the Snake River and any other waters of the United States either during the entire year or during the period when the limitation applies (May 1 – September 30).

3. While the schedules of compliance ~~is~~ are in effect, the permittee must comply with the following interim requirements:

   a) The permittee must comply with the interim effluent limitations and monitoring requirements in Part I.B. of this permit.

   b) <u>Compliance Schedule Option 1 - Cessation of Discharge</u>

   Until compliance with the phosphorus effluent limits are achieved, at a minimum, the permittee must complete the tasks and reports listed in Table 3 for the cessation of discharge option.

Table 3: Tasks Required Under the Total Phosphorus Schedule of Compliance for Cessation of Discharge

Task No.	Completion Date	Task Activity
1	March 1, 2011	Facilities Planning Study Deliverable: The permittee must provide EPA with written notice that the study is complete.
2	April 1, 2012	Obtain Funding for Wastewater Reuse (Land Application) Deliverable: The permittee must provide EPA with written notice that the necessary funding has been obtained.
3	November 1, 2012	Locate Site and Negotiate Purchase for Wastewater Reuse (Land Application) Deliverable: Progress Report
4	July 1, 2013	Locate Site and Negotiate Purchase for Wastewater Reuse (Land Application) Deliverable: The permittee must provide EPA with written notice of the permittee's final selection of either Option 1 (cessation of discharge) or Option 2 (treatment and continuation of discharge).
5	July 1, 2014	Complete Environmental Report Deliverable: The permittee must provide EPA with written notice that the final environmental report is completed.
6	October 1, 2014	Complete Preliminary Design Report Deliverable: The permittee must provide EPA with written notice that the preliminary design report is completed.
7	October 1, 2015	Complete Final Design Deliverable: The permittee must provide EPA with written notice that the final design is complete.
8	January 1, 2016	Complete Bidding Deliverable: The permittee must notify EPA in writing on completion of the bidding

Table 3: Tasks Required Under the Total Phosphorus Schedule of Compliance for Cessation of Discharge		
Task No.	Completion Date	Task Activity
9	October 1, 2017	Complete Construction Deliverable: The permittee must notify EPA in writing on completion of construction
10	January 1, 2018	Achieve Final Effluent Limitation Deliverable: The permittee must achieve compliance with the final effluent limitations

c) Compliance Schedule Option 2 - Treatment and Continuing the Discharge

If compliance of the total phosphorus effluent limitation is by treatment and continuing the discharge to the Snake River, then the permittee must submit an Annual Report of Progress which outlines the progress made towards reaching the compliance date in Part I.C.1. The annual Report of Progress must be submitted by January 1st of each year. The first report is due January 1, 2012 and annually thereafter, until compliance with the total phosphorus effluent limits are achieved or until a final decision by the permittee to cease discharges to achieve the effluent limitation in Part I.B.1.

At a minimum, the annual report must include:

(i) An assessment of the previous year of phosphorus data and comparison to the effluent limitations.

(ii) A report on progress made towards meeting the effluent limitations.

(iii) Further actions and milestones targeted for the upcoming year.

In addition to the annual reports of progress, by July 1, 2013 the permittee must provide EPA with written notice of the permittee's final selection of either Option 1 (cessation of discharge) or Option 2 (treatment and continuation of discharge). See also Part III.J., "Compliance Schedules."

D. Whole Effluent Toxicity Testing Requirements

The permittee must conduct acute toxicity tests on effluent samples from Outfall 001. Testing must be conducted in accordance with subsections 1 through 4, below.

1. Toxicity testing must be conducted on 24-hour composite samples of effluent. In addition, the sample must be analyzed for the chemical and physical parameters required in Part I.B., using the specified sample type. A split of the first individual effluent sample collected for the 24-hour composite sample cannot be used to satisfy the required grab sampling in Part I.B.

2. Acute Test Species and Methods

   a) Acute tests must be conducted in accordance with instructions in NPDES Application Form 2A, Part E.

b) The permittee must conduct the following two acute toxicity tests on each sample, using the following species and protocols:

Freshwater Acute Toxicity Tests	**Species**	**Method**
Fathead minnow 96-hour static-renewal test	*Pimephales promelas*	EPA-821-R-02-012
Daphnid 48-hour static test	*Ceriodaphnia dubia, Daphnia pulex*, or *Daphnia magna*	EPA-821-R-02-012

c) The presence of acute toxicity must be determined as specified in Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA/821-R-02-012, October 2002.

d) Acute toxicity test results must be reported in TUa (acute toxic units), which is defined as follows:

(i) TUa = 100/LC50.

(ii) LC50 (lethal concentration, 50 percent) = The effluent concentration that would cause death to 50 percent of the test organisms.

3. Quality Assurance

The toxicity testing on each organism must include at least a series of five effluent dilutions and a control. At a minimum the dilution series shall include 100%, 50%, 25%, 12.5% and 6.25% effluent.

a) All quality assurance criteria and statistical analyses used for acute tests and reference toxicant tests must be in accordance with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA/821-R-02-012, October 2002 and the individual test protocol.

b) In addition to those quality assurance measures specified in the methodology, the following quality assurance procedures must be followed:

(i) If organisms are not cultured in-house, concurrent testing with reference toxicants must be conducted. If organisms are cultured in-house, monthly reference toxicant testing is sufficient. Reference toxicant tests must be conducted using the same test conditions as the effluent toxicity tests.

(ii) If either the reference toxicant tests or the effluent tests do not meet all test acceptability criteria as specified in the test methods manual, the permittee must re-sample and re-test within 14 days after receipt of the test results.

(iii) Control and dilution water must be receiving water or lab water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control, using culture water must also be used. Receiving water may be used as control and dilution water upon notification of EPA and IDEQ. In no case may water that has not met test acceptability criteria be used for either dilution or control.

4. Reporting

a) Results of toxicity tests must be reported on the next Discharge Monitoring Report (DMR) after receiving the results of the test.

The permittee must attach to the DMR a report that includes: (1) the toxicity test results; (2) the dates of sample collection and initiation of each toxicity test; (3) the flow rate at the time of sample collection; and (4) the results of the effluent analysis for chemical parameters including expanded effluent testing required for the outfall as defined in Part I.B.

b) The permittee must report test results for acute tests in accordance with the guidance in Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA/821-R-02-012, October 2002.

II. Special Conditions

A. Operation and Maintenance Plan

In addition to the requirements specified in Part IV.E of this permit (Proper Operation and Maintenance), within 180 days after the effective date of the final permit, the permittee must provide written notice to EPA and IDEQ that an operation and maintenance plan for the wastewater treatment facility has been developed and implemented. The plan shall be retained on site and made available upon request to EPA and IDEQ.

B. Quality Assurance Plan (QAP)

The permittee must develop and implement a quality assurance plan (QAP) for all monitoring required by this permit. The permittee must submit written notice to EPA and IDEQ that the Plan has been developed and implemented within 90 days of the effective date of this permit. Any existing QAPs may be modified for compliance with this section.

1. The QAP must be designed to assist in planning for the collection and analysis of effluent and receiving water samples in support of the permit and in explaining data anomalies when they occur.
2. Throughout all sample collection and analysis activities, the permittee must use the EPA-approved QA/QC and chain-of-custody procedures described in *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5) and *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5). The QAP also must include the quality control procedures in Method 245.7 Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry or Method 1631E. The QAP must be prepared in the format that is specified in these documents.

3. At a minimum, the QAP must include the following:
   a) Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantitation limits for each target compound, type and number of quality assurance field samples, precision and accuracy requirements, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements.
   b) Map(s) indicating the location of each sampling point.
   c) Qualification and training of personnel.
   d) Name(s), address(es) and telephone number(s) of the laboratories used by or proposed to be used by the permittee.
4. The permittee must amend the QAP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAP.
5. Copies of the QAP must be kept on site and made available upon request to EPA or IDEQ.

C. Control of Undesirable Pollutants and Industrial Users

1. The permittee must require any industrial user discharging to its treatment works to comply with any applicable requirements of 40 CFR 403 through 471, including the following requirements.
2. The permittee must not allow industrial users to discharge the following pollutants into the POTW:
   a) Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit (°F) or 60 degrees Centigrade (°C) using the test methods specified in 40 CFR 261.21.
   b) Pollutants which will cause corrosive structural damage to the POTW, but in no case Discharges with pH lower than 5.0, unless the works is specifically designed to accommodate such Discharges.
   c) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference.
   d) Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the POTW.
   e) Heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the POTW Treatment Plant exceeds 40 °C (104 °F) unless the Director of the Office of Water and Watersheds, upon request of the POTW, approves alternate temperature limits.
   f) Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.

g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.

h) Any trucked or hauled pollutants, except at discharge points designated by the POTW.

i) Any pollutant which causes Pass Through or Interference.

D. Emergency Response and Public Notification Plan

1. The permittee must develop and implement an overflow emergency response and public notification plan that identifies measures to protect public health from overflows that may endanger health and unanticipated bypasses or upsets that exceed any effluent limitation in the final permit. At a minimum the plan must include mechanisms to:

   a) Ensure that the permittee is aware (to the greatest extent possible) of all overflows from portions of the collection system over which the permittee has ownership or operational control and unanticipated bypass or upset that exceed any effluent limitation in the permit;

   b) Ensure appropriate responses including assurance that reports of an overflow or of an unanticipated bypass or upset that exceed any effluent limitation in the permit are immediately dispatched to appropriate personnel for investigation and response;

   c) Ensure immediate notification to the public, health agencies, and other affected public entities (including public water systems). The overflow response plan must identify the public health and other officials who will receive immediate notification;

   d) Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained; and

   e) Provide for continued operation during emergencies.

2. The permittee must submit written notice to EPA and IDEQ that the plan has been developed and implemented within 180 days after the effective date of the final permit. Any existing emergency response and public notification plan may be modified for compliance with this section.

III. Monitoring, Recording and Reporting Requirements

A. Representative Sampling (Routine and Non-Routine Discharges)

Samples and measurements must be representative of the volume and nature of the monitored discharge.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in Part I.B. of this permit that are likely to be affected by the discharge.

The permittee must collect such additional samples as soon as the spill, discharge, or bypassed effluent reaches the outfall. The samples must be analyzed in accordance with Part III.C. ("Monitoring Procedures"). The permittee must report all additional monitoring in accordance with Part III.D. ("Additional Monitoring by Permittee").

B. Reporting of Monitoring Results

1. Paper Copy Submissions

   The permittee must summarize monitoring results each month on the DMR form (EPA No. 3320-1) ~~or equi~~valent. The permittee must submit reports monthly, postmarked by the 1~~0~~5th day of the following month. The permittee must sign and certify all DMRs, ~~and~~ all other reports, in accordance with the requirements of Part V.E. of this permit ("Signatory Requirements"). The permittee must submit the legible originals of these documents to the Director, Office of Compliance and Enforcement, with copies to IDEQ at the following addresses:

   US EPA Region 10
   Attn: ICIS Data Entry Team
   1200 Sixth Avenue, Suite 900
   OCE-133
   Seattle, Washington 98101-3140

   Idaho Department of Environmental Quality
   Boise Regional Office
   1445 N. Orchard St.
   Boise, ID 83706-2239

2. Electronic submissions

   If, during the period when this permit is effective, EPA makes electronic reporting available, the permittee may submit reports electronically, following guidance provided by EPA according to the same due dates in Part III.B.1, above. The permittee must certify all DMRs and all other reports in accordance with the requirements of Part V.E. ("Signatory Requirements"). The permittee must retain the legible originals of these documents and make them available, upon request, to the EPA Region 10 Director, Office of Compliance and Enforcement.

C. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by EPA as alternate test procedures under 40 CFR §136.5.

D. Additional Monitoring by Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the permittee must include the results of this monitoring in the calculation and reporting of the data submitted in the DMR.

Upon request by EPA, the permittee must submit results of any other sampling, regardless of the test method used.

E. Records Contents

Records of monitoring information must include:

1. the date, exact place, and time of sampling or measurements;
2. the name(s) of the individual(s) who performed the sampling or measurements;
3. the date(s) analyses were performed;
4. the names of the individual(s) who performed the analyses;
5. the analytical techniques or methods used; and
6. the results of such analyses.

F. Retention of Records

The permittee must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the NPDES permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of EPA or IDEQ at any time.

G. Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee must report the following occurrences of noncompliance by telephone within 24 hours from the time the permittee becomes aware of the circumstances:
   a) any noncompliance that may endanger health or the environment;
   b) any unanticipated bypass that exceeds any effluent limitation in the permit (See Part IV.F., "Bypass of Treatment Facilities");
   c) any upset that exceeds any effluent limitation in the permit (See Part IV.G., "Upset Conditions"); or
   d) any violation of a maximum daily or instantaneous maximum effluent limitation for applicable pollutants listed in the permit to be reported within 24 hours (See Part I.B).
   e) any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limitation in the permit. The written submission must contain:

(i) an overflow that results in a discharge to waters of the United States; and

(ii) an overflow of wastewater, including a wastewater backup into a building (other than a backup caused solely by a blockage or other malfunction in a privately owned sewer or building lateral) that does not reach waters of the United States

2. The permittee must also provide a written submission within five days of the time that the permittee becomes aware of any event required to be reported under subpart 1 above. The written submission must contain:

   a) a description of the noncompliance and its cause;

   b) the period of noncompliance, including exact dates and times;

   c) the estimated time noncompliance is expected to continue if it has not been corrected; and

   d) steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

   e) if the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

   (i) The location of the overflow;

   (ii) The receiving water (if there is one);

   (iii) An estimate of the volume of the overflow;

   (iv) A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);

   (v) The estimated date and time when the overflow began and stopped or will be stopped;

   (vi) The cause or suspected cause of the overflow;

   (vii) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;

   (viii) An estimate of the number of persons who came into contact with wastewater from the overflow; and

   (ix) Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps.

3. The Director of the Office of Compliance and Enforcement may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the NPDES Compliance Hotline in Seattle, Washington, by telephone, (206) 553-1846.

4. Reports must be submitted to the addresses in Part III.B ("Reporting of Monitoring Results").

H. Other Noncompliance Reporting

The permittee must report all instances of noncompliance, not required to be reported within 24 hours, at the time that monitoring reports for Part III.B ("Reporting of Monitoring Results") are submitted. The reports must contain the information listed in Part III.G.2. of this permit ("Twenty-four Hour Notice of Noncompliance Reporting").

I. Notice of New Introduction of Toxic Pollutants

The permittee must notify the Director of the Office of Water and Watersheds and **IDEQ** in writing of:

1. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Sections 301 or 306 of the Act if it were directly discharging those pollutants; and
2. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
3. For the purposes of this section, adequate notice must include information on:
   a) The quality and quantity of effluent to be introduced into the POTW, and
   b) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
4. The permittee must notify the Director of the Office of Water and Watersheds at the following address:

   US EPA Region 10
   Attn: NPDES Permits Unit Manager
   1200 Sixth Avenue, Suite 900,
   OWW-130
   Seattle, WA 98101-3140

J. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date.

IV. Compliance Responsibilities

A. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.

B. Penalties for Violations of Permit Conditions

1. Civil and Administrative Penalties. Pursuant to 40 CFR Part 19 and the Act, any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $37,500 per day for each violation).

2. Administrative Penalties. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Pursuant to 40 CFR 19 and the Act, administrative penalties for Class I violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $16,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $37,500). Pursuant to 40 CFR §19 and the Act, penalties for Class II violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $16,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $177,500).

3. Criminal Penalties:

    a) Negligent Violations. The Act provides that any person who negligently violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under Section 402 of the Act, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both.

    b) Knowing Violations. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both.

    c) Knowing Endangerment. Any person who knowingly violates Section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

d) False Statements. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

C. Need To Halt or Reduce Activity not a Defense

It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this permit.

D. Duty to Mitigate

The permittee must take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Paragraphs F.2 and 3, below.

2. Required Notice.

   a) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it must submit prior written notice, if possible at least 10 days before the date of the bypass.

   b) Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required under Part III.G. ("Twenty-four Hour Notice of Noncompliance Reporting").

3. Prohibition of bypass.

   a) Bypass is prohibited, and the Director of the Office of Compliance and Enforcement may take enforcement action against the permittee for a bypass, unless:

      (i) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

      (ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

      (iii) The permittee submitted notices as required under Paragraph 2 of this Part.

   b) The Director of the Office of Compliance and Enforcement may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in Paragraph 3.a) of this Part.

G. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee meets the requirements of Paragraph 2 of this Part. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. Conditions necessary for a demonstration of upset. To establish the affirmative defense of upset, the permittee must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a) An upset occurred and that the permittee can identify the cause(s) of the upset;

b) The permitted facility was at the time being properly operated;

c) The permittee submitted notice of the upset as required under Part III.G, "Twenty-four Hour Notice of Noncompliance Reporting;" and

d) The permittee complied with any remedial measures required under Part IV.D, "Duty to Mitigate."

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

H. Toxic Pollutants

The permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

I. Planned Changes

The permittee must give written notice to the Director of the Office of Water and Watersheds as specified in Part III.I.4. and IDEQ as soon as possible of any planned physical alterations or additions to the permitted facility whenever:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29(b); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this permit.
3. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application site.

J. Anticipated Noncompliance

The permittee must give written advance notice to the Director of the Office of Compliance and Enforcement and IDEQ of any planned changes in the permitted facility or activity that may result in noncompliance with this permit.

K. Reopener

This permit may be reopened to include any applicable standard for sewage sludge use or disposal promulgated under section 405(d) of the Act. The Director may modify or revoke and reissue the permit if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or controls a pollutant or practice not limited in the permit.

V. General Provisions

A. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §122.62, §122.64, or §124.5. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

B. Duty to Reapply

If the permittee intends to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. In accordance with 40 CFR §122.21(d), and unless permission for the application to be submitted at a later date has been granted by the Regional Administrator, the permittee must submit a new application at least 180 days before the expiration date of this permit.

C. Duty to Provide Information

The permittee must furnish to EPA and IDEQ, within the time specified in the request, any information that EPA or IDEQ may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee must also furnish to EPA or IDEQ, upon request, copies of records required to be kept by this permit.

D. Other Information

When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or that it submitted incorrect information in a permit application or any report to EPA or IDEQ, it must promptly submit the omitted facts or corrected information in writing.

E. Signatory Requirements

All applications, reports or information submitted to EPA and IDEQ must be signed and certified as follows.

1. All permit applications must be signed as follows:
   a) For a corporation: by a responsible corporate officer.
   b) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.
   c) For a municipality, state, federal, Indian tribe, or other public agency: by either a principal executive officer or ranking elected official.
2. All reports required by the permit and other information requested by EPA or IDEQ must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
   a) The authorization is made in writing by a person described above;

b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; and

c) The written authorization is submitted to the Director of the Office of Compliance and Enforcement and IDEQ.

3. Changes to authorization. If an authorization under Part V.E.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part V.E.2. must be submitted to the Director of the Office of Compliance and Enforcement and IDEQ prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this Part must make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Availability of Reports

In accordance with 40 CFR 2, information submitted to EPA pursuant to this permit may be claimed as confidential by the permittee. In accordance with the Act, permit applications, permits and effluent data are not considered confidential. Any confidentiality claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice to the permittee. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR 2, Subpart B (Public Information) and 41 Fed. Reg. 36902 through 36924 (September 1, 1976), as amended.

G. Inspection and Entry

The permittee must allow the Director of the Office of Compliance and Enforcement, EPA Region 10; IDEQ; or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

H. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, nor any infringement of federal, tribal, state or local laws or regulations.

I. Transfers

This permit is not transferable to any person except after written notice to the Director of the Office of Water and Watersheds as specified in Part III.I.4. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act. (See 40 CFR 122.61; in some cases, modification or revocation and reissuance are mandatory).

J. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.

VI. Definitions

1. "Act" means the Clean Water Act.
2. "Administrator" means the Administrator of the EPA, or an authorized representative.
3. "Average monthly effluent limitation" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.
4. "Average weekly effluent limitation" means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.
5. "Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.

6. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
7. "Composite" - see "24-hour composite".
8. "Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.
9. "Director of the Office of Compliance and Enforcement" means the Director of the Office of Compliance and Enforcement, EPA Region 10, or an authorized representative.
10. "Director of the Office of Water and Watersheds" means the Director of the Office of Water and Watersheds, EPA Region 10, or an authorized representative.
11. "DMR" means discharge monitoring report.
12. "EPA" means the United States Environmental Protection Agency.
13. "Geometric Mean" means the n^{th} root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.
14. "Grab" sample is an individual sample collected over a period of time not exceeding 15 minutes.
15. "IC_{25}" means the inhibition concentration, the concentration of the effluent, that would cause a 25 percent reduction in a non-lethal biological measurement, e.g. reproduction or growth)
16. "IDEQ" means the Idaho Department of Environmental Quality.
17. "Interference" is defined in 40 CFR 403.3.
18. "LC_{50}" means the concentration of toxicant (e.g., effluent) which is lethal to 50 percent of the test organisms exposed in the time period prescribed by the test.
19. "Maximum daily effluent limitation" means the highest allowable "daily discharge."
20. "Method Detection Limit (MDL)" means the minimum concentration of a substance (analyte) that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.
21. "Minimum Level (ML)" means the concentration at which the entire analytical system must give a recognizable signal and an acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed. This level is used as the compliance level if the effluent limit is below it.

22. "NPDES" means National Pollutant Discharge Elimination System, the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits . . . under sections 307, 402, 318, and 405 of the CWA.

23. "Pass Through" means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

24. "POTW" means publicly owned treatment works, i.e. the permittee.

25. "QA/QC" means quality assurance/quality control.

26. "Regional Administrator" means the Regional Administrator of Region 10 of the EPA, or the authorized representative of the Regional Administrator.

27. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

28. "TU_a" ("Acute Toxic Unit") is a measure of acute toxicity. TU_a is the reciprocal of the effluent concentration that causes 50 percent of the organisms to die by the end on the acute exposure period (i.e., 100/"LC_{50}")

29. "TU_c "(Chronic toxic unit) is a measure of chronic toxicity. TU_c is the reciprocal of the effluent concentration that causes 25 percent inhibition by the end of the chronic exposure period (i.e., 100/"IC_{25}").

30. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

31. "24-hour composite" sample means a combination of at least 8 discrete sample aliquots of at least 100 milliliters, collected over periodic intervals from the same location, during the operating hours of a facility over a 24 hour period. The composite must be flow proportional. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater

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February 22, 2010

United States Environmental Protection Agency (EPA) - Region 10
Office of Water and Watersheds OWW-130
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Re: **City of Weiser, Idaho - National Pollution Discharge Elimination System (NPDES) Permit #ID-002029-0**

Dear Director:

On behalf of the City of Weiser, Idaho we are writing to submit comments to the City's draft NPDES permit. The comments are numbered, state the section and part of the permit, show the change, addition/deletion requested (in bold), and include an explanation for why the comment is provided.

1. **Schedule of Submissions.** See Item 1.Discharge Monitoring Reports (DMR) on Page 5 of 27:

   Change Due Date from "10th" to "28th".

   The permittee is required to monitor for BOD, TSS, and Total Phosphorus once per week. Thus, it is possible that the permittee will be monitoring on the last day of the month. Standard turn around time for laboratory analysis ranges between 10 and 14 working days. Consequently, the permittee may not have all monitoring results available until the 14th of the month. The permittee needs time to assemble and analyze the data, prepare the monthly report, conduct quality assurance/quality control on the data and report, and sign and submit the final report. A reasonable amount of time to obtain all the monitoring data and complete a monitoring report is 28 days. Therefore, we are requesting the submission date for the monthly monitoring report be changed to the 28th day of the following month.

2. **Section I.B.1**

   Change the effluent Total Phosphorous limits, interim and final, to seasonal limits from May 1 to September 30 with no limits from October 1 to April 30.

   The *Snake River – Hells Canyon Total Maximum Daily Load (TMDL), Revised June 2004* (TMDL) was prepared by the Idaho Department of Environmental Quality (DEQ) to determine whether a load allocation is required for nutrients (including phosphorus), bacteria, dissolved oxygen, mercury, pH, sediment, and temperature on the Snake River. The part of the TMDL regarding phosphorus is applicable to the City's effluent phosphorus limits. The TMDL determined, by scientific study, the amount of phosphorus that can be assimilated by the Snake River without causing the River to exceed the water quality standards set to protect the River's designated beneficial uses, also called the loading capacity. The TMDL then determines the load allocations for phosphorus that point sources can discharge and still ensure that the total phosphorus load does not exceed the loading capacity for the Snake River at Hells Canyon (SR-HC). (TMDL pages a and b)

The TMDL found that "Excessive algal growth is the dominant factor in the impairment of designated beneficial uses in the Upstream Snake River segment of the SR-HC TMDL." Chlorophyll *a* was selected as a surrogate measure for algae biomass and the relationship between chlorophyll *a* concentrations and phosphorus concentrations was analyzed. The TMDL determined that increased concentrations of chlorophyll *a* corresponded with increased concentrations of phosphorus. The TMDL determined a target value of 0.07 mg/L total phosphorus would result in a median chlorophyll *a* concentration of about 12 ug/L which was determined to be protective of Snake River beneficial uses. (pages 295-298)

The TMDL further concluded that "Because most of the negative effects in the SR-C TMDL reach associated with elevated nutrient levels stem from excessive algal growth, which is a seasonal occurrence, an evaluation of the critical time period for phosphorus reductions was included as part of the target determination for this TMDL." After evaluating when algal growth causes impairment of beneficial uses, the TMDL then indicated "it has been determined that the total phosphorus target identified should be applied in a seasonal fashion that will allow direct management of the water quality concerns associated with nutrient loading. Application of this target over the time frame when conditions favoring algal growth are known to occur (May to September) will result in the reduction of dominant sources of phosphorus in the water shed and system loading in general. With a target application of May through September, it is calculated that approximately 70 percent of the total algal biomass loading can be addressed.... This seasonal target will act to reduce both those forms of phosphorus most responsible for algal growth within the system, and algal growth itself." (pages 293 and 316)

The TMDL then determined total phosphorus load allocations. "Total phosphorus load and waste load allocation have been identified for point and nonpoint sources in the SR-HC TMDL reach based on the less than 0.07 mg/L total phosphorus target and the seasonal application period (May through September)." The waste load allocation for the Weiser WWTP is presented in Table 4.0.8 of the TMDL and is 6.4 kg/day (14 pounds/ day). The Table notes that this is an 80% reduction for the Weiser WWTP. The heading for Table 4.0.8 is "Total phosphorus waste load allocations (WLAs) for permitted point sources in the Snake River – Hells

Canyon TMDL reach. (Waste load allocations are based on design flows and discharge concentrations from Table 2.5.0 for the critical period: May through September)." The TMDL summarizes the waste load allocations as follows: "Waste load allocations to point sources discharging directly to the Snake River within the SR - HC TMDL reach have been assigned as follows:

- The critical time period over which total phosphorus reductions apply is from May through September.
- ... facultative lagoons ... will not receive specific total phosphorus reduction requirements at this time. ...
- Point sources (activated sludge or other treatment method) ... will reduce total phosphorus loading by 80 percent (applied daily on a monthly average basis and based on design flows). ... Any approved mechanism or treatment alternative (or combination of such) that results in the required daily 80 percent reduction (calculated on a monthly average basis) required will be acceptable under this TMDL (for example, land application during the target season...
- The waste load allocations identified here for permitted point sources apply ONLY to those point sources discharging directly to the Snake River within the SR-HC TMDL.
- ... Amalgamated Sugar Company...
- ... Waste load allocations for permitted point sources may be modified through the facility planning process if new information indicates that actual design loads were higher than originally determined." (pages 444 to 446)

It is very clear that the TMDL provides a waste load allocation to the Weiser WWTP of 14 pounds per day during the critical period of May 1 to September 30 and that total phosphorus reduction is not required from October 1 to April 30. EPA has an obligation to put TMDL allocations in NPDES permits per 40CFR122.44.d(1)(vii)(B). The clause is repeated below:

"*(vii) When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that:*

(A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards; and

(B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7.

