CITY OF FILER

WASTEWATER FACILITIES PLAN UPDATE

April 2008

Prepared by

J-U-B ENGINEERS, Inc.
115 Northstar Ave.
Twin Falls, ID 83301

Project No. 60-06-103

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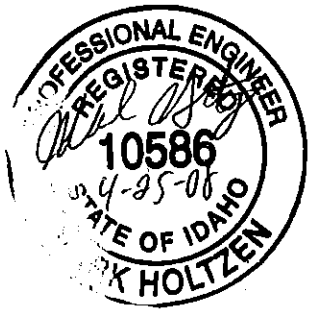

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CITY OF FILER

2008 WASTEWATER FACILITIES PLAN UPDATE

CHAPTER 1: INTRODUCTION

1.0 INTRODUCTION

1.1 PURPOSE AND NEED OF FACILITIES PLAN UPDATE

The City of Filer owns and operates a wastewater collection and treatment system that serves the area within and around the City. Due to concerns regarding the ability of the wastewater facilities to accommodate future population growth and to remain in compliance with regulatory requirements, the City authorized J-U-B ENGINEERS, Inc. (J-U-B) in 2002 to prepare a Wastewater Facilities Plan. The Facilities Plan was completed in October 2003. The 2003 Plan included an evaluation of the existing wastewater collection and treatment system and provided a phased approach for addressing concerns related to the wastewater system.

Since completion of the Facilities Plan in 2003, the following observations have been noted requiring the City to revisit some of the planning assumptions and recommendations:

- A new municipal wastewater reuse permit (LA-000079-02) was issued to the City by the Idaho Department of Environmental Quality (IDEQ) on January 23, 2004. The permit limits and monitoring requirements in the new permit differ from the permit requirements outlined in the 2003 report. Although the January 2004 permit does not have a phosphorus limit, it is anticipated that future permits (2009) may have phosphorus limits based on discussions with IDEQ and a review of similar recent permits. This phosphorus limit will likely be difficult to meet with the current treatment system and land application area. Additionally, it may be difficult for the City to meet the buffer zone distances outlined in the new permit as development continues to occur around the reuse site. Chapter 2 of this update addresses the permitting changes in more detail.

- As discussed in Section 5.2.6 of the 2003 Facilities Plan, the City's current National Pollutant Discharge Elimination System (NPDES) permit specifies technology-based "secondary treatment" standards for biochemical oxygen demand (BOD_5) and total suspended solids. The City's lagoon system cannot consistently and reliably meet these permit limits. In June 2005, the City petitioned the U.S. Environmental Protection Agency (EPA) to modify the NPDES limits for BOD_5 and TSS to less restrictive "equivalent to secondary" standards. EPA has indicated that they will consider the petition when they re-issue the NPDES permit sometime during the summer of 2007.

- In January 2006, J-U-B completed an Arsenic Compliance Study for the City's drinking water system. A review of the water quality data from the City's supply wells indicates that three of the five wells have arsenic concentrations greater than the new arsenic drinking water standard of 10 micrograms/liter (µg/L). As a result, the City currently uses these three wells on a back-up basis (i.e., less than 60 days per year) to comply with the arsenic regulations, as recommended in the study. Using these wells on a back-up basis has reduced the City's available water supply. The 2006 study indicates that the City may be required to treat water from the existing wells or develop additional water supplies that meet the arsenic standard in approximately 15 years to meet the water demand. Reuse of reclaimed wastewater for irrigation of residential lawns and parks may provide a means of reducing the

potable drinking water demand in the future. Reuse of high quality effluent for non-potable purposes may offset or delay the need for the City to implement arsenic treatment facilities or to develop new water supplies.

The City has authorized J-U-B to update the 2003 Facilities Plan to address these observations and to outline improvement alternatives for the collection system and treatment system upgrades that will allow the City to meet the current and future wastewater and regulatory requirements of the community.

1.2 SCOPE OF STUDY

In general, the Wastewater Facilities Plan Update will provide:

- Updated wastewater flow and loading data.
- A discussion and summary of the City's existing National Pollutant Discharge Elimination System (NPDES) Permit and Wastewater Land Application (WLAP) Permit, including any changes to the regulatory framework that have occurred since 2003.
- A forecast of future wastewater flows and waste loads over the 20 year-planning period (to 2027).
- A limited review of the existing facilities.
- Additional treatment alternatives to address pending regulatory requirements.
- Current 2007 opinion of probable costs, including an assessment of the current construction cost climate.
- A preferred improvement alternative that best meets the needs of the City of Filer.
- An evaluation of the impacts on monthly user charge rates.
- An implementation plan for the selected improvements, including phasing.
- Funding alternatives and financing options for the selected improvements.
- Guidance for public participation throughout the facilities planning process.

1.3 REPORT ORGANIZATION

The report is organized into six chapters, including:

- Chapter 1 - Introduction
- Chapter 2 - Existing Facilities
- Chapter 3 - Flows and Loads
- Chapter 4 - Condition of Existing Facilities
- Chapter 5 - Improvement Alternatives
- Chapter 6 - Implementation of Wastewater System Improvements

A further breakdown on the organization of the Facilities Plan Update is provided in the Table of Contents, Appendices, List of Tables and List of Figures.

CITY OF FILER

2008 WASTEWATER FACILITIES PLAN UPDATE

CHAPTER 2: EXISTING CONDITIONS

2.0 EXISTING CONDITIONS

2.1 PLANNING AREA

The City of Filer is located in south central Idaho in the north central section of Twin Falls County (see Figure 2-1). The City falls within Sections 7, 8, 17 and 18 of Township 10 South, Range 16 East, B.M., and is situated approximately 7 miles west of the City of Twin Falls and approximately 10 miles east of the City of Buhl. The City is located along U.S. Highway 30 in a predominantly agricultural region and is readily accessible by Interstate Highway 84.

This Wastewater Facilities Plan Update is based on a specific Planning Area which represents a geographical area and population that the City can reasonably be expected to serve within a 20-year planning period from 2007 to 2027. Figure 2-2 shows the Planning Area and existing corporate limits for the City.

A number of factors were considered in delineating the geographical boundary of the Planning Area, including recent developmental patterns, location and expandability of the existing wastewater system, land use designations, topography of the area and discussions with the City regarding areas of anticipated growth. Sufficient land is included in the Planning Area to accommodate the forecasted residential, commercial and industrial growth and to allow some flexibility for future development of the community.

A description of the Planning Area was provided in the 2003 Facilities Plan. It is expected that the area conditions have not materially changed and are still applicable to this update.

2.2 EXISTING WASTEWATER COLLECTION SYSTEM

Figure 2-3 shows the City's existing wastewater collection system. A majority of the lines are constructed of concrete pipe that varies in age from approximately 30 to 70 years old. Most of the pipe less than 30 years old is constructed of polyvinyl chloride (PVC). Table 2-1 provides a summary of the collection system pipe sizes, types and lengths.

Table 2-1. Collection System Pipe Summary

Pipe Diameter (inches)	Pipe Type		Total Length	
	PVC (LF)	Concrete (LF)	LF	Miles
Gravity Lines				
6	770	10,920	11,690	2.21
8	15,370	23,120	38,490	7.29
10	2,920	0	2,920	0.55
12	1,420	6,860	8,280	1.57
Total	**20,480**	**40,900**	**61,380**	**11.62**
Pressure Lines				
4	3,480	0	3,480	0.66
Total	**3,480**	**0**	**3,480**	**0.66**

FIGURE 2–1
CITY OF FILER
VICINITY MAP

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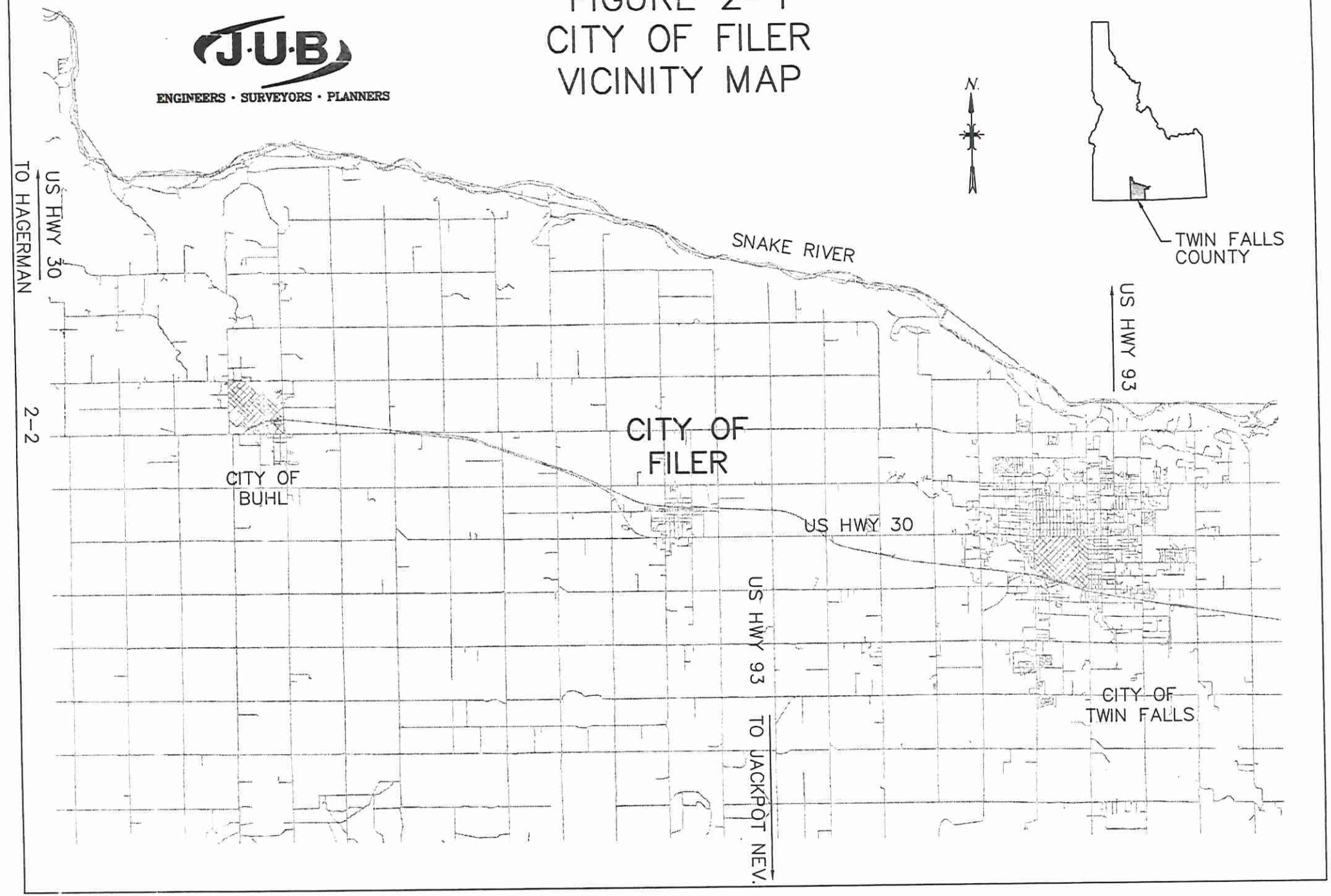

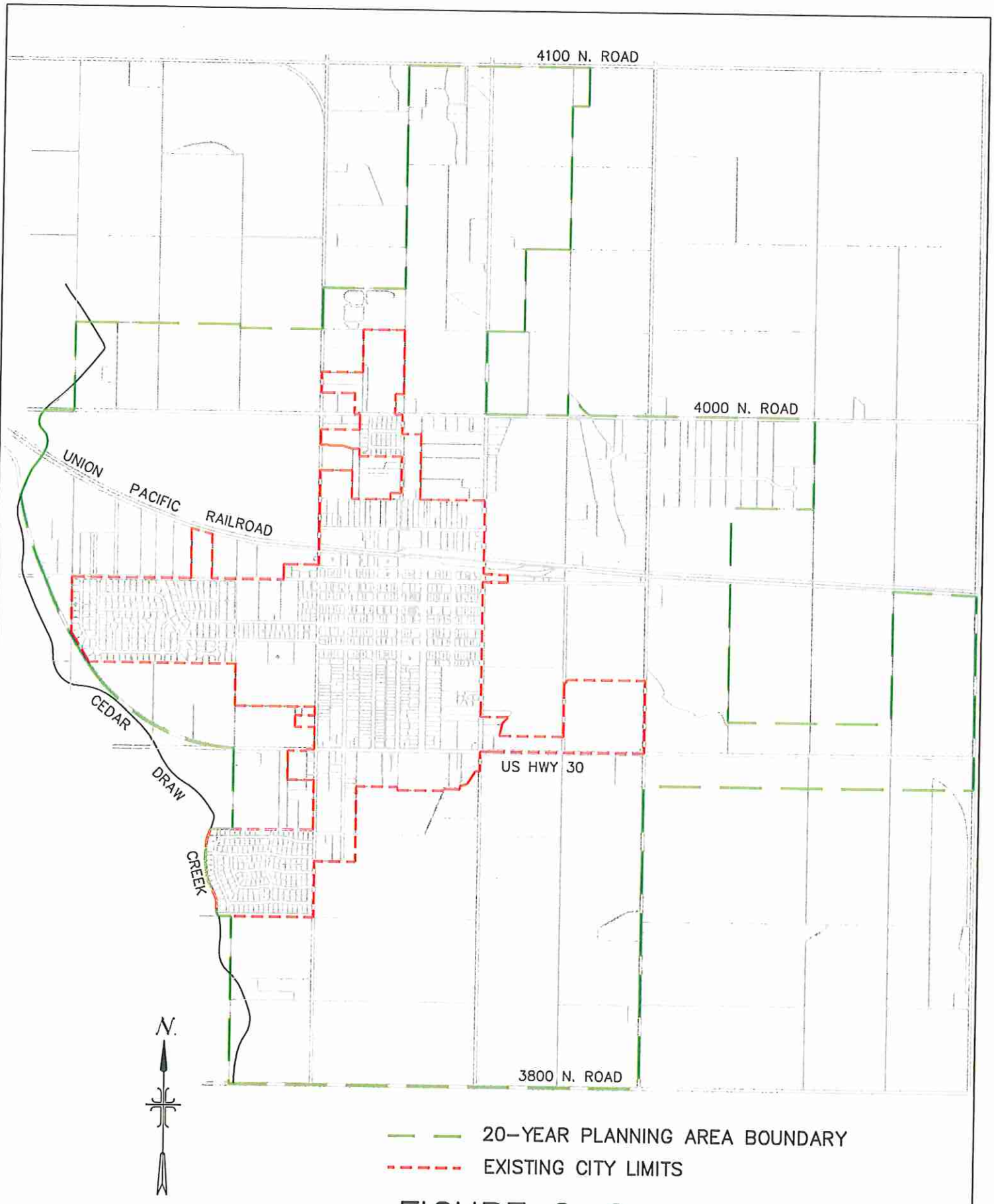

FIGURE 2-2
PLANNING AREA AND CITY LIMITS

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WASTEWATER TREATMENT FACILITIES

N.

1000 500 0 1000

SCALE IN FEET

12" MAIN EXPOSED ABOVE GROUND

LIFT STATION 2

LIFT STATION 1

LIFT STATION 3

12" GRAVITY SEWER MAIN
10" GRAVITY SEWER MAIN
8" GRAVITY SEWER MAIN
6" GRAVITY SEWER MAIN
4" PRESSURE SEWER MAIN
CITY LIMITS

FIGURE 2–3
EXISTING WASTEWATER COLLECTION SYSTEM

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There are three lift stations in the collection system. Pump Stations 1 and 2 were discussed in the 2003 Facility Plan. Pump Station 3 was installed in Cedar Creek Subdivision in 2006. Although the City has not yet accepted responsibility for Pump Station 3, it is anticipated that they will in the future. Information for each lift station is provided in Table 2-2.

Table 2-2. Lift Station Summary

Item	Pump Station 1	Pump Station 2	Pump Station 3
Location	West of High School	Golden Spur Subdivision	Cedar Creek Subdivision
Number of Pumps	2	2	2
Pump Type	Submersible	Submersible	Centrifugal
Pump Horsepower	15	5	10
RPM	1750	1750	1400
Design Flow per Pump	400 - 500 gpm[a]	200 - 250 gpm[a]	140 gpm
Design Head per Pump	72 - 84 ft TDH[a]	32 - 35 ft TDH[a]	60.1 ft TDH
Wet-Well Size	6.5 ft Diameter 10.5 ft Deep	6.67 ft x 6.0 ft x 10 ft	5 ft Diameter 12 ft Deep
Level Sensor	Float Switches	Float Switches	Ultrasonic Sensor and Back-Up Float Switches
Power	3 Phase, 460 Volts, 60 Hz	3 Phase, 60 Hz	3 Phase, 480 Volts
Lead/Lag Pump	Alternating	Alternating	Alternating
Back-Up Power	None	None	30 KW Generator
Alarms	High Water	High Water	High Water, Pump or Power Failure

a. Estimated range based on pump curves at peak efficiencies.

2.3 EXISTING WASTEWATER TREATMENT FACILITIES

The City's existing wastewater treatment facilities are located approximately one-quarter of a mile north of the City within Section 5 of Township 10 South, Range 16 East, B.M. The treatment facility generally consists of:

- Plant headworks (coarse bar screen and 6 inch Parshall flume).
- Two aerated lagoons in series.
- Two facultative lagoons in series.
- Chlorine gas disinfection system.
- Irrigation pump station.
- 40 acre slow-rate land application site.

Figures 2-4 through 2-6 show a process schematic and site plans of the existing wastewater treatment plant (WWTP).

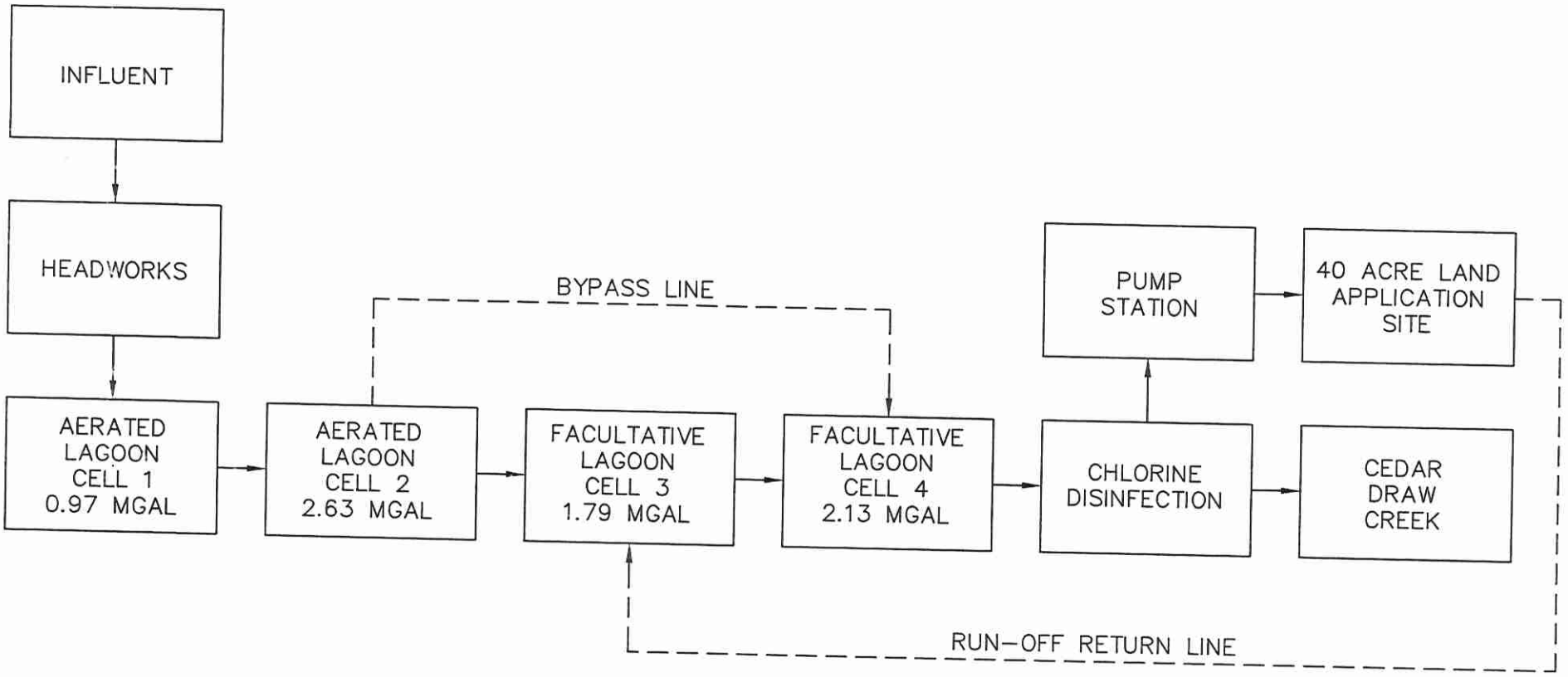

FIGURE 2-4
FLOW DIAGRAM OF EXISTING
WASTEWATER TREATMENT FACILITIES

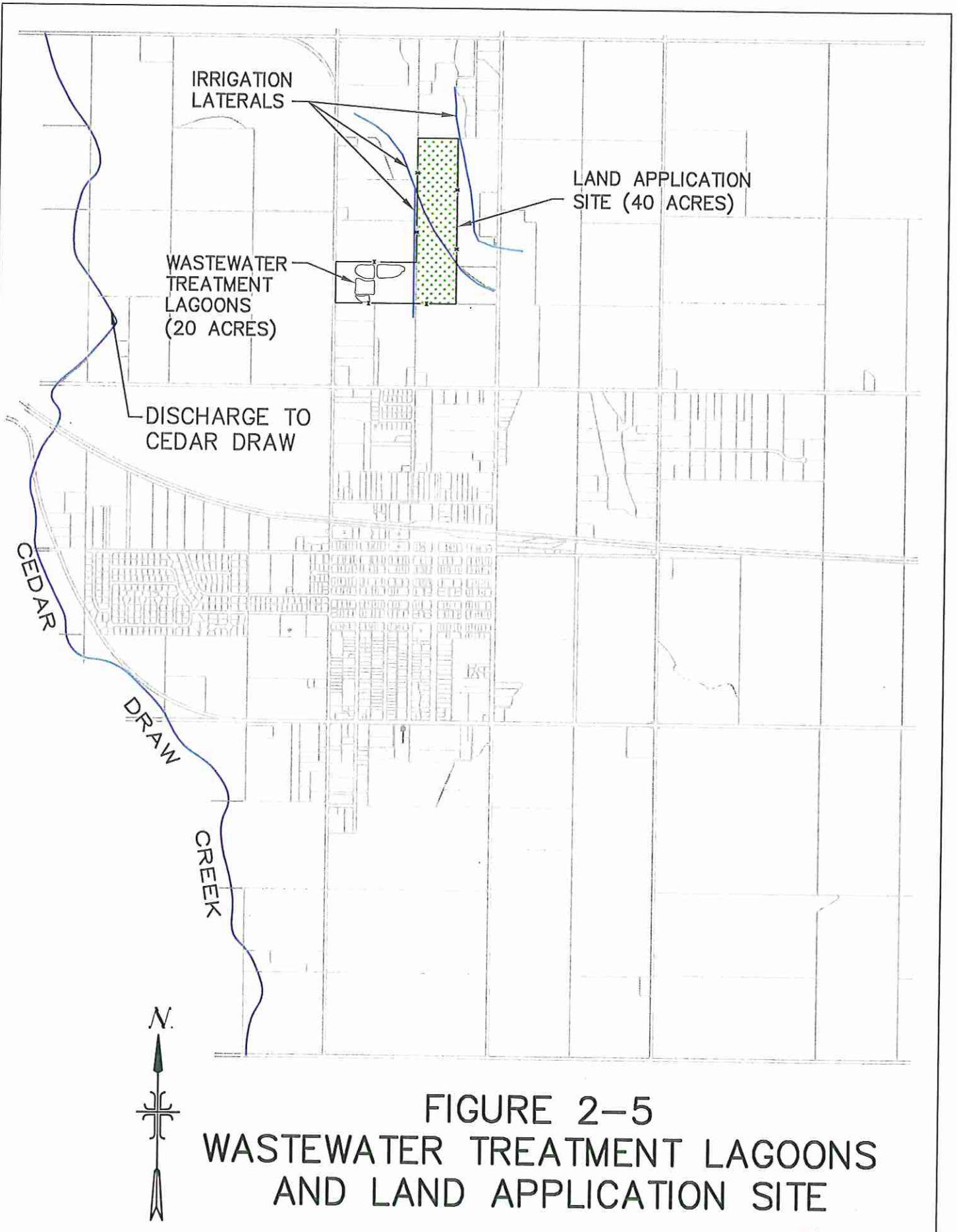

FIGURE 2–5
WASTEWATER TREATMENT LAGOONS AND LAND APPLICATION SITE

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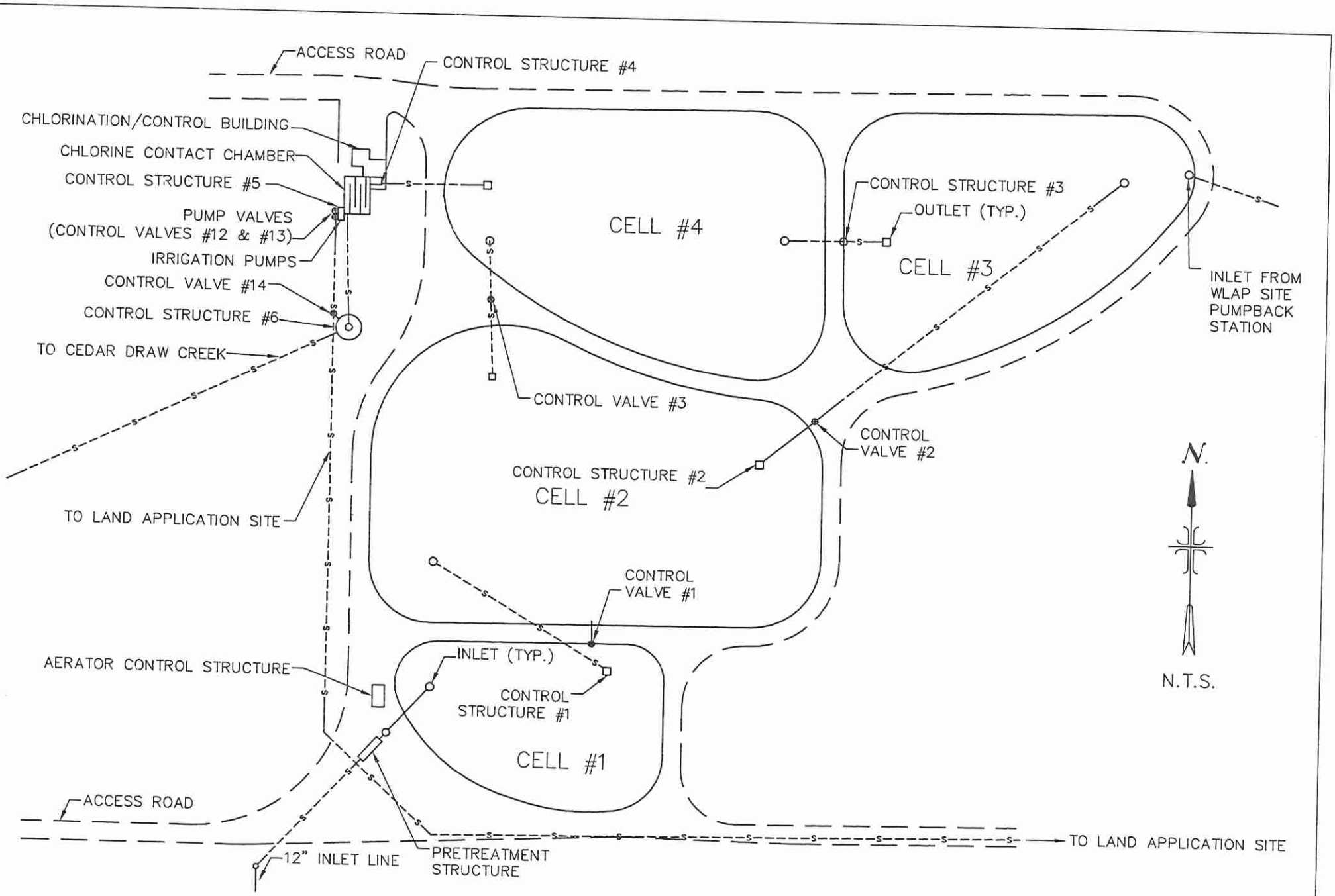

FIGURE 2-6
TREATMENT FACILITIES SITE LAYOUT

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The City's original wastewater treatment facilities were constructed in 1976 and underwent a major upgrade in 1982. The design criteria reported for the 1982 upgrade are summarized in Table 2-3. The 2003 Facility Plan provides a detailed description of the existing WWTP.

Table 2-3. Wastewater Treatment Facilities Design Parameters[a]

Design Parameter	Units	Value
Design Population Equivalent	People	2,677
Flow		
Average Day	MGD	0.28
Maximum Day	MGD	0.33
Minimum Day	MGD	0.26
Peak Hour Flow	MGD	0.85
Loading		
BOD_5	lbs/d	525
TSS	lbs/d	525
Lagoon Volume		
Cell #1	Million Gallons	0.97
Cell #2	Million Gallons	2.63
Cell #3	Million Gallons	1.79
Cell #4	Million Gallons	2.13
Lagoon Hydraulic Retention Time[b]		
Cell #1	Days	3.2
Cell #2	Days	8.3
Cell #3	Days	6.0
Cell #4	Days	7.1
Lagoon Surface Area		
Cell #1	Acres	0.57
Cell #2	Acres	1.57
Cell #3	Acres	1.09
Cell #4	Acres	1.27
Chlorine Contact Basin		
Volume	Gallons	20,800
Average Retention Time[b]	Minutes	107
Minimum Retention Time[c]	Minutes	35
Land Application Site		
Permitted Acreage	Acres	40
Irrigation Method	-	Furrow Irrigation with Reuse

a. Design parameters from 1982 Record Drawings (EHM Engineers, Inc., EPA Project No. C-16 0231-04).
b. At average day flow.
c. At peak hour flow.

2.4 PERMIT UPDATES

2.4.1 Wastewater Land Application Permit

Since completion of the 2003 Facilities Plan, a new wastewater land application permit was issued by IDEQ (LA-000079-02, see Appendix A). The effective date of the permit extends for a five year period from January 23, 2004 to January 23, 2009. The new permit allows the City to discharge to the 40 acre land application site from April 1 through October 31 at a rate that is less than the Irrigation Water Requirement (IWR) for the type of crop grown. The new permit contains many of the same requirements as the old permit, which was described in the 2003 Facility Plan. However, several new requirements were included in the 2004 permit.

A significant addition to the new permit was the inclusion of buffer zones to the land application area. The buffer zones described in the 2004 wastewater land application permit are summarized below in Table 2-4. Chapter 4 discusses the performance of the existing lagoon system relative to disinfection.

Table 2-4. Buffer Zone Distances

Disinfection Level (total coliform)	Distance to Public Access	Distances to Inhabited Dwellings	Distance to Streams	Distance to Private Water Sources	Distance to Public Water Sources	Single Sample Maximum Total Coliform Level
2.2/100 mL	0 feet	50 feet	20 feet	500 feet	1000 feet	23/100 mL
23/100 mL	0 feet	50 feet	20 feet	500 feet	1000 feet	240/100 mL
230/100 mL	50 feet	300 feet	20 feet	500 feet	1000 feet	2,400/100 mL

Additional requirements of the 2004 wastewater land application permit are as follows:

- The new permit requires that the City develop a nuisance odor management plan.
- The City must conduct a seepage test in accordance with the DEQ uniform seepage test procedures. The leakage performance standard is specified as 0.125 inches per day or less.
- In addition to monitoring for all of the constituents listed in the old land application permit, the City must also monitor for total phosphorus, sulfate, iron, and manganese.
- No limits or conditions were placed on the phosphorus loading rate. However, DEQ reserves the right to re-open the permit at a later date for inclusion of phosphorus limits. Based on other recent land application permits issued in southern Idaho, it is likely that limits will be placed on the phosphorus loading rate in the future.
- Additional soil and groundwater quality monitoring.

2.4.2 NPDES Permit

During the non-growing season, the City discharges treated effluent to Cedar Draw Creek under an NPDES permit (ID-002006-1) issued by the EPA (see Appendix B). The NPDES permit allows discharge to Cedar Draw Creek from November 1 through March 31 of each year. The effective date of the permit is November 1, 2007, and extends for a five year period to October 31, 2012. Table 2-5 summarizes the effluent discharge limits and monitoring and reporting requirements specified in the permit.

Table 2-5. NPDES Permit Limitations and Monitoring Requirements

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Daily Maximum	Sample Location	Sample Frequency	Sample Type
Flow	MGD	-	-	-	Effluent	Continuous	Recording
BOD_5	mg/L	30	45	-	Influent and Effluent	1/week	24-hr Composite
	lbs/d	70	105	-			
TSS	mg/L	30	45	-	Influent and Effluent	1/week	24-hr Composite
	lbs/d	12	19	-			
E.Coli Bacteria	CFU/100 mL	126[a]	-	576[b]	Effluent	5/month	Grab
Total Residual Chlorine	mg/L	0.3	-	0.5	Effluent	3/week	Grab
	lbs/d	0.4	-	0.6			
Total Ammonia-N	mg/L	-	-	-	Effluent	1/month	24-hr Composite
Total Phosphorus	lbs/d	17	33	-	Effluent	1/week	24-hr Composite
Temperature	°C	-	-	-	Influent and Effluent	Continuous[c]	Recording

a. Based on a geometric mean of a minimum of five (5) samples collected every 3-7 days over a calendar month.
b. Instantaneous maximum limit.
c. Samples must be recorded in one hour intervals, 24 hours a day.

The NPDES permit also outlines a compliance schedule and interim permit limits for BOD_5 and TSS. The City must achieve compliance with the effluent limits shown in Table 2-5 for BOD_5 and TSS no later than January 1, 2011. In the interim, the following effluent limits apply:

- BOD_5 Average Monthly Limit - 37 mg/L (86 lbs/d)
- BOD_5 Average Weekly Limit - 56 mg/L (131 lbs/d)
- TSS Average Monthly Limit - 45 mg/L (105 lbs/d)
- TSS Average Weekly Limit - 65 mg/L (152 lbs/d)

Additional NPDES permit requirements include:

- pH should be tested three times per week and should range from 6.5 to 9.0.
- No discharge of floating solids or visible foam, other than trace amounts, is allowed.
- Average monthly BOD_5 and TSS removal efficiencies should be 85 percent.
- Surface water monitoring of Cedar Draw Creek is required for flow, total ammonia, total residual chlorine, temperature, and pH.