Thus the permit limit must be changed to a seasonal load allocation of 14 pounds per day from May 1 to September 30 and no effluent phosphorus limit from October 1 to April 30 to meet the SR – HC TMDL. During the period of May 1 to September 30, average monthly limits and average weekly limits are appropriate. During the period of October 1 to April 30, effluent monitoring is appropriate.

3. **Section I.B.1**

Add footnote 14 to the final effluent Total Phosphorous average monthly limit. Footnote 14 shall read: The pounds per day calculation shall be as follows: Average monthly plant effluent flow (mgd) x Average monthly effluent total phosphorus concentration (mg/L) x 8.34 – (Average monthly withdrawals from the Snake River for the City's water system (mgd) x Average monthly raw water total phosphorus concentration (mg/L) x 8.34).

The City's effluent phosphorus limit should be a net total mass daily load of phosphorus from the City of Weiser. This calculation will take into account phosphorus withdrawn from the River by the city's Water System and phosphorus discharged to the River by the City's WWTP. The City Water System withdrawals in mgd and raw water phosphorus monitoring in mg/L and the net effluent total phosphorus load will be reported to EPA in the monthly DMR. The City will monitor raw water phosphorus on the same sample frequency as the WWTP: 1/week.

4. **Section I.B.1**

Add footnote 15 to the final effluent Total Phosphorous average weekly limit. Footnote 15 shall read: The pounds per day calculation shall be as follows: Average weekly plant effluent flow (mgd) x Average weekly effluent total phosphorus concentration (mg/L) x 8.34 – (Average weekly withdrawals from the Snake River for the City's water system (mgd) x Average weekly raw water total phosphorus concentration (mg/L) x 8.34).

The City's effluent phosphorus limit should be a net total mass daily load of phosphorus from the City of Weiser. This calculation will take into account phosphorus withdrawn from the River by the city's Water System and phosphorus discharged to the River by the City's WWTP. The City Water System withdrawals in mgd and raw water phosphorus monitoring in mg/L and the net effluent total phosphorus load will be reported to EPA in the monthly DMR. The City will monitor raw water phosphorus on the same sample frequency as the WWTP: 1/week.

5. **Section I.B.1**

Change footnote 6 of Table 1 to read "Interim limits lasting nine years and eleven months".

The City needs 2 permit cycles to comply with the new discharge limits for phosphorus. The City is currently having a Facilities Planning Study prepared to plan for the upgrades to the treatment plant necessary to meet the permit limit. One of the options is to purchase new property and build an entire new plant at a new location. This may be the least expensive option due to the high cost of constructing on an existing plant site and maintaining operations and compliance during the construction of new facilities. Due to the time required to locate a suitable property, negotiate and complete a purchase, and complete an environmental impact study for the new site, the City would not be able to consider a new plant site as an option with a five year compliance schedule.

6. **Section I.B.1**

In footnote 9 of Table 1, delete the sentence "The permittee must achieve a ML of 10 ug/L."

The description of Method 350.1, *Determination of Ammonia Nitrogen by Semi-automated Colorimeter, Revision 2.0*, August 1993, indicates that the applicable range for the method is 0.01 to 2.0 mg/L NH3 as N, thus indicating that the ML is 0.01 mg/L. However the description of the method does not otherwise describe what the ML is. The method also indicates that interferences for the method occur with cyanate, chlorine residual, or method interferences. The method describes the calculation for the method detection limit (MDL) and it is clear that the MDL can vary from laboratory to laboratory and be above 0.01 mg/L. The City will require that EPA Method 350.1 with an ML of 0.01 mg/L be used for effluent ammonia samples. The laboratory will report the results that are below the MDL as < {numeric value of the MDL}. The City should not be held in violation of the permit for an ML above 0.01 mg/L as this is allowed by Method 350.1. The laboratory should be required to provide an explanation of the interferences that prevented the laboratory from meeting the 0.01 mg/L ML. The laboratories hold the samples, often for a few weeks, and when the sample is run and the interferences are discovered, there may not be time to resample within the monitoring period. Since ammonia does not have an effluent limit, it is unreasonable to specify an ML and put the City at risk for violations for laboratory or sample interferences.

7. **Section I.B.1**

In footnote 10 of Table 1, delete the sentence "The permittee must achieve MDL of 1.8 ng/L and a ML of 5.0 ng/L (0.005 ug/L)".

Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry, August 2002, indicates in paragraph 1.5 that: "The method detection limit (MDL; 40 CFR 136, Appendix B) for Hg has been determined to be 0.2 ng/L when no interferences are present. The minimum level of quantification (ML) has been established as 0.5 ng/L." It is unreasonable to require the City to achieve an MDL that is lower than the MDL defined in the method. Also note that interferences are established in the method for gold and iodide and if these are present in the City's drinking water supply (Snake River) in sufficient quantity the MDL and ML may not be attainable.

Method 245.7: Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, Revision 2.0, February 2005 indicates in paragraph 1.5 that; "The method detection limit (MDL) and minimum level of Quantitation (ML) using this procedure usually are dependent on the level of interferences rather than instrumental limitations. The MD L determined from a single-laboratory and inter-laboratory laboratory validation studies is 1.8 ng/L and the ML has been established as 5.0 ng/L." In paragraph 4.4.1 of the method, gold, sliver, and iodide are identified as known interferences. High purity argon gas (99.998%) must be used as the carrier gas. Less pure argon gas will cause a reduction in sensitivity and thus higher MDL and ML.

It is reasonable to require the City to use EPA Methods 1631E or 245.7 and provide an explanation from the laboratory if they are not able to achieve the MDL or ML established by the method. Interferences from the drinking water supply, dischargers to the plant, and the laboratory that increase the MDL and ML but are still within the definition of the method are not controllable by the City. The Fact Sheet indicates in Section V, Paragraph B.2. last sentence of the first paragraph that "samples can be used for averaging if they are conducted using EPA approved test methods (generally found in 40 CFR 146) and if the Method Detection Limits (MDLs) are less than the effluent limits." There is not effluent limit for mercury and thus any MDL will be below the effluent limit. The City should not be subject to violations because a laboratory is not able to achieve the required MDL or ML for the specified method, particularly when there is not an effluent limit for mercury.

8. **Section I.B.1**

Change footnote 13 of Table 1 to read "For WET testing, in accordance with instructions in NPDES Application Form 2A, Part E and Part I.D. of this permit."

The correct reference is to Part I.D of this permit not Part I.C. of the NPDES Application Form 2A.

9. **Table 2. Minimum Levels**

Delete Table 2.

As discussed under item 6, the City will specify EPA Method 350.1 for all effluent ammonia monitoring and request an ML of 0.01 mg/L from the Laboratory. However, there are interferences identified by the method that may prevent the laboratory from meeting the requested ML. The City should not be subject to violations because a laboratory is not able to achieve the required ML for the specified method, when there is no effluent limit for ammonia.

As discussed under item 7 above, the City will specify EPA Method 1631E or 245.7 for all effluent mercury monitoring and request an MDL of 2.0 ng/L (MDL for Method 1631E) and an ML of 5.0 ng/L from the Laboratory. However, there are interferences identified by the method that may prevent the laboratory from meeting the requested MDL and ML. The City should not be subject to violations because a laboratory is not able to achieve the required MDL or ML for the specified method, when there is no effluent limit for mercury.

10. Section I.C. Schedule of Compliance

Change paragraph 1 to read: "The permittee must achieve compliance with the final effluent limits for total phosphorus no later than nine years and eleven months after the effective date of this permit."

See discussion under Schedule of Submissions Item 1.

11. Section I.D. Whole Effluent Toxicity Testing Requirements

Delete Ceriodaphnia dubia as a testing species.

As indicated in the Fact Sheet on page 13 of 30 "EPA has determined that the discharge does not have the reasonable potential to cause or contribute to an excursion above Idaho's narrative criteria for toxicity." Not only does the discharge not have the reasonable potential to cause or contribute to an excursion above Idaho's narrative criteria for toxicity, the Weiser WWTP has a nuisance problem with excessive growth of Ceriodaphnia dubia in their secondary clarifier. The City has to chlorinate the clarifiers to its control the growth of Ceriodaphnia dubia and prevent the continual clogging problems they have in their utility water filters. The cost for a toxicity test is approximately $950 per species. Thus testing for Ceriodaphnia dubia will cost the City almost $4,000 for a species that they are currently spending money to slow its out-of-control growth.

12. Section III.B. Reporting of Monitoring Results

Change the date permittee must submit reports monthly from the 10th to the 28th day of the following month.

See discussion under Schedule of Submissions Item 1.

13. Fact Sheet Section III.B. <u>Phosphorus</u>

- **Add as a new second paragraph the following language from the SR – HC TMDL summary of the waste load allocations (note the third paragraph is third bullet in the summary and the following is the first bullet):**

> **"The critical time period over which total phosphorus reductions apply is from May through September."**

See discussion under I.B.1 Item 2.

We look forward to EPA's response to our comments.

Sincerely,

KELLER ASSOCIATES, INC.

Glen Holdren, P.E.
Project Manager

cc: File
DEQ, Craig Shepard
Brad Hansen
Nate Marvin
Rod Millbrook
Mayor of Weiser

Permit No.: ID-002029-0

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et seq*., as amended by the Water Quality Act of 1987, P.L. 100-4, the "Act",

City of Weiser Wastewater Treatment Plant
West 9th Street
Weiser, Idaho 83672

is authorized to discharge from the wastewater treatment facility located in Weiser, Idaho, at the following location:

Outfall	Receiving Water	Latitude	Longitude
001	Snake River	44° 14• 56•	116° 58• 53•

in accordance with discharge point, effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective **August 1, 2001.**

This permit and the authorization to discharge shall expire at midnight, **August 1, 2006.**

Signed this 22 day of June, 2001.

/s/ Michael A. Bussell
for Randall F. Smith
Director
Office of Water, Region 10
U.S. Environmental Protection Agency

TABLE OF CONTENTS

The following is a summary of some of the items the permittee must submit to EPA during the term of this permit.

Item	**Due Date**
1. Discharge Monitoring Reports (DMR)	DMRs are due monthly and must be postmarked by the 10th day of the month following the monitoring month (see II.B, page 10)
2. Effluent Ammonia, and Mercury Data	Results must be submitted on the monthly DMR, and also with the permittee's permit application which is due 180 days prior to the expiration date of the permit (see I.A.1, page 6, footnote 4)
3. Receiving Water Monitoring Data	Results must be submitted to EPA and IDEQ upon request, and with the permit application which is due 180 days prior to the expiration date of the permit (see I.B.7., page 7)
4. NPDES Application Renewal	The application must be submitted 180 days before the expiration date of the permit (see IV.B., page 19).

I. LIMITATIONS AND MONITORING REQUIREMENTS

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfall 001 specified herein to the Snake River, within the limits, and subject to the conditions set forth herein. This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have been clearly identified in the permit application process.

A. Effluent Limitations and Monitoring

1. The permittee must limit and monitor discharges from outfall 001 as specified in Table 1, below. All values represent maximum effluent limits unless otherwise indicated. The permittee must comply with the effluent limits in the tables at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.

Table 1 - Outfall 001 Effluent Limitations and Monitoring Requirements

PARAMETER	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
	Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow, MGD	—	—	—	Effluent	Continuous	Recording
Biological Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	—	Influent and Effluent	1/week	24-hour composite
	600.5lb/day	900.7 lb/day	—			
Total Suspended Solids (TSS)	30 mg/l	45 mg/l	—	Influent and Effluent	1/week	24-hour composite
	600.5 lb/day	900.7 lb/day	—			
Fecal Coliform Bacteria[1]	—	200/100 ml	—	Effluent	3/week	grab
E. Coli Bacteria[2,3]	126/100 ml	—	406/100 ml	Effluent	5/month	grab
Total Residual Chlorine	0.5 mg/L	0.75 mg/L	—	Effluent	5/week	grab
	10.0 lbs/day	15.0 lbs/day	—			
Total Ammonia as N, mg/L[4]	—	—	—	Effluent	1/month	24-hour composite
Total Phosphorus as P, mg/L	—	—	—	Effluent	1/week	24-hour composite

...CONTINUED ON NEXT PAGE...

PARAMETER	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS		
	Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
pH, standard units	—	—	see I.A.3.	Effluent	5/week	grab
Temperature, °C	—	—	—	Effluent	1/week	grab
Mercury, total, • g/L[4]	—	—	—	Effluent	1/month	24-hour composite

1. The average weekly fecal coliform count must not exceed a geometric mean of 200/100 ml. See Part V for definition of geometric mean.
2. The average monthly E. coli count must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken, every three to five days, over a thirty day period. See Part V for the definition of geometric mean.
3. Reporting is required within 24 hours of an instantaneous maximum limit violation. See Part II.G.
4. Monitoring for total ammonia and mercury must start two years after the effective date of the permit and continue for two years. Results of the monitoring must be submitted on the monthly DMR, and with the next NPDES permit application.

2. The permittee must not discharge any floating solids or visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water.

3. The pH of the effluent must not be less than 6.5 standard units nor greater than 9.0 standard units.

4. For any month, the monthly average effluent concentration must not exceed 15 percent of the monthly average influent concentration.

   For each parameter, the monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent and effluent samples must be taken over approximately the same time period.

5. The permittee must collect effluent samples from the effluent stream after the last treatment unit prior to discharge into the receiving waters.

6. For all effluent monitoring, the permittee must use methods that can achieve a method detection limit (MDL) less than the effluent limitation. For metals analysis the permittee must use a test method that can achieve an MDL less than or equal to the MDL specified in Table 2 (Part I.B.5.).

7. For purposes of reporting on the DMR, if a value is greater than the MDL, the

permittee must report the actual value. If a value is less than the MDL, the permittee must report "less than {numeric MDL}" on the DMR. For purposes of calculating monthly averages, zero may be used for values less than the MDL.

B. **Surface Water Monitoring**. The permittee must conduct surface water monitoring, and meet the following requirements:

1. A monitoring station must be established in the Snake River above the influence of the facility's discharge, and must be approved by IDEQ and EPA.

2. Monitoring must start within 6 months of the effective date of the permit and continue for two years.

3. Surface water samples must be grab samples.

4. Mercury must be analyzed as total.

5. Samples must be analyzed for the parameters listed in Table 2, and analytical test methods must achieve a method detection limit (MDL) that is equivalent to or less than that listed in Table 2. The permittee may request a different MDL. The request must be in writing and must be approved by EPA.

Table 2: Surface Water Monitoring Parameter, Locations, and Method Detection Limits

Parameter	Upstream Sampling Frequency	Method Detection Limit (MDL)
Temperature, °C	1/month	—
pH, standard units	1/month	—
Total Ammonia as N, mg/L	1/month	—
Total Phosphorus as P, mg/L	1/month	—
Mercury, total, • g/L	1/month	0.005 • g/L

6. Quality assurance/quality control plans for all the monitoring must be documented in the Quality Assurance Plan required under Part I.C., "Quality Assurance Plan".

7. Surface water monitoring results must be submitted upon request to EPA and IDEQ, and with the next NPDES permit application, which is due 180 days

prior to the expiration date of the permit. At a minimum, the report submitted with the NPDES permit application must include the following:

a. Dates of sample collection and analyses.
b. Results of sample analysis.
c. Relevant quality assurance/quality control (QA/QC) information.

C. **Quality Assurance Plan (QAP).** The permittee must develop a quality assurance plan (QAP) for all monitoring required by this permit within 90 days of the effective date of this permit, and implement the QAP within 180 days of the effective date of this permit. Any existing QAPs may be modified for submittal under this section.

1. The QAP must be designed to assist in planning for the collection and analysis of effluent and receiving water samples in support of the permit and in explaining data anomalies when they occur.

2. Throughout all sample collection and analysis activities, the permittee must use the EPA-approved QA/QC and chain-of-custody procedures described in:

   - *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5), and
   - *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5).

   The QAP must be prepared in the format which is specified in these documents.

3. The following references may be helpful in preparing the Quality Assurance Plan for metals sampling required by this permit:

   - *U.S. Environmental Protection Agency, Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, 1995* (EPA-821-R-95-034), and
   - *U.S. Environmental Protection Agency, Sampling Ambient and Effluent Waters for Trace Metals* (EPA-821-V-97-001).

4. At a minimum, the QAP must include the following:

   a. Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantitation limits for each target compound, type and number of quality assurance field samples, precision and accuracy requirements, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements.

b. Map(s) indicating the location of each sampling point.

c. Qualification and training of personnel.

d. Name(s), address(es) and telephone number(s) of the laboratories, used by or proposed to be used by the permittee.

5. The permittee must amend the QAP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAP.

6. Copies of the QAP must be kept on site and made available to EPA and/or IDEQ upon request.

D. **Facility Planning Requirement**. When the annual average values exceed 85% of the facility planning values listed in Table 3, the permittee must develop a facility plan and schedule within one year from the date of the first exceedence. The plan must include the permittee's strategy for continuing to maintain compliance with effluent limits and will be made available to the Director or authorized representative upon request.

The following requirement must start 180 days after the effective date of the permit. Each month, the permittee must compute an annual average value for the flow, BOD_5 loading, and TSS loading entering the facility based on the previous twelve months data or all data available, whichever is less. If the facility has completed a plant upgrade that affects the facility planning values listed in Table 3, only the data collected after the upgrade should be used in determining the annual average value.

Table 3 - Facility Planning

Criteria	Value	Units
Average Flow	2.4	mgd
Influent BOD_5 Loading	1750	lbs/day
Influent TSS Loading	1950	lbs/day

II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

A. **Representative Sampling (Routine and Non-Routine Discharges).** Samples and measurements must be representative of the volume and nature of the monitored discharge.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in Part I.A. of this permit that are likely to be affected by the discharge.

The permittee must collect such additional samples as soon as the spill, discharge, or bypassed effluent reaches the outfall. The samples must be analyzed in accordance with paragraph II.C ("Monitoring Procedures"). The permittee must report all additional monitoring in accordance with paragraph II.D ("Additional Monitoring by Permittee").

B. **Reporting of Monitoring Results.** The permittee must summarize monitoring results each month on the Discharge Monitoring Report (DMR) form (EPA No. 3320-1) or equivalent or forms provided or specified by the Director for reporting results of monitoring of biosolids use or disposal practices. The permittee must submit reports monthly, postmarked by the 10th day of the following month. The permittee must sign and certify all DMRs, and all other reports, in accordance with the requirements of Part IV.E. of this permit ("Signatory Requirements"). The permittee must submit the legible originals of these documents to the Director, Office of Water, with copies to IDEQ at the following addresses:

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OW-133
Seattle, Washington 98101

Idaho Department of Environmental Quality (IDEQ)
Boise Regional Office
1445 N. Orchard
Boise, Idaho 83706-2239

C. **Monitoring Procedures.** Monitoring must be conducted according to test procedures approved under 40 CFR 136 or, in the case of biosolids use or disposal, approved under 40 CFR 503, unless other test procedures have been specified in this permit.

D. **Additional Monitoring by Permittee.** If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or, in the case of biosolids use or disposal, approved under 40 CFR 136 unless otherwise specified in 40 CFR 503, or as specified in this permit, the permittee must include the results of this monitoring in the calculation and reporting of the data submitted in the DMR or biosolids reporting forms specified by the Director.

Upon request by the Director, the permittee must submit results of any other sampling, regardless of the test method used.

E. **Records Contents.** Records of monitoring information must include:

1. the date, exact place, and time of sampling or measurements;
2. the name(s) of the individual(s) who performed the sampling or measurements;
3. the date(s) analyses were performed;
4. the names of the individual(s) who performed the analyses;
5. the analytical techniques or methods used; and
6. the results of such analyses.

F. **Retention of Records.** Except for records of monitoring information required by this permit related to the permittee's sewage biosolids use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR 503), the permittee must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the NPDES permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director or IDEQ at any time.

G. **Twenty-four Hour Notice of Noncompliance Reporting.**

1. The permittee must report the following occurrences of noncompliance by telephone within 24 hours from the time the permittee becomes aware of the circumstances:

a. any noncompliance that may endanger health or the environment;

b. any unanticipated bypass that exceeds any effluent limitation in the permit (See Part III.F., "Bypass of Treatment Facilities");

c. any upset that exceeds any effluent limitation in the permit (See Part III.G., "Upset Conditions");

d. any violation of a maximum daily or instantaneous maximum discharge limitation for any of the pollutants in Table 1 of Part I.A.; or

e. any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limitation in the permit.

2. The permittee must also provide a written submission within five days of the time that the permittee becomes aware of any event required to be reported under subpart 1, above. The written submission must contain:

a. a description of the noncompliance and its cause;

b. the period of noncompliance, including exact dates and times;

c. the estimated time noncompliance is expected to continue if it has not been corrected;

d. steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance; and

e. if the non compliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

3. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the NPDES Compliance Hotline in Seattle, Washington, by telephone, (206) 553-1846.

4. Reports must be submitted to the addresses in Part II.B ("Reporting of Monitoring Results").

H. **Other Noncompliance Reporting.** The permittee must report all instances of noncompliance, not required to be reported within 24 hours, at the time that monitoring reports for Part III.B ("Reporting of Monitoring Results") are submitted. The reports must contain the information listed in Part II.G.2 of this permit ("Twenty-four Hour Notice of Noncompliance Reporting").

I. **Notice of New Introduction of Pollutants.** The permittee must provide notice to the Director and IDEQ of:

1. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Sections 301 or 306 of the Act if it were directly discharging those pollutants; and

2. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

3. For the purposes of this section, adequate notice must include information on:

   a. The quality and quantity of effluent to be introduced into the POTW, and

   b. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

III. COMPLIANCE RESPONSIBILITIES

A. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.

B. **Penalties for Violations of Permit Conditions**

1. Civil and Administrative Penalties. Pursuant to 40 CFR 19 and the Act, any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $27,500 per day for each violation).

2. Administrative Penalties. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Pursuant to 40 CFR 19 and the Act, administrative penalties for Class I violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $11,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $27,500). Pursuant to 40 CFR 19 and the Act, penalties for Class II violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $11,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $137,500).

3. Criminal Penalties:

   a. Negligent Violations. The Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both.

b. Knowing Violations. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both.

c. Knowing Endangerment. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

d. False Statements. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than

$20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

C. **Need to Halt or Reduce Activity not a Defense.** It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this permit.

D. **Duty to Mitigate.** The permittee must take all reasonable steps to minimize or prevent any discharge or biosolids use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

E. **Proper Operation and Maintenance.** The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. **Bypass of Treatment Facilities.**

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this Part.

2. Notice.

   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it must submit prior notice, to the Director and IDEQ if possible at least 10 days before the date of the bypass.

b. Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required under Part II.G ("Twenty-four Hour Notice of Noncompliance Reporting").

3. Prohibition of bypass.

a. Bypass is prohibited, and the Director may take enforcement action against the permittee for a bypass, unless:

i) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

iii) The permittee submitted notices as required under paragraph 2 of this Part.

b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this Part.

G. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee meets the requirements of paragraph 2 of this Part. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. Conditions necessary for a demonstration of upset. To establish the affirmative defense of upset, the permittee must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the permittee can identify the cause(s) of the upset;

b. The permitted facility was at the time being properly operated;

c. The permittee submitted notice of the upset as required under Part II.G, "Twenty-four Hour Notice of Noncompliance Reporting;" and

d. The permittee complied with any remedial measures required under Part III.D, "Duty to Mitigate."

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

H. **Toxic Pollutants**. The permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants and with standards for sewage biosolids use or disposal established under section 405(d) of the Act within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

I. **Planned Changes**. The permittee must give notice to the Director and IDEQ as soon as possible of any planned physical alterations or additions to the permitted facility whenever:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29(b); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this permit.

3. The alteration or addition results in a significant change in the permittee's biosolids use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application site.

J. **Anticipated Noncompliance.** The permittee must give advance notice to the Director and IDEQ of any planned changes in the permitted facility or activity that may result in noncompliance with this permit.

IV. GENERAL PROVISIONS

A. **Permit Actions.** This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR 122.62, 122.64, or 124.5. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

B. **Duty to Reapply.** If the permittee intends to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. In accordance with 40 CFR 122.21(d), and unless permission for the application to be submitted at a later date has been granted by the Director, the permittee must submit a new application at least 180 days before the expiration date of this permit.

C. **Duty to Provide Information.** The permittee must furnish to the Director and IDEQ, within the time specified in the request, any information that the Director or IDEQ may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee must also furnish to the Director or IDEQ, upon request, copies of records required to be kept by this permit.

D. **Other Information.** When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or that it submitted incorrect information in a permit application or any report to the Director or IDEQ, it must promptly submit such facts or information.

E. **Signatory Requirements.** All applications, reports or information submitted to the Director and IDEQ must be signed and certified as follows.

1. All permit applications must be signed as follows:

   a. For a corporation: by a responsible corporate officer.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Director or IDEQ must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above;

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; and

   c. The written authorization is submitted to the Director and IDEQ.

3. Changes to authorization. If an authorization under Part IV.E.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.E.2. must be submitted to the Director and IDEQ prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this Part must make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. **Availability of Reports.** In accordance with 40 CFR 2, information submitted to

EPA pursuant to this permit may be claimed as confidential by the permittee. In accordance with the Act, permit applications, permits and effluent data are not considered confidential. Any confidentiality claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice to the permittee. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR 2, Subpart B (Public Information) and 41 Fed. Reg. 36902 through 36924 (September 1, 1976), as amended.

G. **Inspection and Entry**. The permittee must allow the Director, IDEQ, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

H. **Property Rights**. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, nor any infringement of state or local laws or regulations.

I. **Transfers**. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act. (See 40 CFR 122.61; in some cases, modification or revocation and reissuance is mandatory).