2.5 EXISTING FLOWS AND WASTE LOADS

2.5.1 General

The 2003 Facilities Plan evaluated flow and wastewater quality data from January 1999 through December 2002. Updated flow and wastewater quality data were obtained from the City for January 2003 through December 2005. The new data was compiled and analyzed to assess the existing flow and waste loads, as well as to project future flows and waste loads.

2.5.2 Existing Flows

Influent flows were estimated based on values reported by the City from their daily observations of the staff gauge for the 6 inch Parshall flume located at the facility headworks. This data represents the flow at the instant that the staff gauge was read. Figure 2-7 shows the influent flow measurements versus time.

Effluent flows have historically been estimated using different methods, depending on where the wastewater was discharged. When discharging to the land application site, effluent flows were calculated based on pump-run times and the discharge rate of the irrigation pumps. When discharging to Cedar Draw Creek, effluent flows were estimated based on reported staff gauge readings for the double v-notch weir at the chlorine contact basin discharge structure.

The City recently discovered that wastewater was leaking directly from Cell #4 to Cedar Draw Creek through an abandoned slide gate and pipe line. This flow has historically not been measured as part of the effluent. As such, the historical methods of calculating the effluent flow most likely do not provide an accurate representation of the actual effluent flow since they do not account for this unmeasured portion of the flow. Previous effluent flow estimates are most likely lower than the actual flow. This City has installed gate valves on the abandoned pipeline to prevent leakage of effluent directly from Cell #4 to Cedar Draw Creek.

For the purposes of this report, effluent flows from the existing lagoon treatment facility were estimated based on a water balance around the lagoons and land application site. The water balance accounted for the hydraulic gains and losses (i.e., precipitation, evaporation and seepage) in the lagoon system.

Figure 2-7. Influent Flow Data

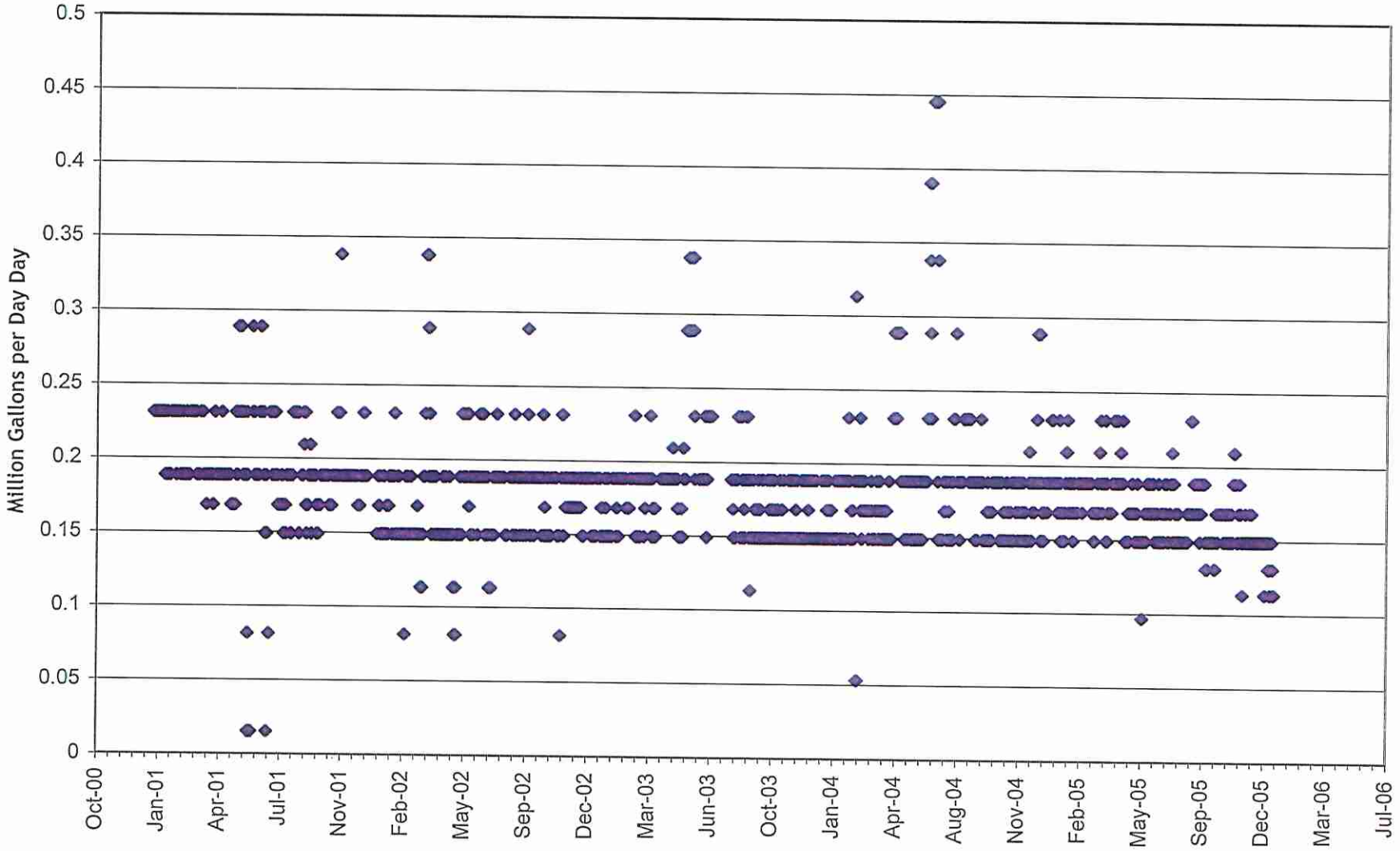


Table 2-6 summarizes the estimated influent and effluent flows.

Table 2-6. Estimated 2007 Influent and Effluent Flows

Parameter	Unit	Influent	Effluent
Average Day Demand	MGD	0.191	0.163
Maximum Month	MGD	0.250	-
Minimum Month	MDG	0.161	-
Peak Hour[a]	MGD	0.545	-
Average Day Per Capita[b]	gpcd	96.9	-
Total Annual Volume	MGal	69.8	59.4

a. Peak hour flow calculated using the peaking factor obtained from the 10 State Standards Equation modified to local conditions $(14+P^{0.5})/(4+P^{0.5})$ where P equals population in thousands (1.973 in 2007).
b. Based on flow rate averages from 2003-2005 and an estimated population of 1,826 in 2005 (see Chapter 3).

2.5.3 Existing Waste Loads

2.5.3.1 Organic (BOD_5) and Solids (TSS) Loadings

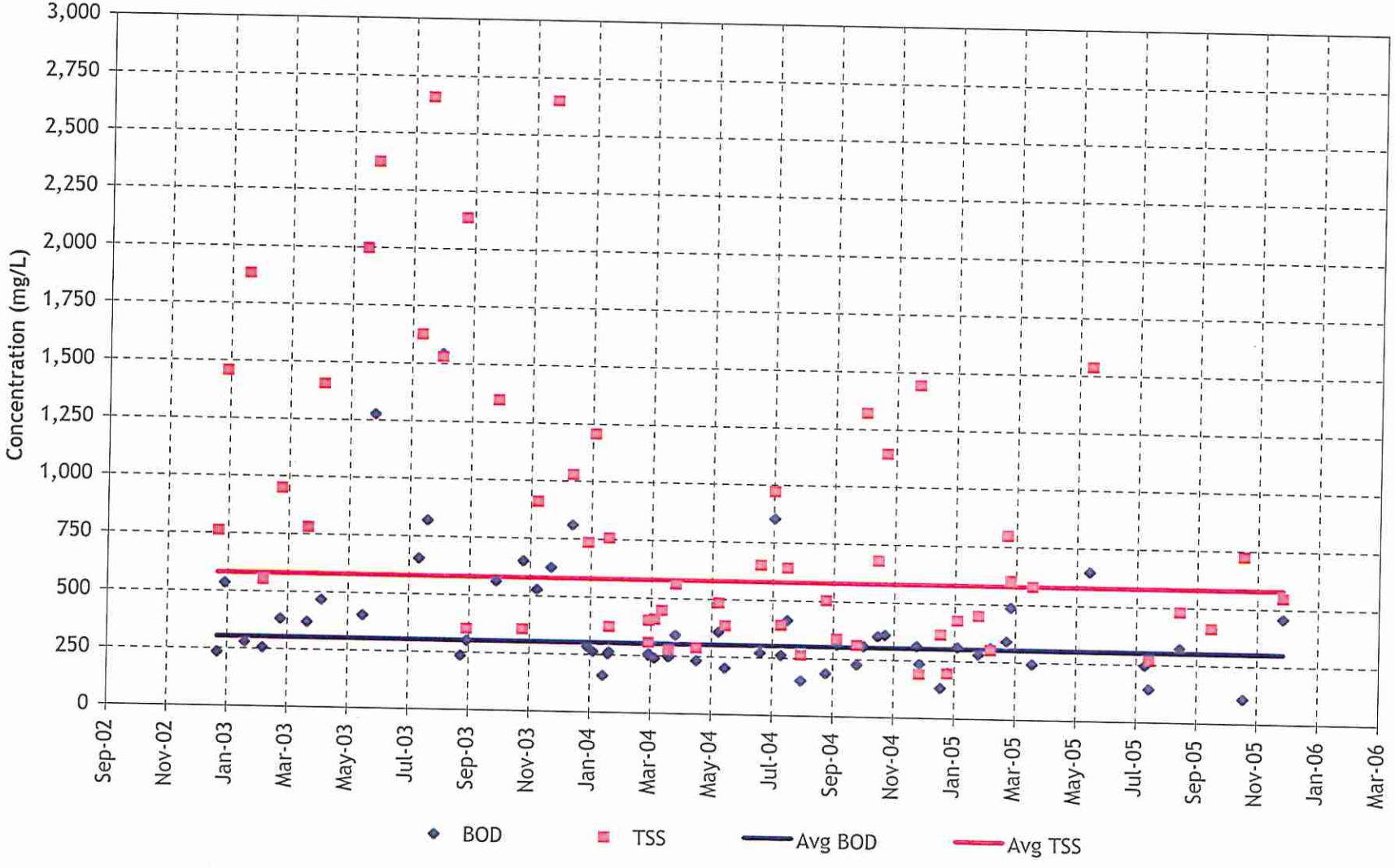
The 2003 Facility Plan influent biochemical oxygen demand (BOD_5)and total suspended solids (TSS) analysis indicated Filer's influent wastewater strength was much higher than expected for a typical municipal wastewater. The 2003 Facility Plan discussed the high strength of the wastewater influent in some detail. High BOD_5 and TSS concentrations are typically observed in influent waste streams to which a high-strength industrial waste (e.g., food processor) or raw septage from septic tanks is discharged. However, the City reports that they currently do not have any high strength industrial dischargers nor do they allow septage to be dumped into the system. Brainstorming sessions with the City have not resulted in the identification of any known waste streams that may be causing the high loadings.

The high BOD_5 and TSS loadings are of a concern due to the following:

- Additional aeration is required to treat the organic material, subsequently increasing power and operation and maintenance requirements.
- Excessive sludge build-up may occur in the lagoons from the high solids load in the influent and from the formation of biological solids.
- Effluent levels of BOD_5 and TSS may be higher than normally anticipated, resulting in higher loadings to the land application site and possible NPDES permit violations.

Since sources of the high loadings could not be identified, J-U-B worked with the City in early 2004 to review their sampling protocols. After this review, the data, although still higher than average, have been less sporadic and loadings are more consistent with other similar communities. This phenomenon is reflected in Figure 2-8, which graphs BOD_5 and TSS concentrations versus time. One can see that the data gathered before January 2004 appears more random and scattered than the data compiled after the sampling protocols were reviewed with the City.

Figure 2-8. Influent BOD_5 and TSS Concentrations



The updated dataset was first analyzed using BOD_5 and TSS concentration data from the years 2001-2005. It was then analyzed using BOD_5 and TSS concentration data only from the years 2004 and 2005. A comparison of these results is summarized in Table 2-7.

Table 2-7. Comparison of 2001-2005 Dataset to 2004-2005 Dataset

Years from which Data was Analyzed	Average Flow (mgd)	Average BOD_5 Concentration (mg/L)	Average TSS Concentration (mg/L)
2001 - 2005	0.179	510	1,377
2004 - 2005	0.176	301	578

Due to the reasons discussed above, it is recommended that the 2004-2005 data be used for future planning. The average annual BOD_5 and TSS concentrations were calculated to be 301 and 578 mg/L, respectively.

The design parameters of an aerobic wastewater treatment facility are typically dependent on the quantity of sustained waste loads that enter the facility. As such, the waste loadings were calculated by multiplying the concentration of a particular constituent by the influent flow rate of that same day. In addition, the maximum month and peak week loadings were calculated. The sustained maximum month loading was estimated as the 92 percent exceedance value for the calculated loadings. The maximum month peaking factor was obtained for each wastewater quality parameter by dividing the maximum month load (92 percent value) by the average day load. The peak week loadings were estimated as the 98 percent exceedance value for the calculated loadings. The peak week peaking factor was obtained for each parameter by dividing the peak week load by the average day load.

The per capita loading for each parameter was calculated by dividing the waste load by the 2005 population of 1,826. The per capita BOD and TSS average day loadings were calculated to be 0.25 and 0.48 pounds per capita per day (ppcd), respectively. Typical values for BOD and TSS per capita loadings for similar communities and waste streams in southern Idaho are 0.16 to 0.22 ppcd, respectively. Even though loadings are higher than average, it was assumed that they would not change in the future. Thus, the numbers could be scaled to 2007 values by multiplying the per capita loadings by the projected 2007 population of 1,973. 2007 maximum month and peak week loadings were calculated by multiplying the scaled-up average day loads by the peaking factors described above.

Table 2-8 summarizes the 2007 influent organic and solids loads to the treatment facility.

Table 2-8. Estimated 2007 Organic and Solids Loadings

Design Parameter	Influent Flow[a] (mgd)	BOD_5 Conc'n (mg/L)	BOD_5 Loading[b] (ppd)	TSS Conc'n (mg/L)	TSS Loading[c] (ppd)
Average	0.191	301	495	578	947
Max Month	–	–	749	–	1,909
Peak Week	–	–	1,164	–	2,842

a. Average influent flow scaled to 2007 value using a per capita average flow rate of 96.9 gallons/day.
b. Average BOD loading scaled to 2007 value using a per capita average BOD loading of 0.25 ppcd. Max month BOD loading calculated using a peaking factor = 1.51. Peak week BOD loading calculated using a peaking factor = 2.35.
c. Average TSS loading scaled to 2007 value using a per capita average TSS loading of 0.48 ppcd. Max month TSS loading calculated using a peaking factor = 2.02. Peak week BOD loading calculated using a peaking factor = 3.0.

2.5.3.2 Nutrient Loadings

Concentration data for ammonia (NH_3-N) and nitrate (NO_3-N) are only available for the years 1999-2000. To more accurately reflect existing conditions at the wastewater treatment facility, the nutrient loads were scaled to 2007 values using the same per capita methodology as described above. The per capita loadings were calculated using a 2000 population of 1,620.

There was no data available for total Kjeldahl nitrogen (TKN) and total phosphorus. These values were estimated based on concentration data observed in similar waste streams and communities in southern Idaho.

Table 2-9 summarizes the 2007 influent nutrient loads for the City's existing wastewater treatment facilities.

Table 2-9. Estimated 2007 Influent Nutrient Loadings

Design Parameter	NH3 Conc'n (mg/L)	NH3 Loading[a] (ppd)	NO3 Conc'n (mg/L)	NO3 Loading[b] (ppd)	TKN Conc'n[c] (mg/L)	TKN Loading[d] (ppd)	Total P Conc'n[e] (mg/L)	Total P Loading[f] (ppd)
Average	20.3	41.9	1.57	3.30	45	71.8	8	12.8
Maximum Month	—	62.1	—	5.36	—	107.7	—	19.2
Peak Week	—	76.0	—	6.38	—	—	—	—

a. Average NH_3 loading scaled to 2007 value using a per capita average NH_3 loading of 0.0213 ppcd. Max month NH_3 loading calculated using a peaking factor = 1.48. Peak week NH_3 loading calculated using a peaking factor = 1.81.

b. Average NO_3 loading scaled to 2007 value using a per capita average NO_3 loading of 0.00167 ppcd. Max month NO_3 loading calculated using a peaking factor = 1.62. Peak week NO_3 loading calculated using a peaking factor = 1.93

c. Average concentrations for TKN estimated based on concentrations observed in other southern Idaho waste streams (Wendell - 83 mg/L, Buhl - 40.3, Hazelton - 56, Hagerman - 36.2).

d. Average TKN loading scaled to 2007 value using a per capita average TKN loading of 0.036 ppcd. Max month TKN loading calculated using a peaking factor = 1.5.

e. Average concentrations for Total P estimated based on concentrations observed in other southern Idaho waste streams (Wendell - 8.37 mg/L, Buhl - 6.88, Hazelton - 8.74, Hagerman - 5.44).

f. Average Total P loading scaled to 2007 value using a per capita average Total P loading of 0.006 ppcd. Max month Total P loading calculated using a peaking factor = 1.5.

CITY OF FILER

2008 WASTEWATER FACILITIES PLAN UPDATE

CHAPTER 3: FUTURE CONDITIONS

3.0 FUTURE CONDITIONS

3.1 FUTURE LAND USE AND DEVELOPMENT

A review of the City's Comprehensive Plan and zoning map indicates that residential land use is predominant in the Planning Area, with smaller areas of commercial and industrial land use. Discussions with the City indicate that continued population growth is anticipated for the 20-year design period due to the relatively low land costs in the area and the close proximity to the City of Twin Falls.

The Golden Spur subdivision is currently being developed on the west-side of town. The City has also been approached regarding the potential development of two subdivisions north of town (approximately 76 and 35 homes, respectively) and a subdivision southeast of town (approximately 200 homes).

The City expects some smaller commercial developments to accompany the residential growth. New commercial or industrial operations with significant water requirements could affect the City's ability to handle wastewater with the existing wastewater collection and treatment facilities.

According to the City's Comprehensive Plan, the City encourages development of land within the corporate limits prior to annexation of undeveloped fringe land. In addition, the City encourages that future development occur in those areas which are consistent with similar land uses. More information regarding future land use and development in Filer can be found in the 2003 Facilities Plan.

3.2 20-YEAR POPULATION PROJECTIONS

Population projections for the City of Filer were developed over the 20-year planning period. These forecasts provide the basis for projecting wastewater flows and waste loads, and for determining the need for future wastewater system facilities.

3.2.1 Population Growth

As shown in Table 3-1, data from the U.S. Census Bureau indicates that the City's population has fluctuated over the past 40 years.

Table 3-1. Historical Population Data

Year	Population[a]	Average Annual Percent Change
1960	1,249	
1970	1,173	-0.63%
1980	1,645	3.35%
1990	1,511	-0.85%
2000	1,620	0.70%

a. Data from U.S. Census Bureau.

Overall, the data indicate that the City experienced an average annual growth rate of approximately 0.65 percent from 1960 to 2000.

3.2.2 Population Forecast

Based on the historical growth patterns and discussions with City, it is anticipated that Filer's growth rate will increase slightly from its current value to approximately 2.0 percent annually. Table 3-2 summarizes the projected growth trends for the City of Filer. Results of the forecast indicate a total population within the City of approximately 2,929 residents in the year 2027. This represents an increase of approximately 956 residents, or 48 percent, over the 2007 estimated population of 1,973 residents.

3.2.3 Population Factors

Based on a field investigation in 2001, the total number of occupied houses within the City limits was approximately 651. Given the City's estimated population of 1,653 people in 2001, the number of people per household is approximately 2.54. This correlates well with the 2000 U.S. Census data which reported a total number of occupied houses of 628 and a population of 1,620, yielding a people per household value of 2.58. Additionally, both of these values are similar to that of Twin Falls County (2.64) and Idaho (2.69), as reported in the 2000 U.S. Census survey.

Given a total acreage within the existing City limits of approximately 540 acres, the average number of occupied households per acre is approximately 1.16 (based on the 628 occupied houses reported in the 2000 U.S. Census survey). This corresponds to an average number of people per acre of approximately 3.0. Both of these values are typical for small communities in southern Idaho.

Although Filer is located within an agricultural area, the Planning Area experiences little, if any, seasonal population fluctuations. The Planning Area does not contain a migrant labor center, as do some other communities in southern Idaho. As a result, almost all migrant and/or seasonal workers are housed at the farms on which they are employed, most of which are located outside the Planning Area. Additionally, Filer is generally not considered a retirement community.

3.2.4 Planning Area Forecast

The proposed Planning Area should contain sufficient acreage to accommodate the anticipated future growth. Using the population forecasts summarized in Table 3-2 and assuming a population density of 3.00 people per acre, the additional land area requirement in the year 2027 is approximately 436 acres. Since the proposed Planning Area depicted in Figure 2-2 of 2003 Facilities Plan encompasses approximately 1,730 acres, an additional 1,190 acres will be provided beyond the existing 540 acres in the City limits. Therefore, the proposed Planning Area should contain sufficient acreage to accommodate the forecasted population growth, and provide flexibility for unaccounted residential, commercial or industrial growth.

3.3 FUTURE FLOWS AND WASTE LOADS

3.3.1 Projected Flows

Influent flows reaching the City's wastewater treatment facilities were projected over the next 20 years. To project the influent flows, a per capita contribution of wastewater was calculated for 2005, the last year that data was available. The per capita contribution was calculated by dividing the 2005 average daily influent flow rate by the 2005 population. This calculation yields an average flow contribution of 96.9 gallons per capita per day (gpcd). This

agrees well with literature values, which are typically on the order of 100 gpcd. The per capita flow contribution is based on actual flow rates into the WWTP. As such, it takes into account commercial and industrial flows, as well as inflow and infiltration. Assuming that the per capita contribution remains constant, the average flow rate for future years was calculated by multiplying 96.9 gpcd by the projected population for that year.

Maximum month flows were calculated by multiplying the projected average flow rate by the peaking factor generated using influent flow data from the years 2003-2005. Peak hour flows were calculated by multiplying the projected average flow rate by the peaking factor generated using an equation developed by the 10 State Standards. The total yearly volume was calculated by multiplying the average day flow rate by 365 (the number of days in a year). It is noted that the values and peaking factors in Table 3-2 are for flow rate only. BOD_5 and TSS loadings are dependent on flow and concentration. The future loading conditions are discussed in Section 3.3.2. The projected influent flows are summarized below in Table 3-2.

Table 3-2. Projected Influent Flows

Year	Population	Influent Flow[a] (mgd)	Min Month Flow[b] (mgd)	Max Month Flow[c] (mgd)	Peak Day Flow[d] (mgd)	Peak Hour Flow[e] (mgd)	Total Volume (Mgal)
2005	**1,826**	**0.177**	**0.149**	**0.231**	**0.445**	**0.508**	**64.6**
2006	1,934	0.187	0.158	0.245	0.471	0.535	68.4
2007	**1,973**	**0.191**	**0.161**	**0.250**	**0.480**	**0.545**	**69.8**
2008	2,012	0.195	0.164	0.255	0.490	0.555	71.2
2009	2,052	0.199	0.167	0.260	0.499	0.565	72.6
2010	2,093	0.203	0.171	0.265	0.509	0.575	74.1
2011	2,135	0.207	0.174	0.270	0.519	0.586	75.5
2012	2,178	0.211	0.178	0.276	0.530	0.597	77.1
2013	2,222	0.215	0.181	0.281	0.541	0.608	78.6
2014	2,266	0.220	0.185	0.287	0.551	0.619	80.2
2015	2,311	0.224	0.189	0.292	0.562	0.630	81.8
2016	2,357	0.228	0.192	0.298	0.573	0.641	83.4
2017	2,404	0.233	0.196	0.304	0.585	0.653	85.1
2018	2,452	0.238	0.200	0.310	0.597	0.665	86.8
2019	2,501	0.242	0.204	0.316	0.608	0.677	88.5
2020	2,551	0.247	0.208	0.323	0.621	0.689	90.3
2021	2,602	0.252	0.212	0.329	0.633	0.702	92.1
2022	2,654	0.257	0.217	0.336	0.646	0.714	93.9
2023	2,707	0.262	0.221	0.342	0.659	0.727	95.8
2024	2,761	0.268	0.225	0.349	0.672	0.740	97.7
2025	2,816	0.273	0.230	0.356	0.685	0.754	99.6
2026	2,872	0.278	0.234	0.363	0.699	0.767	101.6
2027	**2,929**	**0.284**	**0.239**	**0.371**	**0.713**	**0.781**	**103.6**

a. Average day influent flows calculated using a per capita contribution of 96.9 gpcd.
b. Minimum month flows calculated using a peaking factor of 0.84 (obtained from 2003-2005 flow data).
c. Maximum month flows calculated using a peaking factor of 1.31 (obtained from 2003-2005 flow data).
d. Peak day flows calculated using a peaking factor of 2.51 (obtained from 2003-2005 flow data)
e. Peak hour flow calculated using the peaking factor obtained from the 10 State Standards Equation modified to local conditions $(14+P^{0.5})/(4+P^{0.5})$ where P equals population in thousands.

As discussed in Chapter 2, historical effluent flow measurements at the wastewater treatment facility most likely do not provide an accurate representation of the actual effluent flow. As such, a water balance was conducted around the lagoon and land application facility to predict future effluent flows. The water balance conducted for the year 2027 is summarized below in Table 3-3.

Table 3-3. 2027 Effluent Water Balance for a Lagoon System

Month	Inflow Mgal	Precip Mgal	Evap Mgal	Seepage Mgal	Net Outflow Mgal
Oct	8.80	0.47	1.83	0.08	7.36
Nov	8.52	0.79	1.52	0.08	7.71
Dec	8.80	0.81	0.91	0.08	8.62
Jan	8.80	0.81	0.15	0.08	9.38
Feb	7.95	0.55	0.46	0.08	7.96
Mar	8.80	0.73	1.22	0.08	8.23
Apr	8.52	0.72	2.43	0.08	6.73
May	8.80	0.87	4.26	0.08	5.33
Jun	8.52	0.60	4.56	0.08	4.48
Jul	8.80	0.19	5.17	0.08	3.74
Aug	8.80	0.32	4.87	0.08	4.17
Sep	8.52	0.41	3.04	0.08	5.81
Total	**103.6**	**7.3**	**30.4**	**0.96**	**79.5**

Chapter 5 describes potential future wastewater treatment alternatives including lagoons and mechanical treatment plants. Mechanical treatment plants typically use flow through concrete treatment tanks as opposed to the lagoon cells. As such, water losses (evaporation and seepage) from a mechanical treatment plant are expected to be negligible, with effluent flow rates being very similar to influent flow rates. Table 3-3 is applicable to a lagoon-type system. The values in the table also assume no change in the existing lagoon surface area. As discussed in Chapter 5, the lagoon surface area may change to accommodate future flows.

3.3.2 Projected Waste Loads

Waste loads in the influent to the City's wastewater treatment facilities were projected over 20 years using the following assumptions:

- Organic (BOD_5) and suspended solids (TSS) loads were calculated by multiplying average day per-capita values by the projected population growth. The existing per-capita loadings of BOD_5 (0.25 ppcd) and TSS (0.48 ppcd) were used to forecast future loads. For the purposes of this report, it was assumed that the per capita loadings would not change in the future.

- Ammonia-nitrogen and nitrate-nitrogen loads were calculated by multiplying the existing per-capita loadings of NH_3-N (0.0213 ppcd) and NO_3-N (0.00167 ppcd) by the projected population.

- Total Kjeldahl Nitrogen (TKN) and total phosphorus loads were estimated using typical values found at other southern Idaho communities as well as in the literature. This

resulted in a TKN per-capita loading of approximately 0.036 ppcd and a total phosphorus loading of 0.006 ppcd. These values should provide a conservative estimate of the actual nitrogen and phosphorus loadings in the influent.

- Maximum month influent loads were based on peaking factors obtained from measurements taken at the wastewater treatment facility, as described in Chapter 2.

Tables 3-4 and 3-5 summarize the projected influent waste loads at the wastewater treatment facilities. The assumptions and calculations that were used to generate the tables are the same as described in Section 2.5.3. Both tables are based on a projected 2027 population of 2,929.

Table 3-4. Projected 2027 Organic and Solids Loadings

Design Parameter	Influent Flow[a] (mgd)	BOD Conc'n (mg/L)	BOD Loading[b] (ppd)	TSS Conc'n (mg/L)	TSS Loading[c] (ppd)
Average	0.284	310	735	593	1,405
Maximum Month	0.371	359	1,112	916	2,834

a. Average influent flow scaled to 2027 value using a per capita average flow rate of 96.9 gpcd.
b. Average BOD loading scaled to 2027 value using a per capita average BOD loading of 0.25 ppcd. Max month BOD loading calculated using a peaking factor = 1.51.
c. Average TSS loading scaled to 2027 value using a per capita average TSS loading of 0.48 ppcd. Max month TSS loading calculated using a peaking factor = 2.02.

Table 3-5. Projected 2027 Nutrient Loadings

Design Parameter	NH_3 Conc'n (mg/L)	NH_3 Loading[a] (ppd)	NO_3 Conc'n (mg/L)	NO_3 Loading[b] (ppd)	TKN Conc'n (mg/L)	TKN Loading[c] (ppd)	Total P Conc'n (mg/L)	Total P Loading[d] (ppd)
Average	26.3	62.3	2.07	4.90	45.0	106.6	8.0	18.9
Maximum Month	29.8	92.2	2.57	7.95	51.7	159.9	9.2	28.4

a. Average NH_3 loading scaled to 2027 value using a per capita average NH_3 loading of 0.0213 ppcd. Max month NH_3 loading calculated using a peaking factor = 1.48.
b. Average NO_3 loading scaled to 2027 value using a per capita average NO_3 loading of 0.00167 ppcd. Max month NO_3 loading calculated using a peaking factor = 1.62.
c. Average TKN loading scaled to 2027 value using a per capita average TKN loading of 0.036 ppcd. Max month TKN loading calculated using a peaking factor = 1.5.
d. Average Total P loading scaled to 2027 value using a per capita average Total P loading of 0.006 ppcd. Max month Total P loading calculated using a peaking factor = 1.5.

CITY OF FILER

2008 WASTEWATER FACILITIES PLAN UPDATE

CHAPTER 4: EVALUATION OF EXISTING FACILITIES

4.0 EVALUATION OF EXISTING FACILITIES

Chapter 4 of the Facility Plan Update includes evaluations of the collection system, treatment facilities, and land application system. For additional details refer to the 2003 Facility Plan.

4.1 WASTEWATER COLLECTION SYSTEM

4.1.1 Condition of Existing Mains

In response to concerns about the age of their collection system infrastructure, the City started an annual maintenance program and video inspection. The annual maintenance program was started in 1990 for replacing the concrete mains with new PVC pipe. Additionally, the City routinely flushes the sewer mains twice a year in the spring and fall. For the 2003 Facilities Plan, a video inspection was conducted of those mains that the City considered representative based on pieces of concrete pipe and aggregate found in the flush water during their semi-annual cleaning program. In general, the video inspection results indicate that the older concrete mains are in relatively poor condition.

The City reports that the existing concrete manholes and clean-outs are in relatively good condition. Visual observations by operating personnel indicate that there are no apparent significant breakages or deterioration of the manholes and clean-outs.

Another concern expressed by the City is an existing 12 inch sewer main that is currently constructed above the ground surface. As such, this main presents a potential public and environmental health hazard.

According to the City, some of the mains on the south end of the system are buried at a relatively shallow depth (i.e., approximately 3 feet or less of cover). Additionally, the City reports that several of the existing mains are relatively flat and have bellies or sags. The deposition and accumulation of solids and debris on the bottom of the pipes may lead to reduced hydraulic flow capacities and increased maintenance requirements.

4.1.2 Hydraulic Capacity

An analysis in the 2003 Facility Plan demonstrated that the existing 6 and 8 inch laterals that collect wastewater from the individual connections and transmit it to trunk lines have sufficient hydraulic capacity to handle the existing and "build-out" peak flows generated in each service area.

To evaluate the hydraulic capacity of the existing trunk lines, cumulative flows generated from the service areas were analyzed at certain points within the collection system. Flows generated from the service areas that discharge to a similar trunk line were added at common junctions in the collection system to determine whether the downstream sewer line had adequate hydraulic capacity. Based on this analysis, several improvements were recommended including:

- Extend a 10 inch main south from the 12 inch main in Service Area N on the south end of Fair Avenue to collect wastewater from Service Area's Q and P.

- Replace the 6 inch main located in the alley between Union Avenue and Idaho Avenue within Service Area M with an 8 inch main to collect wastewater from Service Area P.

- Replace and extend the 6 inch main along South Stevens Street within Service Area M with an 8 inch main to collect wastewater from Service Area O.

- Continue to replace the 8 inch main in the alley south of Sixth Street that runs from west to east between Stevens Street and Fair Avenue with a 10 inch main.

- Replace the 12 inch main that runs from the intersection of Fair Avenue and Front Street to the treatment lagoons with a 15 inch main

- Extend an 8 inch main west from the 15 inch main along the 4000 North Road to collect wastewater from Service Area's D, E and G.

Pump Stations 1 and 2 were described in the 2003 Facility Plan. The City reports that they are in good working order and have operated satisfactorily to date. As such, there is no immediate need to replace or repair any of the equipment. In 2006, a third pump station was installed in Cedar Creek subdivision. The City has not yet accepted responsibility for Pump Station 3, but it is anticipated that they will do so in the future. Operating personnel should continue to routinely monitor the condition of the pump stations and perform any necessary maintenance to ensure that they continue to operate at their existing level.

Figure 4-1 shows the future collection system improvements to increase hydraulic capacity.

4.2 WASTEWATER TREATMENT FACILITIES

4.2.1 Facility Headworks

The City reports that the existing concrete inlet structure and bar screen at the treatment facility headworks are in relatively good condition and have operated satisfactorily to date. The existing 6-inch Parshall flume has a hydraulic capacity of over 2 mgd, which is sufficient for current and projected peak influent flows. There is currently no continuous flow measuring device at the headworks to monitor and record the volume of influent passing through the flume. It is recommended that a continuous metering device be included in any future plant upgrades or expansions.

The City reports that there is a relatively substantial amount of solids and debris flowing into the facility headworks. As such, the City is considering installing a comminutor and/or screen at the facility headworks in the next couple of years. The City may also consider a fine screen at the headworks to remove the large solids and debris prior to entering the lagoons.