J. **State Laws**. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.

K. **Reopener**. This permit may be reopened to include any applicable standard for sewage biosolids use or disposal promulgated under section 405(d) of the Act. The Director may modify or revoke and reissue the permit if the standard for sewage biosolids use or disposal is more stringent than any requirements for biosolids use or disposal in the permit, or controls a pollutant or practice not limited in the permit.

V. DEFINITIONS

1. "Act" means the Clean Water Act.

2. "Administrator" means the Administrator of the EPA, or an authorized representative.

3. "Average monthly discharge limitation" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

4. "Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, biosolids or waste disposal, or drainage from raw material storage areas.

5. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

6. "Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

7. "Director" means the Director of the Office of Water, EPA, or an authorized representative.

8. "DMR" means discharge monitoring report.

9. "EPA" means the United States Environmental Protection Agency.

10. "Geometric mean" of "n" quantities is the "nth" root of the product of the quantities. For example the geometric mean of 100, 200 and 300 is $(100 \times 200 \times 300)^{1/3} =$ 181.7

11. "Grab" sample is an individual sample collected over a period of time not exceeding 15 minutes.

12. "IDEQ" means the Idaho Department of Environmental Quality.

13. "Instantaneous Maximum Limit" means the maximum allowable concentration of a pollutant determined from the analysis of any discrete sample collected, independent of the flow rate and the duration of the sampling event.

14. "Maximum daily discharge limitation" means the highest allowable "daily discharge."

15. "Method Detection Limit (MDL)" means the minimum concentration of a substance (analyte) that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

16. "POTW" means publicly owned treatment works.

17. "QA/QC" means quality assurance/quality control.

18. "Regional Administrator" means the Regional Administrator of Region 10 of the EPA, or the authorized representative of the Regional Administrator.

19. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

20. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors

beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

21. "24-hour composite" sample means a combination of at least 3 discrete samples collected at equal time intervals from the same location, over a 24 hour period. The sample aliquots must be collected and stored in accordance in accordance with procedures prescribed in the most recent edition of *Standard Methods for the Examination of Water and Wastewater*.

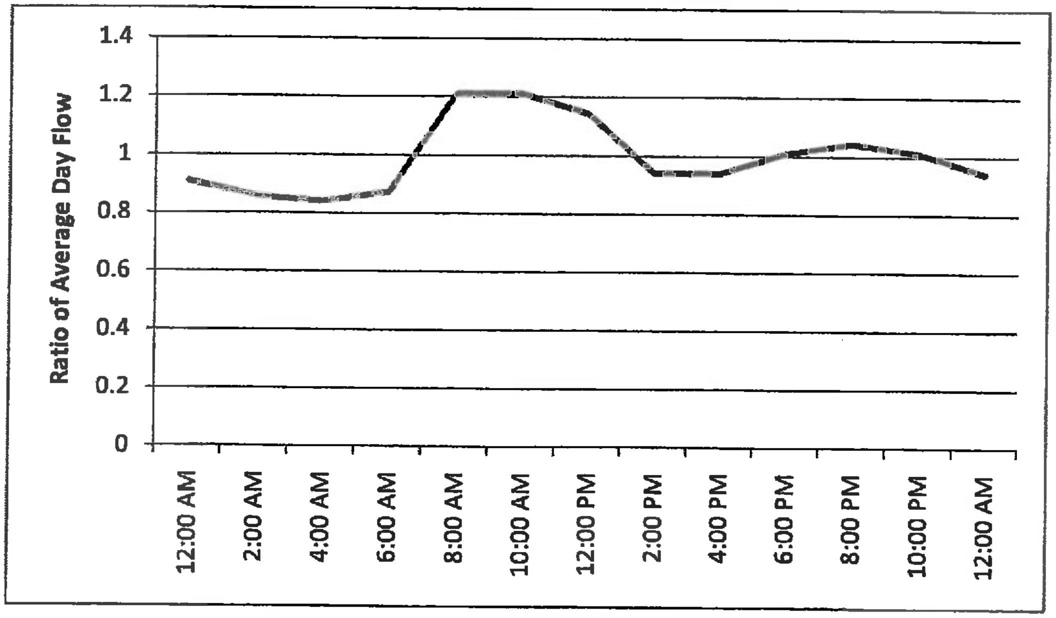
APPENDIX B

WWTP and Fry Foods Flow & H_2O Quality Data

CITY OF WEISER WWTP FPS
24-HOUR FLOW MONITORING

20-Aug-09

Hour		Average Flow (MGD)	Ratio of Average Day Flow
	12:00 AM	1.757	0.90946
	2:00 AM	1.66	0.85925
	4:00 AM	1.626	0.841651
	6:00 AM	1.69	0.874779
	8:00 AM	2.34	1.211232
	10:00 AM	2.34	1.211232
	12:00 PM	2.21	1.143942
	2:00 PM	1.82	0.94207
	4:00 PM	1.82	0.94207
	6:00 PM	1.952	1.010396
	8:00 PM	2.016	1.043523
	10:00 PM	1.952	1.010396
	12:00 AM	1.82	0.94207
Calculated Average		1.932	
Recorded Average Flow		1.78	
Pk Hour from chart		2.54	
Pk Instant from chart		2.99	



City of Weiser

Industrial Sewer Discharge Use Fee Schedule

WWTP Data

KELLER associates

Influent Constituent	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	**Total / Avg**
Flow (MG)	31.98	30.9	33.83	32.17	40.1	43.82	56.13	58.48	49.19	39.76	29.94	26.73	**473.03**
BOD Avg (lb/d)	1174	1114	950	1228	1314	1359	1937	1322	1379	1136	1000	1149	**1255**
TSS Avg (lb/d)	1063	1068	1000	1036	1159	1200	1381	1144	1106	1025	957	896	**1086**
Ammonia Avg (lb/d)						No Data Available							4.42
Phosph Avg (lb/d)						No Data Available							**16.5**

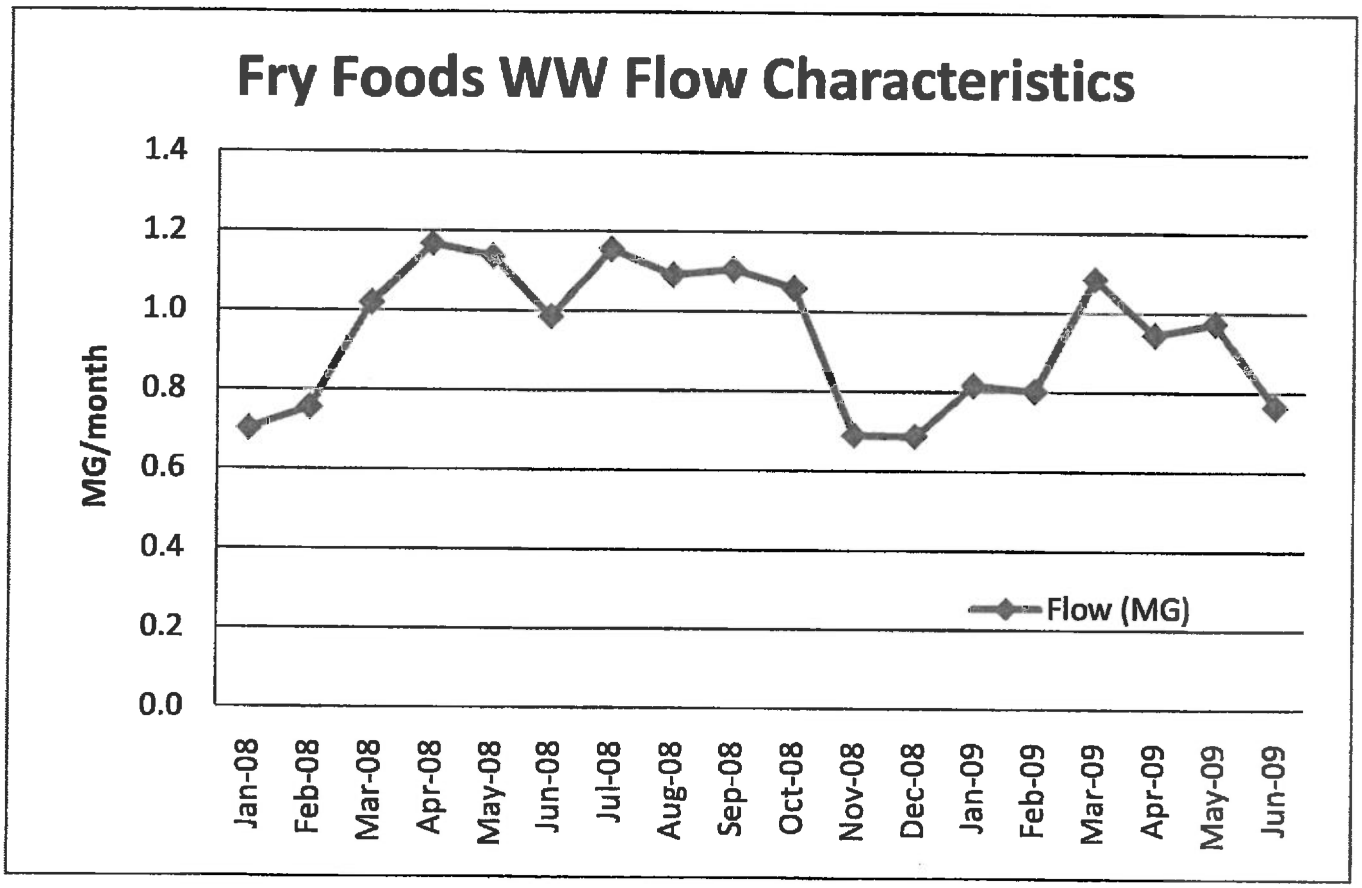
City of Weiser

Industrial Sewer Discharge Use Fee Schedule

Fry Foods Dischage Data

KELLER associates

Fry Foods Effluent	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09
Flow (MG)	0.702	0.755	1.020	1.168	1.137	0.987	1.155	1.091	1.105	1.060	0.689	0.687	0.82	0.80	1.09	0.94	0.97	0.76
BOD Avg (lb/d)	256	380	403	484	437	385	503	360	432	502	484	600	779.32	707.68	559.81	530.88	445.72	0.00
TSS Avg (lb/d)	64	123	168	172	224	166	188	120	130	132	102	145	304.42	167.45	135.98	77.69	113.81	0.00
Ammonia Avg (lb/d)											8.86							
Phosph Avg (lb/d)	0.60	3.02	2.15	2.84	4.79	3.97	3.60	1.55	1.99	2.46	1.36	4.49	16.29	1.89		2.14		0.00
Oil & Grease (lb/d)	2	2		13	12	6	9	38	38	20		9	20.09	21.70	2.08	7.75	0.00	1.88


Fry Foods WW Flow Characteristics
MG/month
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Flow (MG)
Jan-08
Feb-08
Mar-08
Apr-08
May-08
Jun-08
Jul-08
Aug-08
Sep-08
Oct-08
Nov-08
Dec-08
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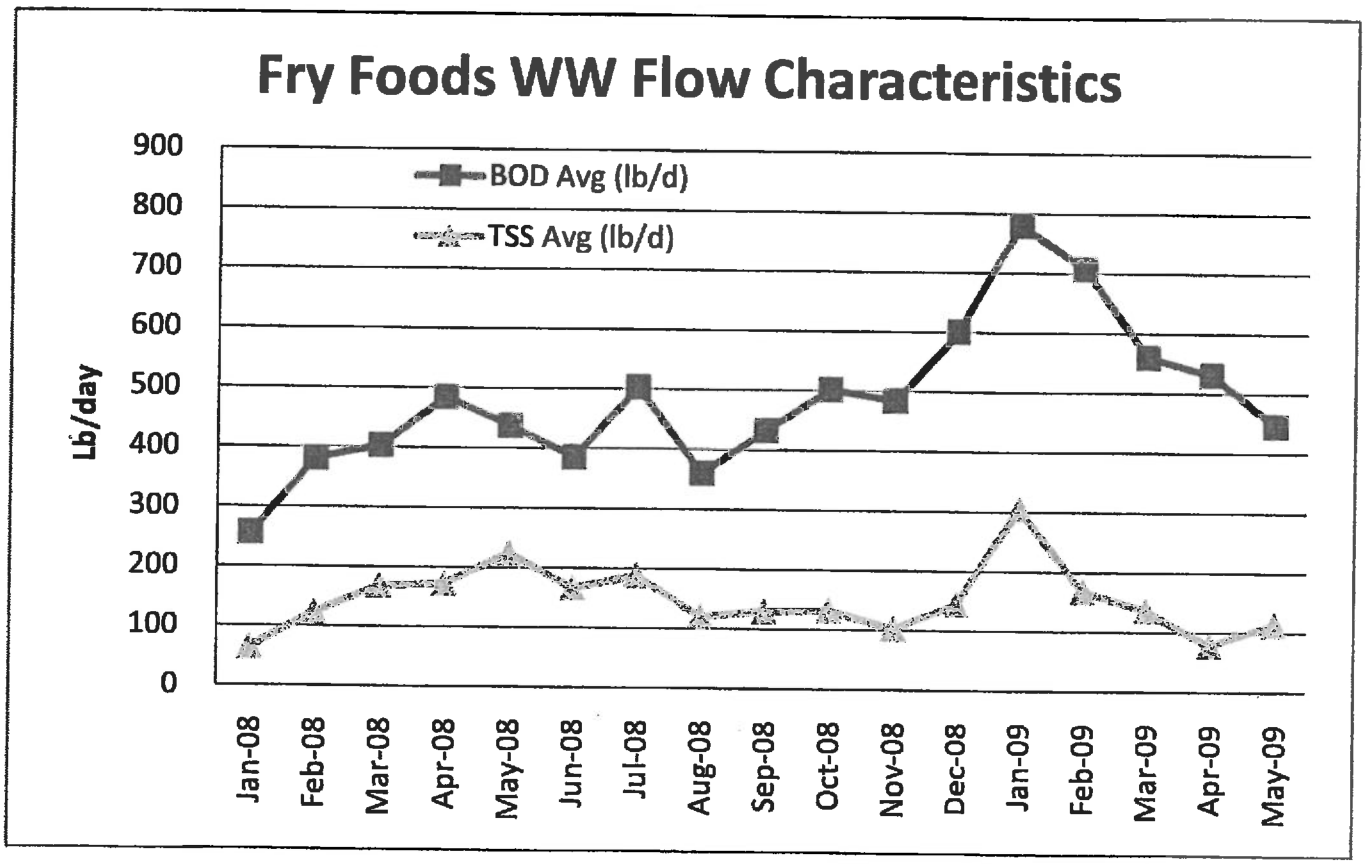
Mar-09
Apr-09
May-09
Jun-09



Fry Foods WW Flow Characteristics
BOD Avg (lb/d)
TSS Avg (lb/d)
Lb/day
900
800
700
600
500
400
300
200
100
0
Jan-08
Feb-08
Mar-08
Apr-08
May-08
Jun-08
Jul-08
Aug-08
Sep-08
Oct-08
Nov-08
Dec-08
Jan-09
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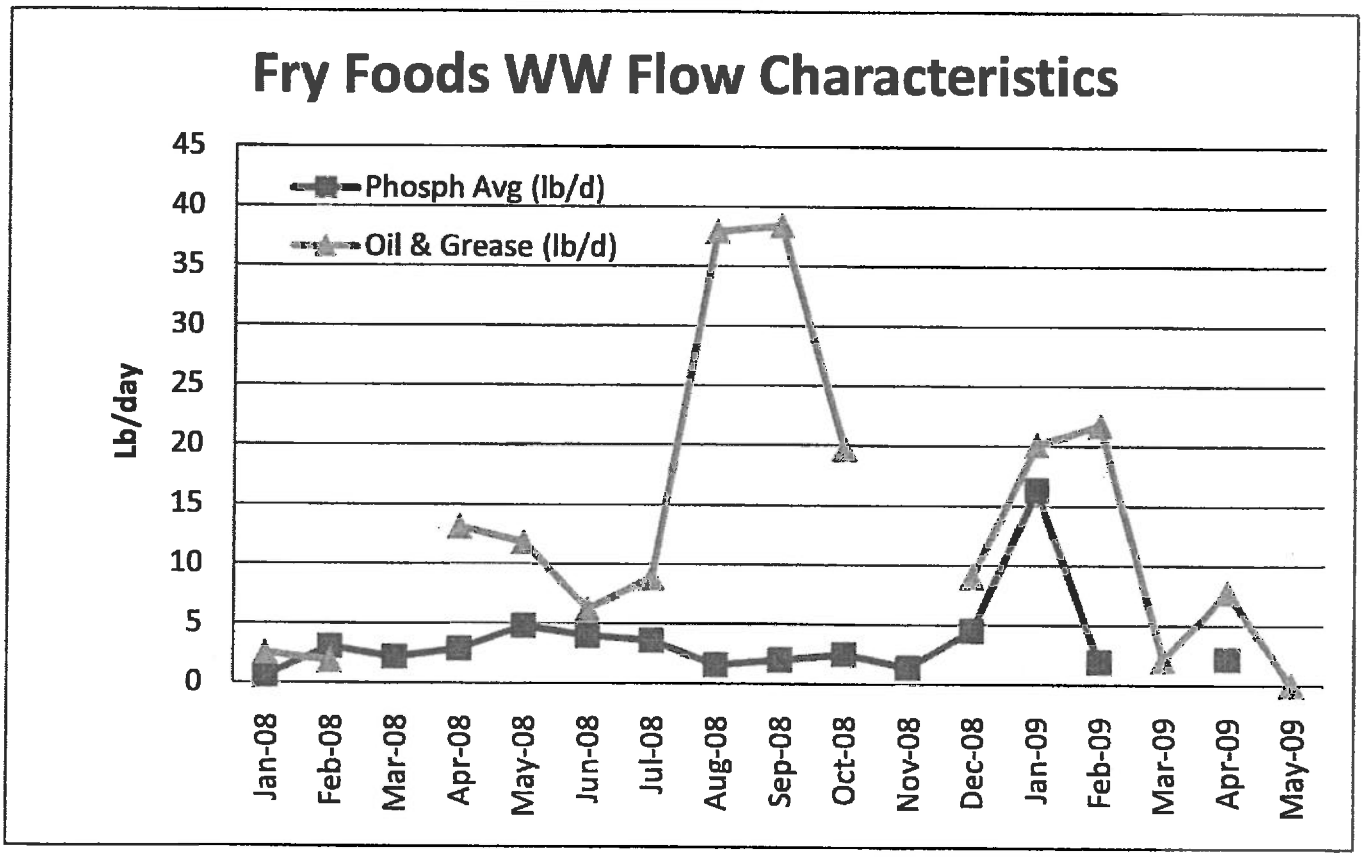
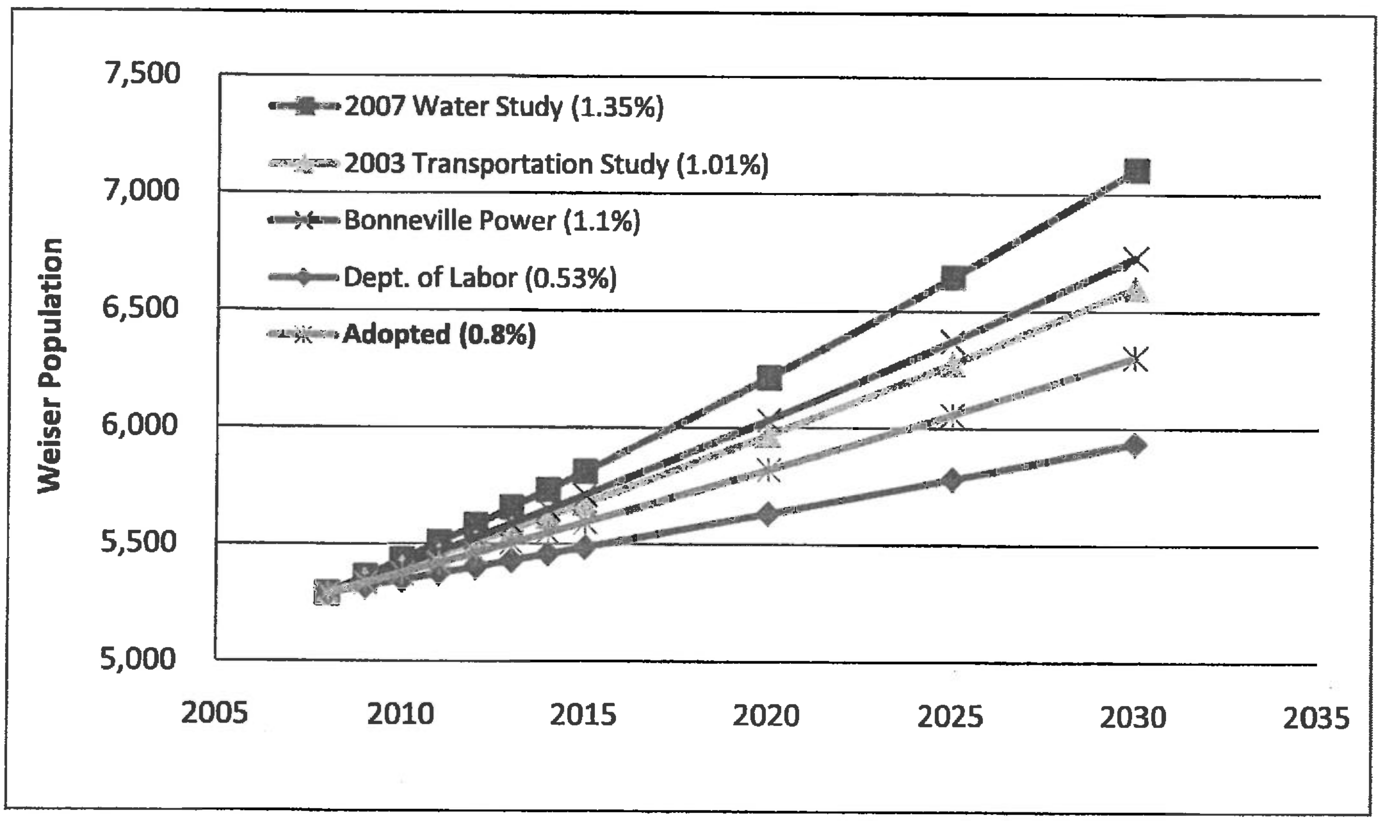
Mar-09
Apr-09
May-09


Fry Foods WW Flow Characteristics
Phosph Avg (lb/d)
Oil & Grease (lb/d)
Lb/day
45
40
35
30
25
20
15
10
5
0
Jan-08
Feb-08
Mar-08
Apr-08
May-08
Jun-08
Jul-08
Aug-08
Sep-08
Oct-08
Nov-08
Dec-08
Jan-09
Feb-09
Mar-09
Apr-09
May-09

CITY OF WEISER WWTP FPS
MAIN LS FLOWS

New Pump Output	1700	gpm
Power Cost	$ 0.0420	per kW-h
Effeciency	60%	
TDH	60	

WW Flows (MG)	2004	2005	2006	2007		2008
WWTP Influent Flow Meter (MG)	460	442	511	456		475
Approx. Galloway LS (MG)	7.3	7.3	7.3	7.3		7.3
Main LS (MG)	453	434	504	449		467
Avg Flow (gpm)	861	826	958	854		889
# of Pump Run Hours (hrs)	185	177	206	183		191
Calculated Annual Power Cost (Continuous pumping)					$	6,165
Actual Annual Power Cost					$	10,940



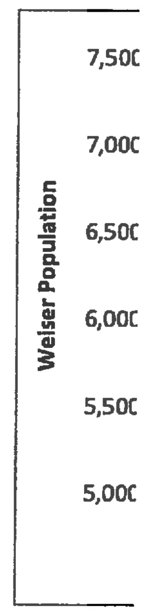
7,500
7,000
6,500
6,000
5,500
5,000
Weiser Population
2007 Water Study (1.35%)
2003 Transportation Study (1.01%)
Bonneville Power (1.1%)
Dept. of Labor (0.53%)
Adopted (0.8%)
2005
2010
2015
2020
2025
2030
2035

CITY OF WEISER WWTP FPS
POPULATION DATA

Washington County Populations

Year	Population	Annual Growth Rate
1970	7,633	n/a
1980	8,803	1.44%
1990	8,550	-0.29%
2000	9,977	1.56%
2002	9,887	-0.45%
2004	9,920	0.17%
2006	10,058	0.69%
2008	10,206	0.73%
	Average	0.77%

	City of Weiser		Washington County	
Year	Population	Annual Growth Rate	Population	Annual Growth Rate
1970	4,108	n/a	7,633	n/a
1980	4,771	1.51%	8,803	1.44%
1990	4,571	-0.43%	8,550	-0.29%
2000	5,343	1.57%	9,977	1.56%
2002	5,342	-0.01%	9,887	-0.45%
2004	5,333	-0.08%	9,920	0.17%
2006	5,350	0.16%	10,058	0.69%
2008	5,290	-0.56%	10,206	0.73%
	Average	**0.67%**	**Average**	**0.77%**
1990-2008 average		0.8%		



City of Weiser 20-Year Population Forecast

Year	2007 Water Study (1.35%)	2003 Transportation Study (1.01%)	Bonneville Power [1]	Dept. of Labor [2]	Adopted
Annual Growth Rate	1.35%	1.01%	1.1%	0.53%	0.8%
2008	5,290	5,290	5,290	5,290	5,290
2009	5,361	5,343	5,348	5,318	5,332
2010	5,434	5,397	5,407	5,346	5,375
2011	5,507	5,452	5,466	5,374	5,418
2012	5,581	5,507	5,527	5,402	5,461
2013	5,657	5,563	5,587	5,430	5,505
2014	5,733	5,619	5,649	5,459	5,549
2015	5,811	5,676	5,711	5,487	5,593
2020	6,214	5,968	6,032	5,633	5,821
2025	6,644	6,276	6,371	5,782	6,057
2030	7,105	6,599	6,729	5,936	6,304

1. Bonneville Power growth rate for 2009-2013 based on power demands.
2. Dept. of Labor growth rate based on 2013 population project of 5,430.