4.2.2 Treatment Lagoons

4.2.2.1 Hydraulic Retention Time

The treatment performance of the lagoons depends in part on providing an adequate hydraulic retention time (HRT) within each of the cells. Table 4-1 summarizes the HRTs under current and future conditions.

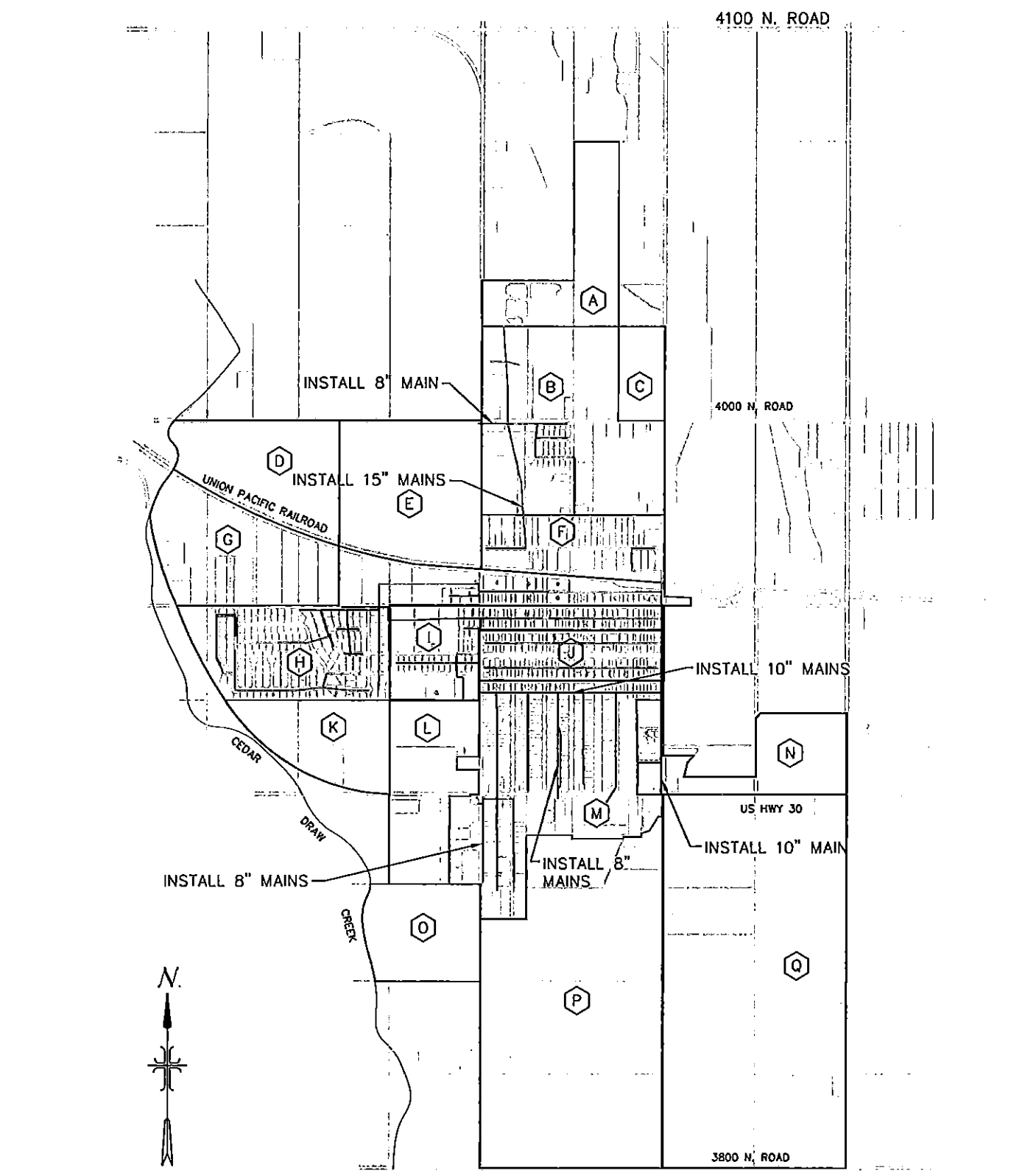


FIGURE 4–1
WASTEWATER COLLECTION SYSTEM HYDRAULIC CAPACITY IMPROVEMENTS

Table 4-1. Hydraulic Retention Times[a]

	Lagoon Volume (mgal)	Sludge Volume (mgal)	Operating Volume (mgal)	2007 Operating HRT (d)	2027 Operating HRT (d)
Cell #1 (aerated)	0.97	0.06	0.91	4.8	3.2
Cell #2 (aerated)	2.63	0.27	2.36	12.4	8.3
Total (aerated)	3.60	0.33	3.27	17.2	11.5
Cell #3 (facultative)	1.79	0.10	1.69	8.8	6.0
Cell #4 (facultative)	2.13	0.12	2.01	10.5	7.1
Total (facultative)	3.92	0.22	3.70	19.3	13.1

a. HRTs calculated at average flow conditions (0.191 mgd in 2007, 0.284 mgd in 2027).

Typical design standards indicate that the HRT for aerated lagoons should range from approximately 8 to 20 days in cold weather climates. As such, it appears that the existing aerated lagoons provide an adequate HRT for both current and future conditions.

Generally, the HRT in facultative polishing lagoons is limited to 2 to 5 days per lagoon. As shown in Table 4-1, the estimated HRTs for Cells #3 and #4 are greater than 5 days under both existing and future flow conditions. Therefore, high effluent concentrations of BOD_5 and TSS may occur in the effluent, particularly during warm weather conditions when algal growth is promoted.

4.2.2.2 Treatment Performance and Effluent Quality

Organics

The treatment performance of the lagoon system in terms of organics (BOD_5) removal was modeled using the following first-order rate equation:

$$\frac{S_e}{S_o} = \frac{F}{1+kt}$$

where:
- S_e = Effluent BOD_5 from a cell (mg/L)
- S_o = Influent BOD_5 to a cell (mg/L)
- F = Feedback factor (unit less)
- k = First-order removal rate constant (d^{-1})
- t = Hydraulic retention time (d)

The feedback factor (F) accounts for soluble organics that are fed back into the wastewater from the anaerobic degradation of solids in the lagoon bottom. This factor is partially dependent on temperature, as anaerobic microbial activity generally increases during warmer summer conditions. Typical feedback values from the literature were assumed for this analysis. First-order removal rate constants were initially estimated based on empirical data generated from similar lagoon systems in southern Idaho.

As expected, the results from the model indicate that most of the treatment (80 to 85 percent) occurs in the first two aerated cells, while the last two facultative cells function to polish the wastewater. The model predicts 2027 summer and winter effluent BOD_5

concentrations of approximately 22.1 and 23.3 mg/L, respectively. This equates to an overall BOD_5 removal efficiency of approximately 92 percent under future conditions.

Under 2005 conditions (the last year that data is available), the average effluent BOD concentration was approximately 21.5 mg/L. This corresponds to an actual overall BOD_5 removal efficiency of approximately 93 percent. Figure 4-2 shows the effluent BOD_5 concentrations that were measured from 2003 to 2005.

Solids

As a general rule, the effluent TSS concentration is approximately 1.5 times the effluent BOD_5 concentration for a normally operated lagoon system. However, in 2005, the measured effluent TSS concentration (53.6 mg/L) was actually 2.5 times greater than the average effluent BOD_5 concentration (21.5 mg/L). A ratio of TSS to BOD_5 in the effluent between 2 and 3 generally indicates algal overgrowth or the loss of old sludge particles from the bottom of the lagoon. Figure 4-2 shows the effluent TSS concentrations that were measured from 2003 to 2005.

Nutrients

Figure 4-3 shows the effluent nutrient concentrations that were measured from 2003 to 2005. It was assumed that these concentrations would remain approximately the same over the 20 year planning period. As such, nutrient mass loadings in the effluent of the existing lagoon system were calculated by multiplying the existing concentrations by the projected average day effluent flow. Table 4-2 summarizes the estimated future effluent nutrient loadings and percent removals.

Table 4-2. 2027 Effluent Nutrient Loadings and Percent Removals

	Annual Average Concentrations and Loads				
	NH_3-N	NO_3-N	TKN	Total-N	Total-P
Influent Concentration (mg/L)[a]	20.3	1.57	45	47.7	8.0
Effluent Concentration (mg/L)[b]	17	0.54	29.6	30.0	4.0
Effluent Load (lbs/d)[c]	30.9	1.0	53.8	54.5	7.3
Percent Removal[d]	16.3	65.6	34.2	37.1	50.0

a. NH_3-N and NO_3-N concentrations from influent data measured 1999-2000. TKN, Total-N, and Total-P concentrations estimated from literature and other southern Idaho cities.
b. Based on effluent flow measurements from 2003-2005.
c. Based on a projected 2027 effluent flow rate of 0.218 mgd (from water balance).
d. Percent removal for TKN, Total-N, and Total-P based on estimated influent concentrations.

4.2.2.3 Aeration Requirements

The City reports that the existing aerators are in relatively good mechanical condition and are operating satisfactorily to date. Cell #1 currently contains two 7.5 hp aerators and one 5 hp unit, for a total aeration capacity of 20 hp. Cell #2 contains two 5 hp units, for a total aeration capacity of 10 hp. The City also has two spares on hand; one 7.5 hp unit and one 5 hp unit.

The existing aerators were analyzed to determine whether they provide sufficient horsepower to facilitate treatment of the existing and future average day BOD_5 loadings. Table 4-3 summarizes the aeration requirements for both existing (2007) and future (2027) maximum month loads under summer-time conditions.

Figure 4-2. Effluent BOD_5 and TSS Concentrations

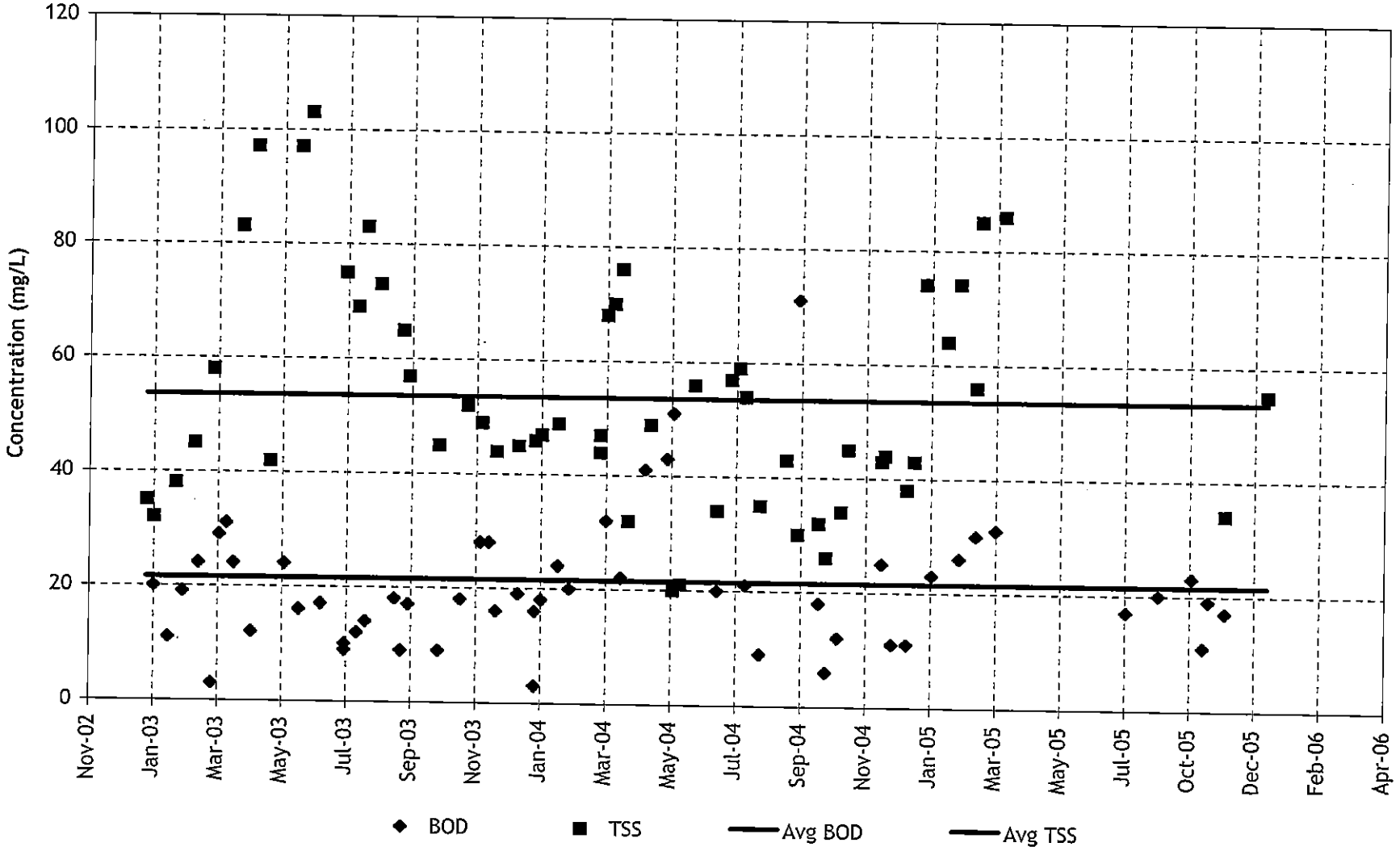


Figure 4-3. Effluent Nutrient Concentrations

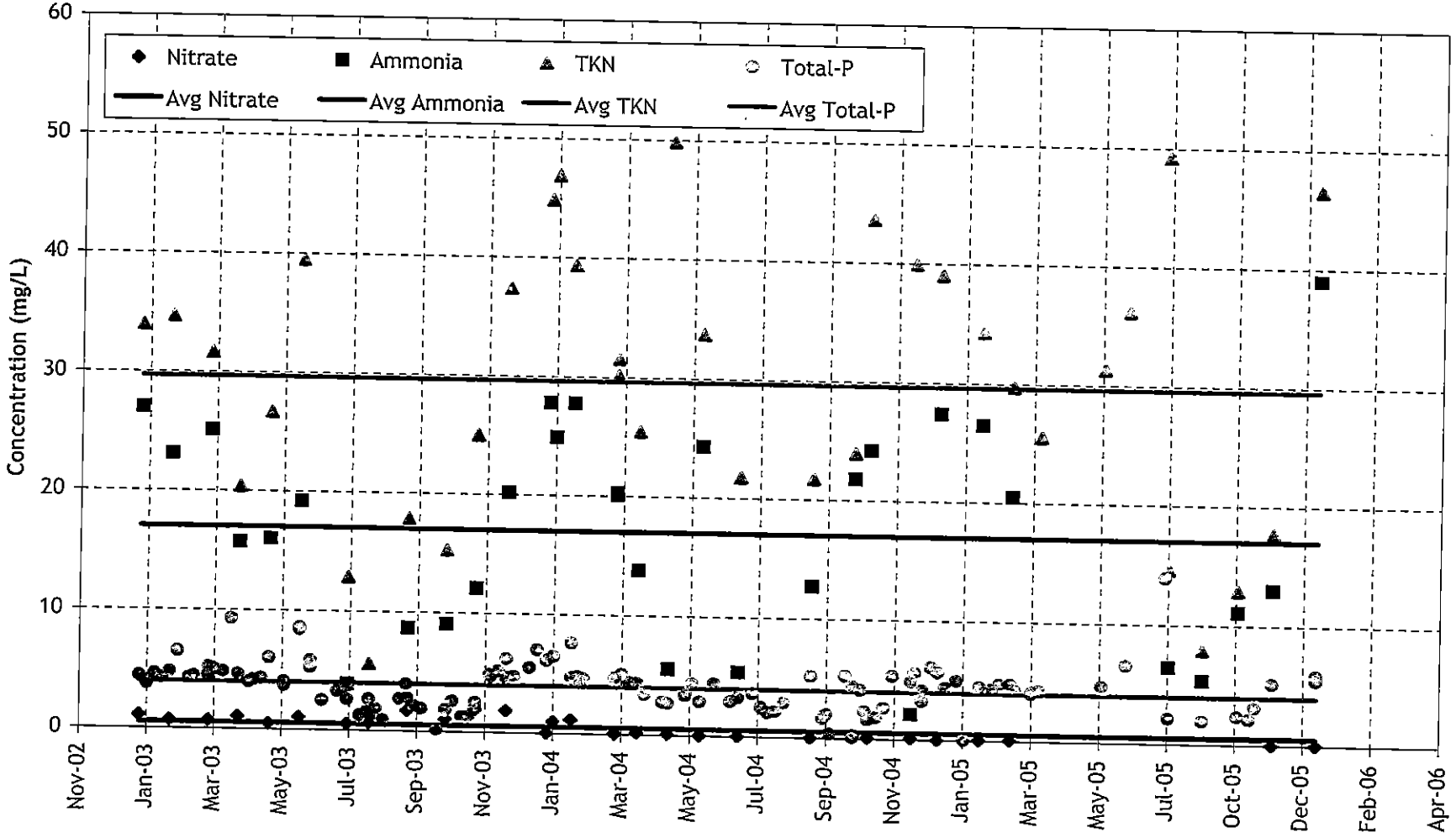


Table 4-3. Aeration Requirements[a]

Parameter	Units	Cell #1 Summer Conditions Max Month Loads	Cell #2 Summer Conditions Max Month Loads
2007 Conditions			
Influent BOD_5	lbs BOD_5/d	749	242
Effluent BOD_5	lbs BOD_5/d	242	40
BOD_5 Mass Removal	lbs BOD_5/d	507	202
O_2 Demand	lbs O_2/d	761	302
Required Horsepower	hp	23	9
2027 Conditions			
Influent BOD_5	lbs BOD_5/d	1,112	480
Effluent BOD_5	lbs BOD_5/d	480	112
BOD_5 Mass Removal	lbs BOD_5/d	632	368
O_2 Demand	lbs O_2/d	948	552
Required Horsepower	hp	28	17

a. Assumed a typical design value of 1.5 lbs O_2/lbs BOD_5 to meet the carbonaceous oxygen demand. Assumed a typical design SOTR (Standard Oxygen Transfer Efficiency) value of 2.5 lbs O_2/hp-hr for an axial flow aerator. Corrected the SOTR for site temperature and pressure to obtain AOTR (Actual Oxygen Transfer Efficiency).

Under current conditions, it appears that Cell #2 provides sufficient horsepower to treat maximum month loads but that Cell #1 does not. Under future conditions, additional aeration capacity will need to be added to both Cells #1 and #2.

To optimize the performance of Cells #1 and #2, the aerators should provide sufficient mixing to maintain a portion of the biological solids in suspension. As shown in Table 4-4, the existing aerators appear to meet the recommended minimum mixing guideline of 4 hp per million gallons (Adams and Eckenfelder, 1974).

Table 4-4. Aerator Mixing

Parameter	Units	Cell #1	Cell #2
Aerator Horsepower	Hp	20	10
Operating Volume	MGal	0.91	2.36
Mixing Level	hp/MGal	22.0	4.2

4.2.2.4 Sludge Accumulation

Table 4-5 summarizes the current estimated sludge levels in the treatment lagoons.

Table 4-5. Lagoon Sludge Accumulation

Cell	Sludge Depth (ft)	Bottom Area (acres)	Sludge Volume (MGal)	Calculated Volume (MGal)	% of Design Volume Occupied by Sludge
#1[a]	0.5	0.35	0.06	0.97	6.2
#2[b]	0.75	1.12	0.27	2.63	10.3
#3[c]	0.5	0.60	0.10	1.79	5.6
#4[c]	0.5	0.74	0.12	2.13	5.6

a. Sludge depth in Cell #1 after summer 2006 removal.
b. Cell #2 depth based on average of measurements taken in 2005.
c. Cells #3 and #4 values from 2003 Facility Plan.

Sludge was removed from Cell #1 during the summer of 2006 and placed in a drying area. It will be removed and disposed of in accordance with the applicable regulations. Excessive sludge in the cells may result in potential treatment problems. As such, the City should continue to monitor sludge levels in Cells #2, #3, and #4 and remove it, as necessary.

4.2.2.5 Lagoon Seepage

As discussed in Chapter 2, the average day influent flow is greater than the average day effluent flow on an annual basis. This indicates that a portion of the wastewater volume is being lost as it passes through the lagoons. This loss of wastewater could be due to evaporation and seepage.

Seepage tests at the lagoons were performed during the summer of 2006. The results of the seepage tests are summarized below in Table 4-6.

Table 4-6. Lagoon Seepage Test Results

Cell	Surface Area (acres)	Seepage (inch/day)
#1	0.57	0.000
#2	1.57	0.004
#3	1.09	0.046
#4	1.27	0.044

The results of the seepage tests indicate that the lagoons are well within the limits specified by the land application permit of 0.125 inches per day.

4.2.2.6 Chlorination System

Based on discussions with the City, Table 4-7 summarizes the current amount of chlorine gas used to disinfect the effluent.

Table 4-7. Current Chlorine Use

Parameter	Units	Value
Annual Number Cylinder	Cylinders	10
Weight per Cylinder	lbs/cylinder	150
Annual Chlorine Amount	lbs/yr	1,500
Average Daily Chlorine Dose	lbs/d	4.1
Average Chlorine Concentration	mg/L	3.9

Future chlorine doses were estimated using a chlorine concentration of 3.0 mg/L, slightly lower than the existing chlorine concentration. This is equivalent to approximately 13 to 14 cylinders (150 lbs) per year. Currently, the City manually adjusts the chlorinator on a daily basis to provide the desired chlorine residual in the effluent. It is recommended that the City consider using an effluent flow meter to pace the chlorinator.

Table 4-8 summarizes the calculated contact times under existing and future flow conditions.

Table 4-8. Chlorine Contact Times

Flow Parameter	2007 Contact Time (min)	2027 Contact Time (min)
Average Annual Day Flow	157	106
Maximum Month Flow	120	84
Peak Hour Flow	55	38

Typical design standards recommend 30 minutes of contact time at average flow conditions and 15 minutes of contact time at maximum flow conditions. The existing 20,800 gallon chlorine contact chamber meets these design standards for both existing and future flow conditions.

Historically, the chlorination system has been operating satisfactorily because coliform levels have generally met the NPDES and land application permit discharge limits. However, during the summers of 2005 and 2006 coliform levels in the effluent were abnormally high. This was attributed in 2005 to a cracked pipe, which caused the chlorination pump to lose pressure. This occurred from June until mid September 2005, at which time the problem was located and fixed. During the summer of 2006, seepage tests were performed at the lagoons. The City feels that these tests upset the lagoons and increased the coliform levels in the effluent. Coliform levels decreased after the seepage tests were completed. Table 4-9 summarizes the performance of the lagoon system with regards to the coliform levels in the effluent.

Table 4-9. Percentage of Coliform Samples in Compliance

	NPDES Permit (November 1 - March 31)	Wastewater Land Application Permit (April 1 - October 31)			
Year	< 200 cfu / 100 mL[a]	< 2.2 MPN / 100 mL[b]	2.2 to 23 MPN / 100 mL[b]	23 to 230 MPN / 100 mL[c]	Out of Compliance[d]
2003	100%	86%	11%	3%	0%
2004	100%	77%	23%	0%	0%
2005	100%	2%	19%	14%	64%
2006	100%	20%	10%	0%	70%

a. Calculated using a 5 sample geometric mean as required by the NPDES permit.
b. Calculated using the median value of the last 5 results as required by the wastewater land application permit.
c. Calculated using the median value of the last 3 results as required by the wastewater land application permit.
d. All samples that were not in compliance were taken during the summer months during the land application period. The City feels that the summer 2005 samples were out of the compliance due to a cracked pipe that caused the chlorination pump to lose pressure and the summer 2006 samples were out of compliance due to seepage testing disturbing the lagoons.

4.2.3 Wastewater Land Application Site

4.2.3.1 Hydraulic Loading

A new land application permit was issued to the City of Filer by IDEQ (LA-000079-02, see Appendix A). The effective date of the permit extends for a five year period from January 23, 2004 to January 23, 2009. The new permit allows the City to discharge to the land application site from April 1 through October 31 of each year. The growing season hydraulic application rate of effluent should be commensurate to the seasonal crop water requirement, with an allowance for leaching of salts from the root zone. The effluent should be applied at rates that allow the soil to properly receive and transmit the water. The new permit is

different from the old permit in that buffer zones must be included at the land application site.

The amount of irrigated acreage required for slow rate land application is governed by the hydraulic, organic, and nutrient (i.e., nitrogen and phosphorus) loading rates specific to the crop type. The land application permit for the City states that the growing season hydraulic loading rate shall be no greater than the irrigation water requirement (IWR) for the type of crop grown in order to minimize potential impacts on the soil and groundwater. The monthly IWR for alfalfa was calculated based on an equation from IDEQ's Handbook for Land Application of Municipal and Industrial Wastewater 1988 (IDEQ Handbook):

$$IWR = \frac{Cu - (PPT_e + \text{Carryover Soil Moisture}) + LR}{E_i}$$

where:
- Cu = Crop Consumptive Use (inches)
- PPT_e = Effective Precipitation (inches)
- LR = Leaching Rate (inches)
- E_i = Irrigation Efficiency

An irrigation efficiency (E_i) of 75 percent was assumed based on values presented in IDEQ's 2005 Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater. Table 4-10 summarizes the estimated monthly IWR for alfalfa at the City's 40 acre WLAP site.

Table 4-10. Monthly IWR for Alfalfa

Parameter	Units	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Avg. Precipitation[a]	Inches	1.07	1.28	0.89	0.28	0.48	0.61	0.69	5.30
Consumptive Use[b]	Inches	3.07	7.05	7.74	8.08	6.31	4.16	1.46	37.87
Effective Precipitation[c]	Inches	0.75	1.12	0.81	0.21	0.39	0.45	0.44	4.17
Carryover Soil Moisture[d]	Inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leaching Requirement[d]	Inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Irrigation Requirement	Inches	2.32	5.93	6.93	7.87	5.92	3.71	1.02	**33.70**
Total Irrigation Requirement	Inches	3.09	7.91	9.23	10.50	7.90	4.95	1.36	**44.93**
Total Irrigation Requirement[e]	MGal								**48.80**

a. Precipitation data are from the Western Regional Climate Center for weather monitoring station Twin Falls WSO (1963 - 2005)
b. "Estimating Consumptive Irrigation Requirements for Crops in Idaho", 1983, R.G. Allen and C.E. Brockway
c. Calculated based on SCS Formula in IDEQ 2005 Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater, Table A-3, p. A-12.
d. Assumed to be 0 inches based on Section F of permit and recent discussions with IDEQ.
e. Based on 40 acre site.

Table 4-11 compares the amount of effluent that is land applied under current and future conditions to the allowable hydraulic loading rate (i.e., the irrigation water requirement for alfalfa).

Table 4-11. Hydraulic Loading Rates

	2007 Conditions	2027 Conditions
Annual Effluent Volume (Mgal)[a]	34.0	79.5
Allowable Hydraulic Loading at 40 Acre WLAP site (Mgal)[b]	48.8	48.8
Acreage Required	28	65

a. From Table 2-6 (214 day growing season) and Table 3-3.
b. From Table 4-10.

It appears that the 40 acre land application site is large enough to accommodate the existing hydraulic loading rates. However, more land will need to be purchased to accommodate future hydraulic loading rates.

4.2.3.2 Organic and Nutrient Loading

Excessive application of organic material may lead to clogging of the top few inches of soil. This may restrict the diffusion of air into the soil profile and result in anaerobic conditions as the oxygen is depleted. Anaerobic conditions may reduce the rate of biological decomposition of organic material, limit crop growth, mobilize and leach iron and manganese into the groundwater and produce nuisance odors. To prevent these conditions from occurring, organic loading rates of 50 lbs/acre-d of chemical oxygen demand (COD) are generally allowed for land application sites.

The City's current land application permit allows a nitrogen loading rate of up to 125 percent of the crop uptake. No permit limits or conditions are currently placed on the phosphorus loading rate. However, based on other recent land application permits issued in southern Idaho, it is likely that limits may be placed on the phosphorus loading rate in the future. For the purposes of this report, it was assumed that phosphorus limits would be included in the next permitting cycle at a phosphorus loading rate of up to 125 percent of the crop uptake. The nutrient uptakes were calculated based on a typical crop yield and the typical composition of nitrogen and phosphorus in alfalfa.

Table 4-12 summarizes the current and future organic and nutrient loading rates for an alfalfa crop at the City's land application site.

Table 4-12 indicates that the existing 40 acre land application site is large enough to accommodate the existing organic and nutrient loading rates. However, the City will need to purchase more land to satisfy future phosphorus and nitrogen loading limits. If a future permit limit is issued, phosphorus would be the limiting nutrient affecting the amount of land required to satisfy the land application permit. It appears that the City will need to purchase approximately 56 more acres to accommodate potential future phosphorus loadings.

Table 4-12. Organic and Nutrient Loading Rates From Existing Lagoon System

Parameter	Organic Loading		Nitrogen Loading		Phosphorus Loading	
	2007 Conditions	2027 Conditions	2007 Conditions	2027 Conditions	2007 Conditions	2027 Conditions
Average Daily Effluent Load (lbs/d)[a]	206.8	483.3	23.3	54.5	3.1	7.3
Average Annual Effluent Load (lbs/yr)[a]	75,471	176,410	8,512	19,896	1,135	2,653
Allowable Loading (lbs/acre-d)[b]	50	50	–	–	–	–
Allowable Loading (lbs/acre-yr)[c]	–	–	312.5	312.5	27.5	27.5
Acreage Required	7	16	27	64	41	96

a. 2007 Effluent Flow = 34.0 MGal. 2027 Effluent Flow = 79.5 MGal. Effluent COD = 266 mg/L, Effluent N = 30 mg/L, Effluent P = 4 mg/L.
b. Value from City of Filer Municipal Wastewater Land Application Permit (LA-000079-02), 2004.
c. Filer Land Application Permit (LA-000079-02) specifies an allowable nitrogen loading of 125% of typical crop uptake. Allowable phosphorus loading is assumed to be 125% of crop uptake in accordance with similar permits for other communities.

4.2.3.3 Buffer Zones

The City's land application permit outlines buffer zone requirements for the land application sites. As shown in Table 2-4, the setback distances for the buffer zones are dependent on the level of disinfection provided, as measured by median total coliform levels in the effluent.

The land application permit issued in 2004 requires that the City include a buffer zone at its land application site. The performance of the lagoons regarding the coliform levels in the influent is summarized in Table 4-9. Historically, the chlorination system has functioned satisfactorily generally resulting in low total coliform levels in the effluent. However, the summers of 2005 and 2006 were characterized by high coliform levels in the effluent (possibly due to a cracked pipe affecting the chlorination pump and seepage testing at the lagoons). As such, the buffer zone analysis was conducted assuming the largest buffer zone. Assuming a setback distance of 300 feet, the City would need to purchase an additional 65 acres to provide buffer zones, in addition to the 56 acres already required to meet future phosphorus limits.

4.2.3.4 Salt Loading

Soluble salts in the wastewater applied to the land application site may impact the salinity and/or sodicity of the soil matrix. It appears that the salinity of the City's effluent is within the recommended value. See the 2003 Facility Plan for additional details related to salt loading.

4.2.3.5 Groundwater Monitoring

The City currently has a groundwater monitoring well network around the WLAP site to monitor groundwater quality in the vicinity of the site. The City's WLAP permit requires that they routinely sample the wells for various water quality parameters. The data indicate that

groundwater quality in the vicinity of the WLAP site is generally good. The City will continue to take the necessary samples in the future to evaluate groundwater quality in the vicinity of the land application site. See the 2003 Facility Plan for additional details related to groundwater monitoring.

4.3 PERMITS AND REGULATORY CONSIDERATIONS

4.3.1 WLAP Permit

Since completion of the 2003 Facilities Plan, a new wastewater land application permit was issued by IDEQ (LA-000079-02, see Appendix A). The effective date of the permit extends for a five year period from January 23, 2004 to January 23, 2009.

Table 4-13 compares the permit limits to the current performance of the lagoon and land application system.

Table 4-13. Land Application Permit Limits Compared to 2007 Lagoon Performance

	Organic Loading (lbs/acre-d)	Nitrogen Loading (lbs/acre-yr)	Phosphorus Loading (lbs/acre-yr)
Permit Limit[a]	50	312.5	27.5
Current Lagoon Performance[b]	8.8	212.8	28.4
Can be Met Reliably?	Yes	Yes	No

a. Organic loading limit from land application permit. Nitrogen and phosphorus loading limits based on 125 percent crop uptake.
b. Calculations based on 40 acre land application site.

Table 4-13 demonstrates that the City can currently meet the permit limits for organic and nitrogen loading. However, if loading limits are placed on phosphorus, the City would not be able to reliably meet the permit limits.

4.3.2 NPDES Permit

Based on the data and analysis in Chapter 2 and Chapter 4 of this report, the following conclusions can be made regarding the existing conditions relative to the current NPDES permit limits:

- The existing average month effluent BOD_5 concentration has exceeded the monthly NPDES permit limit (30 mg/L) on several occasions during discharge periods to Cedar Draw Creek (see Figures 4-4 and 4-5).

- The existing average day and month effluent TSS concentrations and mass loadings frequently exceed the weekly and monthly NPDES permits limits (see Figures 4-6 and 4-7).

- The current concentration and mass loadings of total-phosphorus in the effluent are within the weekly (33 lbs/d) and monthly (17 lbs/d) NPDES permit limits (see Figures 4-8 and 4-9).

- At current dosage rates, the total chlorine residual in the effluent frequently exceeds the maximum daily (0.5 mg/L) and average monthly (0.3 mg/L) NPDES permit limits.

- Fecal coliform levels in the effluent during the winter-time discharge periods to Cedar Draw Creek generally meet the daily (800/100 mL), weekly (200/100 mL) and monthly (200/100 mL) NPDES permit.

Table 4-14 compares the performance of the lagoon system to the current NPDES permit limits.

Table 4-14. Comparison of Effluent Loads to NPDES Permit Limits

Parameter	Units	NPDES Effluent Limitations			Current Lagoon Performance	
		Average Monthly	Average Weekly	Daily Maximum	Average Effluent	Can be Met Reliably?
BOD_5	mg/L	30	45	–	21.5	
	lbs/d	70	105	–	29.2	No
TSS	mg/L	30	45	–	50.3	
	lbs/d	12	19	–	68.4	No
Total Residual Chlorine	mg/L	0.3	–	0.5	–	No
Total Phosphorus	lbs/d	17	33	–	6.9	Yes

Table 4-14 indicates that the City cannot consistently and reliably meet the NPDES permits for BOD_5, TSS, and total residual chlorine.

Figure 4-4. Comparison of Monthly Effluent BOD_5 to Monthly NPDES Permit Limits

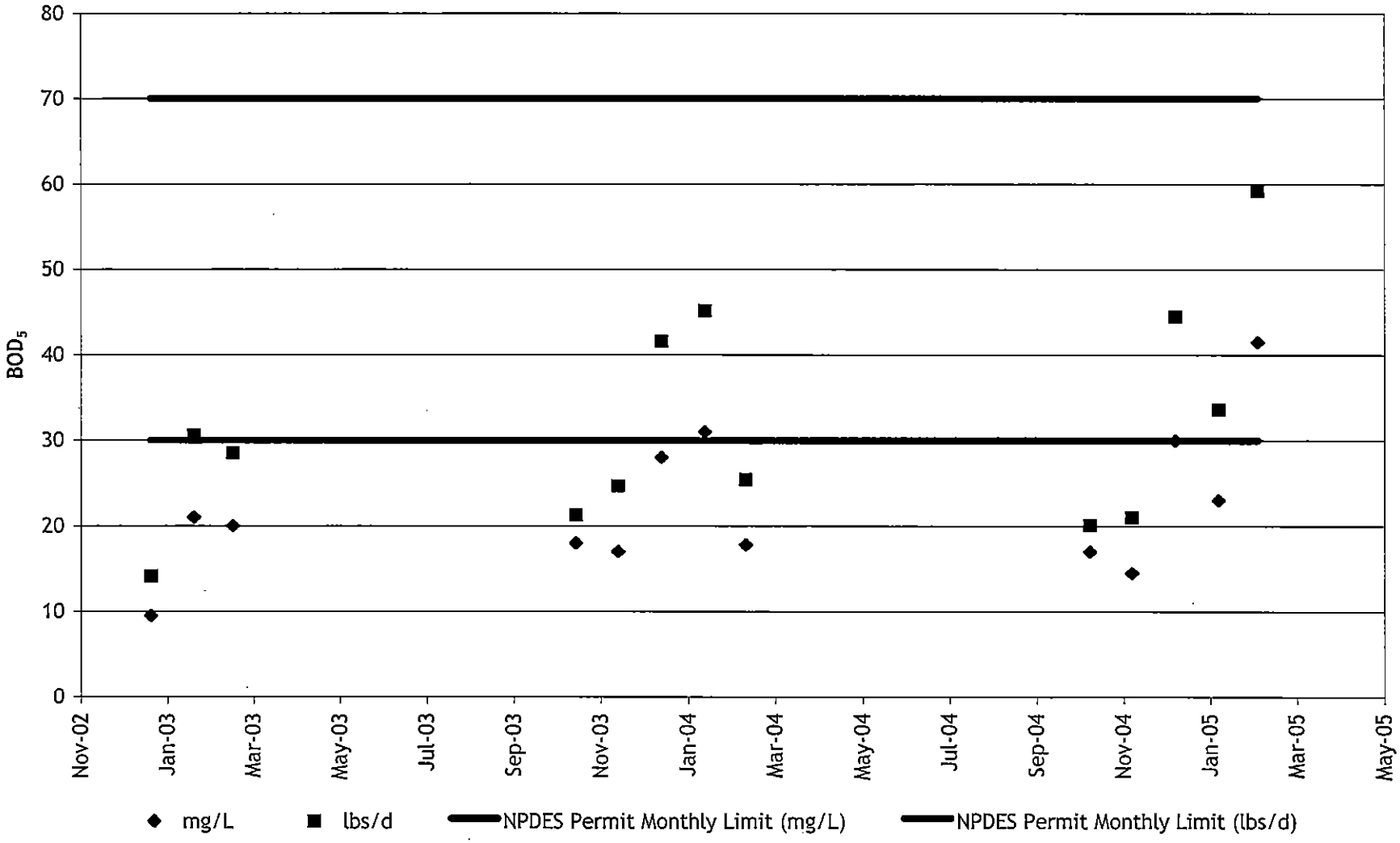


Figure 4-5. Comparison of Daily Effluent BOD_5 to Weekly NPDES Permit Limits

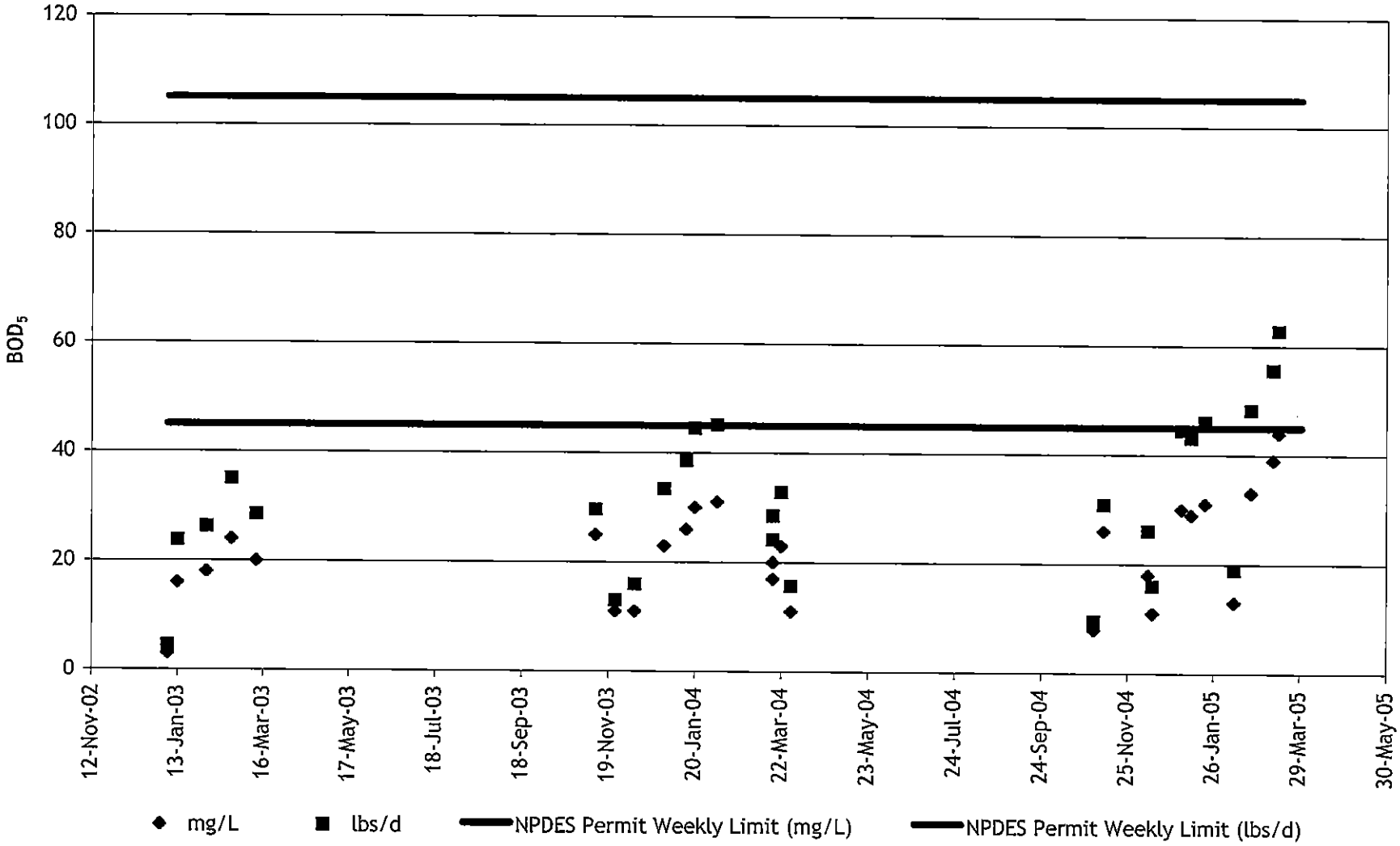


Figure 4-6. Comparison of Monthly Effluent TSS to Monthly NPDES Permit Limits

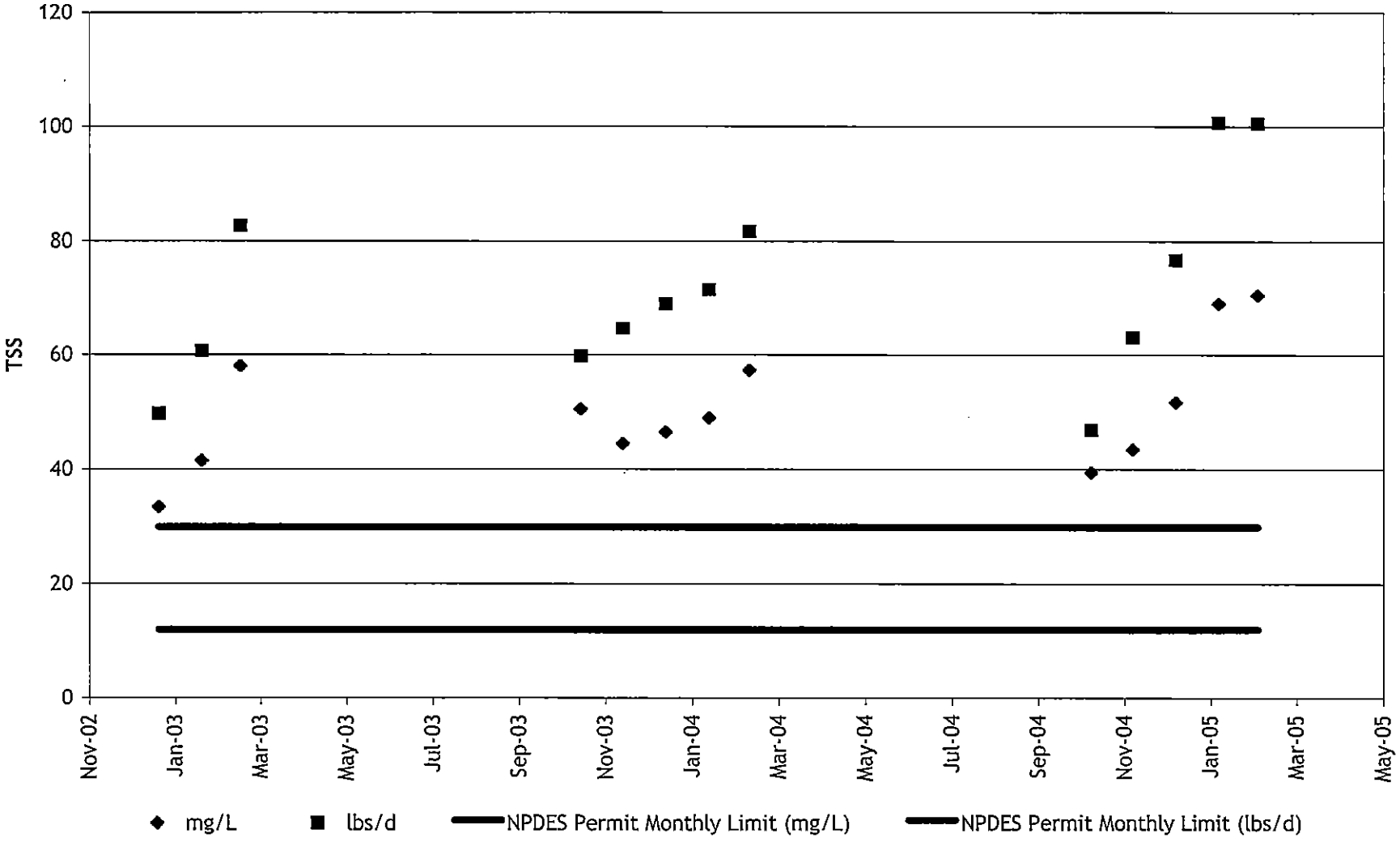


Figure 4-7. Comparison of Daily Effluent TSS to Weekly NPDES Permit Limits

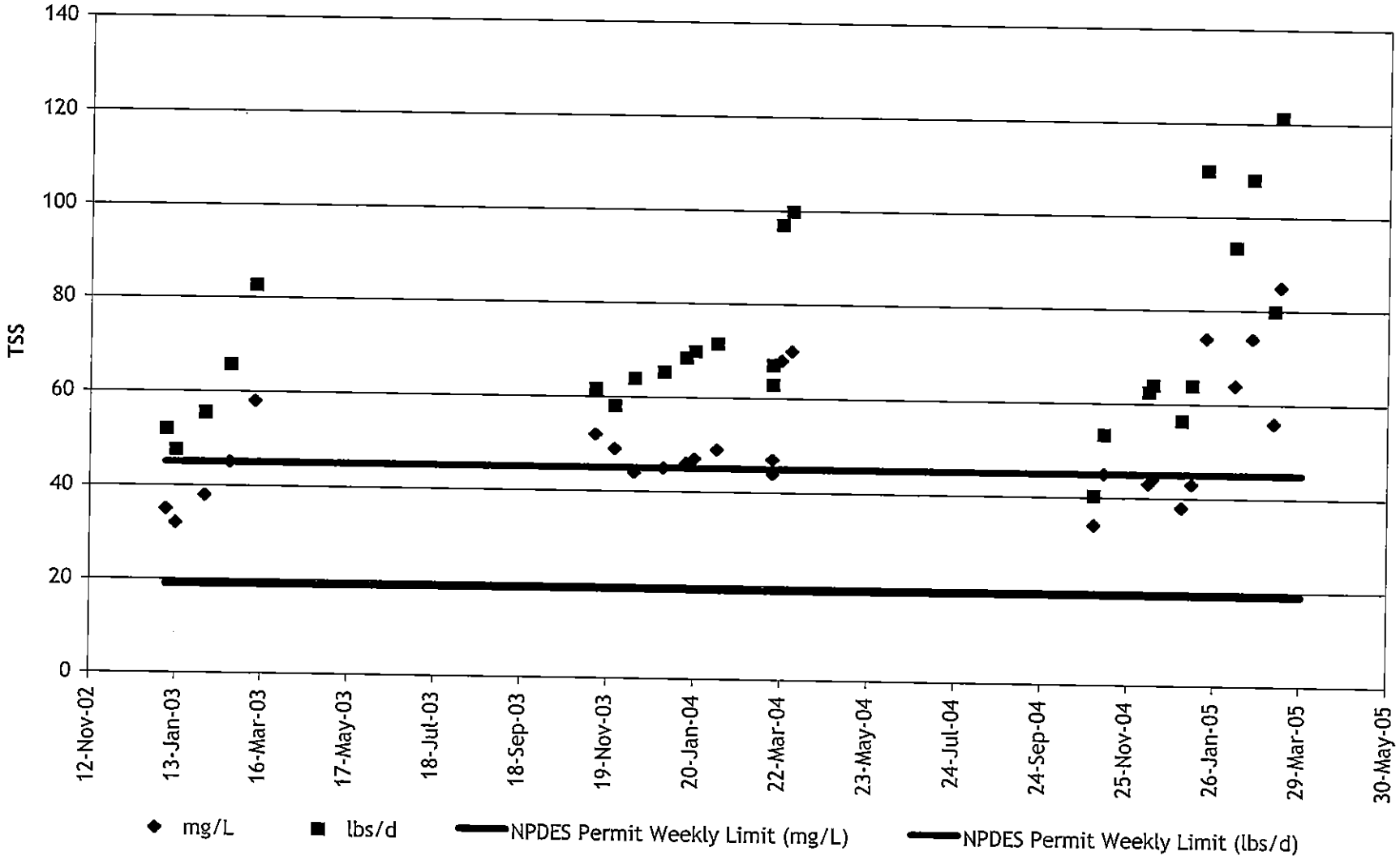


Figure 4-8. Comparison of Monthly Effluent Total-Phosphorus to Monthly NPDES Permit Limits

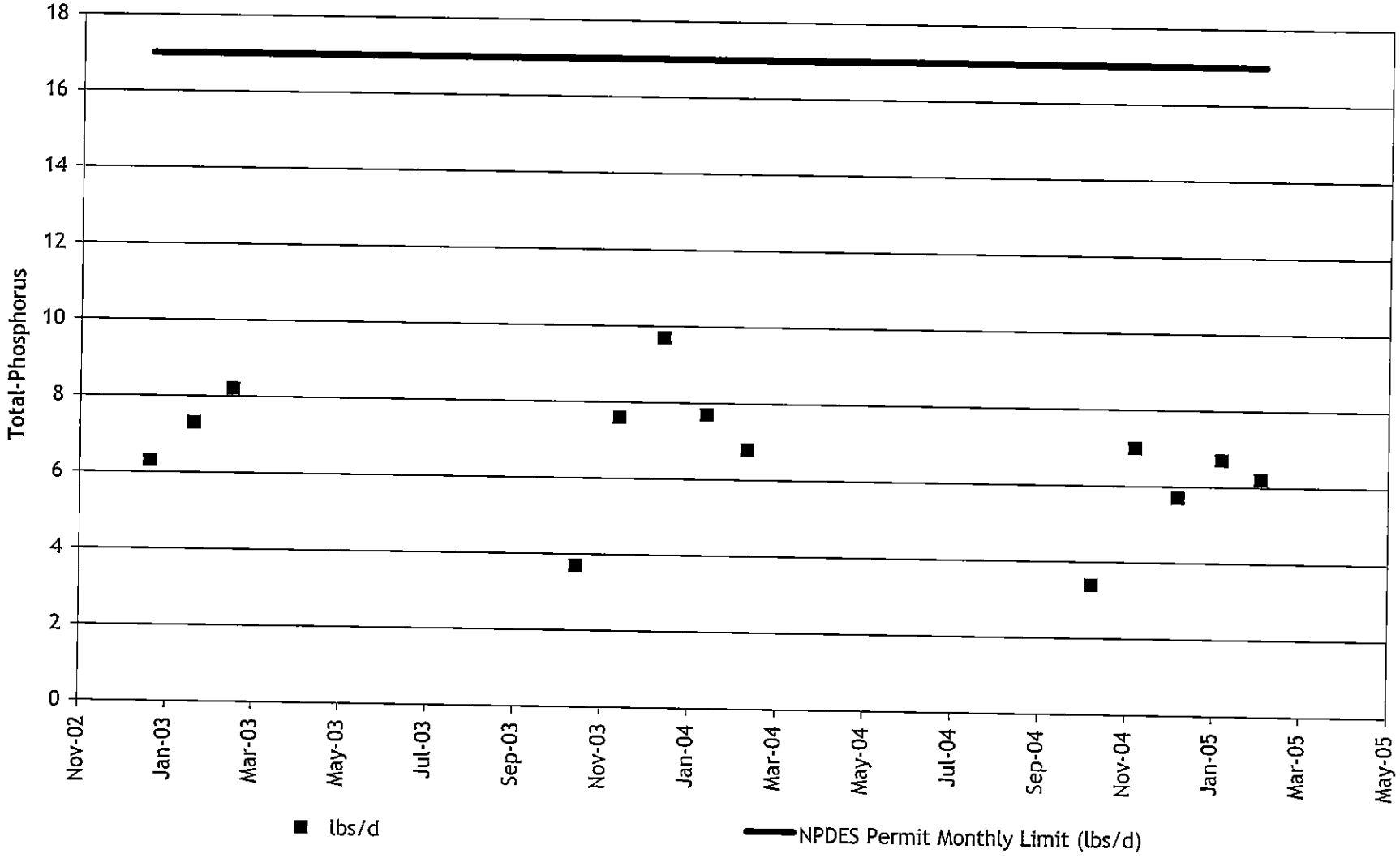
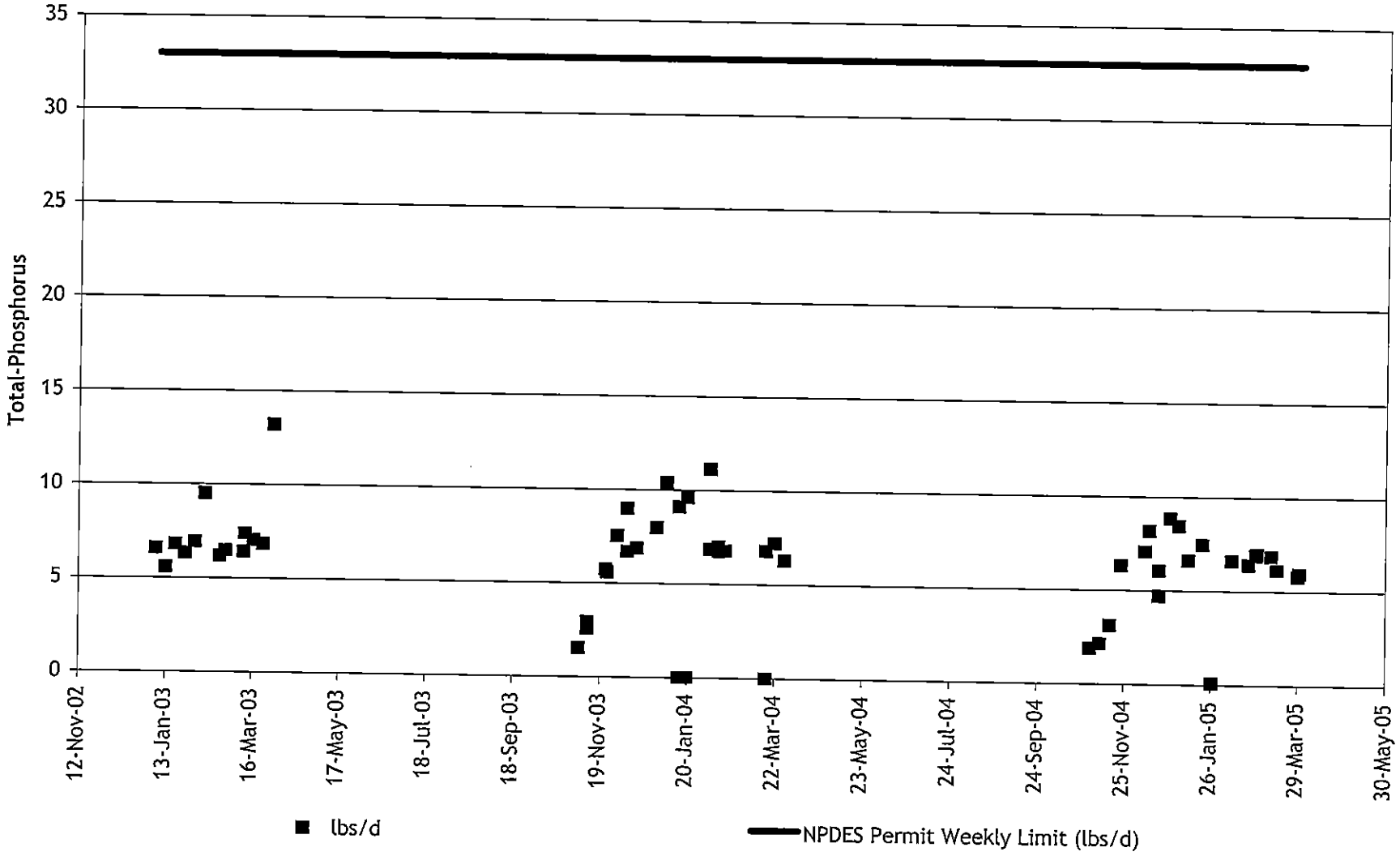


Figure 4-9. Comparison of Daily Effluent Total-Phosphorus to Weekly NPDES Permit Limits



4.4 WASTEWATER FACILITY NEEDS

Based on the preceding analysis, the recommended improvements to the City of Filer's wastewater collection and treatment facilities include:

Collection System

- Rehabilitate all of the aging, deteriorated concrete sewer mains.
- Upsize some of the existing sewer mains to provide adequate hydraulic capacity for future peak flows.
- If possible, deepen the sewer mains on the south end of the City to allow access for future developments to the south.
- Replace and re-align the 12 inch main exposed above ground that runs across a privately owned pasture located north of the railroad tracks near North Fair Avenue.

Wastewater Treatment Facilities

- Determine the source(s) causing the high BOD_5 and TSS levels in the influent.
- Install a continuous flow monitoring and recording device for the Parshall flume at the facility headworks.
- Install a continuous flow monitoring and recording device at the effluent.
- Pace the existing chlorinator with the effluent flow monitoring device.
- Install a comminutor or screen at the facility headworks to remove coarse solids and debris in the influent.
- When discharging to Cedar Draw Creek, investigate alternatives for addressing the high BOD_5 and TSS effluent levels relative to the current NPDES permit limits.
- Install additional aeration capacity in the first aerated lagoon.
- Implement improvements to the wastewater treatment facilities that will allow them to meet the existing and anticipated future land application and NPDES permit requirements.

CITY OF FILER

2008 WASTEWATER FACILITIES PLAN UPDATE

CHAPTER 5: IMPROVEMENT ALTERNATIVES

5.0 IMPROVEMENT ALTERNATIVES

Chapter 5 of the 2003 Facility Plan describes alternatives considered for upgrading the existing wastewater collection and treatment system. The 2003 recommendations for treatment included utilizing the existing lagoon and land application system with some modifications. This chapter provides additional information, including updated collection system costs and additional treatment alternatives to address permit changes since completion of the 2003 plan. The original descriptions of the 2003 alternatives for both the collection system and lagoon upgrades are not repeated here. The reader is encouraged to review the 2003 Facility Plan for additional background information.

5.1 WASTEWATER COLLECTION SYSTEM IMPROVEMENTS

5.1.1 Recommended Collection System Improvements

The recommended improvement alternatives include removing and replacing deteriorated concrete sewer mains with new PVC sewer mains and replacing deteriorated concrete sewer mains by pipe bursting with new HDPE pipe. Figure 5-1 presents the recommended wastewater collection system improvements. Further discussion regarding the collection system improvements can be found in the 2003 Facility Plan.

5.1.2 Collection System Improvement Costs

An opinion of probable costs in 2007 dollars was developed to construct the recommended collection system improvements. Table 5-1 summarizes the estimated costs.

Operation and maintenance costs associated with the collection system include routine cleaning, maintenance, and salaries. It is estimated that these costs will not change as a result of implementing the selected improvements.

5.2 WASTEWATER TREATMENT FACILITY IMPROVEMENTS

5.2.1 Introduction

Increasing potable water demands, in conjunction with the new arsenic treatment standard, may require that the City increase their water supply in the next 10 to 15 years (J-U-B, 2006). Approaches to increase water supply include new wells, new surface water supplies, treatment of wells that exceed the arsenic standard, and reuse of effluent for non-potable purposes. As such, Filer would like to consider wastewater treatment alternatives that provide greater flexibility for effluent disposal/reuse. Under the current lagoon system, the effluent can only be land applied to forage crops and can not be used for other non-potable uses, such as turf irrigation, dust control, or groundwater recharge. If a higher quality effluent is produced, Filer could meet current and future wastewater regulatory requirements and gain additional flexibility to potentially offset drinking water system demands for non-potable uses. The following sections describe effluent quality objectives and summarize the feasible treatment options within the context of the IDEQ wastewater reuse regulations.

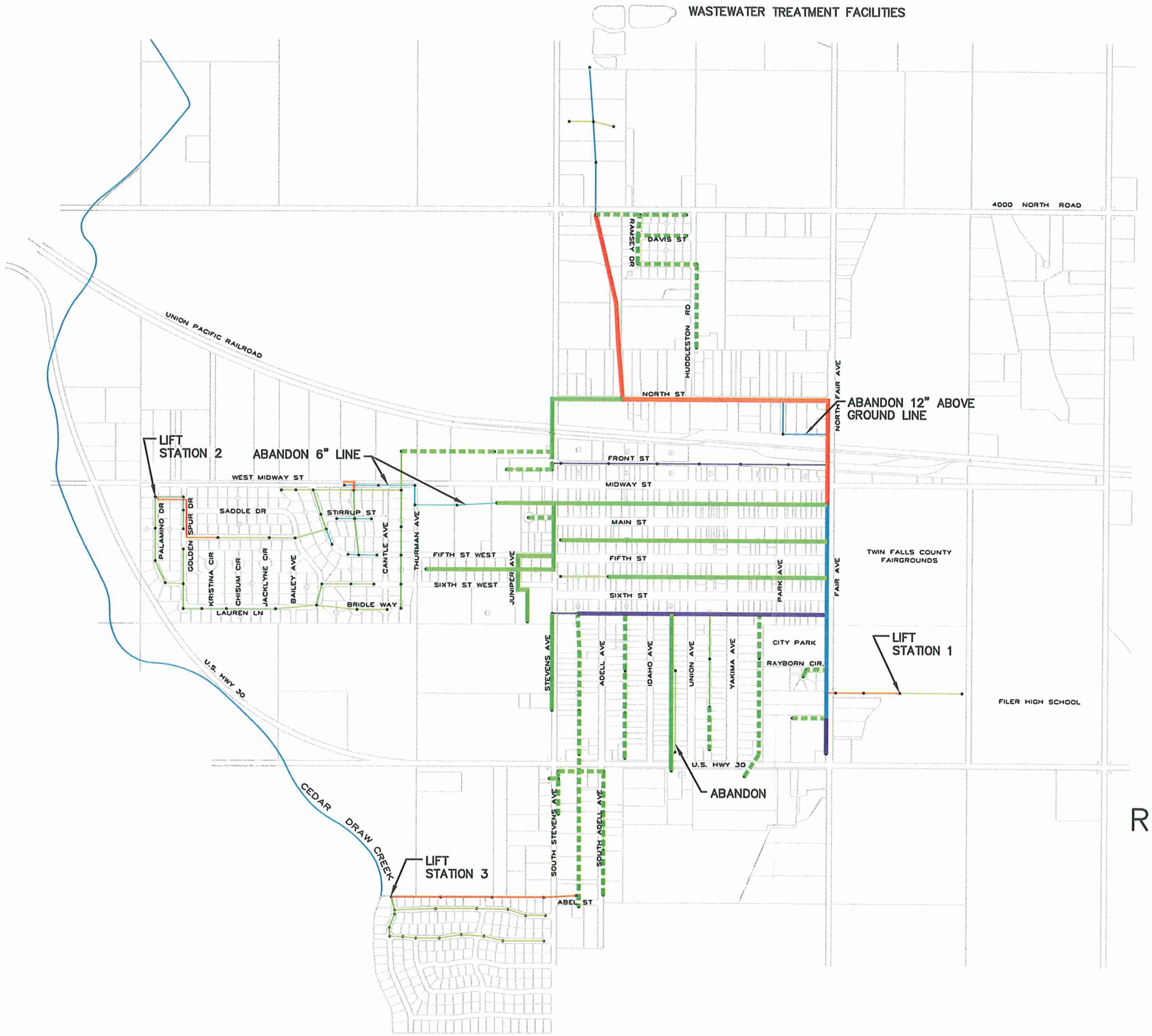


FIGURE 5–1
RECOMMENDED WASTEWATER COLLECTION SYSTEM IMPROVEMENTS

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Table 5-1. Opinion of Probable Costs for the Collection System Improvements

Item	Estimated Quantity	Unit	Unit Price	Total Price
Open Trench (24,200 LF)				
Remove Existing Gravity Sewer Main	24,200	LF	$2.50	$60,500
8" PVC Gravity Sewer Main	14,500	LF	$24.00	$348,000
10" PVC Gravity Sewer Main	2,800	LF	$27.00	$75,600
12" PVC Gravity Sewer Main	2,100	LF	$30.00	$63,000
15" PVC Gravity Sewer Main	4,800	LF	$34.00	$163,200
Remove Existing Manhole/Clean-Out	20	EA	$300.00	$6,000
4' Diameter Manhole w/ Ring & Cover	20	EA	$2,000.00	$40,000
Connection of PVC Main to Existing Manhole	90	EA	$200.00	$18,000
4" Service Connection	350	EA	$235.00	$82,250
4" Gravity Service Line	7,000	LF	$15.00	$105,000
Trench Rock Removal (10%)	2,150	CY	$110.00	$236,500
Gravel/Natural Surface Repair - Mains	15,600	LF	$8.00	$124,800
Asphalt Surface Repair - Mains	8,600	LF	$16.00	$137,600
Gravel/Natural Surface Repair - Services	4,510	LF	$5.00	$22,550
Asphalt Surface Repair - Services	2,490	LF	$15.00	$37,350
Railroad Crossing	2	EA	$5,000.00	$10,000
Highway Crossing	1	EA	$2,000.00	$2,000
Bypass Pumping & Traffic Control	120	Days	$250.00	$30,000
SUB-TOTAL OPEN TRENCH				**$1,562,350**
Pipe Bursting (14,500 LF)				
Pre-Installation Cleaning & Video Inspection	14,500	LF	$1.00	$14,500
8" HDPE Gravity Sewer Main	14,500	LF	$32.00	$464,000
Remove Existing Manhole/Clean-Out	20	EA	$300.00	$6,000
4' Diameter Manhole w/ Ring & Cover	20	EA	$2,000.00	$40,000
Connection of HDPE Main to Existing Manhole	70	EA	$300.00	$21,000
4" Service Connection	210	EA	$500.00	$105,000
4" Gravity Service Line	4,200	LF	$15.00	$63,000
Gravel/Natural Surface Repair - Entrance/Exit Pits	250	SY	$25.00	$6,250
Asphalt Surface Repair - Entrance/Exit Pits	190	SY	$30.00	$5,700
Gravel/Natural Surface Repair - Services	2,710	LF	$12.00	$32,520
Asphalt Surface Repair - Services	1,490	LF	$22.00	$32,780
Post-Installation Video Inspection	14,500	LF	$0.50	$7,250
Highway Crossing	2	EA	$2,000.00	$4,000
Traffic Control	70	Days	$250.00	$17,500
SUB-TOTAL PIPE BURSTING				**$819,500**
Sub-Total Construction Costs				**$2,381,850**
Contractor Mob/Demob (2%)				$47,600
Contractor Bonding, Admin, Insurance (10%)				$238,200
Contingencies (20%)				$476,400
Total Construction Costs (2007)				**$3,144,050**
Engineering, Const Mngt, Admin, Legal (20%)				$628,800
TOTAL PROJECT CAPITAL COSTS				**$3,772,850**

5.2.2 City of Filer Water Supply and Potential for Wastewater Reuse

5.2.2.1 Water Supply

The City's potable water supply is provided by wells located throughout the community. The water from the wells is pumped into storage reservoirs, where chlorine is added for disinfection. After storage, the water is delivered to the community by booster pumps and a network of water distribution piping. The water is used throughout the City for non-irrigation uses such as drinking, cooking, bathing, car washing, dust control, and commercial/industrial process water. The water is also used for irrigation purposes like landscape and turf watering during warmer months of the year. During cooler months, the majority of the water demand is for non-irrigation indoor uses. Figure 5-2 presents the monthly water demand and estimated distribution between non-irrigation and irrigation uses from 2003 to 2004. Table 5-2 shows that three of the five wells have arsenic concentrations greater than the drinking water standard of 10 µg/L.