2000 Census HH Size 2.58

APPENDIX C

Cost Estimates

BID SUMMARY		ESTIMATE CLASS:	FPS
PROJECT :	WEISER WWTP IMPROVEMENTS		
JOB # :	209040-006	DATE :	5/11/2011
LOCATION :	WEISER	BY :	GH
ELEMENT :	PROJECT SUMMARY - WWTP AND LAND APPLICATION ALTERNATIVE	REVIEWED:	JW

NO.	DESCRIPTION		ESTIMATED COST	
0	EARTHWORK		$80,500	
1	SITEWORK		$137,923	
2	YARD PIPING		$119,360	
3	TREATMENT PLANT IMPROVEMENTS		$4,120,076	
4	PUMPING AND PIPING FROM CITY		$1,292,000	
5	STORAGE LAGOON		$1,227,939	
6	SLOW RATE IRRIGATION AND EQUIPMENT		$2,173,000	
7	EXPAND SLUDGE DRYING BEDS		$1,060,000	
8	SCADA		$150,000	
	TOTAL DIRECT COST		**$10,361,000**	
	GENERAL CONDITIONS, CONTRACTOR OH&P	15%	$1,550,000	
	SUBTOTAL		$11,911,000	
	CONTINGENCY & ALLOWANCES	10%	$1,190,000	
	SUBTOTAL		$13,101,000	
	TOTAL ESTIMATED CONSTRUCTION COST		**$13,100,000**	
	Additional Costs			
	Design, CM Engineering (Keller)	15%	**$1,965,000**	
	TOTAL CONSTRUCTION COST		**$15,070,000**	

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BID SUMMARY		ESTIMATE CLASS:	FPS
PROJECT :	WEISER WWTP IMPROVEMENTS		
JOB # :	209040-006	**DATE :**	5/11/2011
LOCATION :	**WEISER**	**BY :**	GH
ELEMENT :	**PROJECT SUMMARY - LAGOON AND LAND APPLICATION ALTERNATIVE**	**REVIEWED:**	JW

NO.	DESCRIPTION		ESTIMATED COST	
1	HEADWORKS BUILDING		$659,000	
2	PUMPING AND PIPING FROM CITY		$1,292,000	
3	TREATMENT LAGOON		$1,492,000	
4	STORAGE LAGOON		$3,989,000	
5	SLOW RATE IRRIGATION AND EQUIPMENT		$2,173,000	
6	SCADA		$150,000	
	TOTAL DIRECT COST		**$9,755,000**	
	GENERAL CONDITIONS, CONTRACTOR OH&P	15%	$1,460,000	
	SUBTOTAL		$11,215,000	
	CONTINGENCY & ALLOWANCES	10%	$1,120,000	
	SUBTOTAL		$12,335,000	
	TOTAL ESTIMATED CONSTRUCTION COST		**$12,340,000**	
	Additional Costs			
	Design, CM Engineering (Keller)	15%	**$1,851,000**	
	TOTAL CONSTRUCTION COST		**$14,190,000**	

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BID SUMMARY | **ESTIMATE CLASS:** FPS

PROJECT :	WEISER WWTP IMPROVEMENTS		
JOB # :	209040-006	**DATE :**	5/11/2011
LOCATION :	**WEISER**	**BY :**	GH
ELEMENT :	**PROJECT SUMMARY - BPR USING EXISTING BASINS AND UPFLOW FILTERS**	**REVIEWED:**	DK

NO.	DESCRIPTION		ESTIMATED COST	
0	EARTHWORK		$105,500	
1	SITEWORK		$163,000	
2	YARD PIPING		$169,400	
3	HEADWORKS BUILDING		$291,800	
4	PRIMARY CLARIFIER		$0	
5	AERATION TANKS REHABILITATION		$1,160,600	
	AERATION SYSTEM UPGRADES		$1,044,361	
	FIFTH CELL		$724,985	
6	CHEMICAL FACILITIES		$192,800	
7	DISINFECTION IMPROVEMENTS		$589,700	
8	DIGESTERS		$593,759	
9	EXPAND SLUDGE DRYING BEDS		$1,060,000	
10	DAFT REHABILIATION		$125,000	
11	FILTERS		$1,827,900	
12	SCADA		$125,000	
	TOTAL DIRECT COST		**$8,173,900**	
	GENERAL CONDITIONS, CONTRACTOR OH&P	15%	$1,226,100	
	SUBTOTAL		$9,400,000	
	CONTINGENCY & ALLOWANCES	5%	$470,000	
	SUBTOTAL		$9,870,000	
	TOTAL ESTIMATED CONSTRUCTION COST		**$9,870,000**	
	Additional Costs			
	Design, CM Engineering (Keller)	18%	**$1,776,600**	
	TOTAL PROJECT COST	**38%**	**$11,647,000**	

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BID SUMMARY		ESTIMATE CLASS:	FPS
PROJECT :	WEISER WWTP IMPROVEMENTS		
JOB # :	209040-006	DATE :	5/11/2011
LOCATION :	WEISER	BY :	GH
ELEMENT :	BPR IN EXISTING BASINS WITH MEMBRANE FILTERS	REVIEWED:	DK

NO.	DESCRIPTION		ESTIMATED COST
0	EARTHWORK		$81,000
1	SITEWORK		$138,000
2	YARD PIPING		$120,000
3	HEADWORKS BUILDING		$906,000
4	PRIMARY CLARIFIER		$675,097
5	AERATION TANKS IMPROVMENTS		$3,563,000
6	FILTERS		$1,929,100
7	DISINFECTION IMPROVEMENTS		$554,000
8	DIGESTERS		$569,000
9	EXPAND SLUDGE DRYING BEDS		$1,060,000
10	SCADA (included in each item as well)		$50,000
	TOTAL DIRECT COST		**$9,646,000**
	GENERAL CONDITIONS, CONTRACTOR OH&P	15%	$1,450,000
	SUBTOTAL		$11,096,000
	CONTINGENCY & ALLOWANCES	20%	$2,220,000
	SUBTOTAL		$13,316,000
	TOTAL ESTIMATED CONSTRUCTION COST		**$13,320,000**
	Additional Costs		
	Design, CM Engineering (Keller)	18%	**$2,397,600**
	TOTAL PROJECT COST		**$15,720,000**

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BID SUMMARY		ESTIMATE CLASS:	FPS
PROJECT :	WEISER WWTP IMPROVEMENTS		
JOB # :	209040-006	DATE :	5/11/2011
LOCATION :	WEISER	BY :	GH
ELEMENT :	NEW MBR ON WEST END OF SITE	REVIEWED:	DK

NO.	DESCRIPTION		ESTIMATED COST	
0	EARTHWORK		$81,000	
1	SITEWORK		$138,000	
2	YARD PIPING		$120,000	
3	HEADWORKS BUILDING		$1,602,000	
4	MBR IMPROVMENTS		$5,248,000	
5	FILTERS		$0	
6	DISINFECTION IMPROVEMENTS		$534,000	
7	DIGESTERS		$569,000	
8	EXPAND SLUDGE DRYING BEDS		$1,060,000	
9	SCADA (included in each item as well)		$150,000	
	TOTAL DIRECT COST		**$9,502,000**	
	GENERAL CONDITIONS, CONTRACTOR OH&P	15%	$1,430,000	
	SUBTOTAL		$10,932,000	
	CONTINGENCY & ALLOWANCES	20%	$2,190,000	
	SUBTOTAL		$13,122,000	
	TOTAL ESTIMATED CONSTRUCTION COST		**$13,120,000**	
	Additional Costs			
	Design, CM Engineering (Keller)	18%	**$2,361,600**	
	TOTAL PROJECT COST		**$15,480,000**	

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BID SUMMARY		ESTIMATE CLASS:	FPS
PROJECT :	WEISER WWTP IMPROVEMENTS		
JOB # :	209040-006	DATE :	5/11/2011
LOCATION :	WEISER	BY :	GH
ELEMENT :	BPR IN NEW BASINS AT WEST END OF SITE WITH UPFLOW FILTERS	REVIEWED:	DK

NO.	DESCRIPTION		ESTIMATED COST
0	EARTHWORK		$81,000
1	SITEWORK		$138,000
2	YARD PIPING		$120,000
3	HEADWORKS BUILDING		$995,000
4	PRIMARY CLARIFIER		$0
4	AERATION TANKS		$3,846,139
5	FILTERS		$1,627,900
6	DISINFECTION IMPROVEMENTS		$554,000
7	DIGESTERS		$569,000
8	EXPAND SLUDGE DRYING BEDS		$1,060,000
9	SCADA (included in each item as well)		$50,000
	TOTAL DIRECT COST		**$9,042,000**
	GENERAL CONDITIONS, CONTRACTOR OH&P	15%	$1,360,000
	SUBTOTAL		$10,402,000
	CONTINGENCY & ALLOWANCES	20%	$2,080,000
	SUBTOTAL		$12,482,000
	TOTAL ESTIMATED CONSTRUCTION COST		**$12,480,000**
	Additional Costs		
	Design, CM Engineering (Keller)	18%	**$2,246,400**
	TOTAL PROJECT COST		**$14,730,000**

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City of Weiser
Main Lift Station Alternatives

Alternative A-New LS at Existing Site (Wet Well)

2010 Concept Level Cost Estimate

Item		Cost Estimate
Site Work		
Modify existing power supply to new LS	$	5,000
Diversion of 18" graity line to new wet well	$	5,000
Intertie back into 16" FM	$	7,500
Miscellaneous site work	$	10,000
Building		
Upgrade existing building	$	15,000
New electrical and controls	$	40,000
Upgrades to generator	$	50,000
New Wet Well		
(3) 75-hp submersible pumps & VFDS	$	150,000
12' Wet Well Structure	$	75,000
Mechanical Piping	$	25,000
Valve Vault		
Vault	$	15,000
Valves, meter, mechanical	$	40,000
Miscellaneous		
Mobilization	$	50,000
Lifting Beam	$	25,000
SCADA	$	15,000
Subtotal	$	527,500
35% Engineering & Contingency	$	184,600
PROJECT COST ESTIMATE	$	712,100.00

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City of Weiser
Main Lift Station Alternatives

Alternative B-New LS at New Site (Wet Well)

2010 Concept Level Cost Estimate

Item		Cost Estimate
Site Work		
New power supply to new LS	$	15,000
18" gravity sewer to new site (700')	$	105,000
Intertie back into 16" FM	$	7,500
Miscellaneous site work	$	10,000
Building		
New building	$	75,000
New electrical and controls	$	40,000
New generator	$	50,000
New Wet Well		
(3) 75-hp submersible pumps & VFDS	$	150,000
12' Wet Well Structure	$	75,000
Mechanical Piping	$	25,000
Valve Vault		
Vault	$	15,000
Valves, meter, mechanical	$	40,000
Miscellaneous		
Mobilization	$	50,000
Lifting Beam	$	25,000
SCADA	$	15,000
Subtotal	$	697,500
35% Engineering & Contingency	$	244,100
PROJECT COST ESTIMATE	**$**	**941,600.00**

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City of Weiser
Main Lift Station Alternatives

Alternative C-Rehabilitate Existing LS

2010 Concept Level Cost Estimate

Item		Cost Estimate
Site Work		
Building		
Modify building for removal of generator	$	8,000
Modify building for better access for operators	$	8,000
Modify building for removal of pumps	$	12,000
Upgrade electrical and controls	$	40,000
Upgrade generator	$	50,000
Wet Well		
New (2) 150-hp submersible pumps & VFDS	$	150,000
Reinforce wet well	$	100,000
Upgrades to mechanical piping	$	25,000
Valve Vault		
Miscellaneous		
Mobilization	$	50,000
SCADA	$	15,000
Subtotal	$	458,000
35% Engineering & Contingency	$	160,300
PROJECT COST ESTIMATE	$	618,300.00

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CITY OF WEISER PUBLIC WORKS DEPARTMENT

2010 SHORT-LIVED WASTEWATER DEPARTMENT ASSETS

Short-Lived Assets	Typical Useful Life (yrs)	Replacement Cost ($)	Annualized Replacement Cost ($/yr) [1] (automatically calculated)	Remaining Life (yrs)	Existing Depreciation Value[1] (automatically calculated)
Wastewater Treatment Plant					
Step Screen	15	125,000	$11,739	10	$58,697
Aeration Blower 1	15	100,000	$9,392	2	$122,090
Aeration Blower 2	15	100,000	$9,392	2	$122,090
Aeration Blower 3	15	100,000	$9,392	2	$122,090
Sludge Blower 1	15	75,000	$7,044	2	$91,568
Sludge Blower 2	15	75,000	$7,044	2	$91,568
Clarifier 1 motor	10	5,000	$636	5	$3,179
Clarifier 1 mechanism - coating	15	35,000	$3,287	14	$3,287
Clarifier 2 motor	10	5,000	$636	5	$3,179
Clarifier 2 mechanism - coating	15	35,000	$3,287	14	$3,287
Chlorine Gas equipment	7	25,000	$4,262	1	$25,572
Utility Water pump 1	7	15,000	$2,557	1	$15,343
Utility Water pump 2	7	15,000	$2,557	1	$15,343
Utility Water pump 3	7	15,000	$2,557	1	$15,343
Utility Water Strainer	7	5,000	$852	1	$5,114
RAS Pump 1	10	25,000	$3,179	5	$15,895
RAS Pump 2	10	25,000	$3,179	5	$15,895
DAFT motor	10	7,000	$890	1	$8,011
DAFT air compressor	10	5,000	$636	1	$5,722
Sludge pump 1	12	15,000	$1,657	5	$11,597
Sludge pump 2	12	15,000	$1,657	5	$11,597
Sludge pump 3	12	15,000	$1,657	5	$11,597
SUBTOTAL			$87,487		$778,066
Lift Station and Pump Stations					
Main LS pumps and motors (2 @ $50k each)	15	100,000	$9,392	5	$93,916
Main LS generator and electrical	15	115,000	$10,800	5	$108,003
Galloway LS pumps and motors	15	20,000	$1,878		$28,175
Galloway LS electrical	15	15,000	$1,409		$21,131
Commercial LS pumps and motors	15	20,000	$1,878		$28,175
Commercial LS electrical	15	15,000	$1,409		$21,131
SUBTOTAL			$26,766		$300,530
Miscellaneous					
Vehicles (5 vehicles @ $10k Each)	10	50,000	$6,358	10	$0
Service Trucks (1 vehicles @ $45k Each)	15	30,000	$2,817	10	$14,087
Hydro-Vac Truck	10	350,000	$44,505	10	$0
SUBTOTAL			$53,680		$14,087
GRAND TOTAL ANNUALIZED REPLACEMENT COST			$167,933		$1,092,684

Notes
1. Assumes a discount rate of 4.625%
2. Long-lived assets like pipelines, and concrete structures are not included in this evaluation.

APPENDIX D

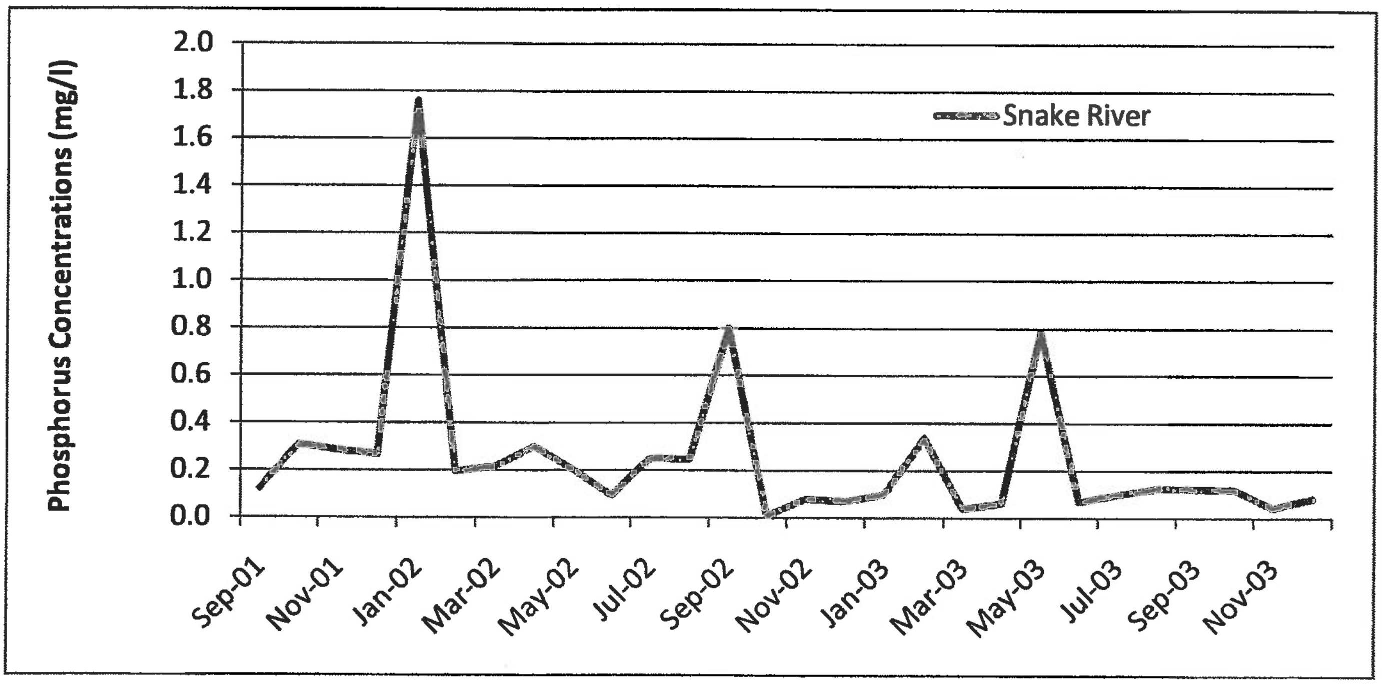
Weiser / Snake River Phosphorus Testing

WEISER WWTP FPS
Phosphorus Testing Results

Month	Monthly Avg. Total Phosphorus mg/L	WTP flows (mgd)	WTP Load from Snake River (ppd)	WTP Raw Water Flow (MG)		
Sep-01	0.123	0.953	0.98	28.589	Sep. 2001	28.589
Oct-01	0.310	0.579	1.50	17.936	Oct. 2001	17.936
Nov-01	0.286	0.354	0.84	10.623	Nov.2001	10.623
Dec-01	0.268	0.323	0.72	10.011	Dec. 2001	10.011
Jan-02	1.760	0.381	5.59	11.816	Jan. 2002	11.816
Feb-02	0.196	0.482	0.79	13.502	Feb. 2002	13.502
Mar-02	0.216	0.365	0.66	11.323	Mar. 2002	11.323
Apr-02	0.300	0.638	1.60	19.14	Apr. 2002	19.140
May-02	0.204	1.040	1.77	32.227	May 2002	32.227
Jun-02	0.095	1.248	0.99	37.448	Jun. 2002	37.448
Jul-02	0.250	1.587	3.31	49.212	Jul. 2002	49.212
Aug-02	0.248	1.275	2.64	39.534	Aug. 2002	39.534
Sep-02	0.800	0.896	5.98	26.878	Sep. 2002	26.878
Oct-02	0.010	0.604	0.05	18.734	Oct. 2002	18.734
Nov-02	0.080	0.419	0.28	12.562	Nov. 2002	12.562
Dec-02	0.070	0.439	0.26	13.612	Dec. 2002	13.612
Jan-03	0.100	0.355	0.30	10.998	Jan. 2003	10.998
Feb-03	0.340	0.342	0.97	9.573	Feb. 2003	9.573
Mar-03	0.040	0.350	0.12	10.863	Mar. 2003	10.863
Apr-03	0.061	0.534	0.27	16.027	Apr. 2003	16.027
May-03	0.790	0.754	4.97	23.371	May 2003	23.371
Jun-03	0.070	1.297	0.76	38.906	Jun. 2003	38.906
Jul-03	0.100	1.568	1.31	48.602	Jul. 2003	48.602
Aug-03	0.125	1.295	1.35	40.131	Aug. 2003	40.131
Sep-03	0.124	1.005	1.04	30.154	Sep. 2003	30.154
Oct-03	0.121	0.644	0.65	19.978	Oct. 2003	19.978
Nov-03	0.044	0.388	0.14	11.64	Nov. 2003	11.640
Dec-03	0.083	0.445	0.31	13.8	Dec. 2003	13.800
average	0.258		Totals	Year	MG	Avg MGD
Summer Avg (.	0.148			2006	287.991	0.789
Winter Avg (De	0.456			2007	311.44	0.853
				2008	298.087	0.817

WEISER WWTP FPS
Phosphorus Testing Results

Month	Phosphorus Testing on Snake River					
	Raw Water (mg/L)	Finished Water (mg/L)	WTP Raw Water flows (mgd)	WTP Finish Water flows (mgd)	**WTP Raw Water Load (ppd)**	WTP Finish Water Load (ppd)
23-Sep-09	0.048		1.116	1.133	**0.45**	0.00
30-Sep-09	0.090		0.946	1.038	**0.71**	0.00
16-Oct-09	1.730		1.178	1.180	**17.00**	0.00
6-Nov-09	0.090		0.811	0.840	**0.61**	0.00
20-Nov-09	0.380	0.006	0.532	0.527	**1.69**	0.03
4-Dec-09	0.060	0.04	1.089	1.168	**0.54**	0.39
15-Jan-10	0.041	0.009	1.077	1.129	**0.37**	0.08
29-Jan-10	0.045	0.015	0.519	0.537	**0.19**	0.07
19-Feb-10	0.05	0.004	0.948	0.93	**0.40**	0.03
10-Mar-10	0.105	0.016	0.410	0.416	**0.36**	0.06
19-Mar-10	0.182	0.028	0.981	0.946	**1.49**	0.22
2-Apr-10	0.023	0.033	0.924	0.899	**0.18**	0.25
16-Apr-10	0.013	0.023	1.259	1.251	**0.14**	0.24
30-Apr-10	0.013	0.023	0.334	0.350	**0.04**	0.07



Phosphorus Concentrations (mg/l)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Snake River
Sep-01
Nov-01
Jan-02
Mar-02
May-02
Jul-02
Sep-02
Nov-02
Jan-03
Mar-03
May-03
Jul-03
Sep-03
Nov-03

APPENDIX E

Alum Pilot Study

KELLER associates

TECHNICAL MEMORANDUM NO. 1

PREPARED FOR: Nate Marvin.
Public Works Director
City of Weiser
55 West Idaho Street
Weiser, ID 83672

Distribution List:

Rod Milbrook
Justin Walker

PREPARED BY: Glen Holdren, P.E.
Keller Associates, Inc.
131 SW 5th Ave., Suite A
Meridian, ID 83642

DATE: August 6, 2010

PROJECT: City of Weiser Wastewater Treatment Plant Improvements

SUBJECT: Phosphorus Removal with Alum Pilot Test Protocol

INTRODUCTION

The purpose of this document is to provide a test protocol for removing phosphorus using alum.

TEST PROTOCOL

Background

The purpose of the test is to determine the relationship between the dose of alum applied to the amount of phosphorus removed by settling in the secondary clarifiers. The alum will be pumped into the flow from the aeration tanks at the top of the tank in the southwest corner of aeration tank 4. The stoichiometric removal rate is 1 milli-mole of aluminum applied per one milli-mole of phosphorus removed. Assuming that the influent concentration of phosphorus is 4 mg/L and the average monthly flow is 1.5 MGD, the doses and corresponding milli-mole relationship and gallons per day (gpd) of alum to be tested are:

10 mg/L	0.25 Al/ 1 P	22 gpd
19 mg/L	0.50 Al/ 1 P	44 gpd
38 mg/L	1 Al/ 1 P	88 gpd
77 mg/L	2 Al/ 1 P	177 gpd
115 mg/L	3 Al/ 1 P	265 gpd

The data collected will be used to develop a dose:response graph that will provide a method to select the dose required to obtain an effluent total phosphorus concentration.

Prior to Test

The equipment needed for the test are two chemical feed pumps that can pump 120 gpd, the influent composite sampler, another composite sampler (if possible), power for the pump and sample bottles. The pumps should be installed by the City with suction hosing and discharge piping to the chemical feed point. Once the pumps and piping is in place, the City should test the pump flow rates in gallons per day and determine the settings for each flow rate required in the test. Keller Associates is arranging for the shipment of five totes of 48% alum to the wastewater treatment plant. As soon as we have the freight cost, we will coordinate the shipment and payment for freight. When the totes arrive they should be moved to the location of the pump(s) for storage. Once all the totes are on site, the pumps in place and operating, and the pump rate settings determined, the test can proceed.

Test

During the test the City will be setting the pump rate, starting the pump, starting composite samplers, collecting grab samples, measuring pH, collecting composite samples, and turning on and off the pumps. The proposed schedule for testing is as follows (the proposed monitoring schedule follows):

Day 1
Set the pump rate at 44 gpd
Start the alum pumping at 8 AM
Start the influent composite sampler at 8 AM
Start the effluent composite samplers at 1 PM
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.

Day 2
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM, collect the sample, and start the composite sampler again.
Stop the effluent composite sampler at 1 PM, collect the sample, and start the composite sampler again.

Day 3
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM and collect the sample.

Stop the effluent composite sampler at 1 PM and collect the sample.
Stop the alum pump.
Wait for results of rush P analysis before proceeding with test.

Day 4
Set the pump rate at 88 gpd
Start the alum pumping at 8 AM
Start the influent composite sampler at 8 AM
Start the effluent composite samplers at 1 PM
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.

Day 5
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM, collect the sample, and start the composite sampler again.
Stop the effluent composite sampler at 1 PM, collect the sample, and start the composite sampler again.

Day 6
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM and collect the sample.
Stop the effluent composite sampler at 1 PM and collect the sample.
Stop the alum pump.

Day 7
Set the pump rate at 177 gpd
Start the alum pumping at 8 AM
Start the influent composite sampler at 8 AM
Start the effluent composite samplers at 1 PM
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.

Day 8
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM, collect the sample, and start the composite sampler again.
Stop the effluent composite sampler at 1 PM, collect the sample, and start the composite sampler again.

Day 9
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.

Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM and collect the sample.
Stop the effluent composite sampler at 1 PM and collect the sample.
Stop the alum pump.

Day 10
Set the pump rate at 240 gpd
Start the alum pumping at 8 AM
Start the influent composite sampler at 8 AM
Start the effluent composite samplers at 1 PM
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.

Day 11
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM, collect the sample, and start the composite sampler again.
Stop the effluent composite sampler at 1 PM, collect the sample, and start the composite sampler again.

Day 12
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM and collect the sample.
Stop the effluent composite sampler at 1 PM and collect the sample.
Stop the alum pump.

Day 13
Set the pump rate at 21 gpd
Start the alum pumping at 8 AM
Start the influent composite sampler at 8 AM
Start the effluent composite samplers at 1 PM
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.

Day 14
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM, collect the sample, and start the composite sampler again.
Stop the effluent composite sampler at 1 PM, collect the sample, and start the composite sampler again.

Day 15

Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM, collect the sample, and start the composite sampler again.
Stop the effluent composite sampler at 1 PM, collect the sample, and start the composite sampler again.

Day 16
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM and collect the sample.
Stop the effluent composite sampler at 1 PM and collect the sample.
Stop the alum pump.

Day 17
Set the pump rate at 44 gpd
Start the alum pumping at 8 AM
Start the influent composite sampler at 8 AM
Start the effluent composite samplers at 1 PM
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.

Day 18
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM and collect the sample.
Stop the effluent composite sampler at 1 PM and collect the sample.
Stop the pump.

Day 19
Set the pump rate at 88 gpd
Start the alum pumping at 8 AM
Start the influent composite sampler at 8 AM
Start the effluent composite samplers at 1 PM
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.

Day 20
Collect combined secondary clarifier effluent grab samples at 8 AM, 12 PM, and 4 PM.
Estimate alum usage over past 24 hours at the tote at 8 AM.
Stop the influent composite sampler at 8 AM and collect the sample.
Stop the effluent composite sampler at 1 PM and collect the sample.
Stop the pump.

Monitoring

During the test the City will be monitoring the influent, secondary clarifier effluent, and final effluent for phosphorus, orthophosphate, alkalinity, pH, and Influent Flow. The proposed monitoring schedule is as follows:

Day	Inf CS	8 AM grab	12 PM grab	4 PM grab	Eff CS	Influent Flow
1		P	P	P		
2	P, orthoP, alk, pH	P	P	P	P, orthoP, alk, pH	24 hours 8AM to 8AM
3	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
4		P	P	P		24 hours 8AM to 8AM
5	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
6	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
7		P	P	P		24 hours 8AM to 8AM
8	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
9	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
10		P	P	P		24 hours 8AM to 8AM
11	P, orthoP, alk, pH	P	P	P	P, orthoP, alk, pH	24 hours 8AM to 8AM
12	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
13		P	P	P		24 hours 8AM to 8AM
14	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
15	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
16	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
17		P	P	P		24 hours 8AM to 8AM
18	P, alk, pH	P	P	P	P, alk, pH	24 hours 8AM to 8AM
19		P	P	P		24 hours 8AM to 8AM
20	P, orthoP, alk, pH	P	P	P	P, orthoP, alk, pH	24 hours 8AM to 8AM

CS = Composite Sampler
P = total Phosphorus
OrthoP = Orthophosphate
alk = alkalinity

The estimated laboratory cost for the total phosphorus and orthophosphate monitoring is \$2,050. It is assumed that the City can do the pH and alkalinity monitoring in-house. The amount of additional sludge generated during these tests will not be significant except for the two days that alum is added at 120 gpd. The sludge depths in the clarifiers should be monitored during the test to verify the level of sludge in the clarifiers.

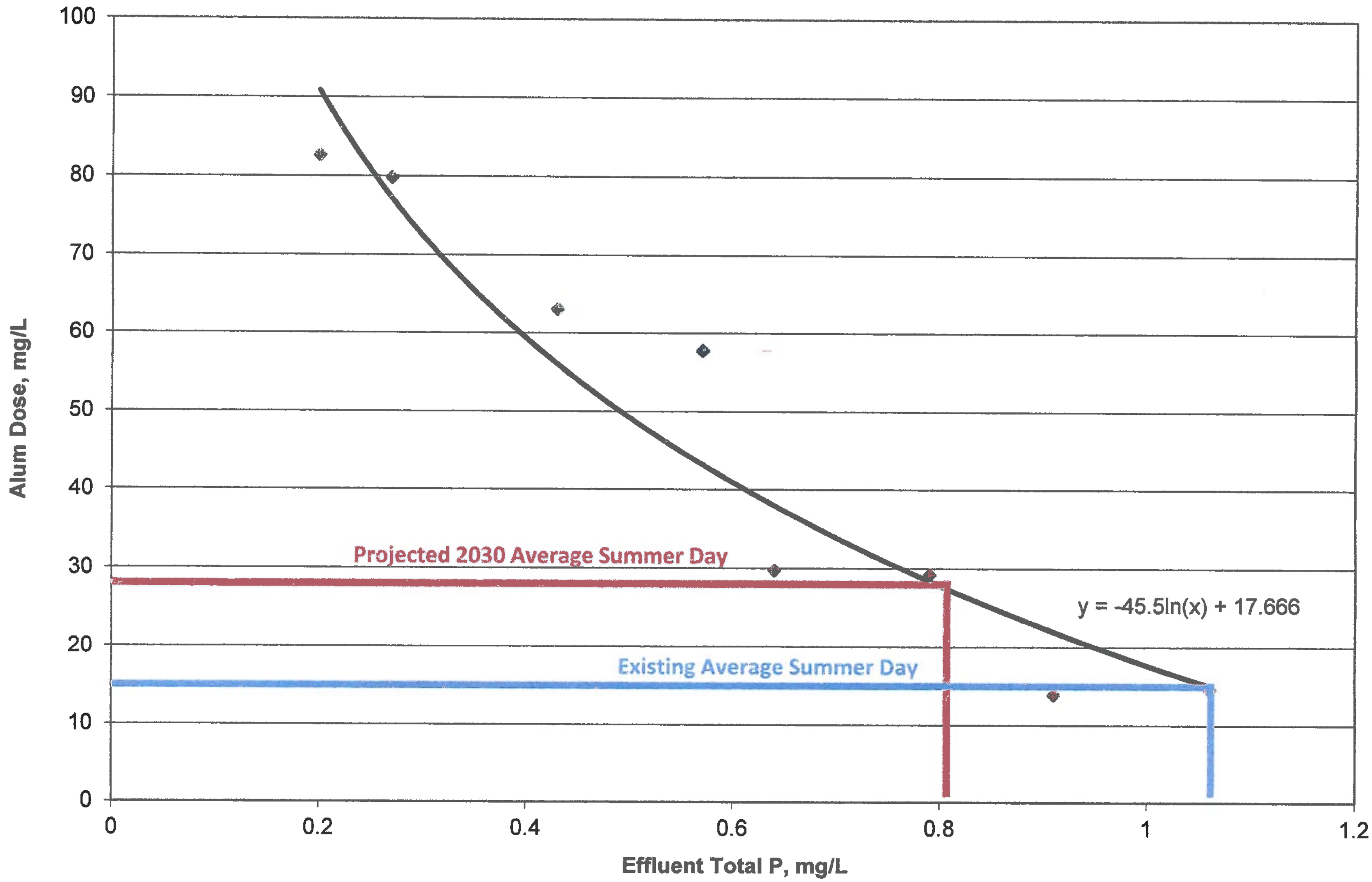
DATE	EFFLUENT P-grab mg/L	Sample No.
8/30/10 7:00	1.89	1
8/31/10 11:00	1.28	2
8/31/2010 15:(	1.23	3
8/31/10 7:00	1.20	4
8/31/10 11:00	0.98	7
8/31/10 15:00	0.9	10
9/1/10 7:00	0.85	11
9/1/10 11:00	0.850	13
9/1/10 15:00	0.970	15
9/2/10 7:00	1.150	16
9/2/10 11:00	0.990	17
9/2/10 15:00	0.880	18
9/3/10 7:00	0.660	19
9/3/10 11:00	0.670	21
9/3/10 15:00	0.650	23
9/4/10 7:00	0.590	24
9/4/10 11:00	0.600	26
9/4/10 15:00	0.610	28
9/5/10 7:00	1.100	29
9/5/10 11:00	0.850	30
9/5/10 15:00	0.690	31
9/6/10 7:00	0.470	32
9/6/10 11:00	0.440	34
9/6/10 15:00	0.420	36
9/7/10 7:00	0.380	37
9/7/10 11:00	0.410	40
9/7/10 15:00	0.450	43
9/8/10 7:00	0.840	44
9/8/10 11:00	0.610	45
9/8/10 15:00	0.320	46
9/9/10 7:00	0.230	47
9/9/10 11:00	0.210	49
9/9/10 15:00	0.220	51
9/10/10 7:00	0.210	52
9/10/10 11:00	0.300	54
9/10/10 15:00	0.380	56
9/11/10 7:00	0.400	57
9/11/10 11:00	0.490	58
9/11/10 15:00	0.630	59
9/12/10 7:00	0.720	60
9/12/10 11:00	0.720	62
9/12/10 15:00	0.780	64
9/13/10 7:00	0.880	65
9/13/10 11:00	0.860	67
9/13/10 15:00	0.870	69
9/14/10 7:00	0.890	70
9/14/10 11:00	0.880	73
9/14/10 15:00	0.860	76
9/15/10 7:00	0.980	77

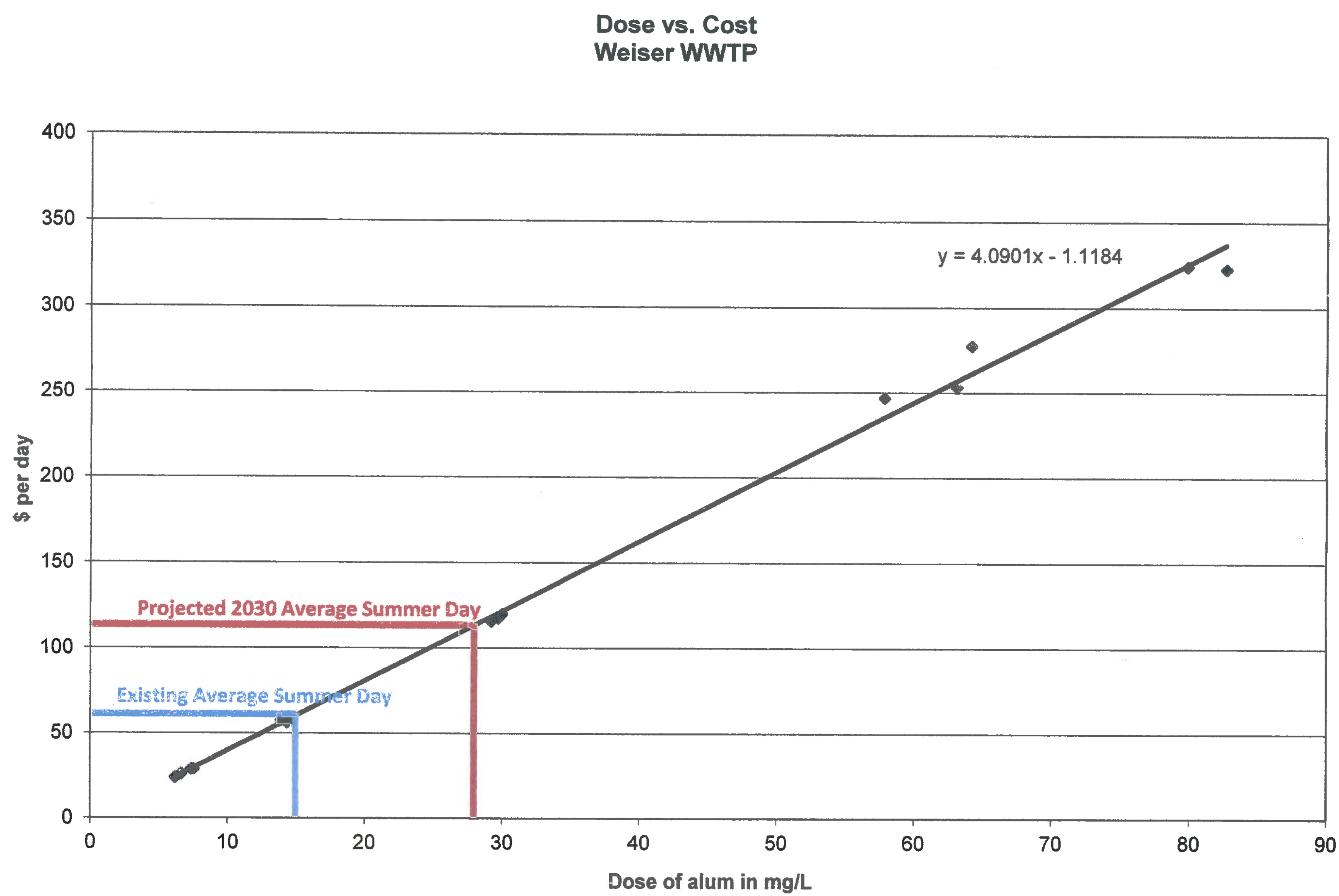
9/15/10 11:00	0.880	78
9/15/10 15:00	0.840	79
9/16/10 7:00	0.690	80
9/16/10 11:00	0.760	82
9/16/10 15:00	0.750	84
9/17/10 7:00	0.940	85
9/17/10 11:00	0.720	86
9/17/10 15:00	0.730	87
9/18/10 7:00	0.630	88
9/18/10 11:00	0.670	90
9/18/10 15:00	0.620	92

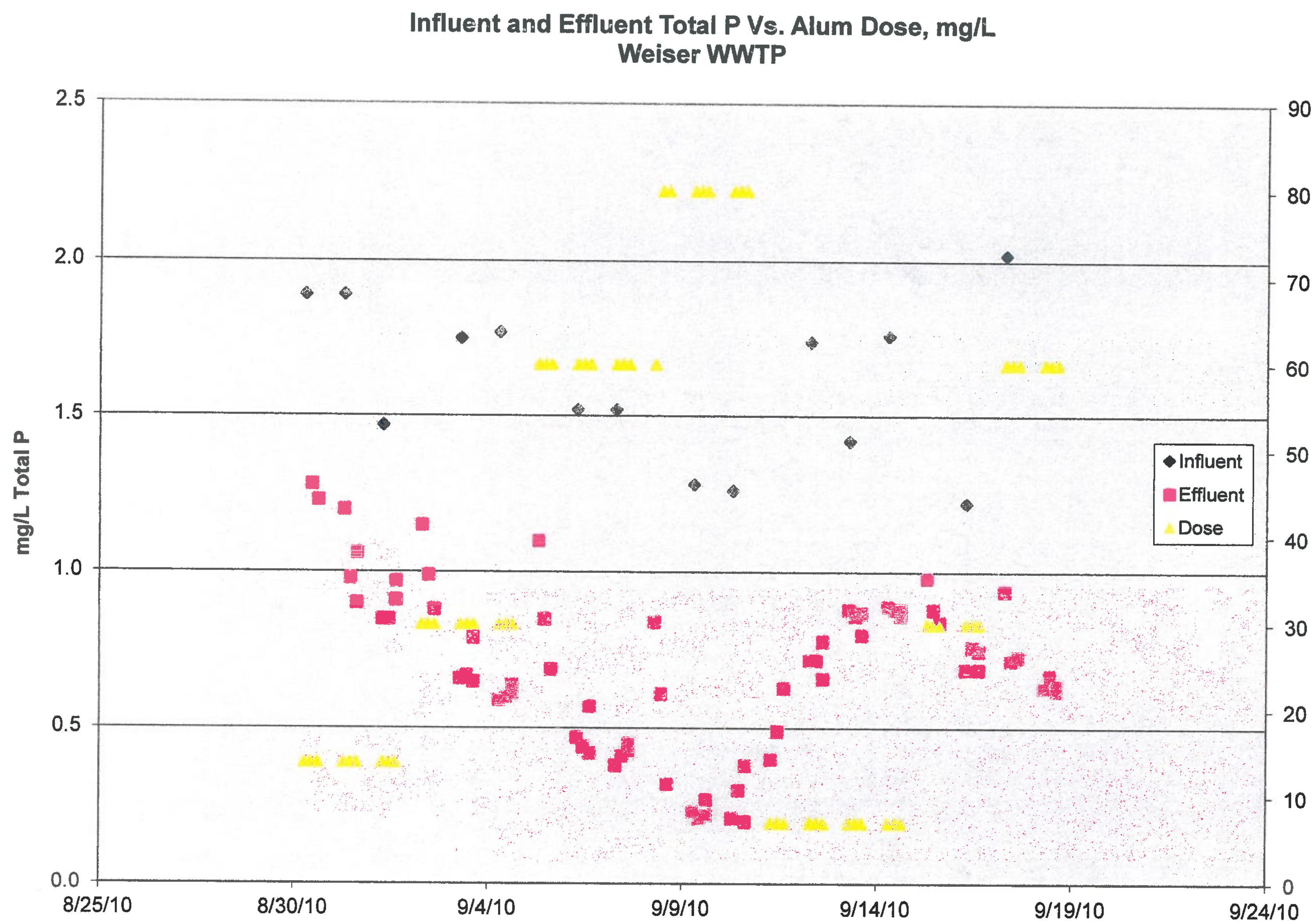
Alum Pilot Test
Composite Sample Data
Weiser WWTP

DATE	INFLUENT						EFFLUENT									Alum					
	FLOW	Alkalinity	pH	P	OP	OP:P	FLOW	Alkalinity	pH	P	% Removal	Soluble P	OP	% Removal	P Loading	Usage	Usage	dose	Cost	P Loading	P
	mgd	mg/L as CaCO3	su	mg/L	mg/L	5	mgd	mg/L as CaCO3	su	mg/L Eff. P		mg/L	mg/L		ppd Eff ppd	gal	ppd	mg/L Dose	$/day $/day	ppd dose	mg/L Eff. P
30-Aug	1.870						1.800														
31-Aug	1.873	290	6.90	1.89	1.01	53%	1.805	243	7.60	1.06	44%		0.97	4%	16.0	42	227.8	14.58	$ 59.22	14.6	1.06
1-Sep	1.909	270	7.00	1.47			1.789	240	7.70	0.91	38%				13.6	10.2	221.3	13.90	$ 57.53	13.9	0.91
2-Sep	1.687						1.775														
3-Sep	1.826	241	7.00	1.75			1.757	239	7.50	0.79	55%				11.6	82	444.8	29.21	$ 115.62	29.2	0.79
4-Sep	1.822	285	7.00	1.77			1.747	230	7.40	0.64	64%				9.3	83.3	451.8	29.73	$ 117.45	29.7	0.64
5-Sep	1.846						1.689									21.3	462.1	30.02	$ 120.13		
6-Sep	1.969	286	7.10	1.52			1.835	228	7.60	0.57	63%				8.7	175	949.2	57.80	$ 246.75	57.8	0.57
7-Sep	1.852	275	7.00	1.52	0.87	57%	1.739	210	7.60	0.43	72%		0.23	74%	6.2	179.6	974.2	63.07	$ 253.24	63.1	0.43
8-Sep	1.995						1.787									49.2	1067.4	64.16	$ 277.49		
9-Sep	1.874	292	7.90	1.28			1.678	216	7.50	0.27	79%				3.8	230	1247.5	79.82	$ 324.30	79.8	0.27
10-Sep	1.802	296	6.73	1.26			1.613	220	7.63	0.20	84%				2.7	229	1242.1	82.65	$ 322.89	82.6	0.20
11-Sep	1.827						1.677														
12-Sep	1.782	304	7.36	1.74			1.673	251	7.60	0.66	62%	0.60			9.2	17	92.2	6.20	$ 23.97		
13-Sep	1.763	297	7.00	1.42			1.715	260	7.76	0.80	44%	0.73			11.4	20.5	111.2	7.56	$ 28.91		
14-Sep	1.802	302	6.85	1.76	0.83		1.723	254	6.65	0.88	50%	0.81	0.8	8%	12.6	20.4	110.6	7.36	$ 28.76		
15-Sep	1.807						1.721									4.63	100.5	6.67	$ 26.11		
16-Sep	1.813	295	6.90	1.22			1.736	250	7.70	0.69	43%				10.0	40	217.0	14.35	$ 56.40		
17-Sep	1.803						1.728									10.2	221.3	14.72	$ 57.53		
18-Sep		295	7.10	2.02				250	7.10	0.64	68%				0.0	77.8	422.0		$ 109.70		
19-Sep																20	433.9		$ 112.80		
20-Sep																					
21-Sep																					
22-Sep																					
23-Sep																					
24-Sep																					
25-Sep																					
26-Sep																					
27-Sep																					
28-Sep																					
29-Sep																					
30-Sep																					
Average				1.56						0.62											0.54
Maximum				2.02						0.91											0.91
Minimum				1.22						0.20											0.2

Effluent Total P vs. Alum Dose
Weiser WWTP




Dose vs. Cost
Weiser WWTP
y = 4.0901x - 1.1184
Projected 2030 Average Summer Day
Existing Average Summer Day
$ per day
Dose of alum in mg/L
0
50
100
150
200
250
300
350
400
10
20
30
40
50
60
70
80
90


Influent and Effluent Total P Vs. Alum Dose, mg/L
Weiser WWTP
mg/L Total P
2.5
2.0
1.5
1.0
0.5
0.0
90
80
70
60
50
40
30
20
10
0
8/25/10
8/30/10
9/4/10
9/9/10
9/14/10
9/19/10
9/24/10
Influent
Effluent
Dose

APPENDIX F

City Budget and User Rates

CITY OF WEISER
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2010

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	SEWER RECEIVABLES					
33-347.00-00	SEWER REVENUES	866,493.33	866,493.33	981,075.00	114,581.67	88.3
33-347.00-01	SEWER TAPS	13,306.20	13,306.20	.00	(13,306.20)	.0
	TOTAL SEWER RECEIVABLES	879,799.53	[illegible]	981,075.00	101,275.47	89.7
	INTEREST INCOME					
33-371.00-00	INTEREST	16,445.91	16,445.91	8,000.00	(8,445.91)	205.6
	TOTAL INTEREST INCOME	16,445.91	[illegible]5.91	8,000.00	(8,445.91)	205.6
	SEWER RECEIVABLES					
33-375.00-00	CONSERVATION GRANT	32,334.00	32,334.00	.00	(32,334.00)	.0
	TOTAL SEWER RECEIVABLES	32,334.00	[illegible].00	.00	(32,334.00)	.0
	MISCELLANEOUS REVENUES					
33-385.00-00	MISCELLANEOUS RECEIPTS	1,405.60	1,405.60	10,000.00	8,594.40	14.1
	TOTAL MISCELLANEOUS REVENUES	1,405.60	1,405.60	10,000.00	8,594.40	14.1
	TOTAL FUND REVENUE	929,985.04	929,985.04	999,075.00	69,089.96	93.1

— oem

CITY OF WEISER
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2010

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	SEWER DEPARTMENT					
33-435.00-11	PERSONNEL SERVICES	290,113.01	290,113.01	245,208.00	(44,905.01)	118.3
33-435.00-19	OVERTIME & SICKLEAVE	2,555.94	2,555.94	1,300.00	(1,255.94)	196.6
33-435.00-21	SOCIAL SECURITY	21,492.52	21,492.52	18,800.00	(2,692.52)	114.3
33-435.00-22	RETIREMENT	30,333.59	30,333.59	25,500.00	(4,833.59)	119.0
33-435.00-23	WORKMANS COMP	7,114.26	7,114.26	9,000.00	1,885.74	79.1
33-435.00-25	GROUP INSURANCE	48,293.83	48,293.83	40,544.00	(7,749.83)	119.1
33-435.00-28	UNEMPLOYMENT INSURANCE	1,538.64	1,538.64	1,000.00	(538.64)	153.9
33-435.00-31	OFFICE SUPPLIES & POSTAGE	6,571.70	6,571.70	6,000.00	(571.70)	109.5
33-435.00-32	OPERATING & SPECIAL DEPT SUPP	50,700.68	50,700.68	22,375.00	(28,325.68)	226.6
33-435.00-35	GAS, OIL, DIESEL, ETC.	7,371.80	7,371.80	7,250.00	(121.80)	101.7
33-435.00-42	PROFESSIONAL SERVICES	64,982.40	64,982.40	65,000.00	17.60	100.0
33-435.00-44	ADVERTISING & LEGAL PUBLISHING	186.35	186.35	3,000.00	2,813.65	6.2
33-435.00-46	LIABILITY INSURANCE	7,500.00	7,500.00	7,500.00	.00	100.0
33-435.00-47	TRAVEL & MEETING EXPENSES	606.09	606.09	300.00	(306.09)	202.0
33-435.00-48	DUES SUBSCRIPTIONS & MEMBERSHI	736.25	736.25	850.00	113.75	86.6
33-435.00-49	PERSONNEL TRAINING	1,885.92	1,885.92	630.00	(1,255.92)	299.4
33-435.00-51	TELEPHONE & ALARMS	2,247.61	2,247.61	2,940.00	692.39	76.5
33-435.00-52	UTILITIES	76,685.58	76,685.58	75,000.00	(1,685.58)	102.3
33-435.00-56	REPAIR & MAINTENANCE-OFFICE EQ	440.98	440.98	670.00	229.02	65.8
33-435.00-61	REPAIR & MAINTENANCE - AUTO	9,951.20	9,951.20	7,000.00	(2,951.20)	142.2
33-435.00-62	REPAIR & MAINTENANCE - OTHER	62,475.88	62,475.88	37,649.00	(24,826.88)	165.9
33-435.00-63	OTHER PURCHASED SERVICES	9,175.28	9,175.28	15,000.00	5,824.72	61.2
33-435.00-64	DISPATCH	3,000.00	3,000.00	3,000.00	.00	100.0
33-435.00-67	WRITE OFFS	804.52	804.52	800.00	(4.52)	100.6
33-435.00-69	DRUG TESTING	440.00	440.00	600.00	160.00	73.3
33-435.00-74	OFFICE EQUIPMENT	557.83	557.83	1,350.00	792.17	41.3
33-435.00-75	AUTOMOTIVE EQUIP (DEDICATED)	.00	.00	12,000.00	12,000.00	.0
33-435.00-76	OTHER EQUIPMENT	.00	.00	71,000.00	71,000.00	.0
33-435.00-79	PROJECTS	.00	.00	200,000.00	200,000.00	.0
33-435.00-80	DEPRECIATION EXPENSE	349,676.00	~~349,676.00~~	.00	(349,676.00)	.0
	TOTAL SEWER DEPARTMENT	1,057,437.86	1,057,437.86	881,266.00	(176,171.86)	120.0
	TRANSFERS DEPARTMENT					
33-490.01-48	TRANSFER TO GENERAL FUND	60,000.00	60,000.00	60,000.00	.00	100.0
33-490.19-48	TRANSFER TO S & W REVENUE BOND	37,095.96	37,095.96	37,096.00	.04	100.0
33-490.30-48	TRANSFER TO WATER FUND	10,713.00	10,713.00	10,713.00	.00	100.0
33-490.31-48	TRANSFER TO ELECTRIC FUND	9,999.96	9,999.96	10,000.00	.04	100.0
	TOTAL TRANSFERS DEPARTMENT	117,808.92	117,808.92	117,809.00	.08	100.0
	TOTAL FUND EXPENDITURES	1,175,246.78	1,175,246.78	999,075.00	(176,171.78)	117.6
	NET REVENUE OVER EXPENDITURES	(245,261.74)	(245,261.74)	.00	245,261.74	.0

CITY OF WEISER
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2009

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	SEWER RECEIVABLES					
33-347.00-00	SEWER REVENUES	55,534.47	796,459.64	981,075.00	184,615.36	81.2
	TOTAL SEWER RECEIVABLES	55,534.47	796,459.64	981,075.00	184,615.36	81.2
	INTEREST INCOME					
33-371.00-00	INTEREST	892.92	17,165.88	8,000.00	(9,165.88)	214.6
	TOTAL INTEREST INCOME	892.92	17,165.88	8,000.00	(9,165.88)	214.6
	MISCELLANEOUS REVENUES					
33-385.00-00	MISCELLANEOUS RECEIPTS	.00	1,414.97	10,000.00	8,585.03	14.2
	TOTAL MISCELLANEOUS REVENUES	.00	1,414.97	10,000.00	8,585.03	14.2
	TOTAL FUND REVENUE	56,427.39	815,040.49	999,075.00	184,034.51	81.6