Table 5-2. Arsenic Concentrations in City of Filer Drinking Water Wells[a]

	Well #1 (ug/L)	Well #2 (ug/L)	Well #3 (ug/L)	Well #5 (ug/L)	Well #7 (ug/L)
Average	19.2	16.0	9.6	16.2	8.0
Minimum	16.0	10.2	6.0	10.0	5.0
Maximum	24.9	22.2	19.0	23.0	11.0

a. J-U-B, 2006

Wells #3 and #7 have both had single samples that tested for arsenic at levels higher than the new standard. However, for public water systems that monitor once a year or less often (i.e., every 3 years), compliance with the arsenic regulations is not necessarily based on a single sample, but rather on the running annual average of quarterly samples. A single sample result higher than the MCL is an exceedance of the standard, but not necessarily a violation. Based on the historical arsenic sampling data, it appears that the running annual average in these wells will likely remain below the new MCL. Well #7 appears have enough water to supply the City for many years to come. However, if this well goes down for maintenance or arsenic concentrations increase as pumping increases, the City could face a drinking water shortage. Figure 5-3 presents the projected water supply versus the projected demand. This figure demonstrates that the City may face a potential water shortage in the next 10 to 15 years if Well #7 goes out of service or if the arsenic concentrations increase.

5.2.2.2 Wastewater Reuse

Lagoon treatment systems (including the system in Filer) have often utilized slow-rate land application as a final effluent treatment step. However, land application is now often referenced within the broader context of wastewater reuse or water reclamation. Wastewater reuse is increasingly being used to meet non-potable irrigation demands in areas of the country where water supplies are constrained. Wastewater reuse projects are beginning to be implemented in Idaho due in part to:

- An acknowledgment that groundwater quality can be impacted by wastewater land application sites if they are not properly operated and maintained (IDEQ, 2005).

- A realization that reclaimed wastewater may be a valuable resource to offset water demands for uses like residential irrigation. This realization is most apparent where new water sources are difficult or expensive to locate.

Figure 5-2. City of Filer Monthly Potable Water Demand

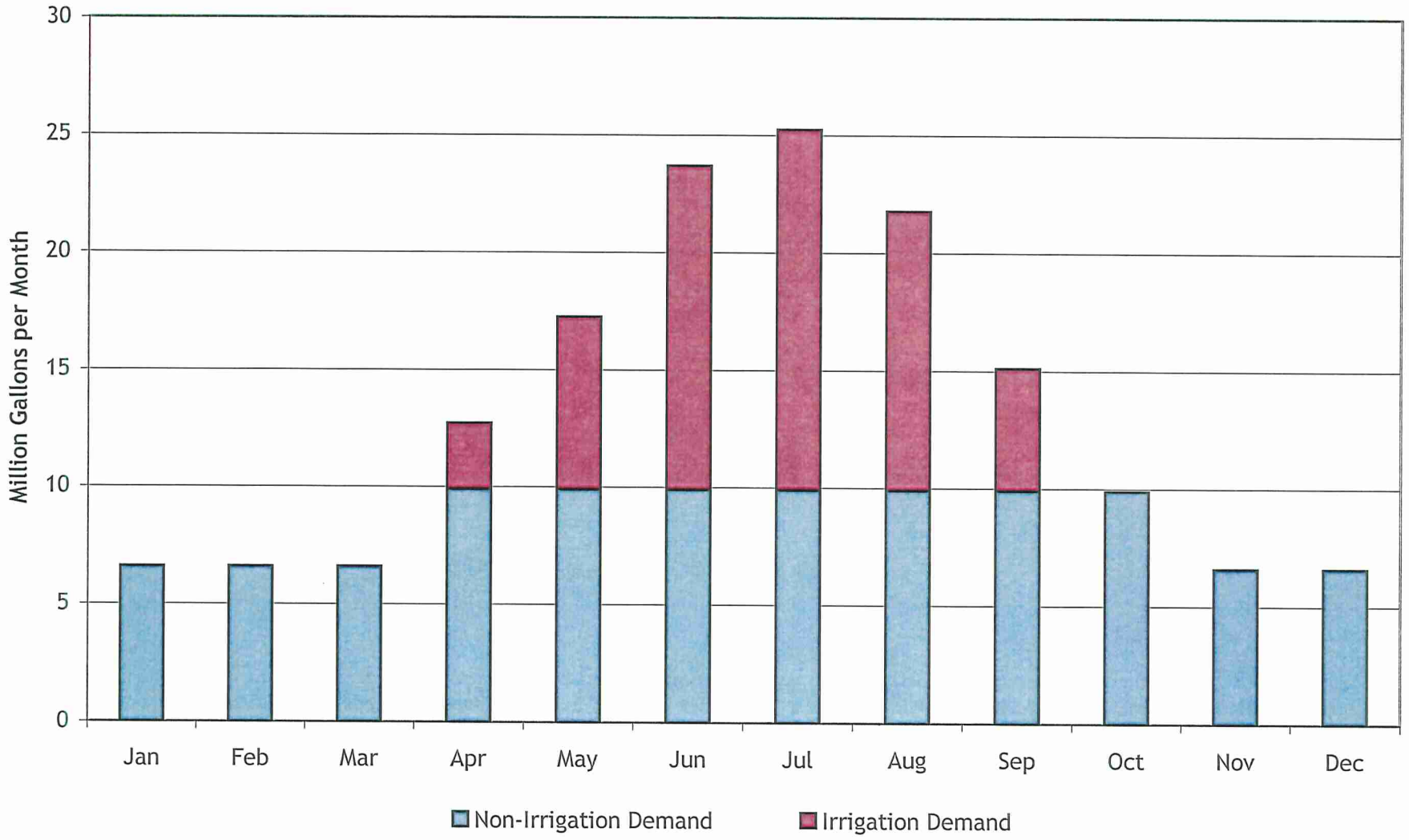
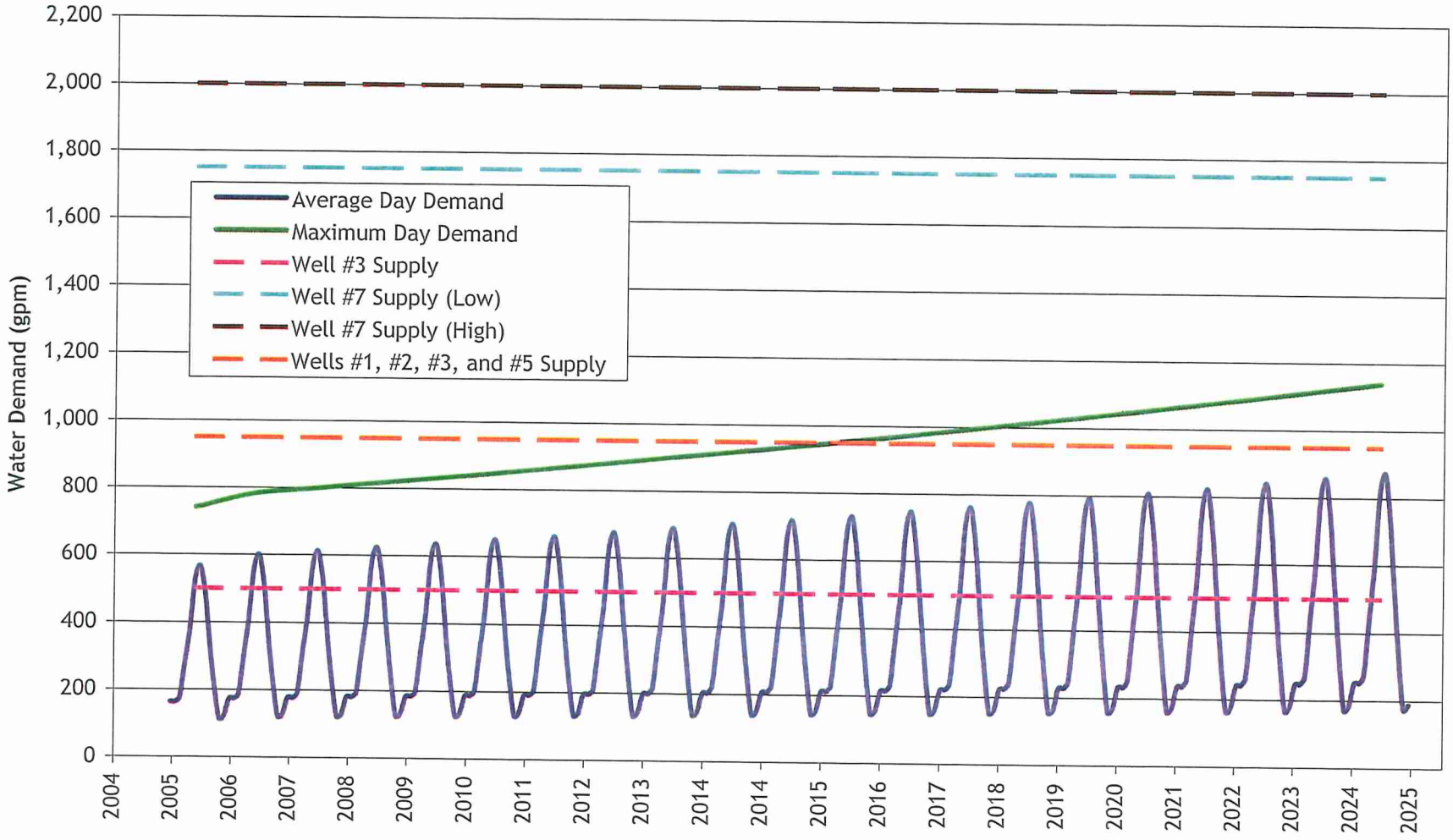


Figure 5-3. Water Supply vs. Projected Water Demand



- High levels of regulatory protection for aquifers which in some cases are sole source aquifers where water quality impacts are not allowed.

- Public awareness of water as a finite resource that should be managed and possibly "reclaimed" rather than "disposed" of.

The relative benefits and concerns of implementing a reclaimed wastewater reuse system are summarized in Table 5-3.

Table 5-3. Relative Benefits and Concerns of Wastewater Reuse in Filer

Benefits	Concerns
• Effluent flow from the treatment plant is relatively constant, reliable, and for the most part drought resistant. • Effluent from a treatment plant designed for reuse is typically of higher quality, providing flexibility for multiple reuse opportunities. • Reclaimed wastewater may be reused to offset drinking water demands and associated costs. • Reclaimed wastewater is considered part of the City's consumptive drinking water right, minimizing potential water rights issues. • Reuse of wastewater to offset drinking water demands may delay the need to secure additional water sources, which are becoming limited, or to treat the existing wells for arsenic.	• Public perception and concerns related to wastewater reuse can be difficult to overcome. • Treatment plant complexity generally increases as a higher quality of effluent is produced for reuse. • Additional infrastructure may be required to reuse wastewater (i.e., winter storage, distribution systems, recharge facilities, etc.). • Reuse in Idaho is relatively new and regulations governing reuse are still in their infancy. • Matching the reclaimed water supply to the demand may be difficult (i.e., storage during low demand periods).

Aware of the growing need and interest in wastewater reuse, IDEQ recently issued a *"Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater"* (IDEQ, 2005), which is a reorganization of the previously published guidance for land application. IDEQ has also been active in establishing and updating their wastewater regulations. The regulatory framework for which wastewater reuse projects in Idaho must comply includes:

1. IDAPA 58.01.17 - Rules for the Reclamation and Reuse of Municipal and Industrial Wastewater

2. IDAPA 58.01.16 - Wastewater Rules

3. IDAPA 58.01.11 - Groundwater Quality Rule

Table 5-4 summarizes some of the requirements for reuse of various effluent classifications.

One of the challenges of implementing a reuse project is matching the reclaimed wastewater supply to demand. The supply of reclaimed wastewater is generally steady throughout the year approximating indoor water use. However, non-potable demands, often dominated by summertime irrigation, experience strong seasonal peaks. Cities implementing reuse often use a variety of management approaches to address the imbalance that can exist between

Table 5-4. Summary of IDEQ Direct Reuse of Municipal Reclaimed Wastewater and Associated Treatment Technologies (see IDAPA 58.01.17-600.08)

Requirement Category	Classification [a]				
	A	B	C	D	E
Treatment Technologies	Oxidized, clarified, and coagulated, filtration, nutrient removal, disinfection	Oxidized, clarified, and coagulated, filtration, disinfection	Oxidized and adequately disinfected	Oxidized and adequately disinfected	Primary effluent quality
Discharge Limits					
BOD_5	<5 mg/L (recharge), <10 mg/L (other uses)	-	-	-	-
Coliforms	<2.2/100 ml	<2.2/100 ml	<23/100 ml	<230/100 ml	-
Total N	< 10 mg/L	-	-	-	-
Turbidity	< 2 NTU (mean), always < 5 NTU	< 2 NTU (mean), always < 5 NTU	-	-	-
Uses	Residential irrigation at homes, groundwater recharge, all Class B, C, D, E uses	Irrigation of edible food crops, golf courses, parks, schoolyards, all Class C, D, E uses	Irrigate orchards and vineyards, no contact with edible portion, cemeteries, roadside vegetation, all Class D, E uses	Irrigate fodder, seed, or processed food crops, all Class E uses	Irrigate forested sites
Access Restriction	Irrigate during periods of non-use	Irrigate during periods of non-use	Irrigate during periods of non-use	Public access restricted	Public access restricted
Redundancy	Fully redundant system plus alternative disposal or storage method	-	-	-	-
Typical Treatment Technology	Membrane Bioreactor (MBR), aerobic biological/clarification[b] with filtration (all with nutrient removal capabilities)	MBR, aerobic biological/clarification with filtration	Aerobic biological/clarification, lagoons	Lagoons	Primary lagoons

a Other regulations in accordance with IDAPA 58.01.16 may apply (e.g., NPDES). Other requirements such as signage, buffer distance, and groundwater limits also apply.
b. Aerobic biological includes activated sludge, oxidation ditch, trickling filters, and extended air processes.

supply and demand, including storage in surface ponds or aquifers and immediate reuse for such demands such as industrial/commercial process water, dust control, car washes, wetland enhancement, or other appropriate uses. Reliable disposal of effluent is an important consideration for reclaimed water planning. It is not uncommon that reclamation facilities to obtain a surface water discharge permit (NPDES permit) as a disposal "safety valve" in the event other reuse locations or storage is not available.

5.2.2.3 Wastewater Reuse in Filer

Reuse in Filer would likely be centered around non-potable irrigation demands. Higher quality effluent distributed separately from the potable system could alleviate potable water demand and potentially offset or delay the need to construct a new drinking water treatment facility. Table 5-5 compares the annual potable water demand to the potential reclaimed water supply.

Table 5-5. City of Filer Water Demand and Potential Reclaimed Wastewater Supply

	Actual 2005 Flow[a] (Mgal/yr)	Projected 2007 Flow[b] (Mgal/yr)	Projected 2027 Flow[b] (Mgal/yr)
Total Water Demand	158	168	249
Non-Irrigation Demand	102	108	161
Irrigation Demand[c]	56	60	89
Reclaimed Wastewater Available[d]	61	66	99
Reclaimed Wastewater Surplus[e]	5	6	10

a. Based on 2003-2004 data.
b. Projected flows based on a per person demand of 233 gpcd (calculated from 2003-2004 data) multiplied by the projected population. Ratio of non-irrigation to irrigation uses assumed to be the same as was calculated using 2003-2004 data.
c. Estimate of all irrigation water currently provided by City wells through potable water distribution system. Does not include large agricultural tracts supplied by surface water or private wells.
d. Reclaimed wastewater available is based on 96.9 gpcd (see Table 2-6). Assumes 95 percent of wastewater influent is treated and leaves the treatment facility as reclaimed wastewater. 5 percent of the flow is lost to sludge, evaporation, and in plant uses.
e. Assumes direct reuse of reclaimed wastewater using a pressure irrigation system. This assumption assumes effluent storage is available to meet the seasonal demands.

It appears that there would be enough reclaimed water available to satisfy irrigation requirements currently being met by the wells under both current and future conditions. As such, the City tasked J-U-B to identify possible treatment plant options to produce reclaimed wastewater. Three treatment plant alternatives were evaluated. These alternatives show the range of costs for producing different classes of reclaimed wastewater.

- **Option 1:** Class A or B reclaimed wastewater utilizing a membrane bioreactor (MBR).
- **Option 2:** Class A, B, or C reclaimed wastewater utilizing an oxidation ditch.
- **Option 3:** Class C reclaimed wastewater utilizing the existing lagoon system with some modifications.

5.2.3 Solids Handling

For all of the treatment options, wastewater organic material (measured as BOD) is converted to biological mass. In Options 1 and 2, this biological mass increases in the system with time and needs to be periodically "wasted" and disposed of. These biosolids are typically either land applied or landfilled.

Federal 40 CFR 503 regulations govern WWTP biosolids disposal. These regulations consider risk based concentrations for metals in the biosolids, degree of pathogen reduction, and the degree of vector reduction. Class A biosolids have undergone extensive treatment and can be landfilled, land applied, or sold to community members as compost. Class B biosolids have been treated by a Process to Significantly Reduce Pathogens (PSRP) and can either be land applied in bulk or landfilled. Biosolids that do not meet Class A or Class B pathogen reduction criteria must be land filled.

The solids handling portion of mechanical treatment plants (Options 1 and 2) typically consists of digestion and stabilization of the biosolids, the use of a mechanical dewatering device to reduce the volume required for disposal, and disposal of the biosolids through land application or land filling. Composting and/or drying beds are frequently used to obtain the additional pathogen and vector reduction that may be required for land application. Table 5-6 lists typical solids handling treatment processes and their objectives for a mechanical plant. Figure 5-4 shows a typical solids handling scheme at a mechanical plant.

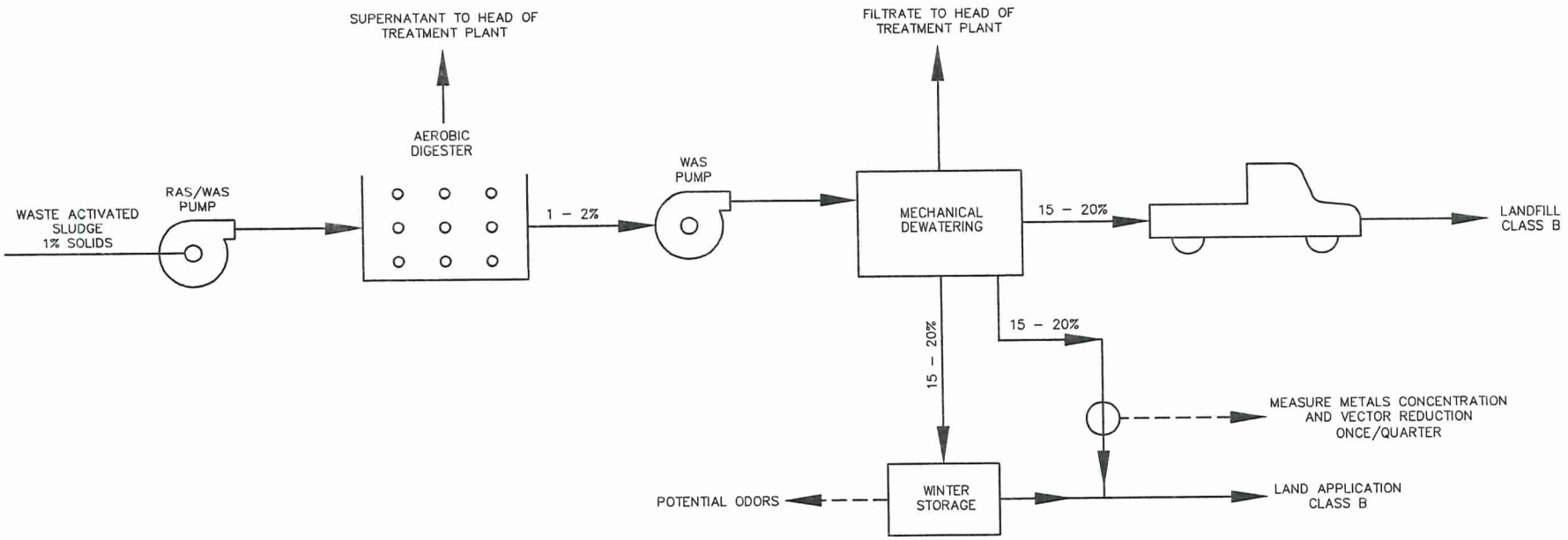
Table 5-6. Biosolids Handling Objectives and Corresponding Treatment Processes

Objective	Typical Treatment Process or Approach
Mass reduction	Digestion
Volume reduction	Mechanical dewatering, drying beds
Pathogen reduction	Digestion, mechanical dewatering, composting, drying beds/hold time
Vector reduction	Digestion, mechanical dewatering, composting, drying beds/hold time
Disposal	Landfill, land application, sell compost

In lagoon systems (option 3), the solids remain in the lagoon and are digested for a longer period of time, typically years. After several years, the lagoon is drained and the stabilized solids are disposed of.

The cost estimates for the mechanical treatment plants assumed a 60 day solids retention time in the aerobic digester to meet a minimum of Class B biosolids. Class B biosolids can be landfilled or land applied. Additionally, it was assumed that the final product from the dewatering unit would have 15 to 20 percent solids content. Biosolids handling should be revisited during any preliminary design to decide the best approach for the community. Additional considerations include:

- Current and future landfill tipping fees and willingness of landfill to accept biosolids.
- Tolerance for odor in the community.
- Desire in community to have inexpensive compost available.
- Availability of land suitable for land application.
- Potential use of the existing lagoons in the biosolids handling process.
- Ability of City staff to monitor and report biosolids disposal.
- Relative project economics between biosolids handling processes



DESIGN UNITS PROVIDED			
PROCESS	DUTY	STANDBY	DESIGN FLOW
AEROBIC DIGESTER	1	–	MAX MONTH
MECHANICAL DEWATERING	1	LAGOONS	MAX MONTH

FIGURE 5-4
FILER WASTEWATER TREATMENT PLANT
SOLIDS HANDLING PROCESS FLOW SCHEMATIC

5.2.4 Treatment Option 1 - Class A/B Reclaimed Wastewater Utilizing a Membrane Bioreactor (MBR)

MBRs are a relatively new technology associated with municipal wastewater treatment. Two of the larger MBR equipment suppliers report a combined installation list of over 100 North American MBR facilities. Most of these facilities have been installed from 2000 to 2006, with fewer installed in the 1990s. The City of Star, Idaho recently installed an MBR and the City of Jerome, Idaho is currently constructing an MBR. Figure 5-5 shows a process flow schematic of an MBR and also describes other processes that would be used in conjunction with the MBR. Additional details on an MBR are included in the following sections.

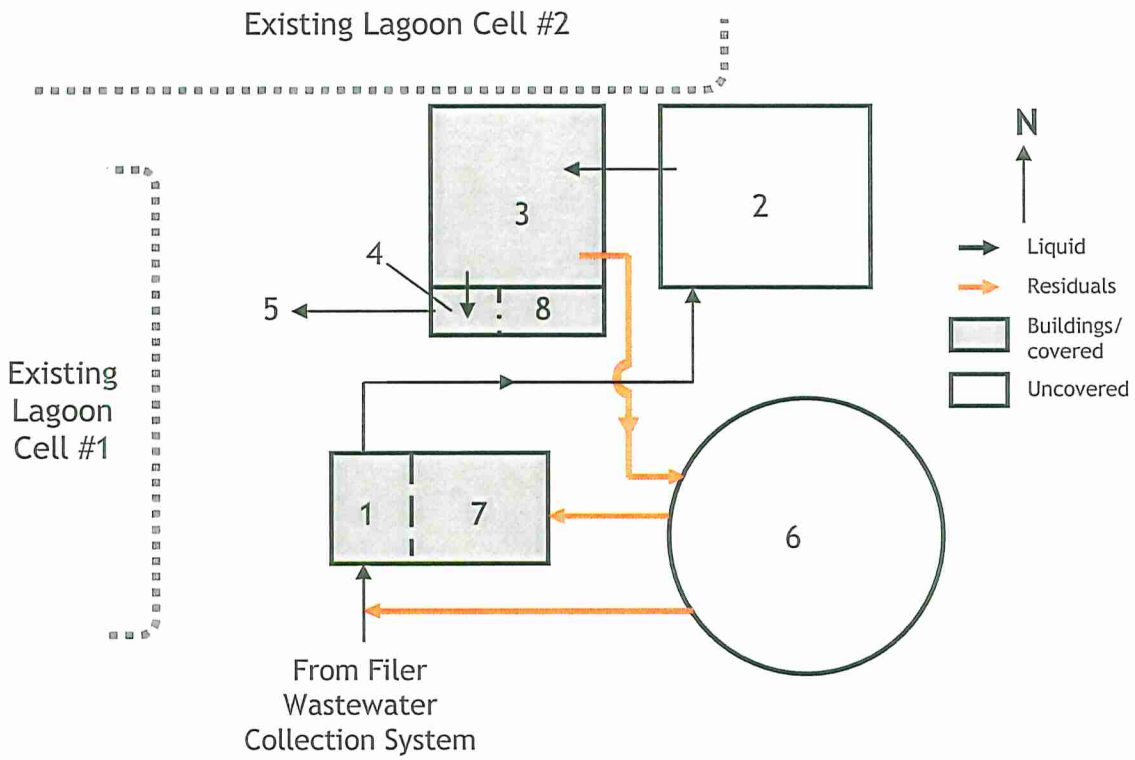
5.2.4.1 Headworks

It is recommended that the City install continuous flow monitoring and recording devices at the influent and effluent of the wastewater treatment facilities. The information collected by the flow meters will provide critical data for analyzing the performance of the treatment facilities. Additionally, the current reuse and NPDES permits require that the City monitor effluent flows on a continuous basis. The flow monitoring system would likely consist of an ultrasonic level sensor, monitoring device, and 6 inch influent Parshall flume.

A mechanical fine screen is required prior to the MBRs to remove solids, rags and other debris that could clog or damage downstream processes. A washer and compactor unit should be provided to minimize the organic debris in the screenings and reduce odors. The screening unit is typically self cleaning and requires routine maintenance, but not manual solids removal. The screening unit for the MBR process requires finer openings than other treatment processes in order to protect the debris sensitive membranes. Two screens would be provided to ensure continuous debris removal with one unit out of service.

After the influent flow is screened it is sent to a grit chamber and grit classifier. The grit removal system functions to remove sand, gravel, and other heavy material from the organic material that passes through the fine screen. The grit chamber consists of a cylindrical tank in which the flow enters tangentially, creating a vortex-flow pattern. Centrifugal and gravitational forces cause the grit to separate from the water and settle to a bottom hopper in one revolution of the wastewater through the basin. The wastewater exits the top of the chamber, while the grit is removed from the hopper by a pump and discharged to a grit classifier. The classifier is used to wash any remaining small or soluble solids and organics from the grit. The washed grit is then discharged to a screw auger for transport to a receptacle and/or bagging unit for disposal.

It is recommended that a new headworks building be constructed to house the flow monitor, fine screen, and grit removal system. A building will protect the equipment from the weather and help to minimize odor production. A common approach is to include the biosolids dewatering unit and grit chamber in the same building. The headworks and solids handling processes typically generate the most odors and these odors can be managed within a common building.



1. **Pretreatment**: Measure flow, remove debris and sand or grit
2. **Biological treatment zones**: Breakdown wastewater for filtration, create biological treatment mass
3. **Membrane filters**: Separate water from wastewater and pollutants
4. **Disinfection**: UV irradiation removes final pollutants
5. **Storage and Distribution**: Use existing lagoon cells for storage or discharge to Cedar Draw
6. **Aerobic solids treatment**: Further treat residuals (solids) from filtration process
7. **Dewatering:** Dewater solids for disposal
8. **Operator:** Plant operations center

Figure 5-5 Membrane Bioreactor (MBR) Site Schematic

5.2.4.2 Membrane Bioreactor

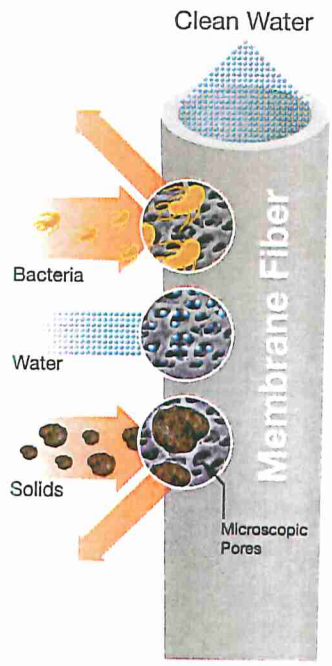
An MBR is an activated-sludge treatment process that employs a submerged membrane to provide solids separation rather than conventional clarification. The membranes have a very small nominal pore size and act as a physical barrier to separate the solids from the liquid wastewater. The membranes are typically installed as either thin flat plates or hollow fibers. Membrane filtration is typically implemented with pumps that generate suction and pull the clean water through the membrane, while leaving the impurities or biological mass exterior to the surface of the membrane (see Figure 5-6 for concept of membrane fiber separation). Other treatment plants not utilizing membranes can achieve similar levels of separation using clarification tanks and gravity media filters (i.e., tertiary sand or cloth disks).

The primary advantages of the MBR process include:

- Relatively small footprint compared to other common wastewater treatment technologies (smaller tanks and no clarifiers). This allows for lower land use and cost and makes enclosing/hiding the process easier.
- Phased implementation and expansion may be simpler than other technologies.
- High mixed liquor concentration capable of handling variations in loadings.
- MBRs are generally designed with a high level of automation that allows operators to focus on mechanical devices versus having to be well versed in biological processes typical of other activated sludge treatment plants.
- Disinfection requirements are typically less due to capture on the membrane.
- Small nominal pore size reduces passage of impurities, resulting in high quality effluent and general acceptance by the regulatory community.
- Easier process control since the clarifiers are eliminated and settling does not control process efficiency. Sludge settling issues (i.e., bulking, rising, etc.) are eliminated.

The primary disadvantages of the MBR process include:

- Higher level of maintenance associated with more equipment and sophisticated controls.
- Membrane fouling and decline in permeability over time.
- Membranes are typically proprietary or sole sources (i.e., once a membrane supplier is chosen, the City is required to work with them for the life of the facility). Membrane configurations are typically not interchangeable.
- Membranes are susceptible to rapid temperature changes that may influence effluent quality.
- Relatively high energy requirements compared to other technologies.



Enlarged schematic of membrane fiber

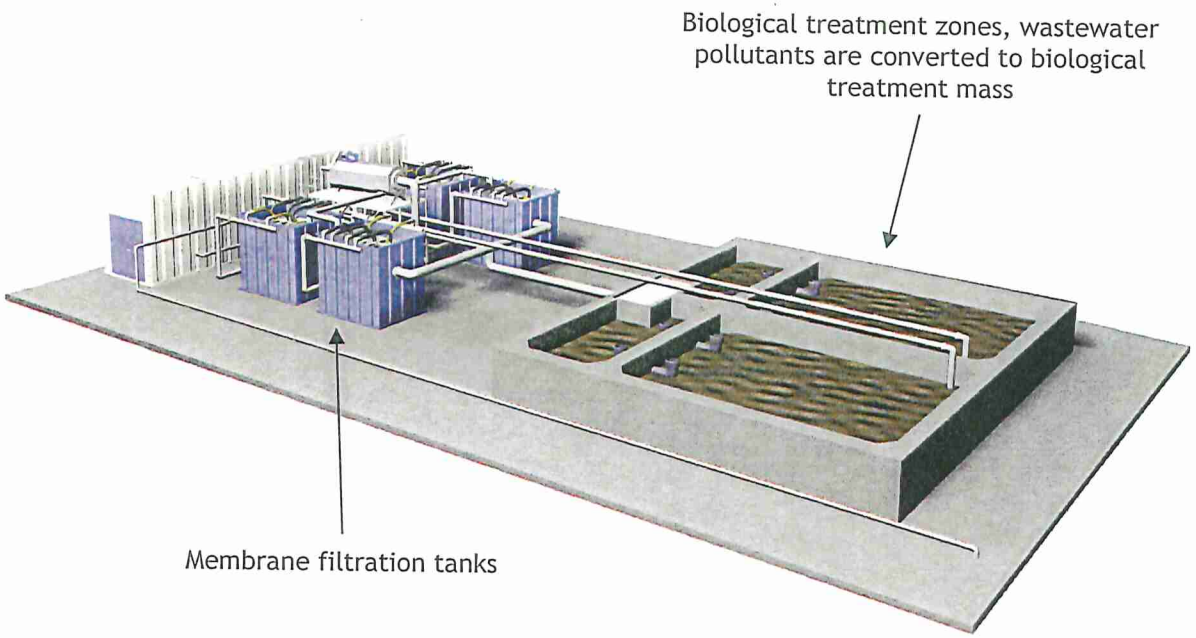


Figure 5-6 Concept Membrane Fiber and Process Units (Courtesy of Zenon, Inc.)

- Membrane life is currently estimated at 8 to 10 years. Replacement costs may be significant.

- Although the costs of membrane systems have decreased dramatically over the past few years, they are still often more capital cost intensive than other more established technologies like the oxidation ditch. Where land costs are very high, the small footprint of an MBR becomes more cost competitive.

5.2.4.3 Effluent Disinfection

Ultraviolet (UV) radiation would be used to disinfect the treated water generated by the MBR treatment process. UV disinfection systems transfer electromagnetic energy from a mercury arc lamp to the genetic material of the microorganisms. The radiation enters the DNA of the microorganism and destroys its ability to replicate. In this process, a physical means of inactivating pathogens is used rather than a chemical agent. As such, there is no need to handle hazardous chemicals, chemical by-products are not produced, and additional chemical treatment is not required to remove residuals (i.e., dechlorination). The contact time using UV disinfection is only 20-30 seconds. Therefore, the required contact chamber is smaller than that of chlorine disinfection.

5.2.4.4 Design Units and Effluent Quality for Membrane Bioreactor Treatment Plant

The overall quality and characteristics of Class A and Class B reclaimed wastewater are similar. However, IDAPA 58.01.17.601 regulations impose additional redundancy requirements for Class A reclaimed wastewater. These redundancy requirements are quite extensive and can result in a duplication of many unit processes. For some unit processes, this requirement may result in more infrastructure than would be provided in a typical treatment plant design. Class A reclaimed wastewater must also be equipped with a disinfection process, that when combined with filtration, achieves 5-log inactivation of viruses. In addition, it was assumed that the existing lagoons would provide for 7 days storage of the effluent for a Class A plant. The design elements provided for each class using MBR treatment are summarized in Table 5-7.