OK

CITY OF WEISER
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2009

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	SEWER DEPARTMENT					
33-435.00-11	PERSONNEL SERVICES	19,662.80	247,546.19	262,995.00	15,448.81	94.1
33-435.00-19	OVERTIME & SICKLEAVE	392.00	1,151.94	1,300.00	148.06	88.6
33-435.00-21	SOCIAL SECURITY	1,521.49	18,586.78	20,200.00	1,613.22	92.0
33-435.00-22	RETIREMENT	1,908.29	24,634.38	27,475.00	2,840.62	89.7
33-435.00-23	WORKMANS COMP	486.12	6,845.63	11,000.00	4,154.37	62.2
33-435.00-25	GROUP INSURANCE	3,378.64	39,614.97	46,781.00	7,166.03	84.7
33-435.00-28	UNEMPLOYMENT INSURANCE	.00	.00	1,000.00	1,000.00	.0
33-435.00-31	OFFICE SUPPLIES & POSTAGE	18.36	5,464.79	6,000.00	535.21	91.1
33-435.00-32	OPERATING & SPECIAL DEPT. SUPP	1,257.52	20,523.71	32,730.00	12,206.29	62.7
33-435.00-35	GAS, OIL, DIESEL, ETC.	616.16	3,999.72	10,250.00	6,250.28	39.0
33-435.00-42	PROFESSIONAL SERVICES	7,881.65	46,918.21	100,000.00	53,081.79	46.9
33-435.00-44	ADVERTISING & LEGAL PUBLISHING	.00	382.39	3,000.00	2,617.61	12.8
33-435.00-46	LIABILITY INSURANCE	.00	7,500.00	7,500.00	.00	100.0
33-435.00-47	TRAVEL & MEETING EXPENSES	.00	78.65	300.00	221.35	26.2
33-435.00-48	DUES SUBSCRIPTIONS & MEMBERSHF	.00	903.25	850.00	(53.25)	106.3
33-435.00-49	PERSONNEL TRAINING	.00	418.96	630.00	211.04	66.5
33-435.00-51	TELEPHONE & ALARMS	183.97	2,267.10	2,940.00	672.90	77.1
33-435.00-52	UTILITIES	6,961.37	79,434.62	67,600.00	(11,834.62)	117.5
33-435.00-58	REPAIR & MAINTENANCE-OFFICE EQ	.00	137.48	670.00	532.52	20.5
33-435.00-61	REPAIR & MAINTENANCE - AUTO	211.76	3,697.87	3,700.00	2.13	99.9
33-435.00-62	REPAIR & MAINTENANCE - OTHER	9,457.96	37,814.16	48,400.00	10,585.84	78.1
33-435.00-63	OTHER PURCHASED SERVICES	.00	7,084.84	15,000.00	7,915.16	47.2
33-435.00-64	DISPATCH	.00	3,000.00	3,000.00	.00	100.0
33-435.00-67	WRITE OFFS	283.12	778.98	800.00	21.02	97.4
33-435.00-69	DRUG TESTING	.00	263.00	830.00	567.00	31.7
33-435.00-74	OFFICE EQUIPMENT	.00	.00	1,550.00	1,550.00	.0
33-435.00-75	AUTOMOTIVE EQUIP (DEDICATED)	.00	.00	12,000.00	12,000.00	.0
33-435.00-76	OTHER EQUIPMENT	.00	.00	74,200.00	74,200.00	.0
33-435.00-79	PROJECTS	28,825.56	74,933.32	254,000.00	179,066.68	29.5
	TOTAL SEWER DEPARTMENT	83,046.77	[illegible]	1,016,701.00	382,720.06	62.4
	TRANSFERS DEPARTMENT					
33-490.01-48	TRANSFER TO GENERAL FUND	5,000.00	60,000.00	60,000.00	.00	100.0
33-490.19-48	TRANSFER TO S & W REVENUE BOND	3,091.33	37,095.96	37,096.00	.04	100.0
33-490.30-48	TRANSFER TO WATER FUND	892.75	10,713.00	10,713.00	.00	100.0
33-490.31-48	TRANSFER TO ELECTRIC FUND	833.33	9,999.96	10,000.00	.04	100.0
	TOTAL TRANSFERS DEPARTMENT	9,817.41	117,808.92	117,809.00	.08	100.0
	TOTAL FUND EXPENDITURES	92,864.18	751,789.86	1,134,510.00	382,720.14	66.3
	NET REVENUE OVER EXPENDITURES	(36,436.79)	63,250.63	(135,435.00)	(198,685.63)	46.7

CITY OF WEISER
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2008

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	SEWER RECEIVABLES					
33-347.00-00	SEWER REVENUES	.00	797,491.62	981,075.00	183,583.38	81.3
	TOTAL SEWER RECEIVABLES	.00	797,491.62	981,075.00	183,583.38	81.3
	INTEREST INCOME					
33-371.00-00	INTEREST	.00	22,682.00	12,000.00	(10,682.00)	189.0
	TOTAL INTEREST INCOME	.00	22,682.00	12,000.00	(10,682.00)	189.0
	MISCELLANEOUS REVENUES					
33-385.00-00	MISCELLANEOUS RECEIPTS	.00	7,619.81	10,000.00	2,380.19	76.2
33-385.00-16	DEQ WASTEWATER GRANT	.00	.00	100,000.00	100,000.00	.0
33-385.00-17	PRE-TREATMENT GRANT (DOC)	.00	13,718.00	500,000.00	486,282.00	2.7
	TOTAL MISCELLANEOUS REVENUES	.00	21,337.81	610,000.00	588,662.19	3.5
	TRANSFERS FROM OTHER FUNDS					
33-390.23-48	TRANSFER FROM SEWER IMP FUND	.00	571,749.89	.00	(571,749.89)	.0
	TOTAL TRANSFERS FROM OTHER FUN	.00	571,749.89	.00	(571,749.89)	.0
	TOTAL FUND REVENUE	.00	1,413,261.32	1,603,075.00	189,813.68	88.2

CITY OF WEISER
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2008

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET		UNEXPENDED	PCNT
	SEWER DEPARTMENT						
33-435.00-11	PERSONNEL SERVICES	.00	255,919.19	261,456.00		5,536.81	97.9
33-435.00-19	OVERTIME & SICKLEAVE	.00	1,636.78	1,300.00	(	336.78)	125.9
33-435.00-21	SOCIAL SECURITY	.00	19,324.51	19,900.00		575.49	97.1
33-435.00-22	RETIREMENT	.00	26,511.86	27,000.00		488.14	98.2
33-435.00-23	WORKMANS COMP	.00	9,483.05	10,300.00		816.95	92.1
33-435.00-25	GROUP INSURANCE	.00	46,470.43	42,529.00	(	3,941.43)	109.3
33-435.00-28	UNEMPLOYMENT INSURANCE	.00	.00	1,000.00		1,000.00	.0
33-435.00-31	OFFICE SUPPLIES & POSTAGE	.00	5,346.47	5,000.00	(	346.47)	106.9
33-435.00-32	OPERATING & SPECIAL DEPT. SUPP	.00	34,445.61	30,000.00	(	4,445.61)	114.8
33-435.00-35	GAS, OIL, DIESEL, ETC.	.00	8,759.66	6,000.00	(	2,759.66)	146.0
33-435.00-42	PROFESSIONAL SERVICES	.00	38,023.28	100,000.00		61,976.72	38.0
33-435.00-44	ADVERTISING & LEGAL PUBLISHING	.00	853.90	5,000.00		4,146.10	17.1
33-435.00-46	LIABILITY INSURANCE	.00	7,300.00	7,300.00		.00	100.0
33-435.00-47	TRAVEL & MEETING EXPENSES	.00	549.47	250.00	(	299.47)	219.8
33-435.00-48	DUES SUBSCRIPTIONS & MEMBERSHF	.00	1,025.00	850.00	(	175.00)	120.6
33-435.00-49	PERSONNEL TRAINING	.00	1,157.03	630.00	(	527.03)	183.7
33-435.00-51	TELEPHONE & ALARMS	.00	1,910.61	2,260.00		349.39	84.5
33-435.00-52	UTILITIES	.00	65,441.07	66,000.00		558.93	99.2
33-435.00-58	REPAIR & MAINTENANCE-OFFICE EQ	.00	.00	650.00		650.00	.0
33-435.00-61	REPAIR & MAINTENANCE - AUTO	.00	3,571.69	3,600.00		28.31	99.2
33-435.00-62	REPAIR & MAINTENANCE - OTHER	.00	22,790.00	47,000.00		24,210.00	48.5
33-435.00-63	OTHER PURCHASED SERVICES	.00	15,148.62	10,000.00	(	5,148.62)	151.5
33-435.00-64	DISPATCH	.00	3,000.00	3,000.00		.00	100.0
33-435.00-67	WRITE OFFS	.00	915.22	500.00	(	415.22)	183.0
33-435.00-69	DRUG TESTING	.00	200.00	300.00		100.00	66.7
33-435.00-74	OFFICE EQUIPMENT	.00	.00	1,500.00		1,500.00	.0
33-435.00-75	AUTOMOTIVE EQUIP (DEDICATED)	.00	.00	12,000.00		12,000.00	.0
33-435.00-76	OTHER EQUIPMENT	.00	.00	72,000.00		72,000.00	.0
33-435.00-77	PRE-TREATMENT GRANT (DOC)	.00	.00	500,000.00		500,000.00	.0
33-435.00-79	PROJECTS	.00	.00	247,000.00		247,000.00	.0
33-435.00-80	DEPRECIATION EXPENSE	.00	356,484.72	.00	(	356,484.72)	.0
	TOTAL SEWER DEPARTMENT	.00	926,268.17	1,484,325.00		558,056.83	62.4
	TRANSFERS DEPARTMENT						
33-490.01-48	TRANSFER TO GENERAL FUND	.00	60,000.00	60,000.00		.00	100.0
33-490.19-48	TRANSFER TO S & W REVENUE BOND	.00	37,095.96	37,096.00		.04	100.0
33-490.30-48	TRANSFER TO WATER FUND	.00	10,713.00	10,713.00		.00	100.0
33-490.31-48	TRANSFER TO ELECTRIC FUND	.00	9,999.96	10,000.00		.04	100.0
	TOTAL TRANSFERS DEPARTMENT	.00	117,808.92	117,809.00		.08	100.0
	TOTAL FUND EXPENDITURES	.00	1,044,077.09	1,602,134.00		558,056.91	65.2
	NET REVENUE OVER EXPENDITURES	.00	369,184.23	941.00	(	368,243.23)	1233.2

CITY OF WEISER
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2007

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	SEWER RECEIVABLES					
33-347.00-00	SEWER REVENUES	.00	780,739.72	952,500.00	171,760.28	82.0
	TOTAL SEWER RECEIVABLES	.00	780,739.72	952,500.00	171,760.28	82.0
	INTEREST INCOME					
33-371.00-00	INTEREST	.00	21,400.01	10,000.00	(11,400.01)	214.0
	TOTAL INTEREST INCOME	.00	21,400.01	10,000.00	(11,400.01)	214.0
	MISCELLANEOUS REVENUES					
33-385.00-00	MISCELLANEOUS RECEIPTS	.00	9,216.09	10,000.00	783.91	92.2
33-385.00-16	DEQ WASTEWATER GRANT	.00	.00	30,000.00	30,000.00	.0
33-385.00-17	PRE-TREATMENT GRANT (DOC)	.00	88,636.00	200,000.00	111,364.00	44.3
	TOTAL MISCELLANEOUS REVENUES	.00	97,852.09	240,000.00	142,147.91	40.8
	TRANSFERS FROM OTHER FUNDS					
33-390.23-48	TRANSFER FROM SEWER IMP FUND	.00	68,000.04	68,000.00	(.04)	100.0
	TOTAL TRANSFERS FROM OTHER FUN	.00	68,000.04	68,000.00	(.04)	100.0
	TOTAL FUND REVENUE	.00	967,991.86	1,270,500.00	302,508.14	76.2

CITY OF WEISER
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2007

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	SEWER DEPARTMENT					
33-435.00-11	PERSONNEL SERVICES	.00	236,354.38	240,469.00	4,114.62	98.3
33-435.00-19	OVERTIME & SICKLEAVE	.00	307.27	1,300.00	992.73	23.6
33-435.00-21	SOCIAL SECURITY	.00	17,628.76	18,500.00	871.24	95.3
33-435.00-22	RETIREMENT	.00	24,635.47	26,600.00	1,964.53	92.6
33-435.00-23	WORKMANS COMP	.00	9,123.94	9,300.00	176.06	98.1
33-435.00-25	GROUP INSURANCE	.00	35,010.77	36,085.00	1,074.23	97.0
33-435.00-28	UNEMPLOYMENT INSURANCE	.00	.00	1,000.00	1,000.00	.0
33-435.00-31	OFFICE SUPPLIES & POSTAGE	.00	3,918.90	5,000.00	1,081.10	78.4
33-435.00-32	OPERATING & SPECIAL DEPT. SUPP	.00	34,199.73	25,000.00	(9,199.73)	136.8
33-435.00-35	GAS, OIL, DIESEL, ETC.	.00	5,994.08	5,500.00	(494.08)	109.0
33-435.00-42	PROFESSIONAL SERVICES	.00	14,334.92	100,000.00	85,665.08	14.3
33-435.00-44	ADVERTISING & LEGAL PUBLISHING	.00	304.10	5,000.00	4,695.90	6.1
33-435.00-46	LIABILITY INSURANCE	.00	7,300.00	7,300.00	.00	100.0
33-435.00-47	TRAVEL & MEETING EXPENSES	.00	335.80	250.00	(85.80)	134.3
33-435.00-48	DUES SUBSCRIPTIONS & MEMBERSHF	.00	585.00	850.00	265.00	68.8
33-435.00-49	PERSONNEL TRAINING	.00	670.24	630.00	(40.24)	106.4
33-435.00-51	TELEPHONE & ALARMS	.00	1,867.44	2,260.00	392.56	82.6
33-435.00-52	UTILITIES	.00	57,861.66	66,000.00	8,138.34	87.7
33-435.00-55	RENTAL PROPERTY - LAND	.00	9,591.20	50,000.00	40,408.80	19.2
33-435.00-58	REPAIR & MAINTENANCE-OFFICE EQ	.00	15.00	650.00	635.00	2.3
33-435.00-61	REPAIR & MAINTENANCE - AUTO	.00	5,225.62	3,600.00	(1,625.62)	145.2
33-435.00-62	REPAIR & MAINTENANCE - OTHER	.00	43,507.39	47,000.00	3,492.61	92.6
33-435.00-63	OTHER PURCHASED SERVICES	.00	10,892.16	10,000.00	(892.16)	108.9
33-435.00-64	DISPATCH	.00	3,000.00	3,000.00	.00	100.0
33-435.00-67	WRITE OFFS	.00	392.73	500.00	107.27	78.6
33-435.00-69	DRUG TESTING	.00	330.00	300.00	(30.00)	110.0
33-435.00-74	OFFICE EQUIPMENT	.00	.00	1,500.00	1,500.00	.0
33-435.00-75	AUTOMOTIVE EQUIP (DEDICATED)	.00	.00	12,000.00	12,000.00	.0
33-435.00-76	OTHER EQUIPMENT	.00	.00	72,000.00	72,000.00	.0
33-435.00-77	PRE-TREATMENT GRANT (DOC)	.00	.00	200,000.00	200,000.00	.0
33-435.00-79	PROJECTS	.00	.00	200,000.00	200,000.00	.0
33-435.00-80	DEPRECIATION EXPENSE	.00	~~332,377.58~~	00	(332,377.58)	.0
	TOTAL SEWER DEPARTMENT	00	855,764.14	1,151,594.00	295,829.86	74.3
	TRANSFERS DEPARTMENT					
33-490.01-48	TRANSFER TO GENERAL FUND	.00	60,000.00	60,000.00	.00	100.0
33-490.19-48	TRANSFER TO S & W REVENUE BOND	.00	37,095.96	37,096.00	.04	100.0
33-490.30-48	TRANSFER TO WATER FUND	.00	10,713.00	10,713.00	.00	100.0
33-490.31-48	TRANSFER TO ELECTRIC FUND	.00	9,999.96	10,000.00	.04	100.0
	TOTAL TRANSFERS DEPARTMENT	.00	117,808.92	117,809.00	.08	100.0
	TOTAL FUND EXPENDITURES	.00	973,573.06	1,269,403.00	295,829.94	76.7
	NET REVENUE OVER EXPENDITURES	.00	(5,581.20)	1,097.00	6,678.20	(508.8)

CITY OF WEISER
REVENUES WITH COMPARISON TO BUDGET
FOR THE 12 MONTHS ENDING SEPTEMBER 30, 2006

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	SEWER RECEIVABLES					
33-347.00-00	SEWER REVENUES	.00	704,243.51	867,000.00	162,756.49	81.2
	TOTAL SEWER RECEIVABLES	.00	~~704,243.51~~	867,000.00	162,756.49	81.2
	INTEREST INCOME					
33-371.00-00	INTEREST	.00	17,061.18	9,000.00	(8,061.18)	189.6
	TOTAL INTEREST INCOME	.00	~~17,061.18~~	9,000.00	(8,061.18)	189.6
	MISCELLANEOUS REVENUES					
33-385.00-00	MISCELLANEOUS RECEIPTS	.00	5,436.82	2,500.00	(2,936.82)	217.5
33-385.00-16	DEQ WASTEWATER GRANT	.00	.00	30,000.00	30,000.00	.0
33-385.00-17	PRE-TREATMENT GRANT (DOC)	.00	295,553.00	200,000.00	(95,553.00)	147.8
	TOTAL MISCELLANEOUS REVENUES	.00	~~[illegible]00,989.82~~	232,500.00	(68,489.82)	129.5
	TRANSFERS FROM OTHER FUNDS					
33-390.23-48	TRANSFER FROM SEWER IMP FUND	.00	50,000.04	50,000.00	(.04)	100.0
	TOTAL TRANSFERS FROM OTHER FUN	.00	50,000.04	50,000.00	(.04)	100.0
	TOTAL FUND REVENUE	.00	1,072,294.55	1,158,500.00	86,205.45	92.6

SEWER FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	SEWER DEPARTMENT					
33-435.00-11	PERSONNEL SERVICES	.00	234,136.66	228,889.00	(5,247.66)	102.3
33-435.00-19	OVERTIME & SICKLEAVE	.00	1,269.24	1,300.00	30.76	97.6
33-435.00-21	SOCIAL SECURITY	.00	17,104.22	17,600.00	495.78	97.2
33-435.00-22	RETIREMENT	.00	24,057.65	23,900.00	(157.65)	100.7
33-435.00-23	WORKMANS COMP	.00	9,331.41	9,000.00	(331.41)	103.7
33-435.00-25	GROUP INSURANCE	.00	41,129.46	32,800.00	(8,329.46)	125.4
33-435.00-28	UNEMPLOYMENT INSURANCE	.00	.00	1,000.00	1,000.00	.0
33-435.00-31	OFFICE SUPPLIES & POSTAGE	.00	5,089.62	3,575.00	(1,514.62)	142.4
33-435.00-32	OPERATING & SPECIAL DEPT. SUPP	.00	27,246.61	25,500.00	(1,746.61)	106.9
33-435.00-35	GAS, OIL, DIESEL, ETC.	.00	5,318.62	3,900.00	(1,418.62)	136.4
33-435.00-42	PROFESSIONAL SERVICES	.00	47,515.40	75,000.00	27,484.60	63.4
33-435.00-44	ADVERTISING & LEGAL PUBLISHING	.00	3,189.44	1,500.00	(1,689.44)	212.6
33-435.00-46	LIABILITY INSURANCE	.00	7,300.00	7,300.00	.00	100.0
33-435.00-47	TRAVEL & MEETING EXPENSES	.00	619.76	200.00	(419.76)	309.9
33-435.00-48	DUES SUBSCRIPTIONS & MEMBERSHF	.00	794.00	850.00	56.00	93.4
33-435.00-49	PERSONNEL TRAINING	.00	460.03	600.00	139.97	76.7
33-435.00-51	TELEPHONE & ALARMS	.00	2,198.62	2,200.00	1.38	99.9
33-435.00-52	UTILITIES	.00	63,315.67	63,000.00	(315.67)	100.5
33-435.00-55	RENTAL PROPERTY - LAND	.00	1,000.00	50,000.00	49,000.00	2.0
33-435.00-58	REPAIR & MAINTENANCE-OFFICE EQ	.00	65.00	200.00	135.00	32.5
33-435.00-61	REPAIR & MAINTENANCE - AUTO	.00	2,575.46	3,000.00	424.54	85.9
33-435.00-62	REPAIR & MAINTENANCE - OTHER	.00	33,751.38	5,600.00	(28,151.38)	602.7
33-435.00-63	OTHER PURCHASED SERVICES	.00	10,268.11	9,000.00	(1,268.11)	114.1
33-435.00-64	DISPATCH	.00	3,000.00	3,000.00	.00	100.0
33-435.00-67	WRITE OFFS	.00	794.51	500.00	(294.51)	158.9
33-435.00-69	DRUG TESTING	.00	279.00	300.00	21.00	93.0
33-435.00-74	OFFICE EQUIPMENT	.00	.00	1,500.00	1,500.00	.0
33-435.00-76	OTHER EQUIPMENT	.00	.00	71,125.00	71,125.00	.0
33-435.00-77	PRE-TREATMENT GRANT (DOC)	.00	.00	200,000.00	200,000.00	.0
33-435.00-79	PROJECTS	.00	.00	198,000.00	198,000.00	.0
33-435.00-80	DEPRECIATION EXPENSE	323,010.63	323,010.63	.00	(323,010.63)	.0
	TOTAL SEWER DEPARTMENT	323,010.63	864,820.50	1,040,339.00	175,518.50	83.1
	TRANSFERS DEPARTMENT					
33-490.01-48	TRANSFER TO GENERAL FUND	.00	60,000.00	60,000.00	.00	100.0
33-490.19-48	TRANSFER TO S & W REVENUE BOND	.00	37,095.96	37,096.00	.04	100.0
33-490.30-48	TRANSFER TO WATER FUND	.00	10,713.00	10,713.00	.00	100.0
33-490.31-48	TRANSFER TO ELECTRIC FUND	.00	9,999.96	10,000.00	.04	100.0
	TOTAL TRANSFERS DEPARTMENT	.00	117,808.92	117,809.00	.08	100.0
	TOTAL FUND EXPENDITURES	323,010.63	982,629.42	1,158,148.00	175,518.58	84.8
	NET REVENUE OVER EXPENDITURES	(323,010.63)	89,665.13	352.00	(89,313.13)	5473.1

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
SEWER FUND				
SEWER RECEIVABLES				
33-347.00-00	SEWER REVENUES	981,075	981,075	912,740
33-347.00-01	SEWER TAPS	0	0	10,000
	SEWER RECEIVABLES Totals:	981,075	~~981,075~~	922,740
INTEREST INCOME				
33-371.00-00	INTEREST	8,000	8,000	18,000
	INTEREST INCOME Totals:	8,000	~~8,000~~	18,000
MISCELLANEOUS REVENUES				
33-385.00-00	MISCELLANEOUS RECEIPTS	10,000	10,000	10,000
	MISCELLANEOUS REVENUES Totals:	10,000	~~10,000~~	10,000
SEWER DEPARTMENT				
33-435.00-11	PERSONNEL SERVICES	262,995	245,208	318,109
33-435.00-19	OVERTIME & SICKLEAVE	1,300	1,300	1,300
33-435.00-21	SOCIAL SECURITY	20,200	18,800	24,336
33-435.00-22	RETIREMENT	27,475	25,500	33,052
33-435.00-23	WORKMANS COMP	11,000	9,000	9,000
33-435.00-25	GROUP INSURANCE	46,781	40,544	52,534
33-435.00-28	UNEMPLOYMENT INSURANCE	1,000	1,000	1,000
33-435.00-31	OFFICE SUPPLIES & POSTAGE	6,000	6,000	6,000
33-435.00-32	OPERATING & SPECIAL DEPT. SUPP	32,730	22,375	24,000
33-435.00-35	GAS, OIL, DIESEL, ETC.	10,250	7,250	8,000
33-435.00-42	PROFESSIONAL SERVICES	100,000	65,000	20,000
33-435.00-44	ADVERTISING & LEGAL PUBLISHING	3,000	3,000	2,000
33-435.00-46	LIABILITY INSURANCE	7,500	7,500	8,250
33-435.00-47	TRAVEL & MEETING EXPENSES	300	300	700
33-435.00-48	DUES SUBSCRIPTIONS & MEMBERSHF	850	850	800
33-435.00-49	PERSONNEL TRAINING	630	630	1,761
33-435.00-51	TELEPHONE & ALARMS	2,940	2,940	2,940
33-435.00-52	UTILITIES	67,600	75,000	80,000
33-435.00-58	REPAIR & MAINTENANCE-OFFICE EQ	670	670	300
33-435.00-61	REPAIR & MAINTENANCE - AUTO	3,700	7,000	7,000
33-435.00-62	REPAIR & MAINTENANCE - OTHER	48,400	37,649	37,649
33-435.00-63	OTHER PURCHASED SERVICES	15,000	15,000	16,000

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
SEWER FUND				
SEWER DEPARTMENT (Cont.)				
33-435.00-64	DISPATCH	3,000	3,000	3,000
33-435.00-67	WRITE OFFS	800	800	800
33-435.00-69	DRUG TESTING	830	600	400
33-435.00-74	OFFICE EQUIPMENT	1,550	1,350	4,000
33-435.00-75	AUTOMOTIVE EQUIP (DEDICATED)	12,000	12,000	0
33-435.00-76	OTHER EQUIPMENT	74,200	71,000	25,000
33-435.00-79	PROJECTS	254,000	200,000	145,000
33-435.00-80	DEPRECIATION EXPENSE	0	0	0
	SEWER DEPARTMENT Totals:	1,016,701	881,266	832,931
TRANSFERS DEPARTMENT				
33-490.01-48	TRANSFER TO GENERAL FUND	60,000	60,000	60,000
33-490.19-48	TRANSFER TO S & W REVENUE BOND	37,096	37,096	37,096
33-490.30-48	TRANSFER TO WATER FUND	10,713	10,713	10,713
33-490.31-48	TRANSFER TO ELECTRIC FUND	10,000	10,000	10,000
	TRANSFERS DEPARTMENT Totals:	117,809	117,809	117,809
	SEWER FUND Revenue Totals:	999,075	999,075	950,740
	SEWER FUND Expenditure Totals:	1,134,510	999,075	950,740
	SEWER FUND Totals:	(135,435)	0	0

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
SEWER FUND				
SEWER RECEIVABLES				
33-347.00-00	SEWER REVENUES	981,075	981,075	912,740
33-347.00-01	SEWER TAPS	0	0	10,000
	SEWER RECEIVABLES Totals:	981,075	981,075	922,740
INTEREST INCOME				
33-371.00-00	INTEREST	8,000	8,000	18,000
	INTEREST INCOME Totals:	8,000	8,000	18,000
MISCELLANEOUS REVENUES				
33-385.00-00	MISCELLANEOUS RECEIPTS	10,000	10,000	10,000
	MISCELLANEOUS REVENUES Totals:	10,000	10,000	10,000
SEWER DEPARTMENT				
33-435.00-11	PERSONNEL SERVICES	262,995	245,208	318,109
33-435.00-19	OVERTIME & SICKLEAVE	1,300	1,300	1,300
33-435.00-21	SOCIAL SECURITY	20,200	18,800	24,336
33-435.00-22	RETIREMENT	27,475	25,500	33,052
33-435.00-23	WORKMANS COMP	11,000	9,000	9,000
33-435.00-25	GROUP INSURANCE	46,781	40,544	52,534
33-435.00-28	UNEMPLOYMENT INSURANCE	1,000	1,000	1,000
33-435.00-31	OFFICE SUPPLIES & POSTAGE	6,000	6,000	6,000
33-435.00-32	OPERATING & SPECIAL DEPT. SUPP	32,730	22,375	24,000
33-435.00-35	GAS, OIL, DIESEL, ETC.	10,250	7,250	8,000
33-435.00-42	PROFESSIONAL SERVICES	100,000	65,000	20,000
33-435.00-44	ADVERTISING & LEGAL PUBLISHING	3,000	3,000	2,000
33-435.00-46	LIABILITY INSURANCE	7,500	7,500	8,250
33-435.00-47	TRAVEL & MEETING EXPENSES	300	300	700
33-435.00-48	DUES SUBSCRIPTIONS & MEMBERSHF	850	850	800
33-435.00-49	PERSONNEL TRAINING	630	630	1,761
33-435.00-51	TELEPHONE & ALARMS	2,940	2,940	2,940
33-435.00-52	UTILITIES	67,600	75,000	80,000
33-435.00-58	REPAIR & MAINTENANCE-OFFICE EQ	670	670	300
33-435.00-61	REPAIR & MAINTENANCE - AUTO	3,700	7,000	7,000
33-435.00-62	REPAIR & MAINTENANCE - OTHER	48,400	37,649	37,649
33-435.00-63	OTHER PURCHASED SERVICES	15,000	15,000	16,000

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
SEWER FUND				
SEWER DEPARTMENT (Cont.)				
33-435.00-64	DISPATCH	3,000	3,000	3,000
33-435.00-67	WRITE OFFS	800	800	800
33-435.00-69	DRUG TESTING	830	600	400
33-435.00-74	OFFICE EQUIPMENT	1,550	1,350	4,000
33-435.00-75	AUTOMOTIVE EQUIP (DEDICATED)	12,000	12,000	0
33-435.00-76	OTHER EQUIPMENT	74,200	71,000	25,000
33-435.00-79	PROJECTS	254,000	200,000	145,000
33-435.00-80	DEPRECIATION EXPENSE	0	0	0
	SEWER DEPARTMENT Totals:	1,016,701	881,266	832,931
TRANSFERS DEPARTMENT				
33-490 01-48	TRANSFER TO GENERAL FUND	60,000	60,000	60,000
33-490.19-48	TRANSFER TO S & W REVENUE BOND	37,096	37,096	37,096
33-490.30-48	TRANSFER TO WATER FUND	10,713	10,713	10,713
33-490.31-48	TRANSFER TO ELECTRIC FUND	10,000	10,000	10,000
	TRANSFERS DEPARTMENT Totals:	117,809	117,809	117,809
	SEWER FUND Revenue Totals:	999,075	999,075	950,740
	SEWER FUND Expenditure Totals:	1,134,510	999,075	950,740
	SEWER FUND Totals:	(135,435)	0	0

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget

SEWER FUND

SEWER RECEIVABLES

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
33-347.00-00	SEWER REVENUES	981,075	981,075	912,740
33-347.00-01	SEWER TAPS	0	0	10,000
	SEWER RECEIVABLES Totals:	981,075	981,075	922,740

INTEREST INCOME

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
33-371.00-00	INTEREST	8,000	8,000	18,000
	INTEREST INCOME Totals:	8,000	8,000	18,000

MISCELLANEOUS REVENUES

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
33-385.00-00	MISCELLANEOUS RECEIPTS	10,000	10,000	10,000
	MISCELLANEOUS REVENUES Totals:	10,000	10,000	10,000

SEWER DEPARTMENT

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
33-435.00-11	PERSONNEL SERVICES	262,995	245,208	318,109
33-435.00-19	OVERTIME & SICKLEAVE	1,300	1,300	1,300
33-435.00-21	SOCIAL SECURITY	20,200	18,800	24,336
33-435.00-22	RETIREMENT	27,475	25,500	33,052
33-435.00-23	WORKMANS COMP	11,000	9,000	9,000
33-435.00-25	GROUP INSURANCE	46,781	40,544	52,534
33-435.00-28	UNEMPLOYMENT INSURANCE	1,000	1,000	1,000
33-435.00-31	OFFICE SUPPLIES & POSTAGE	6,000	6,000	6,000
33-435.00-32	OPERATING & SPECIAL DEPT. SUPP	32,730	22,375	24,000
33-435.00-35	GAS, OIL, DIESEL, ETC.	10,250	7,250	8,000
33-435.00-42	PROFESSIONAL SERVICES	100,000	65,000	20,000
33-435.00-44	ADVERTISING & LEGAL PUBLISHING	3,000	3,000	2,000
33-435.00-46	LIABILITY INSURANCE	7,500	7,500	8,250
33-435.00-47	TRAVEL & MEETING EXPENSES	300	300	700
33-435.00-48	DUES SUBSCRIPTIONS & MEMBERSHF	850	850	800
33-435.00-49	PERSONNEL TRAINING	630	630	1,761
33-435.00-51	TELEPHONE & ALARMS	2,940	2,940	2,940
33-435.00-52	UTILITIES	67,600	75,000	80,000
33-435.00-58	REPAIR & MAINTENANCE-OFFICE EQ	670	670	300
33-435.00-61	REPAIR & MAINTENANCE - AUTO	3,700	7,000	7,000
33-435.00-62	REPAIR & MAINTENANCE - OTHER	48,400	37,649	37,649
33-435.00-63	OTHER PURCHASED SERVICES	15,000	15,000	16,000

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget

SEWER FUND

SEWER DEPARTMENT (Cont.)

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
33-435.00-64	DISPATCH	3,000	3,000	3,000
33-435.00-67	WRITE OFFS	800	800	800
33-435.00-69	DRUG TESTING	830	600	400
33-435.00-74	OFFICE EQUIPMENT	1,550	1,350	4,000
33-435.00-75	AUTOMOTIVE EQUIP (DEDICATED)	12,000	12,000	0
33-435.00-76	OTHER EQUIPMENT	74,200	71,000	25,000
33-435.00-79	PROJECTS	254,000	200,000	145,000
33-435.00-80	DEPRECIATION EXPENSE	0	0	0
	SEWER DEPARTMENT Totals:	1,016,701	881,266	832,931

TRANSFERS DEPARTMENT

Acct No	Account Description	2008-09 Pri Year Budget	2009-10 Cur Year Budget	2010-11 Fut Year Budget
33-490.01-48	TRANSFER TO GENERAL FUND	60,000	60,000	60,000
33-490.19-48	TRANSFER TO S & W REVENUE BOND	37,096	37,096	37,096
33-490.30-48	TRANSFER TO WATER FUND	10,713	10,713	10,713
33-490.31-48	TRANSFER TO ELECTRIC FUND	10,000	10,000	10,000
	TRANSFERS DEPARTMENT Totals:	117,809	117,809	117,809
	SEWER FUND Revenue Totals:	999,075	999,075	950,740
	SEWER FUND Expenditure Totals:	1,134,510	999,075	950,740
	SEWER FUND Totals:	(135,435)	0	0

RESOLUTION # 571

At the regular meeting of the Mayor and Council of the City of Weiser April 13, 2009, the Council considered a proposal to adjust the Water Tap Fee by resolution pursuant to Weiser City Code 8-6-1. Because the proposal would result in the rate either remaining the same or being reduced, there was no publication and public hearing concerning the proposed changes.

Motion was made by Councilperson BARBERIS and seconded by Councilperson RANDLEMAN and it was resolved that the City of Weiser adopt the following charges for Water and Sewer Tap Fees:

¾ Inch Water & Sewer Tap	$2,500.00 each
1 Inch Water & Sewer Tap	$2,900.00 each
1 ½ Inch Water & Sewer Tap	$4,000.00 each
2 Inch Water & Sewer Tap	$5,100.00 each
3 Inch Water & Sewer Tap	$6,100.00 each

The resolution was adopted by the City of Weiser with the Council voting as follows:

	Aye	Nay
Councilperson Dan Randleman	X	
Councilperson Cliff Barberis	X	
Councilperson Doug Dick	X	
Councilperson Virgil Leedy		X
Councilperson Layna Hafer	X	
Councilperson Perry Plischke		X

RESOLUTION #575

At the regular meeting of the Mayor and Council of the City of Weiser April 13, 2009, following publication and public hearing concerning the increase in the base monthly rate for water users pursuant to Weiser City Code 8-6-6, the Council proposed increasing the base rate for City water users. The Council finds that the present base rate is insufficient to pay the infrastructure and construction costs necessary to maintain the City water system.

Motion was made by Councilperson RANDLEMAN and seconded by Councilperson DICK and it was resolved that the City of Weiser adopt a base rate to be charged on a monthly basis for sewer service as follows:

¾ Inch Service	$ 19.00
1 Inch Service	$ 34.20
1 ½ Inch Service	$ 76.00
2 Inch Service	$133.00
3 Inch Service	$304.00
Residential Users on Wells	$ 27.00
Senior Citizens	$ 15.00
Senior Citizens Base Rate on Wells	$ 23.00

The resolution was adopted by the City of Weiser with the Council voting as follows:

	Aye	Nay
Councilperson Dan Randleman	X	___
Councilperson Cliff Barberis	X	___
Councilperson Doug Dick	X	___
Councilperson Virgil Leedy	X	___
Councilperson Layna Hafer	X	___
Councilperson Perry Plischke	X	___

RESOLUTION NO. 535

At the regular meeting of the Council of the City of Weiser, Idaho, Jui 2005, the City Council heard public comment at a public hearing foll publication of notice. Public hearing concerned the establishment of a bas for sewer service where the water service had been turned off.

Motion was made by Councilperson Ross seconded by Councilperson Dick that it be res that the City of Weiser adopt a base rate to be charged on a monthly bas sewer service and that the base rate be determined by the water meter size monthly base rate for sewer service is as follows:

$ 14.20	3/4 inch meter
$ 25.56	1 inch meter
$ 56.80	1-1/2 inch meter
$ 99.40	2 Inch meter
$ 227.20	3 inch meter

The City shall not impose fees in excess of $400.00 for any one servi

The Resolution was adopted with the Weiser City Council votir follows:

Councilperson Amy Ross	AYE X / NAY ___
Councilperson Cliff Barberis - Absent	AYE ___ / NAY ___
Councilperson Doug Dick	AYE X / NAY ___
Councilperson Jon Walker	AYE X / NAY ___
Councilperson Layna Haffer	AYE X / NAY ___
Councilperson Perry Plischke	AYE ___ / NAY X

** RESOLUTION NO. 535

RESOLUTION NO. 547

At the regular meeting of the City Council of the City of Weiser, Idaho, May 8, 2006, and following Public Hearing held this same date, after notice by publication, the Council considered adoption of a new sewer tap fee.

Motion was made by Councilperson Leedy and seconded by Councilperson Plischke, and it was resolved that the City of Weiser adopt the following sewer tap fee for new development or new service where there is no existing sewer tap. The sewer tap fee will be based on the water meter size which is installed for each service. The sewer tap fees will be as follows:

3/4 inch tap	$ 2,500.00
1 inch tap	$ 4,500.00
1-1/2 inch tap	$10,000.00
2 Inch tap	$17,500.00
3 inch tap	$40,000.00

This Resolution was adopted with the Weiser City Council voting as follows:

Councilperson Virgil Leedy	AYE ✓ / NAY ____
Councilperson Cliff Barberis	AYE ____ / NAY ✓
Councilperson Doug Dick	AYE ✓ / NAY ____
Councilperson John Walker	AYE ____ / NAY ✓
Councilperson Layna Hafer	AYE ✓ / NAY ____
Councilperson Perry Plischke	AYE ✓ / NAY ____

DATED this 8th day of May 2006.

Steve Patterson, Mayor

ATTEST:

Dean Davies, City Clerk

RESOLUTION No. #528

At the regular meeting of the City Council of the Weiser of City on July 2004, the City adopted Resolution 525, which established the rates for Weiser City Sewer System and it's users. That resolution did not adequa address the rates to be charged users of the City Sewer System who were wells and not using metered City water. To equalize those on City water those not using City water for purposes of sewer treatment, the council discus equalizing cost for both classes of users.

The Motion was made by Councilperson JOHN WALKER and secon by Councilperson LAYNA HAFER and it was resolved that the City of We amend Resolution 525, paragraph # 6 as follows:

6. All water users shall pay $1.40 for one hundred cubic feet of wa through the users water meter. Those users on wells and not using city wa shall have no direct cost other than the base rate. <u>Those sewer syst residential users who are on wells and not on city water shall pay a base rate $22.20 per month except that qualified senior citizens shall pay a base rate $18.20 per month.</u>

ADOPTED this 8th day of November 2004.

Steve Patterson Mayor

Attested:

Dean Davies, City Clerk

* * RESOLUTION * *

RESOLUTION NO. 526

At the regular meeting of the City Council of the City of Weiser, Idaho, on the 12th day of October, 2004, the Council discussed reducing the monthly base rate for sewer service to homes of senior citizens.

Motion was made by Councilperson Walker and seconded by Councilperson Barbaris, and it was resolved that the City of Weiser reduce its sewer system rates for residences owned by individuals qualifying as senior citizens and whose service is a three-quarter inch water service. The rate to be charged for qualifying senior citizens with a three-quarter inch water meter shall be reduced from $14.20 per month to $10.20 per month.

RESOLVED this 12th day of October, 2004.

Steve Patterson, Mayor

ATTEST:

Dean J. Davies, Clerk

CITY OF WEISER

FINANCIAL DATA 3 YEAR HISTORY

FISCAL YEARS:	Actual 2005-06	Actual 2006-07	Actual 2007-08	Actual 2008-09	Actual 2009-10
City Population:	5,341	5,350	5,302	5,290	5,290
City Connections	2,334	2,337	2,319	2,314	2,314
WASTEWATER FUND:					
O,M, & R Account					
Revenues	1,022,295	899,992	841,512	815,041	929,985
Depreciation Acct	323,010	332,378	356,485	0	349,676
Annual O,M&R Expenses	659,620	641,195	687,593	751,790	825,571
Annual Excess/Shortfall	**362,675**	**258,797**	**-202,566**	**63,251**	**-245,262**
New Growth Account					
New Hook-up Income					
Improvements for Growth	0	0	0	0	0
Annual Excess/Shortfall	**0**	**0**	**0**	**0**	**0**
Annual Net Income	362,675	258,797	-202,566	63,251	-245,262
Cumulative Available Sewer Funds	**532,861**	**791,658**	**589,092**	**652,343**	**407,081**
Notes:					

RESOLUTION # 580

At the regular meeting of the Council of the City of Weiser, Idaho, on April 13, 2009, the Council discussed establishing fees and charges for Fry Foods, Inc, and the issuance of an Industrial Wastewater Acceptance Permit.

Motion was made by Councilperson HAFER and seconded by Councilperson BARBERIS and it was resolved that the following fees and charges be adopted and applied within the Industrial Wastewater Acceptance Permit and further authorized the Wastewater Superintendent to sign and issue an Industrial Wastewater Acceptance Permit to Fry Foods, Inc.

The fees to be paid by Fry Foods, Inc. to the City of Weiser are made a part of the Industrial Wastewater Acceptance Permit and shall be as follows:

1. **Indirect costs which include the fees for lab expense and upkeep of the sampling station shall be billed at actual costs.**
2. Direct Costs based upon the following criteria will be billed at the following rate:
   A. Flow charges will be billed at rate of $957 per million gallons per month.
   B. B.O.D. 0-600 lbs will be billed at $.25 per pound daily, based on weekly average.

   B.O.D. 601-700 lbs. will be billed at $2.00 per pound daily, based on weekly average.
   B.O.D. 701-800 lbs. will be charged $4.00 per pound daily, based on weekly average.
   B.O.D. 801 – 1000 lbs will be charged at $8.00 per pound daily, based on weekly average.

   B.O.D. 1001 lbs. and above will be charged $15.00 per pound daily, based on weekly average.

   For each pound over the thirty day average limit, the per pound unit cost will be $75.00. This fee shall be paid in addition to the direct and indirect costs.

   C. TSS 0-600lbs will be billed at $.37 per pound daily, based on weekly average.
   601-700 lbs. will be billed at $1.50 per pound daily, based on weekly average.
   701-800 lbs will be billed at $3.90 per pound daily, based on weekly average.
   801 and above will be billed at 24.90 per pound daily, based on weekly average.
   For each pound over the thirty day average limit, the per pound unit cost

will be $75.00. This fee shall be paid in addition to the direct and indirect costs.

D. Ammonia as N
0-100 lbs per day will be billed at $2.32 per pound daily.
101 and above will be billed at $25.00 per pound daily.

E. Phosphorous removal and limits will be addressed in next permit October 2009. We anticipate severe reductions in current loadings of phosphorous.

3. For other pollutants which are above the limits set by the Wastewater Discharge Permit limits on pages 1A and 1B of the permit, the administrative and civil penalties of Weiser City Code 7-6-8 shall apply.

Adopted the 13 day of April, 2009

Mayor John Walker

Attest:

City Clerk David Tate

7/13/01

CITY OF WEISER WASTEWATER TREATMENT DEPARTMENT

55 W. Idaho Street
Weiser, ID 83672
(208) 414-1242 or 414-1965
Fax 414-1816

INDUSTRIAL WASTEWATER ACCEPTANCE AGREEMENT

Industrial User's Name: Fry Foods, Inc.
Mailing Address: 1 Appleton Lane, Weiser, ID 83672
Facility Location: 1 Appleton Lane, Weiser, ID 83672

The above Industrial User is authorized to discharge industrial wastewater into the City of Weiser sanitary sewer system in compliance with Weiser City Code Title 7-3 and Title 7-6 and any other applicable provisions of Federal, State or local regulations, and in accordance with discharge permit, effluent limits, monitoring requirements and other conditions set forth herein.

This Industrial Wastewater Acceptance (Permit) is filed in the offices of Weiser Wastewater Department Superintendent, and the office of Weiser City Clerk along with the Fry Foods facility plans, specifications and other data submitted to the City of Weiser, in support of the Permit Application.

At the Weiser City Council April 2009, regular City Council meeting the Weiser City Council and Mayor did decide to reissue the Industrial Wastewater User Permit for a period of six months until October 13, 2009.

Effective Date: 13 April 2009
Expiration Date: 13 October 2009

4/14/09 4/14/09

Brad B. Hansen, Date
Superintendent
Weiser, ID WWTP

Nathan Marvin, Date
Superintendent
Weiser, Public Works

John R. Walker, Jr., Date
Mayor
City of Weiser, ID

WASTEWATER DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

INDUSTRIAL WASTEWATER SHALL COMPLY WITH THE EFFLUENT LIMITATIONS

Effective Dates 13 April 2009 to 13 October 2009

PARAMETER/MONTHLY AVERAGE/DAY MAXIMUM/SAMPLING/TEST SCHEDULE

PARAMETER/	MONTH AVE/	WKLY AVE/	TESTING FREQUENCY
Flow MG/D	0.10	0.07	Continuous 24 Hr. (Totalizer)
BOD5 Lbs/Day Biochemical Oxygen Demand	800 Lb./D	800	3/Week 24 Hr. Composite
TSS Lbs/Day Total Suspended Solids	600 Lb./D	600	3/Week 24 Hr. Composite
S.S. ml/L Settleable Solids	20	25	3/Week 24 Hr. Composite

	MO AVE/	DAILY MAX./	TESTING FREQUENCY
Total Phos. (P) Lb/D	Test for Baseline		1/Month 24Hr. Composite
Total Amonia. (N) Lb/D	100	100	1/Month 24Hr. Composite
FOG mg/L Fats, Oil & Grease	200	250	1/Month Instantaneous/Grab
pH Stand. Units (S.U.) Potential Hydrogen	6.0-9.0	6.0-9.0	7/Week Instantaneous/Grab
C12 mg/L Total C12 Residual Total	≤2.0	--	7/Week Instantaneous/Grab
Temp. (Wastewater) Temperature (WW)	≤80*F <80*F		7/Week Instantaneous/ Grab

Actual Cost per Analysis Event:

Month	Per Month	Per Test	Test Frequency/Week
1. FLOW MONITORING:	$20		
2. BOD5:		$20	3/Week
3. TSS:		$8	3/Week
4. SS:		$8	3/Week
5. Total Phos. (P)		$8	1/Month
6. Total Ammonia: (N)		$8	1/Month
7. FOG:		$36	1/Month
8. pH:		$5	7/Week
9. Chlorine Residual Total:		$5	7/Week
10. Temperature (WW):		$5	7/Week

Tests for the above shall be in accordance with 40 CFR Part 136 "Guidelines"

Establishing test procedures for the analysis of pollutants under the "Clean Water Act" and amendments, or with any other test procedures approved by the US EPA. with the exception of fats, oil and grease shall be performed by the Weiser WWTP laboratory personnel for the purpose of billing and compliance. Charges, penalties, and surcharges will be in accordance with the resolution of the Weiser City Council, **RESOLUTION No. 580,** dated 13 April 2009. Sampling point shall be at the end of the Industrial Pretreatment process just prior to being discharged into the City's public sewer collection pipeline. Samples are to be according to Wastewater Discharge Limitations and Monitoring Requirements 24-hour composite or instantaneous grab or continuous recording.

DEFINITIONS:

1. The "Monthly Average" other than pH is the arithmetic means of samples collected during a calendar month.
2. The "Daily Maximum" is defined as the greatest allowable value for any calendar day.
3. A "24 Hour Composite" sample shall mean a flow proportioned mixture of not less than 8 discrete aliquots. Each aliquot shall be a "grab" sample of not less that 100 ml and shall be collected and preserved in accordance with 40 CFR part 136 and amendments.
4. A "grab" sample is an individual sample collected in less than 15 minutes, without regard to flow or time.
5. A "Grab-Composite" is a minimum of two grab samples collected and preserved over a 24-hour period and combined to provide a representative sample of effluent being discharged.

REPORTING REQUIREMENTS

1. **Accidental or Slug Discharges**

The permittee shall notify the City immediately by calling the treatment plant at 414-1242 upon any accidental or slug discharge to the sanitary sewer as outlined in the Accidental Discharges section of the City Code Title 7, Chapter 3,6. Formal written notification discussing circumstances and remedies shall be submitted to the City within 5 days of the occurrence.

2. **Changes in Wastewater Characteristics**

The permittee shall notify the City, in person or by phone 90 days prior to the introduction of new wastewater pollutant, changes in manufacturing operations or any substantial change in the volume or characteristics of the wastewater being introduced into the POTW from the permittee's industrial processes. Formal written notification shall be made at least ten days prior to such introduction and the permittee shall obtain approval from the City to do so.

3. **Upset**

A. Definition

For the purposes of this section, "Upset," means an exceptional incident in which there in unintentional and temporary noncompliance with applicable pretreatment standards because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, and lack of preventive maintenance or careless or improper operation.

B. Reporting an Upset

Any upset experienced by the permittee of its treatment that place it in a temporary state of Non-compliance with the wastewater discharge limitations contained in this permit or other limitations specified in the City Code shall be reported to the City within 24 hours of first awareness of the commencement of the upset. A detailed report shall be filed within 5 days.

C. Effect of an Upset

An upset shall constitute an affirmative defense to an action brought for non-compliance with applicable pretreatment standards if the requirements of paragraph 3 are met.

D. Conditions necessary for a Demonstration or Upset:

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs or other relevant evidence that;

a. An upset occurred and the permittee can identify the specific cause(s) or upset.
b. The facility was at the time being operated in a prudent and workman-like manner And in compliance with applicable operation and maintenance procedures;
c. The permittee has submitted the following information to the City within 24 hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within five days).
    (1) A description of the indirect discharge and cause of non-compliance.
    (2) The period of non-compliance including exact dates and times or if not corrected the anticipated time the non-compliance is expected to continue.
    (3) Steps being taken and/or planned to reduce, eliminate and prevent recurrence of the non-compliance.

E. Burden of Proof

In any enforcement proceedings the permittee seeking to establish the occurrence of an upset shall have the burden of proof.

F. Permittee Responsibility in case of Upset

The permittee shall control production or all discharges to the extent necessary to maintain compliance with applicable pretreatment standards upon reduction, loss or failure of its treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

4. **Notification of Violation**

The City shall notify Fry Foods, Inc. of violations of discharge limits.

City of Weiser
Mr. Brad B. Hansen, Superintendent
Weiser Wastewater Department
55 W. Idaho Street
Weiser, ID 83672
Office, (208) 414-1242
Fax # (208) 414-1816
Cell. #'s (208) 550-1277, 550-0526

Fry Foods, Inc.
Mr. Hector Herrera
Plant Manager
1 Appleton Lane
P.O. Box 111
Weiser, ID 83672
Office, (208) 414-1180
Fax # (208) 414-1182
Cell # (208) 573-7512

SPECIAL CONDITIONS / COMPLIANCE SCHEDULES

1. **Accidental Spill Prevention Plan**
The permittee must develop an **ASPP** (Accidental Spill Prevention Plan) for hazardous substances. The plan must be submitted to the City within 90 days after the effective date of this permit for review and/or approval. Once approved the permittee must implement the plan immediately.
The **ASPP,** developed by the permittee, shall address the following categories of management practices:

A. Prevention:
The plan must include prevention practices (i.e., monitoring systems, non-destructive Testing, labeling, covering or enclosing materials, equipment or process operations, and other techniques used to prevent material spills.

B. Containment:
Containment practices used to contain or capture releases of materials within the Industrial premises.

C. Mitigation:
Mitigation practices for the cleanup and treatment of spilled materials.

D. Ultimate Disposition:
Practices for the proper disposal of spilled materials.

E. Education and Training:
Education and training of staff on proper procedures.

2. **pH Monitoring and Reporting**
Fry Foods is encouraged to perform continual pH monitoring for comparison purposes with the City monitoring system. Copies of the pH recording will be submitted to the City by the fifteenth of the following month. The pH meter shall be systemically maintained including calibration as recommended by the manufacturer or at least annually. All maintenance and calibrations shall be recorded in a maintenance log.