Table 5-7. Number of Elements Provided for Each Class with MBR Treatment

Process Element	Class A	Class B	Design Flow/Load
Flow Monitor	1 flume and ultrasonic	1 flume and ultrasonic	Peak Hour
Mechanical Fine Screen	1 duty 1 standby	1 duty 1 standby	Peak Hour
Grit Chamber	1 duty 1 standby	1 duty 1 standby	Peak Hour
MBR	3 biological and membrane trains at 50 percent each; duty + standby equipment on common manifold (N+1)	2 biological and membrane trains at 50 percent each; duty + standby equipment on common manifold (N+1), space in trains for additional membrane surface area if needed for flux conditions	Aeration - Peak Hour Membrane Flux - Peak Day
UV Disinfection	1 duty reactor 1 standby reactor	1 duty reactor 1 standby reactor	Peak Hour
Aerobic Digester	Single tank to meet design volume	Single tank to meet design volume	Maximum Month
Belt Press	1 duty press	1 duty press	Maximum Month

Effluent water quality characteristics from the MBR treatment plant are summarized in Table 5-8.

Table 5-8. Design Effluent Water Quality from an MBR

Parameter	Effluent Value
BOD_5	< 5 mg/L
TSS	< 5 mg/L
Turbidity	< 0.2 NTU
Total-Nitrogen	< 10 mg/L
Total-Phosphorus[a]	<1 mg/L

a. A well operated MBR unit including anaerobic selector zones is expected to achieve < 1 mg/l total phosphorus. Chemical addition should be considered in final design based on final effluent limits. Chemical addition in an MBR system is expected to achieve < 0.1 mg/L total phosphorus.

5.2.4.5 Probable Costs for Membrane Bioreactor Treatment Plant

Table 5-9 summarizes the opinion of 2007 probable costs for the Filer system if MBR technology was utilized. The table includes all unit processes that will likely be required to produce Class A or Class B reclaimed water and Class B biosolids suitable for land application or landfilling.

Table 5-9. Opinion of Probable Cost for MBR Producing Idaho Class A/B Reclaimed Wastewater

Item	Class A Total Price ($)	Class B Total Price ($)
Headworks (Flume, Grit, Screen)	$624,450	$624,450
Membrane Bioreactors	$3,633,500	$2,612,750
Aerobic Digester	$641,750	$641,750
Disinfection System	$180,000	$180,000
Dewatering	$330,000	$330,000
Reclaimed Water Pump Station	$200,000	$200,000
Site Fencing	$4,800	$4,800
Office/Admin Building	$84,375	$84,375
Site Power	$200,000	$200,000
Site Piping	$150,000	$150,000
Decommission Existing Lagoons	$65,000	$65,000
7-Day Effluent Storage	$160,000	$0
Sub-Total Construction Costs	**$6,273,875**	**$5,093,125**
Contractor Mob/Demob (2%)	$125,000	$102,000
Contractor Bonding, Admin, Insurance (10%)	$627,000	$509,000
Contingencies (20%)	$1,255,000	$1,019,000
Total Construction Costs (2007)	**$8,280,875**	**$6,723,125**
Engineering, Const Mngt, Admin, Legal (20%)	$1,656,000	$1,345,000
TOTAL PROJECT CAPITAL COSTS	**$9,936,875**	**$8,068,125**

It is recommended that the WWTP be designed initially to produce Class B reclaimed wastewater. The site will be master planned so that Class A reclaimed wastewater can be achieved in the future. It is anticipated that it will be at least 10 years before the City faces a potential drinking water supply shortage. Therefore, direct reuse infrastructure (e.g., piping for an irrigation system using reclaimed wastewater to offset potable water demand) will not be constructed at this time.

5.2.5 Treatment Option 2 - Class A, B, or C Reclaimed Wastewater Utilizing an Oxidation Ditch

An oxidation ditch is a well established process that utilizes aerobic biological processes to treat wastewater. Figure 5-7 shows a process schematic for a typical oxidation ditch facility.

5.2.5.1 Headworks

The headworks constructed for the oxidation ditch treatment process would essentially be the same as the headworks required for the MBR process with the following exceptions:

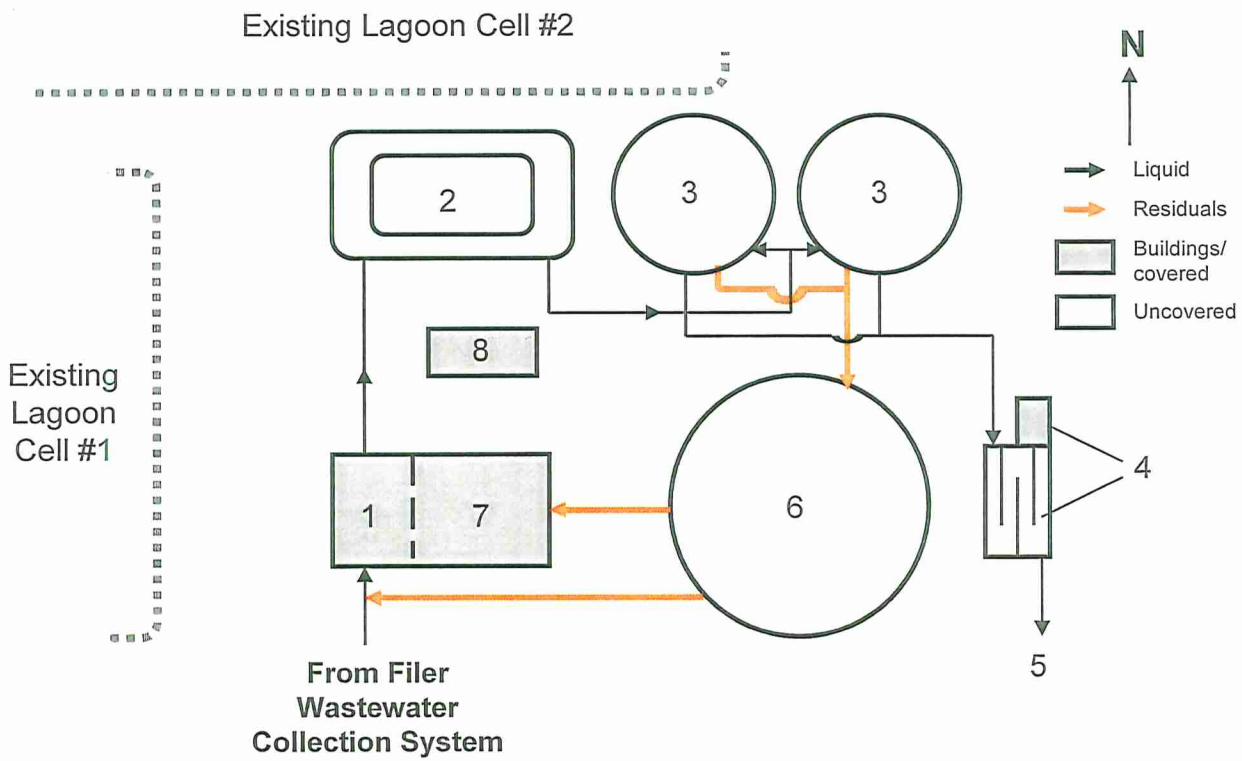
- The openings on the mechanical fine screen can be larger because the oxidation ditch is less sensitive to debris.
- A course bar rack would be placed in the standby channel instead of another mechanical fine screen. When the mechanical fine screen is down for maintenance the bar rack will serve to screen out the large objects, thus providing some level of protection for the pumps downstream. This level of protection is sufficient for the oxidation ditch, but not for the MBR. The bar rack will have to be manually cleaned.

5.2.5.2 Oxidation Ditch

Typical oxidation ditch systems consist of a single or multichannel configuration within a ring, oval, or horseshoe-shaped basin. Wastewater in the oxidation ditch is converted into a biologically active mass through oxygen addition. The active biomass is slightly heavier than water and will settle in a clarifier after leaving the oxidation ditch. The clean water exits the clarifier as an overflow while the heavier biomass leaves the bottom of the tank for return to the oxidation ditch or wasting and further treatment (solids handling). The clean water leaving the clarifier can either be disinfected or further treated with a filtration step. Without filtration, the effluent is categorized as an Idaho Class C reclaimed wastewater. If filtration is utilized, then the higher Class A or Class B can be obtained.

The primary advantages of an oxidation ditch type technology are:

- Effluent quality that will regularly exceed that of the current lagoon system.
- A smaller footprint relative to the size of the lagoons.
- Less impact from shock load or hydraulic surge due to longer retention time and complete mixing.
- Extended biological activity during the activated sludge process leads to less sludge production than other biological processes.
- The technology and application is well established and proven, with numerous US and Idaho installations.



1. **Pretreatment**: Measure flow, remove debris and sand or grit
2. **Biological treatment zones (Oxidation Ditch)**: Breakdown wastewater for settling, create biological treatment mass
3. **Clarifiers**: Settling tanks to remove biological mass from wastewater
4. **Disinfection:** Chlorine contact tank removes final pollutants
5. **Storage and Distribution**: Use existing lagoon cells for storage or discharge to Cedar Draw
6. **Aerobic solids treatment**: Further treat residuals (solids and biological mass) from treatment process
7. **Dewatering:** Dewater solids for disposal
8. **Operator:** Plant operations center

Figure 5-7 Oxidation Ditch Site Schematic

5.2.5.3 Tertiary Filtration

There are several types of filters on the market that would be suitable for Filer if the City would like to pursue Class A or Class B reclaimed water. In a continuous backwash upflow sand filter, wastewater enters the filter and flows upward through a packed sand column. Gravity pulls the sand toward the bottom of the filter, countercurrent to the upward flowing wastewater. The clean filtrate exits the sand, spills over an overflow weir, and is sent to the disinfection process. The dirty sand at the bottom of the filter is backwashed using filtered water and deposited once again at the top of the column. The backwash sand filter produces continuous filtrate and rejects streams.

Alternatively, the City could use a cloth disk filter to achieve Class A or Class B reclaimed water. Under this alternative, cloth disks are placed vertically inside a tank and the tank is filled with wastewater. The cloth media filter consists of nylon fibers arranged in a pile construction on a polyester backing material. Typical pore sizes range from 10 to 30 µm. The liquid passes through the cloth media, while the solids accumulate on the media, forming a mat. The filtered liquid enters an internal shaft which directs the water to the disinfection process. As the liquid level in the tank rises due to matting of the media, the disks begin to rotate and solids are backwashed from the surface of the disk using a liquid spray. Filtration is not interrupted during the cleaning cycle as the disks are cleaned one or two at a time, thus leaving other disks available for filtration.

5.2.5.4 Effluent Disinfection

For the oxidation ditch alternative, it was assumed the City would refurbish and reuse the existing chlorine disinfection system. The City should pace the chlorine metering pump with the effluent flow meter to maintain a consistent and reliable residual chlorine level. The required contact time is approximately 30 minutes. Following the contact basin, the effluent water would gravity flow to the pump station (if being reused) or to the surface water discharge location (if not being reused). It is likely that the effluent will need to be dechlorinated prior to discharge to a surface water.

5.2.5.5 Design Units and Effluent Quality for Oxidation Ditch Treatment Plant

As mentioned earlier, an oxidation ditch facility can be used to produce Class A, B, or C reclaimed wastewater, depending on whether tertiary filtration is used and if redundancy requirements are met. It was assumed that the existing lagoons would provide for 7 days storage of the effluent for a Class A plant. Table 5-10 summarizes the process parameters for planning level design of the oxidation ditch for producing Class A, Class B, or Class C reclaimed wastewater.

Table 5-10. Number of Elements Provided for Each Class with Oxidation Ditch Treatment

Process Element	Class A	Class B	Class C	Design Flow/Load
Influent Flow Monitor	1 flume and ultrasonic	1 flume and ultrasonic	1 flume and ultrasonic	Peak Hour
Mechanical Bar Screen	1 duty 1 standby	1 duty	1 duty	Peak Hour
Coarse Bar Rack	-	1 as standby to mech. screen	1 as standby to mech. screen	Peak Hour
Grit Chamber	1 duty 1 standby	1 duty	1 duty	Peak Hour
Oxidation Ditch	1 duty ditch 1 standby ditch	1 duty ditch, 1 duty + 1 standby aerator	1 duty ditch, 1 duty + 1 standby aerator	Aeration - Peak Hour, Peak Day Flow
Clarifiers	1 duty clarifier 1 standby clarifier	1 duty clarifier 1 standby clarifier	1 duty clarifier 1 standby clarifier	Peak Hour, Max. Month
Filtration	1 duty filter 1 standby filter	1 duty filter 1 standby filter	-	Peak Hour
Chlorine Disinfection	1 duty chlorine contact tank 1 standby chlorine contact tank	1 duty chlorine contact tank Standby chlorine feed pumps	1 duty chlorine contact tank Standby chlorine feed pumps	Peak Hour
Aerobic Digester	Single tank to meet design volume	Single tank to meet design volume	Single tank to meet design volume	Max. Month
Belt Press	1 duty press	1 duty press	1 duty press	Max. Month

Table 5-11 summarizes the anticipated effluent water quality characteristics for an oxidation ditch system with and without filters.

Table 5-11. Design Effluent Water Quality from an Oxidation Ditch (with clarifiers)

Parameter	Effluent Quality (w/filters)	Effluent Quality (no filters)
BOD_5	<5 mg/L	< 20 mg/l
TSS	<5 mg/L	< 20 mg/l
Turbidity	< 2 NTU	-
Total-Nitrogen	<10 mg/L	< 10 mg/l
Total-Phosphorus[a]	<1 mg/L	<1 mg/l

a. A well operated oxidation ditch including anaerobic selector zones is expected to achieve < 1 mg/l total phosphorus. Chemical addition should be considered in final design based on final effluent limits. Chemical addition with cloth filters is expected to achieve < 0.5 mg/l total phosphorus while a sand filter is expected to achieve < 0.1 mg/L total phosphorus.

5.2.5.6 Probable Costs for Oxidation Ditch Treatment Plant

Table 5-12 presents an opinion of 2007 probable costs for oxidation ditch technology for each class of reclaimed wastewater and Class B biosolids suitable for land application or landfill.

Table 5-12 Opinion of Probable Cost for Oxidation Ditch Producing Reclaimed Wastewater

Item	Class A Total Price ($)	Class B Total Price ($)	Class C Total Price ($)
Headworks (Flume, Grit, Screen)	$851,150	$502,550	$502,550
Oxidation Ditch and Clarifiers	$3,060,000	$1,800,000	$1,800,000
Tertiary Filtration	$900,000	$900,000	$0
Aerobic Digester	$641,750	$641,750	$641,750
Disinfection System	$180,000	$141,000	$141,000
Dewatering	$330,000	$330,000	$330,000
Reclaimed Water Pump Station	$200,000	$200,000	$200,000
Site Fencing	$4,800	$4,800	$4,800
Office/Admin Building	$62,500	$62,500	$62,500
Site Power	$200,000	$200,000	$200,000
Site Piping	$150,000	$150,000	$150,000
7-Day Effluent Storage	$160,000	$0	$0
Decommission Existing Lagoons	$65,000	$65,000	$65,000
Sub-Total Construction Costs	**$6,805,200**	**$4,997,600**	**$4,097,600**
Contractor Mob/Demob (2%)	$136,000	$100,000	$82,000
Contractor Bonding, Admin, Insurance (10%)	$681,000	$500,000	$410,000
Contingencies (20%)	$1,361,000	$1,000,000	$820,000
Total Construction Costs (2007)	**$8,983,200**	**$6,597,600**	**$5,409,600**
Engineering, Const Mngt, Admin, Legal (20%)	$1,797,000	$1,320,000	$1,082,000
TOTAL PROJECT CAPITAL COSTS	**$10,780,200**	**$7,917,600**	**$6,491,600**

It is recommended to design the oxidation ditch to produce Class B reclaimed wastewater. The site can be master planned to provide the redundancy requirements for Class A reclaimed wastewater.

5.2.6 Treatment Option 3 - Class C Reclaimed Wastewater Utilizing Upgraded Lagoon System

The following section describes improvements to the existing treatment lagoons and land application system. Figure 5-8 shows a preliminary layout of the lagoon and land application system improvements. The resulting reclaimed wastewater would be suitable for Class C uses.

5.2.6.1 Plant Headworks

It is recommended that the City install continuous flow monitoring and recording devices at the influent and effluent to the wastewater treatment facilities. The flow meter should be used to pace the chlorinator, if possible. Power is currently available at the site to provide electricity for the recommended ultrasonic level sensor and recorder.

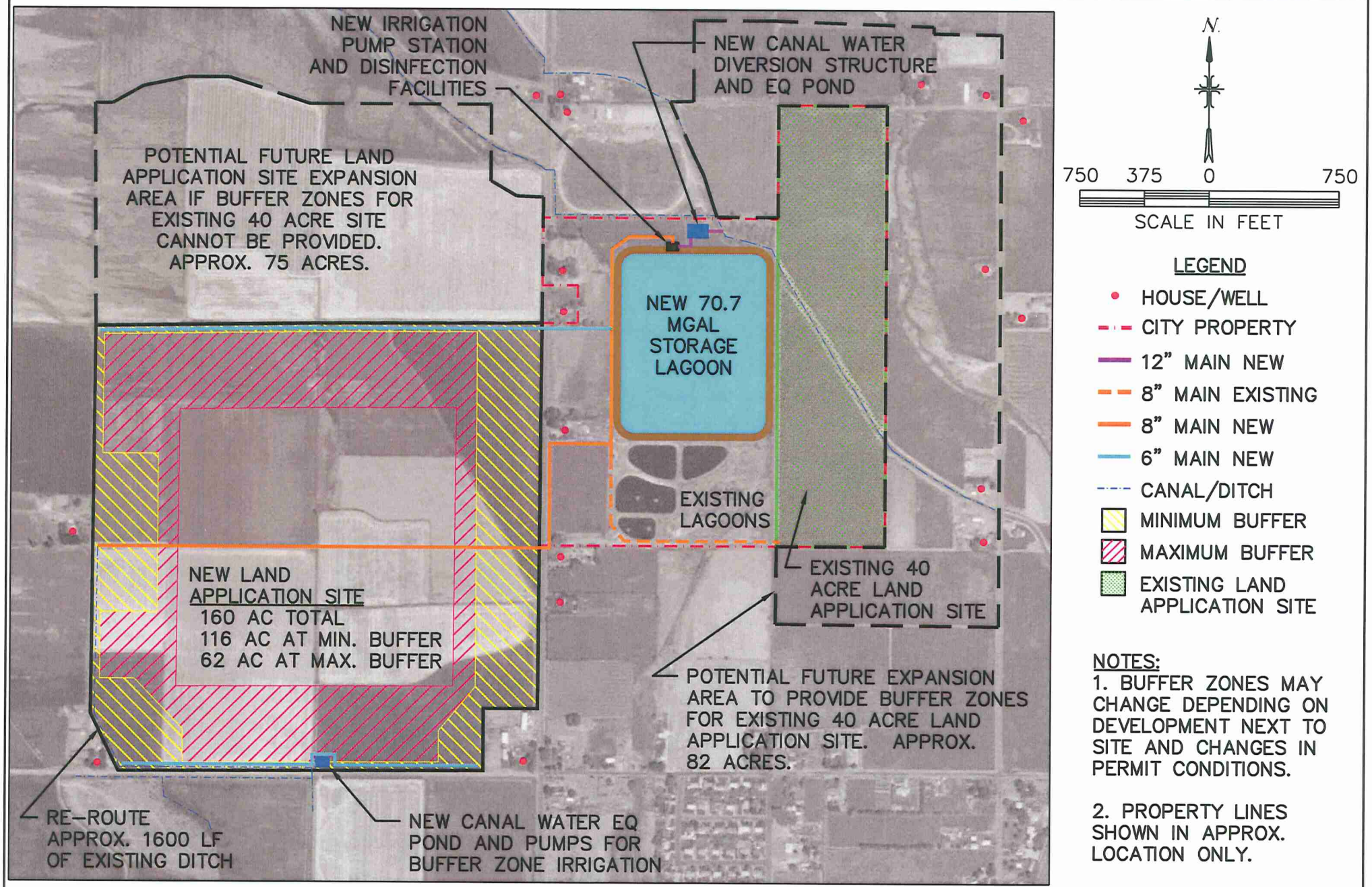


FIGURE 5-8
LAGOON STORAGE AND LAND APPLICATION IMPROVEMENTS

5.2.6.2 Lagoon Solids Removal and Disposal

Sludge accumulation in the lagoons can lead to several operational and treatment problems. As such, the solids in Cell #1 were removed in 2006. It is recommended that the City continue to monitor sludge levels in Cells #2, #3, and #4 in the future and remove it, as necessary. In addition, if the City selects a mechanical WWTP (Options 1 or 2) the solids should be removed from all of the lagoons and the lagoons decommissioned.

Solids removed from the lagoons must be disposed of in accordance with State and Federal regulations, specifically 40 CFR 503. Under these regulations, the solids may be applied to the land, landfilled, or fired in a sewage sludge incinerator. It is recommended that the City consider land applying or landfilling the solids removed from the lagoons. The City must apply for and obtain an NPDES permit from EPA (Form 2S) prior to disposing of the solids.

For land application, the 40 CFR 503 regulations specify risk-based pollutant concentrations and loading rates for various heavy metals. The solids must be sampled for these metals prior to land application. If metals levels in the solids exceed the concentration and loading criteria established in the regulations, then the solids more than likely cannot be land applied and may need to be landfilled. Additionally, the solids must be sampled for nutrients and organics to ensure that loadings to the land application site will not exceed agronomic rates.

As discussed previously, biosolids must be classified as either Class A or Class B with respect to pathogens prior to land application. The two classes depend on the level of pathogen reduction that has occurred in the solids. Typically, Class B biosolids have additional site restrictions related to the growth and harvest of food and feed crops, animal grazing, and public access. It is anticipated that the biosolids removed from the lagoons will be Class B.

To landfill the solids, they must pass both a Paint Filter Liquid Test (PFLT) and a Toxicity Characteristic Leaching Procedure (TCLP) test. The PFLT verifies that there is no free liquid associated with the solids. As such, solids removed from the lagoon would most likely have to be dried prior to landfilling. The TCLP test is used to simulate leaching from a landfill and to determine whether the solids are a hazardous waste. To be sent to a municipal solid waste landfill, the results from the TCLP tests must indicate that the concentrations of various contaminants (e.g., arsenic, chromium, mercury, etc.) are less than the Toxicity Characteristic (TC) levels used to classify hazardous wastes. It is anticipated that the solids will pass the TCLP test.

5.2.6.3 Aeration Capacity

Under current and future loading conditions Cell #1 requires approximately 23 to 28 hp and Cell #2 requires approximately 9 to 17 hp, respectively (Table 4-3). Cells #1 and #2 currently have a total aeration capacity of 20 and 10 hp, respectively. As such, it appears that additional 5 to 10 hp of aeration capacity should be added to both cells to satisfy future loadings.

5.2.6.4 Storage Volume and Land Application System

The City cannot consistently meet their NPDES permit limits for BOD (30 mg/L) and TSS (45 mg/L) using a lagoon system. Intermittent sand filters could be used to filter the lagoon effluent and decrease BOD and TSS loads, but there is a strong risk of algae blinding of the filter media. As such, under this option it is recommended that the City store their winter effluent and land apply in the spring rather than discharge to Cedar Draw Creek.

The current lagoons do not provide sufficient volume to store the effluent for the duration of the non-growing season. As such, a new lagoon is recommended to meet the storage volume requirements. It was assumed that the new storage lagoon would be lined with an HDPE liner to meet the seepage requirements outlined in the City's land application permit. A water balance was conducted to determine the amount of storage volume needed. The results are summarized in Table 5-13.

Table 5-13. Land Application System Water Balance Results

Parameter	2027 Loading Conditions	Unit
Total Lagoon Volume Required	45.5	Mgal
Existing Effective Lagoon Volume	-3.7	Mgal
Additional Storage Lagoon Volume	41.8	Mgal
Sludge Storage Volume	6.3	Mgal
Freeboard Volume (3 feet)	22.6	Mgal
Total Lagoon Volume	70.7	Mgal

As described in Chapter 4, the City will need to purchase additional acreage to satisfy buffer zone requirements and to accommodate the future nutrient loadings from the wastewater treatment lagoons. Furthermore, a 70.7 million gallon winter storage lagoon will require an additional 28 acres of land. The additional land that is required for the lagoon and land application system under 2027 conditions is summarized in Table 5-14.

Table 5-14. Additional Land Requirements for Land Application System (2027 Conditions)

Parameter	Quantity
Additional Lagoon Area for Winter Storage	28 acres
Addition Acreage to Satisfy Future Nutrient Loads	53 acres
Additional Acreage for Buffer Zones	65 acres
Sub-Total Additional Land Area Requirements	146 acres
Contingency (10%)	14 acres
Total Additional Land Application Area Requirements (Including Buffer Zones)	**160 acres**

As shown in Table 5-14, approximately 160 acres will need to be purchased by the City in order to meet current and future regulatory requirements. In addition, it will be necessary for the City to provide supplemental irrigation water at times to grow a healthy crop since phosphorus appears to be the limiting factor that controls the land area requirements. In 2027, it is estimated that the City will need to supplement approximately 39 million gallons of canal make-up water in addition to using all of the available treated wastewater.

Additional improvements recommended for the lagoon and land application systems include:

- A new irrigation pump station to increase the pumping capacity so the required quantity of water can be supplied.
- An 8 inch pressure sewer main from the irrigation pump station to the land application site.

- A new contact chamber for disinfection.
- Site fencing (4-string barb wire) around the land application site to keep wildlife, debris and unauthorized personnel from entering the site.
- Four groundwater monitor wells around the land application site to monitor potential impacts on the aquifer from the land application practices.
- A wheel line irrigation system for the new land application site.
- Gravel access roads to the new storage lagoon and land application site.
- Site power for the irrigation pump station and disinfection facilities.

5.2.6.5 Probable Costs for Lagoon and Land Application System Improvements

Table 5-15 summarizes the opinion of 2007 probable costs for the existing lagoon system if the recommended improvements are made. The table includes all unit processes that will likely be required to produce Class C reclaimed water.

Table 5-15. Opinion of Probable Cost for Existing Lagoon System Producing Idaho Class C Reclaimed Wastewater

Item	Total Price ($)
Plant Headworks	$2,700
Lagoon Transfer Structure/Piping Upgrades	$51,200
Storage Lagoon	$1,658,400
North Canal Water Facilities	$51,200
South Canal Water Facilities	$56,000
Irrigation Pump Station	$193,000
Disinfection System	$69,500
Land Application Site	$1,497,800
Site Fencing	$66,000
Site Power	$80,000
Site Piping	$475,750
Access Roads/Parking	$72,000
Sub-Total Construction Costs	**$4,273,550**
Contractor Mob/Demob (2%)	$85,000
Contractor Bonding, Admin, Insurance (10%)	$427,000
Contingencies (20%)	$855,000
Total Construction Costs (2007)	**$5,640,550**
Engineering, Const Mngt, Admin, Legal (20%)	$1,128,000
TOTAL PROJECT CAPITAL COSTS	**$6,768,550**

5.3 Probable Costs of Offsetting Drinking Water Demand with Reclaimed Wastewater

The City of Filer must choose between several improvement options to address its drinking water arsenic compliance issues (approximately 2017-2023) and at the same time provide wastewater treatment for the community. As previously discussed, these drinking water and wastewater improvement options may be integrated to provide a community wide water solution. The reuse of reclaimed wastewater for meeting irrigation demands would reduce the demand on the drinking water wells, potentially delaying the need for an arsenic treatment plant and/or the development of new drinking water sources over the planning period. While the reuse of reclaimed wastewater for irrigation may reduce the drinking water demand, it does not change the arsenic concentrations in the drinking water wells. It merely delays the need for the City to address the arsenic issue.

Wastewater treatment options that produce Class A water provide a higher quality effluent, higher degree of flexibility, and the most potential to offset potable water demands. Options that produce Class B water also provide higher quality effluent and provide an effluent source that can offset potable water demand, but cannot be used to irrigate individual residences. Options that produce Class C effluent serve to treat wastewater effectively, but do not provide effluent that could be utilized as irrigation water in the community to decrease the demands on the drinking water system.

In considering the costs of providing higher quality effluent as irrigation water versus potentially treating the City's wells that contain arsenic (or finding other water supplies), Filer will have to consider the complete project costs. Besides construction of the wastewater treatment facility, if the City desires to deliver Class A or Class B water for irrigation, a reclaimed water distribution system will have to be constructed. These costs could exceed the cost of arsenic treatment or other water supplies, indicating the lower level of wastewater treatment (i.e., Class C) is the most cost effective overall strategy. Table 5-16 presents a summary of the elements required to implement a complete reclaimed water delivery system and compares it to the elements required if arsenic treatment or other water supplies are implemented.

Table 5-16. Infrastructure Elements Required to Deliver Reclaimed Water vs. Treating for Arsenic and/or Finding Other Water Supplies

Infrastructure Required	Class A Options	Class B Options	Class C Options
Collection System Improvements	Required	Required	Required
Wastewater Treatment	Required	Required	Required
Pressurized Secondary Irrigation Distribution System (for reclaimed water)	Extensive to all irrigable areas including residences	Construct to all irrigable areas except residences	Not Required
Arsenic Treatment /Other Water Supplies	Not Required	Possible	Required

Pressurized Secondary Irrigation: Many communities especially in the western United States have developed pressurized secondary irrigation systems. The systems typically deliver surface water from storage reservoirs and canal systems or reclaimed water from wastewater treatment plants. Two common approaches exist for implementing these systems based on demand analysis during system design and project economics:

1. Extensive pressurized distribution systems are often installed during development of land and communities. These systems provide irrigation water to all irrigable areas including individual residences. Extensive retrofits into existing communities, although more costly than system construction during land development, is not uncommon depending on a community's needs.

2. Less extensive pressurized mainline or backbone distribution systems may be installed to target only large irrigable areas that have high demands. Examples of this would be installing pressurized irrigation system to deliver water to large parks, cemeteries, and other large water users that do not need potable quality water.

A detailed demand and cost analysis is typically required at the time of the secondary irrigation project to determine if extensive retrofit is valid or if targeted irrigation of large tracts is more feasible. It is also common to begin with the limited backbone and mainline irrigation distribution system to the large non-potable demands, while master planning the mainlines for more extensive distribution at individual residences at some future time.

Arsenic Treatment/Other Water Supplies: Table 5-5 indicates that over the year enough reclaimed water is produced to offset the irrigation portion of the City's demand. For the purposes of this wastewater Facility Planning Update effort, the fraction of the irrigation demand at individual residences versus the fraction of the irrigation demand on the larger tracts such as parks and cemeteries has not been estimated. If full pressure irrigation is implemented with Class A effluent, Table 5-5 suggests arsenic treatment or finding other water supplies may not be required over the planning period. If more limited reuse is practiced utilizing Class B effluent, the entire irrigation demand cannot likely be met with reclaimed water and some arsenic treatment or other water supplies may be required.

Additionally, It may be challenging and costly for Filer to secure additional groundwater supplies since groundwater in the Filer area generally has arsenic concentrations greater than the new standard, as evidenced by data from the surrounding communities (i.e., Twin Falls, Buhl, and Castleford) and several USGS monitor wells in the area. As such, it appears that the City would be unlikely to develop a new groundwater source that can consistently and reliably produce water with arsenic levels less than the MCL. Surface water sources in the area include Cedar Draw Creek and minor irrigation laterals. However, these surface water sources do not appear to be viable due to limited quantities, water rights issues, seasonal fluctuations in supply, and the high costs to treat and transmit the water. As such, arsenic treatment may be the only viable option for the City.

A detailed discussion of arsenic treatment requirements and the City's water supply is provided in the City of Filer Arsenic Compliance Study (J-U-B, 2006).

Costs were developed in Table 5-17 comparing the wastewater water reuse alternatives with the need to construct an arsenic water treatment plant. The present worth analysis is based on a discount rate of 4.875 percent and an inflation rate of 4.0 percent. This is merely a way to compare alternatives based on their projected capital costs and operating costs over 20 years. As can be seen in the table, the additional redundancy required for Class A plants makes them more expensive than the Class B options. In the Class C category, the lagoon alternative appears to be less costly than the oxidation ditch.

Table 5-17. Overall Cost Summary: Reducing Potable Water Demand through Wastewater Reuse vs. Water Treatment ($M)

	OPTION 1A MBR Class A Reuse[a]	OPTION 1B MBR Class B Reuse[b]	OPTION 2A DITCH Class A Reuse	OPTION 2B DITCH Class B Reuse	OPTION 2C DITCH Class C Reuse[c]	OPTION 3 LAGOON Class C Reuse
Wastewater Facilities						
Collection System Capital Costs	$3.8	$3.8	$3.8	$3.8	$3.8	$3.8
WWTP Capital Costs	$9.9	$8.1	$10.8	$7.9	$6.5	$6.8
20 Year O&M Costs	$7.4	$7.4	$7.3	$7.3	$6.8	$4.9
Secondary Irrigation System for Reuse						
Capital Costs	$3.7	$1.5	$3.7	$1.5	$0.0	$0.0
20 Year O&M Costs	$0.5	$0.3	$0.5	$0.3	$0.0	$0.0
Potable Arsenic Water Treatment						
Capital Costs (Water Treatment Plant)	$0.0	$2.0	$0.0	$2.0	$5.8	$5.8
20 Year O&M Costs	$0.0	$1.0	$0.0	$1.0	$2.2	$2.2
Loss of Potable Water Revenue with Reuse	$1.9	$0.8	$1.9	$0.8	$0.0	$0.0
Reclaimed Water Revenue	($1.0)	($0.5)	($1.0)	($0.5)	$0.0	$0.0
Total Present Worth	$26.2	$24.2	$26.9	$24.0	$25.0	$23.5

a. Class A reuse includes residential irrigation at homes, groundwater recharge, and all Class B, C, D, and E uses.
b. Class B reuse includes irrigation of edible food crops, golf courses, parks, schoolyards, and all Class C, D, and E uses.
c. Class C reuse includes irrigation of orchards and vineyards, no contact with edible portion, cemeteries, roadside vegetation, and all Class D and E uses (see Table 5-3).