STANDARD CONDITIONS

1. **Compliance**
The permittee shall comply with all the general prohibitive discharge standards in Title 7-6 of the Weiser City Code and is responsible to take whatever steps are necessary to ensure discharge requirements of this permit are met.

2. **Right of Entry**
The permittee shall allow the City or its representatives exhibiting proper credentials and identification to enter upon the premises of the permittee for the purposes of inspection, sampling, or records inspection. Right of entry shall allow the City or its representatives to enter the permittee's premises any time the permittee is operating any process, which results in process wastewater being discharged to the City's sewerage system.

3. **Records Retention**

A. The permittee shall retain and preserve for no less than three (3) years any records, books, documents, memoranda, reports, correspondence, and any and all summaries thereof relating to monitoring, sampling, and chemical analyses which they have preformed (performed) for comparison purposes.

B. All records that pertain to matters that are subject of special orders or any other enforcement or litigation activities brought by the City shall be retained and preserved by the permittee until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

C. All records required by the permit shall be available for review at reasonable times by authorized representatives of the City.

4. **Representative Sampling**
Samples and measurements which may have been taken by permittee shall be representative of the volume and nature of the monitored discharge and shall be collected and preserved in accordance with 40 **CFR** Part 136 and amendments. Alternative procedures must have City approval prior to use.

5. **Analytical Methods**
All analyses to determine compliance with permit limits shall be performed in accordance with 40 **CFR** Part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act" and amendments, or with any other test procedures approved by **EPA**.
Analytical techniques for pollutants not contained in Part 136 must be performed using validated analytical methods approved by **EPA** [40 **CPR** 403.12(b)(5)(vi)]. The City shall perform the analysis of samples collected pursuant to the requirements of this permit.

6. **Confidential Information**
Except for data determined to be confidential under Section 7 of the City Code, all reports required by this permit shall be available for public inspection at the office of the Pretreatment Coordinator at the Wastewater Treatment Plant.

7. **Proper Operation and Maintenance**
The permittee shall keep and maintain an operation and maintenance log on all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes but is not limited to effective performance, adequate funding, adequate operator staffing and training, and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. Water conservation practices shall be used to reduce total effluent volume. Waste preventative practices shall be used to reduce contaminate loading to the municipal sewer system. These will include but will not be limited to minimizing excessive drag-out of cleaning, stripping, etching and plating solutions used during manufacturing operations. In addition the following practices shall be used:

A. Chemical shall be stored in a manner, which will prevent the entry of these solutions into the sanitary sewer, storm sewer system or waters of the state. All liquid chemicals will be stored in a no-outlet area approved by the City. Process tanks shall be located in an area capable of containing 105 percent of the volume of the largest tank. This area shall have no outlet to the City sewer systems or waters of the state.

1. Waste chemicals, chemical sludge's, paint sludge's or other hazardous waste shall be stored in approved containers inside a covered bermed area. The storage area shall be located at least 30 feet from the nearest sewer drain or or outlet in order to prevent spills to the sanitary system, storm sewer system or waters of the state. The waste chemicals, chemical sludge's paint sludge's or other hazardous waste shall be disposed of according to the regulations of **EPA.** The permittee shall install shut-off devices to all drains in any hazardous waste storage areas.

2. Chemicals shall be stored and dispensed only in roofed and bermed areas that eliminate potential spills to the sanitary sewer system, storm sewer system or waters of the state. Non-compatible chemicals must be segregated.

B. Incoming rinse water shall be turned off and shut-off devices shall be closed at all times that the plant is not operating (i.e. nights, weekends and holidays), to prevent an accidental spill.

C. If appropriate the permittee shall obtain a hazardous waste generator number from **EPA** or the state of proper disposal of hazardous wastes.

D. A sampling site acceptable to the City shall be maintained downstream of the final pretreatment system for monitoring the industrial discharge.

E. The permittee shall use spill prevention practices to preclude the discharge of any substance that violates the general discharge prohibitions in the City code or conditions of this permit.

F. In the event of a concentrated solutions spill such as a tank failure the permittee shall not discharge any spilled solution into the municipal sewer system unless laboratory test results indicated that the substance meets the conditions of this permit. The permittee shall receive approval from the City prior to any discharge of spilled solution.

G. The permittee shall maintain and inspect all process solution tanks on a regular basis. Any leaks shall be repaired promptly.

H. The permittee shall forward the following information regarding any concentrated Process tank solutions to the City prior to discharge to sewer system:

1. Volume of tank.
2. Method used to treat the discharge to meet the effluent limits of this permit.

I. Any concentrated solution tank discharge, which has not been approved by the City or whose contents do not meet effluent limits of this permit, shall be treated as a discharge violation of the permit and subject to penalty.

J. No paint booth wastes or solvents shall be discharged to the sanitary sewer unless they meet the provisions of this permit and are approved by the City.

8. **Dilution**

The permittee shall not increase the use of potable or process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this permit.

9. **Proper Disposal of Pretreatment Sludges and Spent Chemicals**
The disposal of sludges and spent chemicals generated shall be done in accordance with Section 405 of the Clean Water Act and subtitles C and D of the Resource conservation and Recovery Act and any State hazardous waste requirements.

10. **Signatory Requirements**
All applicants, reports, or information submitted to the City shall be signed and certified.
    A. All permit applications shall be signed by either a principal executive officer or ranking official.
    B. All reports required by this permit and other information requested by the City shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
        1. The authorization is made in writing by a person described above and submitted to the City, and
        2. The authorization specifies either individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
        3. Changes to authorization. If an authorization is no longer accurate because of a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements must be submitted to the City prior to or together with any reports, information or applications to be signed by an authorized representative.
        4. Certification. Any person signing a document under this section shall make the following certification;
        "I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. **Limitation of Permit Transfer**

Wastewater discharge permits are issued to a specific permittee for specific operation and are not assignable to another permittee or transferable to any other location without the prior written approval of the City. Sale of an industry to any other location without the prior written approval of the City. Sale of an industry shall obligate the purchaser to seek prior written approval of the City for continued discharge to the sewerage system.

12. **Falsifying Information or Tampering with Monitoring Equipment**
Knowingly making any false statement on any report or other document required by this permit or knowingly rendering any monitoring device or method inaccurate, may result in punishment under the criminal laws of the City, as well as being subject to civil penalties and relief.

13. **Modification or Revision of the Permit**
    A. The terms and conditions of this permit may be subject to modification by the City as limitations or requirements as identified in the City Code, as modified to reflect changes in local, State or Federal regulations needed to protect the sewer lines, treatment plant, bio-solids disposal options and receiving waters.
    B. The terms and conditions may be modified as a result of **EPA** promulgating a new federal pretreatment standard.
    C. Any permit modifications which result in new conditions in the permit shall include a reasonable time schedule for compliance.
    D. The permittee may file a request for permit modification or revision, provided such request does not create a violation of any existing applicable requirement, standards, laws or rules and regulations.

14. **Duty to Reapply**
The City shall notify the permittee one hundred and eighty (180) days prior to the expiration of the permitte's permit. Within ninety (90) days of the notification, the permittee shall reapply for re-issuance of the permit on a form provided by the City (Disclosure Form).

15. **Severability**
The provisions of this permit are severable, and if any position, paragraph, work or section of this permit is invalidated by any court of competent jurisdiction, the remaining provisions, paragraphs, words and sections shall not be affected and continue in full force and effect.

16. **Property Rights**
The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any invasion of personal rights, nor nay infringement of Federal, State or local regulations.

17. **Emergency Suspension of Service and Revocation of Permit**
The permit issued to the permittee by the City may be revoked when, after inspection, monitoring or analysis it is determined that the discharge of wastewater to the sanitary sewer is in violation of Federal, State, or local laws, ordinances, or regulations. Additionally, falsification or intentional misrepresentation of data or statements pertaining to the permit application or any other required reporting form, shall be cause for permit revocation.
The City may, without advance notice, after informal notice to the permittee (in writing, in person or by telephone), order the suspension of the wastewater treatment service and

revoke the Industrial Wastewater Acceptance Permit to a permittee when it appears to the City that an actual or threatened discharge:

A. Presents or threatens an imminent or substantial danger to the health or welfare of persons or substantial danger to the environment, or
B. Threatens to interfere with the operation of the **POTW**, or to violate any pretreatment limits imposed by the City Code.

The permittee notified of the City's suspension order shall immediately cease all discharges. In the event of failure of the permittee to comply with suspension order, the City may immediately take all necessary steps to halt or prevent any further discharge by such permittee into a **POTW.** The City shall have the authority to physically cap, block or seal the permittee's sewer line (whether on public or private property) in order to terminate service; the City shall have the right to enter upon the permittee's property to accomplish the capping, blocking or sealing of the permittee's sewer line; the City may also commence judicial proceedings immediately thereafter to compel the permittee's specific compliance with such order and / or to recover civil penalties; the City shall reinstate the Industrial Wastewater Acceptance Permit and / or wastewater treatment service upon clear and convincing proof by the permittee of the elimination of the non-complying discharge or conditions creating the threat as set forth above.

18. **Bypass of Treatment Facilities**

A. *Definitions:*

1. "Bypass" means the intentional diversion of waste streams from any portion of a permittee's treatment facility.
2. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources, which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

B. *"Bypass not violating applicable pretreatment standards of requirements."* The permittee may allow any bypass to occur which does not cause applicable pretreatment standards or requirements to be violated, but only if it is also for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of paragraphs C and D of this section.

C. *Notice;*

1. If the permittee knows in advance of the need for a bypass, it shall submit, prior to notice, to the City, if possible, at least ten days before the date of the bypass.
2. The permittee shall submit oral notice of unanticipated bypass that exceeds applicable pretreatment standards to the City within 24 hours from the time the permittee becomes aware of the bypass. A written submission shall also be provided that within five days of the time the permittee becomes aware of the bypass. The written submission shall contain a description of the bypass and its cause; the duration of the bypass, including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the bypass. The City may waive the written report on case-by-case basis if the oral report has been received within 24 hours.

D. Prohibition of Bypass;

1. Bypass is prohibited, and the City may take enforcement action against the permittee for a bypass, unless;
   - (a) Bypass was unavoidable to prevent loss of life, personal injury or severe property damage.
   - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal equipment downtime or preventative maintenance, and
   - (c) The permittee submitted notices as required under paragraph C of this section.
2. The City may approve an anticipated bypass, after considering its adverse effect, if the City determines that it will meet the three conditions listed in paragraph D.1 of this section.

19. **Enforcement Provision**

The City may seek any or all of the remedies or penalties provided in the City Code 8-9-7, including recovery costs incurred by the City, in response to the following:

A. Any violation by the permittee of the provision of the Industrial Wastewater Acceptance Permit;
B. Any violation by the permittee of the provisions of the City Code; and
C. Any violation by the permittee of any order of the City with respect to provisions set forth in the Industrial Wastewater Acceptance Permit of the City Code.

The range or severity or remedial actions taken by the City against the permittee, will be determined by, but not limited to, the nature, duration, frequency, etc., of the violation.

Appendix G

DEQ Correspondence

1410 North Hilton • Boise, ID 83706-1255• (208) 373-0502

GENERAL PLAN AND SPECIFICATION REVIEW CHECKLIST

Revision: July 2006

A. ADMINISTRATIVE COMMENTS

All applicable checklists shall be completed and submitted with the application unless a particular Regional Office follows a different routine for particular types of projects. Contact the Engineering Manager for the DEQ Regional Office in your area for direction on this issue of required use.

Particular Regional Offices may also have additional information available for use by developers and consultants. Some of this information is in the form of "Design File Notes" (DFN's) or other guidance, which include explanations for filling out some of the checklists, guidance on particular issues, etc. These Design File Notes can be obtained from your local Regional Office Engineering Manager if they are applicable to your Region.

B. GENERAL PROJECT INFORMATION

1. Project Name: City of Weiser, Idaho - WWTP Facility Planning Study
2. Location: 55 West Idaho Street

   City: Weiser County: Washington
3. Project Description: WWTP Facility Planning Study
4. Project includes modifications to, or plans for a new:

   Public drinking water system ---------- ☐

   Public sewer system ---------- ☒

   Storm water disposal system ---------- ☐

   Pressure Irrigation system ---------- ☐
5. Design Engineer: Justin Walker, Glen Holdren ☒ - PE

   Firm: Keller Associates, Inc.

   Address: 131 SW 5th Ave. City: Meridian State: ID ZIP: 83642

E-mail Address: jwalker@kellerassociates.com, gholdren@kellerassociates.com

Phone: 208-288-1992

FAX: 208-288-1999

6. Project Owner or Developer: (Please provide exact name of owner or authorized representative)

   Name: Nate Marvin, Public Works Director

   Firm: City of Weiser

   Address: 55 W. Idaho St. City: Weiser State: ID ZIP: 83672

   E-mail Address: nathan@ruralnetwork.net Phone: 414-1965

7. Name of entity that will operate and maintain completed systems (Please provide exact name of owner or authorized representative)

   Name: Nate Marvin, Public Works Director

   Firm: City of Weiser

   Address: 55 W. Idaho St. City: Weiser State: ID ZIP: 83672

   E-mail Address: nathan@ruralnetwork.net

8. Drinking water system is "Investor Owned" (Investor owned includes "C" or "S" Corporations, sole proprietorships, partnerships, LLC's, etc.) ☐ Yes ☒ No

   (If yes, your system may also be regulated by the Idaho Public Utility Commission. Please contact the Idaho Public Utility Commission about your regulatory status.)

C. REQUIRED SUBMITTALS AND CERTIFICATIONS

Projects will not be accepted unless all necessary submittals have been attached, or an explanation for their omission has been provided.

1. Submittals:

   a. All pertinent DEQ checklists included?-- ☒

   b. City Council or County approval attached?--- ☐

   c. If a project will be platted, the submittal must include either the preliminary plat or, if available, the preliminary version of the final plat. ☐

   d. If the project will be part of an existing water or sewer system, certifications that the existing systems will not be overloaded are provided: (check all that apply)

      ☐ - Calculations from a registered professional engineer

      ☐ - A letter(s) of certification from the owner(s)

e. Engineering inspection and as-built certification contract is attached. (This contract must cover pressurized irrigation systems, if part of the project.) ---------------- ☐

Inspector's name and firm if different from design engineering firm: ____________________

f. "Will Serve" letters from applicable drinking water and wastewater utility---------------- ☐

2. Certifications:

a. The attached plans represent the final, approved set from the utility: --------------------------- ☒

b. The Dig-line number has been provided to owners and contractors: --------------------------- ☐

c. If the project will generate dewatering or other construction wastewater that discharges to State waters, then a Short Term Activity Exemption, or equivalent, has been obtained: -- ☐

IDEQ representative issuing exemption: ____________________

d. If the project contains both water and sewer mains, but those services are provided by different utilities, contact DEQ: -- ☐

☐ - Show the water and sewer on the same plans

☐ - If not, prior approval must be received from DEQ

e. Construction without approval from DEQ, or without engineering supervision, is a violation of Idaho Code 39-118 (and/or associated state rules). We can assist you as needed to resolve these situations and request that you contact DEQ immediately if you learn of these violations: -- ☐

f. All other easements, permits, and rights-of-way have been obtained: -------------------------- ☐

D. *PLANS & SPECIFICATIONS*

1. Plans must have:

a. Cover sheet with Table of Contents for plan set: -- ☒

b. Clear vicinity map or written directions to location of project: ------------------------------ ☐

c. North arrows: -- ☐

d. Bound and numbered pages: -- ☐

e. Index sheet showing overall layout of plan and profile sheets: ------------------------------ ☐

f. Plans (all sheets) and first page of specifications must be:

Signed - ☒ Dated - ☒ Stamped - ☒

2. A table of contents is included for engineering reports and bound specifications: ---------------- ☒

3. Identify the standard specifications used for this project (may be more than one):
   ☐ - *Idaho Standards for Public Works Construction (2003)*: Current date: 2008
   ☐ - Municipality: ____________ Current date: ____________
   ☐ - Utility: ____________ Current date: ____________
   ☐ - Other: ____________ Current date: ____________

4. Non-potable mains are:
   a. 10' from water lines: -- ☐
   b. 50' from public or private wells: -- ☐

E. STORMWATER DISPOSAL

1. Storm water removal and treatment description:
   ____
   ____

2. Storm water ponds, basins, seepage beds, and appurtenant structures are in conformance with the current *Catalog of Storm Water Best Management Practices for Idaho Cities and Counties*: ------ ☐
   a. BMP #s used: ____________
   b. Depth to seasonal high groundwater (SHGW): ______ ft
      How determined? ____________
   c. Separation between SHGW and disposal system:
      ☐ - Greater than 5' where level can't be determined accurately
      ☐ - Greater than 3' where level is predictable

3. Storm water ponds, basins, infiltration systems, and appurtenant structures are on the plans: --------- ☐
4. Subsurface disposal or permanent unlined ponds must be at least 100' from any well: --------- ☐
5. Subsurface disposal or permanent unlined ponds must be at least 25' from any water line: ------- ☐
6. Geotechnical Report attached-- ☐
7. Drainage Report attached-- ☐
8. Other potable wells within 500': ____________

F. PRESSURIZED IRRIGATION

This section is required for projects that include pressurized irrigation.

1. Plans and specifications for pressurized irrigation systems are provided:---------------------------- ☐

2. Additional information is included showing the design and management system:------------------ ☐

3. Who will supply irrigation water for the system? ______________________

4. If the potable water system supplies a pressure irrigation system, specify a reduced pressure back-flow prevention device that is on the *Drinking Water List of Approved Back-flow Prevention Devices:* -- ☐

5. We understand that the record drawings or as-built certification must cover the pressurized irrigation system. -- ☐

Note: **This checklist addresses the majority of common items from the Idaho Rules for Public Drinking Water Systems (IRPDWS), the Recommended Standards for Water Works (RSWW), and common engineering practices. However, this checklist is not all-inclusive and users are expected to fully understand the rules and standards, apply them where necessary, and request interpretations from DEQ if there are any questions. DEQ regional offices may have additional written information that will assist in the design/approval process.**

All of the items indicated on the above checklist are accurately reflected in the attached Plans and Specifications.

Design Engineer's Signature: Justin Walker Date: 5/12/11

P.E. Stamp:

PROFESSIONAL ENGINEER
REGISTERED
5/12/11
12524
Justin Walker
STATE OF IDAHO
JUSTIN WALKER

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

June 21, 2011

Justin Walker, P.E.
Keller Associates, Inc.
131 SW 5th Avenue, Suite A
Meridian, ID 83642

RE: Weiser - Wastewater Treatment Plant (Weiser, Washington County)
Review Comments, Facility Plan

Dear Mr. Walker:

The above referenced project cannot be approved or constructed until the following comments have been addressed. These comments are based on the Idaho Rules for Public Drinking Water Systems (IDAPA 58.01.08), common engineering standards of care, and other project-specific comments for your consideration.

1. Chapter 1, Page 1-1 and Page 1-2, Table 1.1 and Table 1-2 please provide units for clarification.

2. Throughout the document, please check with current terminology for land application of wastewater, i.e. "Wastewater Reuse Permit." Make changes to the text as necessary.

3. Chapter 3 Page 3-3 Table 3.1, please revise "Sediment (turbidity)" to read "Sediment". Idaho water quality standards for turbidity are not the targets used in the total maximum daily load (TMDL) for sediment. Sediment concentrations are used in the TMDL as an indicator of transport for pesticides, nutrients, and mercury.

4. Chapter 3 Page 3-3 Table 3, temperature, in addition to the 17.8 degrees Celsius (°C), there is an additional target: Site-specific data showing water temperatures with greater than a 0.14°C increase from anthropogenic sources when the site potential is greater than 17.8°C. The term "7-day average of the maximum temperature" needs to be added to the 17.8°C target.

   This means that when there is a potential for the 7-day average of the maximum temperature of receiving water at the Snake River/Weiser River confluence to exceed 17.8°C, there must be no more than a 0.14°C increase from anthropogenic sources (this may be cumulative, to include NPS and PS combined). An allocation of no measureable temperature increase from point sources is also included in the TMDL.

   An increase of no more than 0.14°C from anthropogenic sources also applies when aquatic species listed under the ESA are present AND if a temperature increase would impair the biological integrity of the Threatened and Endangered population.

5. Chapter 3 Page 3-6, first paragraph, unless the city's water treatment plant (WTP) is removing the total phosphorous (TP) from the Snake River in a flow-through system, this discussion is not applicable to the TMDL, please revise. The TMDL target and waste load allocations are specific to TP added to the Snake River for the purpose of allocating loads to achieve specific May through September TP concentrations in Brownlee Reservoir that will support beneficial uses. Additionally, using all the data to calculate an average value for the Snake River and using it to compare the May-September TMDL target is not an appropriate comparison. Please use an appropriate method for TMDL comparison for the May-September period, which does not result in an average TP concentration of 0.26 mg/L. The TMDL is not intended to predict a target value in Brownlee Reservoir using flow and associated TP concentrations removed from the system through consumptive practices. As the TMDL is implemented, there is an expectation that drinking water systems will need to remove less TP over time as concentrations in the Snake River are restored to conditions that support beneficial uses, including drinking water supply, and this will reduce future costs for those systems.

   Temperature: The city should run CORMIX using data (continuous (hourly) flow and temperature) collected from the Snake River upstream of the confluence of the Weiser River and continuous (at least hourly) effluent temperature data (and maximum design flow) to determine whether or not there is a reasonable potential to exceed the multi-metric temperature allocations stipulated in the TMDL. A simple analysis using a daily instantaneous effluent temperature value is not sufficient to calculate a 95% confidence interval for temperature compliance. Using critical conditions for flow (30Q10 and maximum 7-day maximum average temperature) and peak effluent temperature at maximum design flow will provide a better understanding of possible temperature issues for the city. The city must also consider the 0.14°C limit from anthropogenic sources in a review of temperature impacts. Running CORMIX for critical conditions would identify whether or not the 0.14°C limit is likely to be exceeded.

6. Chapter 3 Page 3-9, second paragraph, the requirements stated in the paragraph are no longer specified in the rules. The rates and loading limits are based primarily on protection of groundwater (IDAPA 58.01.17.613). Please revise accordingly.

7. Chapter 4 Page 4-3, please identify which Census data report (2000 or 2010) indicates an average household size of 2.58 people and if this is specific to Weiser or Washington County.

8. Chapter 4 Page 4-15, second paragraph, excessive inflow and infiltration is defined in 40 CFR Part 35 § 35.2120(c). In summary, a cost-effectiveness analysis should be performed if inflow exceeds 275 gallons per capita per day (gpcd) or infiltration exceeds 120 gpcd. Since it appears that the collection system may have in excess of 120 gpcd infiltration, has this analysis been performed and what are the recommendations?

9. Section 5.7 Pages 5-4 through 5-6, please provide a discussion on emergency power for the alternatives. Will the current emergency power be capable of handling the future lift station?

10. Chapter 6 and Chapter 7, please provide a discussion regarding the plants outflow to the Snake River. Will the current effluent piping to the Snake River be capable of the increase inflow over the 20-year period?

11. Chapter 6 Page 6-17, first and second paragraphs. Three different treatment criteria are presented for Class B sludge and then a statement is made that the City should "maintain this SRT goal" but does not specify which one. Please review and make changes as necessary.

12. Chapter 6 Page 6-22, please provide captions for the photographs. Please add additional captions for other photographs throughout the document.

13. Section 6.8 Page 6-27, first paragraph last two sentences. The referenced sentences indicate components that may need to be replaced and that other components will be identified to be replaced after a more detailed design has been completed. Typically, the facility plan is the document in which this discussion should occur.

14. Section 7.1.5 Page 7-5, under heading "Advantages:". Nutrient removal may be required if reuse occurs in a nitrate priority area.

15. Section 7.1.6 Page 7-7, deep well injection using classes I to IV wells (includes treated effluent) are not allowed in the state of Idaho (IDAPA 37.03.03.025.03.a). Please remove this section from the report.

Please address the above comments and submit a revised facility plan for review and approval. You may call me with any questions at (208) 373-0184 or contact me via e-mail at kevin.ryan@deq.idaho.gov.

Sincerely,

Kevin P. Ryan, P.E.
Staff Engineer

KPR:vee:

PDF: Todd Crutcher, P.E., Boise Regional Office
TRIM Record #2011AGD1914

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July 15, 2011

Kevin P. Ryan, P.E.
Staff Engineer
Department of Environmental Quality
Boise Regional Office
1445 North Orchard
Boise, Idaho 83706

Re: **Weiser - Wastewater Treatment Plant Review Comments, Facility Plan**

Dear Mr. Ryan:

Thank you for your comments on the Weiser Wastewater Treatment Plant (WWTP) Facility Plan. Please find this letter in response to your letter dated June 21, 2011 that included your review comments and questions.

Your letter identified a number of comments. Keller Associates has prepared responses to each of these comments. The comments are addressed in the following format:

DEQ Comment #—Keller Associates Response.

Comment 1—Units have been noted in both tables.

Comment 2—References to land application permits were changed to wastewater reuse permits throughout the report.

Comment 3—Table 3.1 has been corrected.

Comment 4— Table 3.1 has been updated with a footnote that addresses DEQ comment 4.

Comment 5—The first paragraph has been deleted. A second paragraph has been added under temperature that recommends the City monitor in-stream temperature data on the receiving stream to prepare for future permits that may have more stringent temperature limits.

Comment 6—The said paragraph has been revised in accordance with current state rules..

Comment 7—Text was revised to clarify that the year 2000 census data was used which was specific to the City of Weiser.

Comment 8—A second paragraph was added under the I/I section of this page that outlines the City's past efforts in reducing the I/I. Since the future I/I flow allowance is 127 gpcd which is barely over the 120 gpcd and given the City's past efforts reducing the I/I, the cost-effectiveness analysis should not be necessary.

Comment 9—The text has been updated to clarify how standby power provisions are recommended (3rd last sentence in first paragraph, 2nd last sentence in second paragraph). The cost estimates already accounted for these recommendations.

Comment 10—A paragraph evaluating the existing outfall was added on page 6-11.

Comment 11—The recommended option was clarified in said paragraph.

Comment 12—Captions have been added throughout the document on photographs.

Comment 13—Agreed, the statement has been corrected.

Comment 14—The statement was clarified according to your comment.

Comment 15—The said section was deleted.

Please find attached three stamped, revised reports. Please send the third stamped report to our office after your review. Please call myself with any questions at 288-1992.

Thank you,

KELLER ASSOCIATES, INC.

Justin Walker

Justin Walker, P.E.
Project Manager

cc: Nathan Marvin, Rod Millbrook, Jim Edwards-letter only (City of Weiser)
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