In comparing options that offset potable demand versus those that don't (Class A vs. Class C), the Class A options are more expensive than the Class C options. This observation must be considered in the context of maximum flexibility for the community where the Class A effluent allows the City more options for use of effluent and essentially adds a water resource to the City's water supply. Regarding the lagoon alternative, lagoons are a viable option for many rural communities throughout Idaho depending on discharge locations, land application site/land availability, and buffer requirements. In Filer's situation, the cost of the lagoons is approaching the cost of other treatment options including both options that produce Class B water. The City needs to decide if the additional cost is worth the flexibility that is gained by producing higher quality effluent.

One possible approach to implementing wastewater treatment is to initially construct a Class B treatment facility. This approach would provide excellent treatment at levels greater than the lagoons, ensure discharge regulations could be met, and allow the community to begin thinking about reuse. The Class B facility could also be master planned to allow for Class A in the future. Over the coming years as the potable demands increase, the City could elect to meet these demands with more potable supplies or decide to implement extensive reuse for non-potable demands from their Class B facility. Construction of Class C facility essentially moves the City in a direction of non-effluent based water supplies in the future.

Chapter 6 provides additional analysis of the benefits of each option and includes a ranking by City staff of non-monetary criteria. The recommended option is provided in Chapter 6.

CITY OF FILER

2008 WASTEWATER FACILITIES PLAN UPDATE

CHAPTER 6: IMPLEMENTATION OF WASTEWATER SYSTEM IMPROVEMENTS

6.0 IMPLEMENTATION OF WASTEWATER SYSTEM IMPROVEMENTS

6.1 RECOMMENDED WASTEWATER FACILITY IMPROVEMENTS

The introduction of this Facilities Plan identifies several areas of concern related to wastewater treatment in the City of Filer:

1. It is anticipated that future IDEQ wastewater reuse permits may have phosphorus limits that will be difficult to meet with the current treatment system and current land application area. Additionally, as development occurs around the current land application site it will be difficult to continue to meet buffer zone requirements.

2. The existing water treatment system cannot consistently and reliably meet the current NPDES permits. As such, the current treatment system is not adequate for Filer's wastewater needs.

3. Drinking water from three of the five wells used by the City have arsenic concentrations greater than the new drinking water standard. As a result, as the City grows and demands increase, Filer may be required to find additional water supplies or potentially treat the wells for arsenic. Alternatively, the City could produce high quality effluent from the wastewater treatment plant and directly use this water for non-potable needs (e.g., irrigation) to offset the potable drinking water demand in the future.

It is acknowledged that challenges exist regarding regulatory approval by IDEQ for effluent reuse. Land application of wastewater effluent has been practiced in Idaho for many years. However, the concepts relating to direct reuse of effluent for public access irrigation areas are still in their infancy in Idaho. The reuse rules IDAPA 58.01.17 evolved significantly in 2006 from land application rules to broader reuse rules. Many of these changes became final with the end of the state legislative session in spring of 2007. The wastewater rules (IDAPA 58.01.16) also underwent significant revisions in the fall of 2006. These changes also became final in 2007. The newly revised rules are only now being tested by a few permit applications.

Due to the uncertainty associated with the newly revised wastewater rules, it is recommended that Filer select a wastewater treatment alternative that provides the most flexibility for effluent use and quality at a cost that is manageable for the City. Table 6-1 summarizes the costs and "measures of flexibility" for each alternative. The present worth analysis is based on a discount rate of 4.875 percent and an inflation rate of 4.0 percent.

Additionally, an evaluation matrix was developed with the help of the City. This matrix rates each of the alternatives based on their perceived performance relating to different criteria (for the weighing factors and rankings, 1=worst and 5=best). The evaluation matrix is summarized in Table 6-2.

Table 6-1. Treatment Alternative Cost Summary and Measures of Flexibility

Cost or Design Consideration	A		B		C	
	MBR	Ditch	MBR	Ditch	Ditch	Lagoon[c]
Capital Cost (WWTP + Collection System)	$13.7	$14.6	$11.8	$11.7	$10.3	$10.5
Annual O&M Cost (WWTP + Collection System)	$0.40	$0.40	$0.40	$0.40	$0.37	$0.27
20 Yr PW of Annual O&M Costs	$7.4	$7.3	$7.4	$7.3	$6.8	$4.9
Life Cycle Cost	$21.1	$21.8	$19.2	$19.0	$17.0	$15.5
Measures of Flexibility						
Filtration	Yes	Yes	Yes	Yes		
Nitrogen and Phosphorus Removal	Yes	Yes	Yes	Yes	Yes	
Residential Home Irrigation	Yes	Yes				
Public Access Irrigation	Yes	Yes	Yes	Yes		
Edible Crop Irrigation	Yes	Yes	Yes	Yes		
Forage Crop Irrigation	Yes	Yes	Yes	Yes	Yes	Yes
Most resistant to regulatory changes [a]	Yes	Yes	Yes			
Less Land Intensive [b]	Yes	Yes	Yes	Yes	Yes	
Feasible odor control	Yes	Yes	Yes	Yes	Yes	
Total "Yes" Results	**9**	**9**	**8**	**7**	**4**	**1**

a. All technologies with nutrient removal and some form of filtration will be more resistant to regulatory changes. MBR systems do provide a filtration barrier generally considered superior to the sand and cloth filters that were mentioned in Chapter 5 of the report that would be used in conjunction with oxidation ditches.
b. MBR utilizes less footprint than the oxidation ditch. MBR and ditch use much less land than lagoons.
c. Lagoon costs include additional land application and storage to ensure regulatory compliance.

Based on the results of the evaluation matrix (Table 6-2) and continuing discussions with the City, it appears that Filer would like to move in the direction of wastewater reuse. The weighted rankings for the MBR system and the oxidation ditch with filters are much greater than the rankings for lagoon upgrades and oxidation ditch without filters. As such, it is recommended that the City upgrade its wastewater treatment plant to produce high quality effluent suitable for reuse. The reclaimed water can be reused for irrigation thereby decreasing drinking water system demands. The resulting reduction in water system demand could potentially delay or offset construction of an arsenic treatment facility or the need to secure other water supplies.

The current recommended approach would be to construct a wastewater treatment plant designed to produce Class B reclaimed wastewater. It is expected that Filer's drinking water supply should be sufficient for at least the next 10 to 15 years. Therefore, it is recommended that the City not construct fully redundant Class A facilities or a secondary irrigation system at this time. Instead, the site will be master planned so that redundant components (e.g., an MBR process train) can be added to the site at a later date. Over the coming 10-15 years the City can monitor the arsenic issues and determine the best use of the high quality effluent.

Table 6-2. Evaluation Matrix - Ranking of Improvement Alternatives

Criteria	Weighting Factor[a,b]	Option 1A/1B - MBR with Irrigation Reuse		Option 2A/2B - Oxidation Ditch with Upgrade for Irrigation Reuse		Option 2C - Oxidation Ditch with No Reuse		Option 3 - Lagoon and Land Application	
		Ranking[a,b]	Weighted Value	Ranking	Weighted Value	Ranking	Weighted Value	Ranking	Weighted Value
Treated Wastewater Quality	5	5	25	5	25	3	15	2	10
Reuse Potential/Flexibility	4	5	20	5	20	3	12	3	12
Potential to Offset Drinking Water Demand/Arsenic Treatment	4	5	20	5	20	1	4	1	4
Land Area Requirements	2	5	10	3	6	4	8	1	2
Energy Consumption	3	3	9	3	9	4	12	5	15
Flexibility to Handle Variable Loads	4	4	16	4	16	4	16	3	12
Flexibility to Meet Future Regulations	5	5	25	5	25	4	20	2	10
Potential for Odor	5	3	15	3	15	3	15	3	15
Siting	3	4	12	4	12	4	12	2	6
Expandibility in the Future	4	5	20	4	16	4	16	1	4
Operational Requirements	4	3	12	2	8	2	8	5	20
Initial Capital Costs	5	3	15	4	20	4	20	4	20
Annual O&M Costs	5	2	10	2	10	3	15	4	20
Present Worth Costs	5	4	20	4	20	3	15	3	15
Total		**56**	**229**	**53**	**222**	**46**	**188**	**39**	**165**

a. Weighting factors and rankings were developed in conjunction with J-U-B Engineers and City staff.
b. Weighting/ranking factors: 1=worst, 5=best. Highest weighted value is better.

After evaluating its options, the City has indicated that it would prefer an MBR treatment plant. This recommended alternative includes:

1. Construction of the collection system improvements shown in Figure 5-1.

2. Cleaning and video inspection of the collection system lines in the priority areas. Based on the results of the cleaning and video inspection, deteriorated collection system lines would be replaced or rehabilitated.

3. Construction of a Class B MBR treatment facility that is master planned in such a way to move to Class A at a future date. The facility would include:

    a. Plant headworks including screening and grit removal.

    b. Membrane bioreactor treatment that includes phosphorus and nitrogen removal.

    c. UV disinfection

    d. Effluent pump station

    e. Sludge holding/digestion tank

    f. Dewatering

    g. Landfill or land application of solids

    h. Decommissioning of lagoon site.

    i. Effluent disposal initially at the existing land application site or year round disposal to Cedar Draw with the ultimate goal of water reuse.

6.2 COST SUMMARY

It is recommended that the City upgrade the wastewater treatment plant in two phases. The first phase would culminate with the production of high quality Class B reclaimed water. An opinion of the overall probable capital and operation and maintenance costs in 2007 dollars for the recommended Phase 1 improvements are summarized in Table 6-3. The present worth analysis is based on a discount rate of 4.875 percent and an inflation rate of 4.0 percent.

Table 6-3. Overall Costs for the Recommended Phase 1 Improvements ($M)

Item	Cost
Collection System	
Capital Cost	$3.77
Annual O&M Cost	$0.02
MBR Class B Treatment Facilities	
Capital Cost	$8.07
Annual O&M Cost	$0.38
20 Year Present Worth	$19.21

Phase 2 would be to upgrade the WWTP to produce Class A reclaimed water and to provide for the distribution of this high quality effluent for irrigation. Table 6-4 summarizes the probable costs associated with the Phase 2 improvements. The primary cost related to the production of Class A water is the acquisition of a third MBR process train (two would already be in place for Phase 1) to satisfy the redundancy requirements. The Phase 2 costs also include the construction of a secondary distribution system for irrigation. The present worth analysis is based on a discount rate of 4.875 percent and an inflation rate of 4.0 percent.

Table 6-4. Overall Costs for the Recommended Phase 2 Improvements ($M)

Item	Cost
Upgrade to Class A Treatment	
Capital Cost	$1.87
Increased Annual O&M Cost	$0.00
Secondary Irrigation System	
Capital Cost	$3.65
Annual O&M Cost	$0.08
20 Year Present Worth Analysis	$6.95

6.3 MONTHLY USER CHARGE RATE ANALYSIS

For comparison purposes, two financing scenarios were considered for evaluating the increase in monthly user charge rates for the proposed improvements. The two options were based on the amount of grant funding procured for the project:

- Scenario 1 - The City would secure approximately $500,000 in grants and the remaining portion of the City costs would be financed with a loan at an interest rate of 4.5 percent over 30 years.

- Scenario 2 - The City would secure approximately $3,000,000 in grants and the remaining portion of the City costs would be financed with a loan at an interest rate of 4.5 percent over 30 years.

Table 6-5 summarizes the results of the user charge rate analysis for the two financing alternatives. Results of the comparison indicate that financing a larger portion of the total project costs through grant monies will reduce the monthly user charge rates.

Table 6-5. Monthly User Charge Rate Analysis

Item	MBR - CLASS B	
	Scenario 1	Scenario 2
Total Project Capital Cost	$11,840,975	$11,840,975
Grant Amount	$500,000	$3,000,000
Loan Amount	$11,340,975	$8,840,975
Annual Loan Repayment	$696,240	$542,761
Annual O&M Costs	$383,035	$383,035
Total Annual Costs	$1,079,275	$925,796
ERUs	1,090	1,090
Monthly User Rate	$82.51	$70.78

6.4 FINANCING

There are several potential sources of funding available to the City to assist in financing the improvements, including:

- IDEQ State Revolving Fund (SRF) loan.
- U.S. Department of Agriculture Rural Development Agency (RD) loans and grants.
- Department of Commerce and Labor Idaho Community Development Block Grant Program (ICDBG).
- U.S. Department of Commerce Economic Development Administration (EDA) grants.
- EPA State and Tribal Assistance Grants (STAG).
- Congressional appropriations.
- New user capacity fees or impact fees.

The Idaho Department Environmental Quality has funds available through their SRF loan program. This program provides below market rate interest loans to Idaho communities to build new, or repair, existing wastewater facilities. The loan term is 20 years; however, some applicants may qualify as disadvantaged and be eligible for reduced loan terms. The funding is derived from an appropriation from the EPA (80%) and a 20% match from the Water Pollution Control Account.

Rural Development Agency makes loans and grants to public bodies and non-profit organizations in rural areas to construct or improve community facilities that are modest in size, cost and design. Water and Waste Disposal (WWD) Loans and Grants may be used to construct, repair, improve, expand or otherwise modify rural wastewater facilities; pay necessary fees and costs associated with the project; or finance facilities in conjunction with funds from other agencies or those provided by the applicant. The maximum loan term is 40 years and grant funds may be available for facilities serving the most financially needy communities.

The Idaho Community Development Block Grant program (ICDBG) assists Idaho Cities and Counties with populations under 50,000 with the development of needed public infrastructure and housing in an effort to support local economic diversification and growth. The program is administered by the Idaho Department of Commerce and Labor Division of Community Development, with funds received annually from the U.S. Department of Housing and Urban Development. ICDBG funds are used to construct projects that benefit low and moderate income persons, help prevent or eliminate slum and blight conditions, or solve catastrophic health and safety threats in local areas.

The U.S. Department of Commerce EDA provides funding for the construction of public infrastructure under the authority of the Public Works and Economic Development Act of 1965. Eligible projects include water and wastewater improvement and projects that support economic development within the community. Cities, counties and special cities are eligible to apply. Projects must meet economic development eligibility criteria as established by Congress - specifically, per capita income, employment and other demographic characteristics, with an emphasis on resolving unemployment and barriers to economic growth and stability. EDA funds are provided as grants from 50 to 80 percent of the project. Applicants must provide the local share from acceptable sources.

The EPA provides STAG grant funds through their Office of Enforcement and Compliance Assurance (OECA) to carry out compliance assurance activities related to regional focus areas, potentially including water and wastewater systems. Eligible grant recipients include States, tribes, territories, local governments and multi-jurisdictional organizations. The OECA typically announces the availability of grant funds for a specific focus area through a Federal Register Notice. Preference is generally given to those applicants that provide some match towards the grant.

The City may submit an application to the U.S. Congress for grant funding to assist with their wastewater system improvements. The applications are due in February of each year for consideration in the next fiscal year. The grant funds are typically routed through one of the existing funding programs listed above (i.e., EPA STAG grant).

The Idaho State Legislature and Courts have specified that communities can attach a price to new growth and development through the implementation of impact and/or new user capacity fees. Current laws allows government entities to charge a developer for a "proportionate share" of the cost of public facilities, including wastewater systems, impacted by residential, commercial, and industrial development. The calculation of the proportionate share must be based on a sturdy planning foundation. The funds collection from these fees are generally held separate accounts and used for specific infrastructure improvements.

Many of the funding agencies consider a monthly user rate of approximately $36 to $42 per month as the minimum level at which they will consider a grant funding package. At rates lower than this level, the City may not be as likely to receive grant funding for the proposed project. As such, the City may need to consider raising the current rate prior to applying for grants from the funding agencies. Additionally, the availability of many of the grant funding programs are contingent upon passing a revenue bond.

The City should begin planning for financing of the proposed improvements, including both loans and grants, to minimize the costs to the community.

6.5 ENVIRONMENTAL CONSIDERATIONS

The proposed improvements, as outlined in this Facilities Plan, will take place at different geographic locations in and around the community. It is beyond the scope of this study to determine the full impacts to the environment, as the study looks only at general locations for improvements.

The proposed improvements should have minimal environmental impacts from construction activities. Heavy equipment and machinery will be used during construction, resulting in increased noise levels. However, construction activity should be limited to normal working hours to reduce the noise impacts on residential areas. In addition, construction noise should be temporary and can be minimized by the use of well maintained equipment and mufflers.

Air quality may be impacted during construction due to dust and exhaust emissions from construction equipment, which may produce some minor air pollution. Debris created by construction should not be burned, but transported to a disposal area to avoid further air pollution. The impacts of construction dust can be mitigated by ceasing activity during exceptionally windy conditions and using watering equipment.

Open trenches, electrical utilities and heavy equipment may present health and safety hazards during construction. These hazards may be mitigated by educating project personnel about the applicable health and safety regulations, and establishing safe operating procedures. Traffic control may also result in a safety hazard, as traffic patterns are altered for construction purposes.

It is anticipated that impacts on surface water, agricultural lands, cultural resources, wetlands, plants or wildlife from the improvement projects will be minimal. In addition, the improvements may improve groundwater quality by reducing potential exfiltration from severely deteriorated or non-existent collection mains, and improve surface water quality by reducing loadings to Cedar Draw Creek.

The preliminarily locations of some of the improvements are at sites where there are existing structures or streets. There is a possibility that some of the improvements will be constructed in areas where trees and vegetation have been planted and the area has been landscaped. In all areas where the construction or installation of proposed improvements takes place, an extensive effort will be required to reconstruct, replant and landscape the area to its former condition.

6.6 IMPLEMENTATION ISSUES

Implementability of the proposed projects is a function of regulatory approval, public acceptance, funding and constructability. It is anticipated that the City will be able to obtain the necessary regulatory approval and permits for construction and operation of the proposed wastewater system improvements. The existing land application permit will need to be revised to reflect the improvements.

The proposed project should provide a reliable, long-term collection system capable of meeting the existing and future needs of the City. Several similar systems have been constructed in other communities in southern Idaho, and have operated satisfactorily to date

with no significant problems. It is essential that operating personnel continue to perform the proper routine operation and maintenance of the proposed improvements to maintain the reliability of the system.

Based on similar construction projects in southern Idaho, no insurmountable construction problems are expected for the recommended improvement projects.

6.7 PUBLIC INPUT

A number of opportunities were provided to the public during the facilities planning process to receive information and to provide input about the proposed wastewater system improvements. Information was presented to the public to generate community support for a bond election in November 2006. Input from the public was considered and incorporated in the Facilities Plan, as appropriate. Appendix E contains a summary of the public input efforts. Following is a summary of the public participation efforts by the City:

1. City Council Meetings:

    - Discussions relative to the Draft Facilities Plan Update were held at several City Council meetings during the fall of 2006 and winter of 2007.

2. Civic Group Presentations:

    - Senior Center (twice)
    - Kiwanis (twice)
    - Ministerial Group
    - Cedar Lanes Bowling Alley Luncheon

3. Public Informational Meetings:

    - A community workshop was held September 6, 2006 at the Fire Station.
    - A public open house was held October 19, 2006 at Filer High School.
    - A public open house was held November 2, 2006 at Filer Middle School.

The City also provided information on the wastewater project via written media, including three news releases, a guest editorial to the area newspapers, utility bill inserts, informational flyers, and informational posters.

APPENDIX A

WASTEWATER LAND APPLICATION PERMIT

A. Permit Certificate

MUNICIPAL
WASTEWATER-LAND APPLICATION PERMIT
LA-000079-02

City of Filer, LOCATED AT 300 Main Street, Filer, ID 83328 AND IN **Township 10S, Range 16E, Section 5 IS** HEREBY AUTHORIZED TO CONSTRUCT, INSTALL, AND OPERATE A WASTEWATER-LAND APPLICATION TREATMENT SYSTEM IN ACCORDANCE WITH THE WASTEWATER-LAND APPLICATION RULES (IDAPA 58.01.17), THE WATER QUALITY STANDARDS AND WASTEWATER TREATMENT REQUIREMENTS (IDAPA 58.01.02), THE GROUND WATER QUALITY RULE (IDAPA 58.01.11), AND ACCOMPANYING PERMIT APPENDICES AND REFERENCE DOCUMENTS. THIS PERMIT IS EFFECTIVE FROM THE DATE OF SIGNATURE AND EXPIRES ON **January 23, 2009**.

Doug Howard
Twin Falls Regional Administrator
Idaho Department of Environmental Quality

Date: January 23, 2004

DEPARTMENT OF ENVIRONMENTAL QUALITY
601 Pole Line Road, Suite 2
Twin Falls, Idaho, 83301
(208) 736-2190
(208) 736-2194 fax

POSTING ON SITE RECOMMENDED

B. Permit Contents, Appendices, and Reference Documents

Appendices

1. Environmental Monitoring Serial Numbers
2. Site Maps

References

1. Plan of Operation (Operation and Maintenance Manual)
   - Ground water Monitoring and Sample Handling Standard Operating Procedures
   - Best Management Practices (BMPs) to prevent runoff from entering irrigation laterals
2. Nuisance Odor Management Plan

The Sections, Appendices, and Reference Documents listed on this page are all elements of Wastewater-Land Application Permit LA-000079-02 and are enforceable as such. This permit does not relieve city of Filer, hereafter referred to as the permittee, from responsibility for compliance with other applicable federal, state or local laws, rules, standards or ordinances.

C. Abbreviations, Definitions

Ac-in	Acre-inch. The volume of water or wastewater to cover 1 acre of land to a depth of 1 inch. Equal to 27,154 gallons.
BMP or BMPs	Best Management Practices
COD	Chemical Oxygen Demand
DEQ or the Department	Department of Environmental Quality
Director	Director of the Department of Environmental Quality, or the Directors Designee, i.e. Regional Administrator
ET	Evapotranspiration – Loss of water from the soil and vegetation by evaporation and by plant uptake (transpiration)
GS	Growing Season – Typically April 01 through October 31 (214 days)
GW	Ground Water
GWQR	IDAPA 58.01.11 "Ground Water Quality Rule"
Handbook or Guidelines	Handbook for Land Application of Municipal and Industrial Wastewater, DEQ, April 1996.
HLRgs	Growing Season Hydraulic Loading Rate. Includes any combination of wastewater and supplemental irrigation water applied to land application hydraulic management units during the growing season. The HLRgs limit is specified in Section F. Permit Limits and Conditions.
HLRngs	Non-Growing Season Hydraulic Loading Rate. Includes any combination of wastewater and supplemental irrigation water applied to each hydraulic management unit during the non-growing season. The HLRngs limit is specified in Section F. Permit Limits and Conditions.
HMU	Hydraulic Management Unit (Serial Number designation is MU)
IWR	Irrigation Water Requirement – Any combination of wastewater and supplemental irrigation water applied at rates commensurate to the moisture requirements of the crop, and calculated monthly during the growing season (GS). Calculation methodology for the IWR can be found at the following website: http://www.kimberly.uidaho.edu/water/appndxet/index.shtml. The equation used to calculate the IWR at this website is: $IWR = (CU - P_e) / E_i$ CU is the monthly consumptive use for a given crop in a given climatic area. CU is synonymous with crop evapotranspiration P_e is the effective precipitation. CU minus Pe is synonymous with the net irrigation requirement (IR) E_i is the irrigation system efficiency. To obtain the gross irrigation water requirement (IWR), divide the IR by the irrigation system efficiency.
IDAPA	Idaho Administrative Procedures Act.
LG	Lagoon
lb/ac-day	Pounds (of constituent) per acre per day
MG	Million Gallons (1 MG = 36.827 acre-inches)
MGA	Million Gallons Annually (per WLAP Reporting Year)
NGS	Non-Growing Season – Typically November 01 through March 31 (151 days)
NVDS	Non-Volatile Dissolved Solids (= Total Dissolved Solids less Volatile Dissolved Solids)
O&M manual	Operation and Maintenance Manual, also referred to as the Plan of Operation

C. Abbreviations, Definitions

SAR	Sodium Absorption Ratio
SI	Supplemental Irrigation water applied to the land application treatment site.
Soil AWC	Soil Available Water Holding Capacity - the water storage capability of a soil to a depth at which plant roots will utilize (typically 60 inches or root limiting layer)
SMU	Soil Monitoring Unit (Serial Number designation is SU)
SW	Surface Water
TDS	Total Dissolved Solids or Total Filterable Residue
TDIS	Total Dissolved Inorganic Solids – The summation of chemical concentration results in mg/L for the following common ions: calcium, magnesium, potassium, sodium, chloride, sulfate, and 0.6 times alkalinity (alkalinity expressed as calcium carbonate). Nitrate, Silica and fluoride shall be included if present in significant quantities (i.e. > 5 mg/L each).
TMDL	Total Maximum Daily Load – The sum of the individual waste-load allocations (WLA's) for point sources, Load Allocations (LA's) for non-point sources, and natural background. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. IDAPA 58.01.02 *Water Quality Standards and Wastewater Treatment Requirements*
Typical Crop Uptake	Typical Crop Uptake is defined as the median constituent crop uptake from the three (3) most recent years the crop has been grown. Typical Crop Uptake is determined for each hydraulic management unit. For new crops having less than three years of on-site crop uptake data, regional crop yield data and typical nutrient content values, or other values approved by DEQ may be used.
USGS	United States Geological Survey
WLAP	Wastewater Land Application Permit (or Program)
WLAP Reporting Year	The reporting year begins with the non-growing season and extends through the growing season of the following year, typically November 01 – October 31. For example, the 2000 Reporting Year was November 01, 1999 through October 31, 2000.
WW	Wastewater applied to the land application treatment site

D. Facility Information

Legal Name of Permittee	City of Filer
Type of Wastewater	Municipal Wastewater
Method of Treatment	Slow rate of irrigation
Type of Facility	Municipal
Facility Location	Half (1/2) mile north of Filer, Idaho
Legal Location	Township 10S, Range 16E, Section 5
County	Twin Falls
USGS Quad	Filer
Soils on Site	Minveno Silt Loams (MeA, MeC) and Portneuf Silt Loams (PfA)
Depth to Ground Water	35 to 75 feet to regional aquifer
Beneficial Uses of Ground Water	Agricultural, Drinking Water
Nearest Surface Water	Cedar Draw Creek (approximately 1 mile west), and Three irrigation laterals (one is crossing the site)
Beneficial Uses of Surface Water	Agriculture
Responsible Official Mailing Address **Phone / Fax**	Jay Fort, Mayor and Bud Compher, Public Works Director P.O. Box 140 or 300 Main Street Filer, Idaho, 83328 Phone: 326-5000 and Fax: 326-5002
Facility Consultants Mailing Address **Phone / Fax**	J-U-B Engineers, Inc. 115 Northstar Ave. Twin Falls, Idaho, 83301 Phone: 733-2414 and Fax: 733-9455

E. Compliance Schedule for Required Activities

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

Compliance Activity Number Completion Date	Compliance Activity Description
CA-079-01 **Two (2) years after permit issuance**	An updated Plan of Operation (Operation and Maintenance Manual or O&M Manual) for the wastewater land application facilities, incorporating the requirements of this permit, shall be submitted to DEQ for review and comment. The O&M manual shall be designed for use as an operator guide for actual day-to-day operations to meet permit requirements and shall include daily sampling and monitoring requirements to insure proper operation of the wastewater treatment facility. The Plan of Operation shall contain at a minimum all of the information required by the latest revision of the Plan of Operation Checklist in the WLAP Program Guidance. The Plan of Operation shall contain a section discussing Best Management Practices (BMPs) employed to prevent any runoff from entering the irrigation laterals. Upon approval, the manual shall be incorporated by reference into this permit and shall be enforceable as a part of this permit.
CA-079-02 **Two (2) years after permit issuance**	Submit a Nuisance Odor Management Plan to DEQ for review and approval. The Odor Management Plan shall include wastewater treatment systems, land application facilities, and other operations associated with the facility. The plan shall include specific design considerations, operation and maintenance procedures, and management practices to be employed to minimize the potential for or limit odors. The plan shall also include procedures to respond to an odor incident if one occurs, including notification procedures.
CA-079-03 **Two years after permit issuance**	Conduct seepage test in accordance with the DEQ uniform seepage test procedures (DEQ guidance titled "Procedure for Evaluating Wastewater Treatment Lagoon Seepage Rates", January 22, 2002) or a method approved by DEQ. This applies to all wastewater storage or conveyance structures or ponds at the treatment facility and the land application site. The leakage performance standard is specified as 0.125 inches per day or less. If a structure or pond does not meet the seepage rate requirements the permittee shall submit a plan and schedule, for DEQ review and approval, to either repair, replace or abandon the structure or pond.
CA-079-04 **As specified in the Compliance Activity Description**	**Six (6) months after the permit issuance:** Determine whether or not the construction and completion of the existing wells is adequate for monitoring (i.e. are the monitoring wells deep enough to collect an representative sample?). If necessary, submit to DEQ for review and approval, a plan for improving the existing monitoring well network or a new monitoring well network plan (the Plan). **One (1) year after the Plan approval:** One year (1) after DEQ's approval of the Plan, the permittee shall complete the modifications of the existing monitoring well network, or the installation of a new monitoring well network.

E. Compliance Schedule for Required Activities

Compliance Activity Number Completion Date	Compliance Activity Description
CA-079-05 Removed See Compliance Activity Description.	"Accurately determine the ground water flow direction at the land application site after the completion of Compliance Activity CA-079-04." **See comment letter from city dated January 15, 2004. Ground water flow direction is north to northeast.**
CA-079-06 Prior to application of waste solids	Submit a Waste Solids Management Plan to DEQ for review and approval. The Plan shall describe how waste solids generated at the facility will be handled and disposed of to meet the requirements of section I, No. 5.
CA-079-07 Three (3) years after permit issuance	Submit a scaled site map delineating buffer zones, homes, public access areas, private wells, canals, etc. and the actual area in acres of the land application site. The Site Maps shall include at a minimum all requirements of IDAPA 58.01.17.300.05.e through f.
CA-079-08 Eighteen (18) months after permit issuance	Design and install an effluent flow monitoring system. Prior to installation submit to DEQ for review and approval the plans and specifications.

F. Permit Limits and Conditions

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

Category	Permitted Limits and Conditions
Type of Wastewater	Municipal Wastewater
Application Site Area	40 acres
Application Season	Growing Season, April 1 through October 31
Growing Season (GS)	April 01 through October 31 (214 days)
Non-Growing Season (NGS)	November 01 through March 31 (151 days)
Maximum Hydraulic Loading Rate, Growing Season (includes wastewater and supplemental irrigation water, if used)	Growing Season (GS) Hydraulic Loading Rate shall be no greater than the Irrigation Water Requirement (IWR) using data from the tables of the following University Of Idaho web site: http://www.kimberly.uidaho.edu/water/appndxet/index.shtml. IWR is equal to the Mean IR data from these tables divided by the irrigation system efficiency. In lieu of these tables, current climatic and evaporation data, or 30-year average data may be used to calculate the IWR, as defined in the 1994 Technical Interpretive Supplement, pages IV-6 and IV-7. Assume no carryover soil moisture and a leaching rate of zero in calculating the IWR. Application shall generally follow consumptive use rates for the crop throughout the season.
Maximum Hydraulic Loading Rate, Non-Growing Season	Typically, no wastewater irrigation to the land application site. In case of emergency, with DEQ's approval, hydraulic loading shall not exceed 10.29 million gallons.
No Runoff	No runoff is allowed from any site or fields used for wastewater land application except after a 25-year, 24-hour storm event or greater using Western Regional Climate Center (WRCC) Precipitation Frequency Map, Figure 28 "Isopluvials of 25-YR, 24-HR Precipitation". For this site, the 25-year, 24-hour event is 1.8 inches.
Ground Water Quality	Ground Water Quality shall be in compliance with *Idaho Ground Water Quality Rule* IDAPA 58.01.11
Maximum COD Loading, seasonal average in pounds / acre-day, each HMU	50 pounds/acre-day seasonal average for growing season (GS). 25 pounds/acre-day seasonal average for non-growing season (NGS).
Maximum Nitrogen Loading Rate, pounds / acre-year, each HMU (from all sources including waste solids and supplemental fertilizers)	125% of typical crop uptake (see definition), or UI Fertility Guide
Maximum Phosphorus Loading Rate, pounds / acre-year, each HMU (from all sources including waste solids and supplemental fertilizers)	None. DEQ reserves the right to re-open this permit for inclusion of phosphorus limits.

F. Permit Limits and Conditions

Category	Permitted Limits and Conditions
Construction Plans	Prior to construction or modification of all wastewater facilities associated with the land application system or expansion, detailed plans and specifications shall be reviewed and approved by DEQ. Within 30 days of completion of construction, the permittee shall submit as-built plans for review and approval.
Discharge Agreement	If at a later time ACME will restart the zinc electroplating process and wishes to discharge the wastewater to the city's treatment system, then a copy of the wastewater discharge agreement shall be provided to DEQ. Also, the following parameters shall be added to the effluent monitoring at the frequencies specified in the Section G (Monitoring Requirements) of the permit: Cadmium, Chromium-Total, Copper, Fluoride, Lead, Nickel and Zinc.
Grazing	No grazing allowed. A grazing management plan shall be submitted to DEQ for review and approval prior to any grazing activities. Grazing Plans shall follow the guidance located on the DEQ Internet site.
Allowable crops	Crops grown for direct human consumption (those crops that are not processed prior to consumption) are not allowed.
Fencing and Posting	Signs shall be posted every 500 feet designating the fields as wastewater reuse areas or equivalent.
Supplemental Irrigation Water Protection	For systems with wastewater and fresh irrigation water interconnections, DEQ approved backflow prevention devices are required.
Odor Management	The wastewater treatment plant, land application facilities, and other operations associated with the facility shall not create a public health hazard or nuisance conditions, including odors. These facilities shall be managed in accordance with a DEQ approved Odor Management Plan.

F. Permit Limits and Conditions

Buffer Zone Distances (based on furrow irrigation)	Disinfection Level* (total coliform)	Distance to Public Access	Distances to Inhabited Dwellings	Distance to streams	Distance to private water sources	Distance to public water sources	Single sample maximum total coliform level
	2.2 /100 ml	0 feet	50 feet	20 feet	500	1000	23/100 ml
	23/100 ml	0 feet	50 feet	20 feet	500	1000	240/100ml
	230/100ml	50 feet	300 feet	20 feet	500	1000	2400/100ml

*Compliance determination method for disinfection requirements is as follows:

- For determining compliance with the 2.2 / 100 ml disinfection level, the median value of the last five (5) results must not exceed 2.2 / 100 ml. In addition, no single sample value shall exceed 23 / 100 ml.
- For determining compliance with the 23 / 100 ml disinfection level, the median value of the last five (5) results must not exceed 23 / 100 ml. In addition, no single sample value shall exceed 240 / 100 ml.
- For determining compliance with the 230 / 100 ml disinfection level, the median value of the last three (3) results must not exceed 230 / 100 ml. In addition, no single sample value shall exceed 2400 / 100 ml.

G. Monitoring Requirements

1) Appropriate analytical methods, as given in the *Handbook for Land Application of Municipal and Industrial Wastewater, April 1996*, or as approved by the Idaho Department of Environmental Quality (hereinafter referred to as DEQ), shall be employed. A description of approved sample collection methods, appropriate analytical methods and companion QA/QC protocol shall be included in the Operation and Maintenance Manual.
2) The permittee shall monitor and measure parameters and submit information as stated in the Facility Monitoring Table in this section.
3) Samples shall be collected at times and locations that represent typical environmental and process parameters being monitored.
4) Monitoring locations are described in Appendix 1. Environmental Monitoring Serial Numbers.
5) Monitoring is required at the frequency shown in the table below if wastewater is applied anytime during the time period shown. Unless otherwise agreed in writing by DEQ, data collected and submitted shall include, but not be limited to, the parameters and frequencies in the Facility Monitoring Table.
6) Ten (10) soil sample locations shall be selected for the management unit. Three (3) soil samples shall be collected at each sample location, one at 0-12 inches, one at 12-24 inches, and one at 24-36 inches. The soil samples collected at 0-12 inches from each sample location shall be composited. Similarly, all soil samples collected at 12-24 inches shall be composited and all soil samples collected at 24-36 inches shall be composited. This method will yield three samples for analysis, one for 0-12 inches, one for 12-24 inches and one for 24-36 inches for each soil management unit.
7) Ground Water Monitoring Procedure: Ground Water Monitoring Wells shall be purged a minimum of three casing volumes and/or until field measurements for pH, specific conductance and temperature meet the following conditions: two successive temperature values measured at least five minutes apart are within one degree Celsius of each other, pH values for two successive measurements measured at least five minutes apart are within 0.2 units of each other, and two successive specific conductance values measured at least five minutes apart are within 10% of each other. This procedure will determine when the wells are suitable for sampling for constituents required by the permit. Other procedures, such as low flow sampling, may be considered by DEQ for approval. The static water level shall be measured prior to pumping or sampling for ground water.
8) Annual reporting of monitoring requirements is described in Section H, Standard Reporting Requirements.

Facility Monitoring Table

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
Monthly (when land applying)	Discharge Point of Wastewater to Land Application	Volume of Wastewater land applied	Gallons/Month and acre-inches/month applied to the Hydraulic Management Unit
Monthly (when land applying)	Discharge Point of Wastewater to Land Application	Grab sample	Total Kjeldahl Nitrogen, Nitrate+Nitrite-Nitrogen, TDS, VDS (Volatile Dissolved Solids), pH, COD, Total Phosphorus, Cadmium[1], Chromium-Total[1], Copper[1], Fluoride[1], Lead[1], Nickel[1], Zinc[1]
Monthly (when land applying)	Flow Meter or Calibrated Pump Rate	Supplemental Irrigation Water	Gallons/Month and acre-inches/month applied to the Hydraulic Management Unit

G. Monitoring Requirements

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
During Application Season For total coliform, monitoring frequency depends on level of treatment. 1. 2.2 / 100 ml. - Twice Weekly 2. 23 / 100 ml. - Weekly 3. 230 / 100 ml. - Twice Monthly	Discharge Point of Wastewater to Land Application	Grab sample	Total Coliform
Twice Annually (April and October)	Ground water Monitoring Wells (GW-0079-01 through -06)[2]	As per Ground water Monitoring and Sample Handling Procedures Section of the updated Operation and Maintenance Manual (O&M Manual). Also, see note 1) and 7) above.	Total Dissolved Solids (TDS), Nitrate Nitrogen, Total Phosphorus, Chloride, Sulfate, Total Iron, Total Manganese, Dissolved Iron[3], Dissolved Manganese[3], Static Water Level
Annually	Hydraulic management unit	Acres used for land application	Acres
Annually	Hydraulic management unit	COD loading calculation per season	COD applied in lbs/acre-day
Annually	Hydraulic management unit	Calculate and Report total nitrogen and phosphorus loading calculation from wastewater application	Nitrogen and phosphorus applied in lbs/acre-year
Annually	Hydraulic management unit	Crop Yield Calculation and Crop Type	tons/acre, lbs/acre, or bushels/acre
Annually (April)	Soil monitoring unit	Composite soil sample Also, see note 6) above.	Electrical Conductivity (E.C.), Nitrate-N, Ammonia-N, pH, Plant available phosphorous – (use Olsen method for soils with pH 6.5 or greater, use Bray method if soil pH is less than 6.5)
First and last year of permit only (April)	Soil Monitoring unit	Composite soil sample Also, see note 6) above.	SAR, DTPA-FE, DTPA-Mn
Annually	Hydraulic management unit	Crop Nutrient Uptake from Crop Tissue Analysis or from standard tables for Crop Type and yield.	Nitrogen and phosphorus uptake in lbs/acre-year

G. Monitoring Requirements

Frequency	Monitoring Point	Description and Type of Monitoring	Parameters
Annually	Hydraulic management unit	Calculate Irrigation Water Requirement for Crop Grown	Volume (inches / acre and total gallons) for each month for growing season (GS).

1. Parameters shall be analyzed if ACME will restart the zinc electroplating process and the facility will discharge to the city's wastewater system.
2. Monitoring points may need to be modified. See Compliance Activity CA-079-04.
3. Analytical results for dissolved iron and/or manganese only if the results for total iron and/or manganese exceed the standards in IDAPA 58.01.200.01.b.

H. Standard Reporting Requirements

1. The permittee shall submit an Annual Wastewater-Land Application Site Performance Report ("Annual Report") prepared by a competent environmental professional no later than January 31 of each year which shall cover the previous year (see section F for WLAP reporting period). The Annual Report shall include results for monitoring required in Section G, status of compliance activities, and an interpretive discussion of monitoring data (ground water, vadose zone, hydraulic loading, wastewater etc.) with particular respect to environmental impacts by the facility.

2. The annual report shall contain the results of the required monitoring as described in Section G. Monitoring Requirements. If the permittee monitors any parameter more frequently than required by this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the annual report.

3. The annual report shall be submitted to the Engineering Manager in the applicable Regional DEQ Office.

Boise Regional Office
1445 N. Orchard
Boise, ID 83706-2239
208-373-550

Coeur d'Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene, ID 83814
208-769-1422

Idaho Falls Regional Office
900 N. Skyline, Suite B
Idaho Falls, ID 83402
208-528-2650

Lewiston Regional Office
1118 "F" Street
Lewiston, ID 83501
208-799-4370

Pocatello Regional Office
444 Hospital Way, #300
Pocatello, ID 83201
208-236-6160

Twin Falls Regional Office
601 Pole Line Road, Suite 2
Twin Falls, ID 83301
208-736-2190

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

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

4. Notice of completion of any work described in Section E. Compliance Schedule for Required Activities shall be submitted to the Department within 30 days of activity completion. The status of all other work described in Section E shall be submitted with the Annual Report.

5. All laboratory reports containing the sample results for monitoring required by Section G. Monitoring Requirements of this permit shall be submitted with the Annual Report.

I. Standard Permit Conditions: Procedures and Reporting

1. The permittee shall at all times properly maintain and operate all structures, systems, and equipment for treatment, operational controls and monitoring, which are installed or used by the permittee to comply with all conditions of the permit or the Wastewater-Land Application Permit Regulations, in conformance with a DEQ approved, current Plan of Operations (Operations and Maintenance Manual) which describes in detail the operation, maintenance, and management of the wastewater treatment system. This Plan of Operations shall be updated as necessary to reflect current operations.

2. Wastewater(s) or recharge waters applied to the land surface must be restricted to the premises of the application site unless permission has been obtained from the DEQ authorizing a discharge into the waters of the state as stated in IDAPA 58.01.02.600.02.

3. Wastewater must not create a public health hazard or nuisance condition as stated in IDAPA 58.01.02.600.03. In order to prevent public health hazards and nuisance conditions the permittee shall:

a. Apply wastewater as evenly as practicable to the treatment area;
b. Prevent organic solids (contained in the wastewater) from accumulating on the ground surface to the point where the solids putrefy or support vectors or insects; and
c. Prevent wastewater from ponding in the fields to the point where the ponded wastewater putrefies or supports vectors or insects.

4. The permittee shall:

a. Manage the wastewater land application treatment site as an agronomic operation where vegetative cover is grown and harvested or grazed to utilize the nutrients and minerals in the wastewater, and,
b. Not hydraulically overload any particular areas of the wastewater land application treatment site.

5. All waste solids, including dredgings and sludges, shall be utilized or disposed in a manner which will prevent their entry, or the entry of contaminated drainage or leachate therefrom, into the waters of the state such that health hazards and nuisance conditions are not created; and to prevent impacts on designated beneficial uses of the ground water and surface water. The permittee's management of waste solids shall be governed by the terms of DEQ approved Waste Solids Management Plan, which upon approval shall be an enforceable portion of this permit.

6. If the permittee intends to continue operation of the permitted facility after the expiration of an existing permit, the permittee shall apply for a new permit at least six months prior to the expiration date of the existing permit in accordance with the Waste Water Land Application Permit Regulations and include seepage tests on all lagoons per latest DEQ procedures.

7. The permittee shall allow the Director of the Idaho Department of Environmental Quality or the Director's designee (hereinafter referred to as Director), consistent with Title 39, Chapter 1, Idaho Code, to:

a. Enter the permitted facility,
b. Inspect any records that must be kept under the conditions of the permit.
c. Inspect any facility, equipment, practice, or operation permitted or required by the permit.
d. Sample or monitor for the purpose of assuring permit compliance, any substance or any parameter at the facility.

8. The permittee shall report to the Director under the circumstances and in the manner specified in this section:

a. In writing thirty (30) days before any planned physical alteration or addition to the permitted facility or activity if that alteration or addition would result in any significant change in information that was submitted during the permit application process.
b. In writing thirty (30) days before any anticipated change which would result in non-compliance with any permit condition or these regulations.
c. Orally within twenty-four (24) hours from the time the permittee became aware of any non-compliance which may endanger the public health or the environment at telephone numbers provided in the permit by the Director (see below)

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

d. In writing as soon as possible but within five (5) days of the date the permittee knows or should know of any non-compliance unless extended by DEQ. This report shall contain:

i. A description of the non-compliance and its cause;
ii. The period of non-compliance including to the extent possible, times and dates and, if the non-compliance has not been corrected, the anticipated time it is expected to continue; and
iii. Steps taken or planned to reduce or eliminate reoccurrence of the non-compliance.

e. In writing as soon as possible after the permittee becomes aware of relevant facts not submitted or incorrect information submitted, in a permit application or any report to the Director. Those facts or the correct information shall be included as a part of this report.

9. The permittee shall take all necessary actions to prevent or eliminate any adverse impact on the public health or the environment resulting from permit noncompliance.

10. The permittee shall determine (on an on-going basis) if any noxious weed problems relate to the permitted sites. If problems are present, coordinate with the Idaho Department of Agriculture or the local county authority regarding their requirements for noxious weed control. Also address these control operations in an update to the Operations and Maintenance Manual.

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

1. The permittee shall furnish to the Director within reasonable time, any information including copies of records, which may be requested by the Director to determine whether cause exists for modifying, revoking, re-issuing, or terminating the permit, or to determine compliance with the permit or these regulations.

2. Both minor and major modifications may be made to this permit as stated in IDAPA 58.01.17.700.01 and 02 with respect to any conditions stated in this permit upon review and approval of DEQ.

3. Whenever a facility expansion, production increase or process modification is anticipated which will result in a change in the character of pollutants to be discharged or which will result in a new or increased discharge that will exceed the conditions of this permit, or if it is determined by DEQ that the terms or conditions of the permit must be modified in order to adequately protect the public health or environment, a request for either major or minor modifications must be submitted together with the reports as described in 1. *Standard Reporting Requirements*, and plans and specifications for the proposed changes. No such facility expansion, production increase or process modification shall be made until plans have been reviewed and approved by DEQ and a new permit or permit modification has been issued.

4. Permits shall be transferable to a new owner or operator provided that the permittee notifies the Director by requesting a minor modification of the permit before the date of transfer.

5. Any person violating any provision of the Wastewater Land Application Permit Regulations, or any permit or order issued thereunder shall be liable for a civil penalty not to exceed ten thousand dollars ($10,000) or one thousand dollars ($1,000) for each day of a continuing violation, whichever is greater. In addition, pursuant to Title 39, Chapter 1, Idaho Code, any willful or negligent violation may constitute a misdemeanor.

6. The Director may revoke a permit if the permittee violates any permit condition or the Wastewater Land Application Permit Regulations.

7. Except in cases of emergency, the Director shall issue a written notice of intent to revoke to the permittee prior to final revocation. Revocation shall become final within thirty-five (35) days of receipt of the notice by the permittee, unless within that time the permittee request an administrative hearing in writing to the Board of Environmental Quality pursuant to the Rules of Administrative Procedures contained in IDAPA 58.01.23.

8. If, pursuant to Idaho Code ∋ 67-5247, the Director finds the public health, safety or welfare requires emergency action, the Director shall incorporate findings in support of such action in a written notice of emergency revocation issued to the permittee. Emergency revocation shall be effective upon receipt by the permittee. Thereafter, if requested by the permittee in writing, a revocation hearing before the Board of Environmental Quality shall be provided. Such hearings shall be conducted in accordance with the Rules of Administrative Procedures contained in IDAPA 58.01.23.

9. The provisions of this permit are severable and if a provision or its application is declared invalid or unenforceable for any reason, that declaration will not affect the validity or enforceability of the remaining provisions.

10. The permittee shall notify DEQ at least six (6) months prior to permanently removing any permitted land application facility from service, including any treatment, storage, or other facilities or equipment associated with the land application site. Prior to commencing closure activities, the permittee shall: a) participate in a pre-site closure meeting with DEQ; b) develop a site closure plan that identifies specific closure, site characterization, or cleanup tasks with scheduled task completion dates in accordance with agreements made at the pre-site closure meeting; and c) submit the completed site closure plan to DEQ for review and approval within forty-five (45) days of the pre-site closure meeting. The permittee must complete DEQ approved site closure plan.

Appendix 1
Environmental Monitoring Serial Numbers

HYDRAULIC MANAGEMENT UNITS

Serial Number	Description	Acres
MU-007901	Filer land application site	40

WASTEWATER SAMPLING POINTS

Serial Number	Description
WW-007901	Pump station

SOIL MONITORING UNITS

Serial Number	Description	Associated MU
SU-007901	Filer land application site	MU-007901

GROUND WATER MONITORING

Serial Number	Description	Location
GW-007901	Monitoring well no. 1	
GW-007902	Monitoring well no. 2	
GW-007903	Monitoring well no. 3	
GW-007904	Monitoring well no. 4	
GW-007905	Monitoring well no. 5	
GW-007906	Monitoring well no. 6	

Note: The number and position of the existing wells may be changed after the completion of Compliance Activity CA-079-04

Appendix 1
Environmental Monitoring Serial Numbers
LAGOONS

Serial Number	Description
LG-007901	Lagoon no. 1
LG-007902	Lagoon no. 2
LG-007903	Lagoon no. 3
LG-007904	Lagoon no. 4

Appendix 2
Site Maps

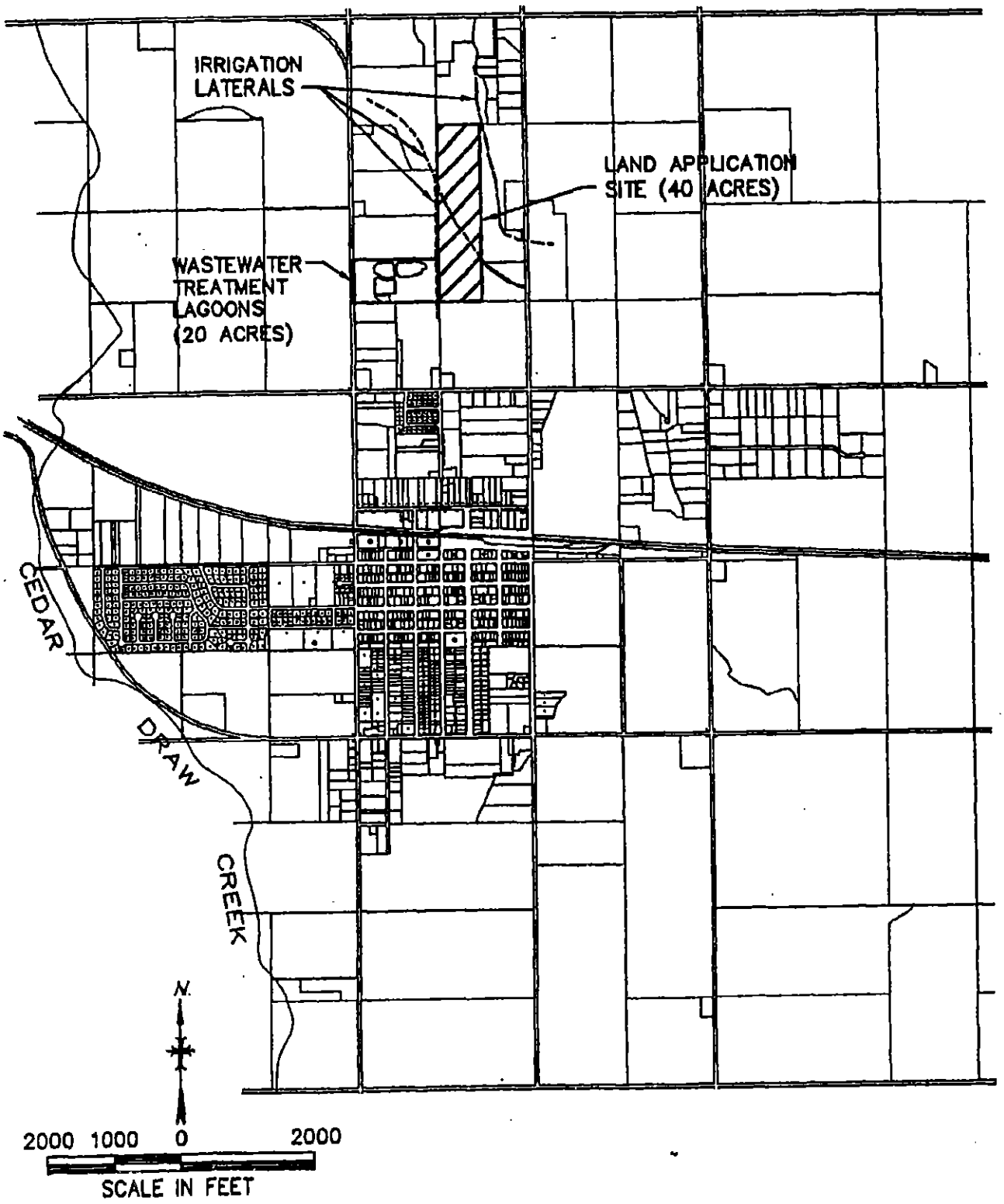


FIGURE 1
WASTEWATER TREATMENT LAGOONS
AND LAND APPLICATION SITE

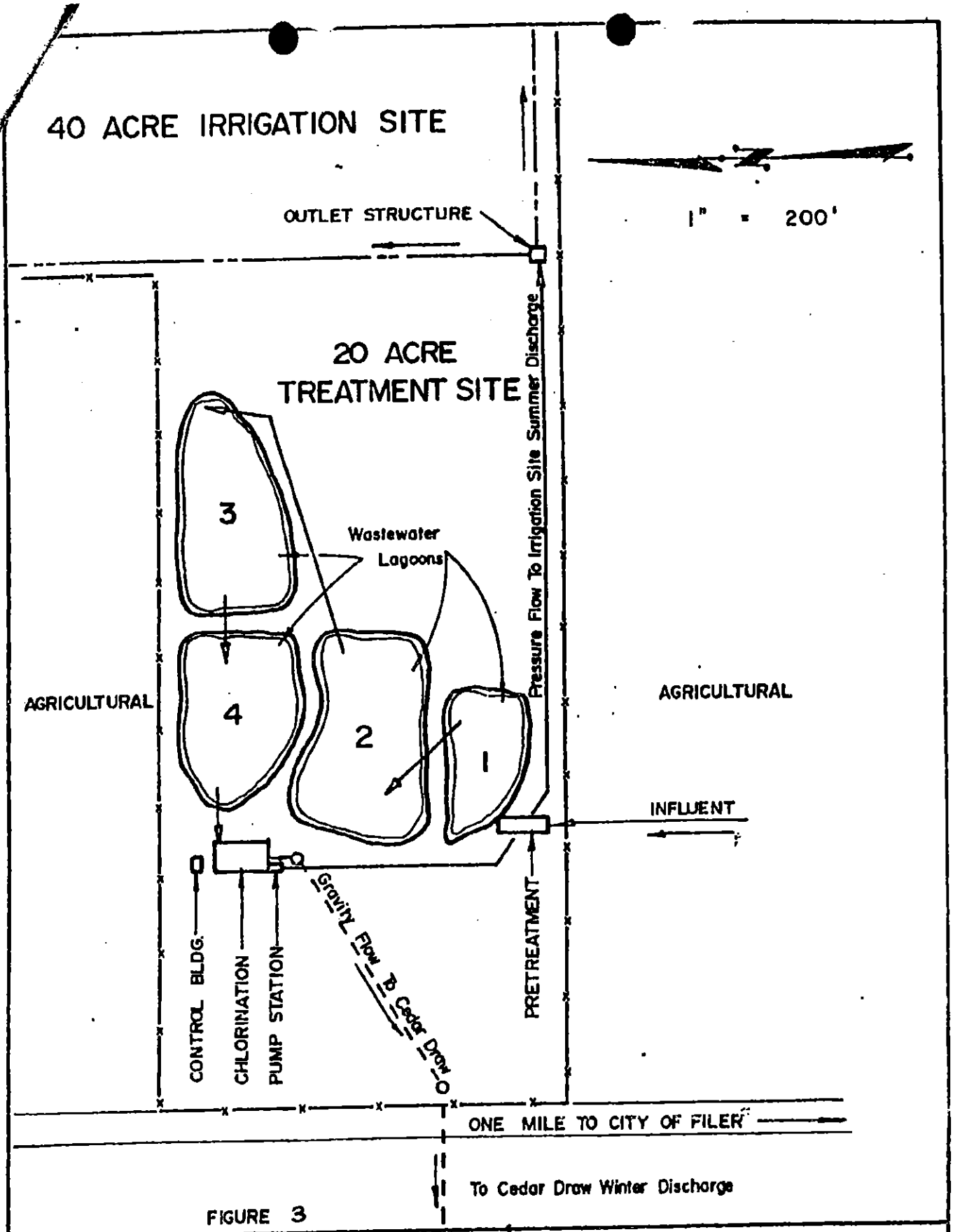


FIGURE 3

DESIGN FLOW DIAGRAM
FILER WASTEWATER TREATMENT FACILITY

Edwards, Howard & Martens, Inc.
ENGINEERS / PLANNERS / SURVEYORS

APPENDIX B

NPDES PERMIT

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
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 Filer

is authorized to discharge from the City of Filer Wastewater Treatment Plant facility located in Filer, Idaho, at the following location(s):

Outfall	Receiving Water	Latitude	Longitude
001	Cedar Draw Creek	42° 34' 56" N	114° 36' 45" W

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

This permit shall become effective November 1, 2007.

This permit and the authorization to discharge shall expire at midnight October 31, 2012.

The permittee shall reapply for a permit reissuance on or before May 5, 2012, 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 14th day of September, 2007,

/s/ Jannine Jennings for
Michael F. Gearheard, Director
Office of Water and Watersheds

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 postmarked on or before the 10th day of the month following the monitoring month.
2. Quality Assurance Plan (QAP)	The permittee must provide EPA and IDEQ with written notification that the Plan has been updated and implemented within 90 days days after the effective date of the final permit (see II.B.). The Plan must be kept on site and made available to EPA and IDEQ upon request.
3. Operation and Maintenance (O&M) Plan	The permittee must provide EPA and IDEQ with written notification that the Plan has been updated and implemented within 90 days after the effective date of the final permit (see II.A.). The Plan must be kept on site and made available to EPA and IDEQ upon request.
4. NPDES Application Renewal	The application must be submitted at least 180 days before the expiration date of the permit (see V.B.).
5. Ambient Monitoring Reports	The results from ambient monitoring must be submitted in electronic format at least 180 days before the expiration date of the permit in an excel spreadsheet(s).
6. 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 III.J.)
7. Twenty-Four Hour Notice of Noncompliance Reporting	The permittee must report certain occurrences of noncompliance by telephone within 24 hours from the time the permittee becomes aware of the circumstances. (See III.G. and I.B.2)
8. Temperature Monitoring Reports	Temperature data must be submitted electronically to IDEQ on or before the 10th day of the month following the monitoring month.

Table of Contents

I. Limitations and Monitoring Requirements

A. Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfalls specified herein to Cedar Draw Creek, 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

1. The permittee must limit and monitor discharges from outfall 001 as specified in Table 1, below. All figures 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. Discharge from outfall 001 can only occur from November 1 through March 31 of each year:

Table 1: Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations				Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow, mgd	---	---	---	---	Effluent	Continuous	Record
Biochemical Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	---	---	Influent and Effluent	1/week	24-hr comp
	70 lb/day	105 lb/day	---	---			
Total Suspended Solids (TSS)	30 mg/l	45 mg/l	---	---	Influent and Effluent	1/week	24-hr comp
	12 lb/day	19 lb/day	---	---			
E. Coli Bacteria[1,2]	126/100 ml	---	---	576/100 ml	Effluent	5/month	grab
Total Residual Chlorine[2]	0.3 mg/L	---	0.5 mg/L	---	Effluent	3/week	grab
	0.4 lb/day	---	0.6 lb/day				
pH	See Part I.B.5 for effluent limitations				Effluent	3/week	grab
Total Phosphorus	17 lb/day	33 lb/day	---	---	Effluent	1/week	24-hr comp
Total Ammonia as N, mg/L	---	---	---	---	Effluent	1/month	24-hr comp
Temperature[3]	---	---	---	---	Influent and Effluent	Continuous	Record

1. The average monthly E. Coli bacteria counts must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3-7 days within a calendar month. See Part VI for a definition of geometric mean.
2. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation. See Parts I.B.2. and III.G.
3. Samples must be recorded in one hour intervals, 24 hours a day

2. The permittee must report within 24 hours any violation of the maximum daily or instantaneous maximum limits for the following pollutants: E. Coli and Total Residual Chlorine. Violations of all other effluent limits are to be reported at the time that discharge monitoring reports (DMR) are submitted (See III.B. and III.H.).

3. Compliance Schedule and Interim Limits TSS

   a. Compliance dates: The permittee must achieve compliance with the effluent limitations for TSS and BOD established in Part I.B.1, Table 1, no later than January 1, 2011.

   b. Beginning on the effective date of this permit and continuing to, no later than December 31, 2010 the permittee must achieve the following interim limits for TSS and BOD:

TSS:	
Average Monthly Limit:	45 mg/l 105 lbs/day
Average Weekly Limit:	65 mg/l 152 lbs/day
BOD:	
Average Monthly Limit:	37 mg/l 86 lbs/day
Average Weekly Limit:	56 mg/l 131 lbs/day

   c. The permittee must submit an Annual Report of Progress which outlines the progress made towards reaching the compliance date for the BOD and TSS effluent limitations. The annual Report of Progress must be submitted by November 1 of each year. The first report is due November 1, 2008 and annually thereafter, until compliance with the BOD and TSS effluent limits are achieved. See also Part III.J., "Compliance Schedules". At a minimum, the annual report must include:

      (i) A report on progress made towards meeting the effluent limitations.

      (ii) Further actions and milestones targeted for the upcoming year.

4. The permittee must not discharge any floating, suspended, or submerged matter of any kind in concentrations causing a nuisance or objectionable conditions or that may impair designated beneficial uses. This includes any petroleum products that cause a sheen or coating on the water surface. If a sheen occurs, the size and

extent of the sheen or coating should be documented in the facility's daily log book.

5. The pH must not be less than 6.5 standard units (s.u.) nor greater than 9.0 standard units (s.u.).

6. Removal Requirements for BOD_5 and TSS: The monthly average effluent concentration must not exceed 15 percent of the monthly average influent concentration. Percent removal of BOD_5 and TSS must be reported on the DMRs. 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.

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

8. Minimum Levels. For all effluent monitoring, the permittee must use methods that can achieve a minimum level (ML) less than the effluent limitation. For purposes of reporting on the DMR for a single sample, if a value is less than the method detection limit (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}."

9. For purposes of calculating monthly averages, 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 a value is equal to or greater than the ML, the permittee must report and use the actual value. The resulting average value must be compared to the compliance level, the ML, in assessing compliance.

C. Surface Water Monitoring

The permittee must conduct surface water monitoring. Surface water monitoring must start 180 days after the effective date of the permit and continue for two years, for all parameters except temperature which must be monitored for five years. Sample collection is only required November through March. The program must meet the following requirements:

1. Monitoring stations must be established in Cedar Draw Creek at the following location:

   Above the influence of the facility's discharge, and

Below the facility's discharge, at a point where the effluent and Cedar Draw Creek are completely mixed.

2. The permittee must seek approval of the surface water monitoring stations from IDEQ.

3. A failure to obtain IDEQ approval of surface water monitoring stations does not relieve the permittee of the surface water monitoring requirements of this permit.

4. To the extent practicable, surface water sample collection must occur on the same day as effluent sample collection.

5. All ambient samples must be grab samples, except temperature which must be a continuous recording.

6. Samples must be analyzed for the parameters in Table 2. All parameters must be monitored at the upstream station. Temperature must also be monitored at the downstream station.

7. The flow rate must be measured as near as practicable to the time that other ambient parameters are sampled.

8. An adequate, existing gauge station may be used for ambient flow data, however, the City must ensure the sampling frequency meets the requirements below, and compile and submit the data to EPA and IDEQ.

Table 2: Surface Water Monitoring Requirements

Parameter	Units	Sampling Frequency
Flow	mgd	Monthly
Total Ammonia as N	mg/L	Monthly
TRC	mg/L	Monthly
Temperature [1]	°C	Continuously
pH	standard units	Monthly

1. Samples must be recorded in one hour intervals, 24 hours a day.

9. Quality assurance/quality control plans for all the monitoring must be documented in the Quality Assurance Plan required under Part II.B., "Quality Assurance Plan".

10. Surface water monitoring results must be submitted in electronic form to EPA and IDEQ in an excel spreadsheet(s), at least 180 days before the expiration of this permit. Temperature monitoring must be submitted to IDEQ in electronic format on or before the 10th day following the monitoring month.

II. Special Conditions

A. Operation and Maintenance Plan

The permittee must revise and update their O&M plan including the implementation of BMPs within 90 days of permit issuance. EPA has a guidance manual (*Guidance Manual for Developing Best Management Practices* EPA, 1993) that may provide some assistance in the development of BMPs. Specifically, the permittee must consider spill prevention and control, optimization of chemical use, public education aimed at controlling the introduction of household hazardous materials to the sewer system and water conservation. Additionally, the BMP operating plan must be amended whenever there is a change in the facility or in the operation of the facility which materially increases the potential for an increased discharge of pollutants. The plan shall be retained on site and made available on request to EPA and IDEQ.

B. Quality Assurance Plan (QAP)

The permittee must update their 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 updated 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 must be prepared in the format that is specified in these documents.

3. At a minimum, the QAP must include the following:
   i. 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.
   ii. Map(s) indicating the location of each sampling point.
   iii. Qualification and training of personnel.
   iv. 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 to EPA and/or IDEQ upon request.

C. Sludge (Biosolids) Management Requirements

The permittee must ensure that an updated biosolids permit application (Form 2S) is on file with the EPA.

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 paragraph III.C ("Monitoring Procedures"). The permittee must report all additional monitoring in accordance with paragraph III.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. 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 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

Idaho Department of Environmental Quality
Twin Falls Regional Office
1363 Fillmore Street
Twin Falls, ID 83301

C. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures have been specified in this permit or approved by EPA as an alternate test procedure 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 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:

any noncompliance that may endanger health or the environment;

i. any unanticipated bypass that exceeds any effluent limitation in the permit (See Part IV.F., "Bypass of Treatment Facilities");

ii. any upset that exceeds any effluent limitation in the permit (See Part IV.G., "Upset Conditions"); or

iii. any violation of a maximum daily discharge limitation for E. Coli or Total Residual Chlorine.

iv. 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:

i. a description of the noncompliance and its cause;

ii. the period of noncompliance, including exact dates and times;

iii. the estimated time noncompliance is expected to continue if it has not been corrected; and

iv. steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

v. if the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

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:

   i. The quality and quantity of effluent to be introduced into the POTW, and

   ii. 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 6th Avenue, Suite 900 OWW-130
   Seattle, WA 98101

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

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 $32,500 per day for each violation).

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 $32,500). 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 $157,500).

Criminal Penalties:

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.

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.

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.

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 2 and 3 of this Part.

2. Notice.

   i. 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.

   ii. 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.

   i. 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.

ii. 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:

   i. An upset occurred and that the permittee can identify the cause(s) of the upset;

   ii. The permitted facility was at the time being properly operated;

   iii. The permittee submitted notice of the upset as required under Part III.G, "Twenty-four Hour Notice of Noncompliance Reporting;" and

   iv. 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:

   i. For a corporation: by a responsible corporate officer.

   ii. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

   iii. 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:

   i. The authorization is made in writing by a person described above;

   ii. 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

   iii. 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 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.

VI. 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. "Average weekly discharge 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. "IDEQ" means the Idaho Department of Environmental Quality.

16. "Interference" is defined in 40 CFR 403.3.

17. "Interim Minimum Level (IML)" is used when a method-specific "Minimum Level (ML)" has not been published by EPA. The IML is equal to 3.18 times the method-specified "Method Detection Limit (MDL)". The IML for non-metals is rounded to the nearest multiple of 2, 5, 10, 20, 50.

18. "Maximum daily discharge limitation" means the highest allowable "daily discharge."

19. "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.

20. "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.

21. "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.

22. "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).

23. "QA/QC" means quality assurance/quality control.

24. "Regional Administrator" means the Regional Administrator of Region 10 of the EPA, or the authorized representative of the Regional Administrator.

25. "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.

26. "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.

APPENDIX C

COST ESTIMATES

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
MEMBRANE BIOREACTOR - CAPITAL

Item	Class A Estimated Quantity	Class B Estimated Quantity	Unit	Installed Unit Price	Class A Total Price	Class B Total Price
Headworks						
Site Work for Flume, Screen, and Grit	1	1	LS	$5,000.00	$5,000	$5,000
6 Inch Parshall Flume	1	1	EA	$2,400.00	$2,400	$2,400
Ultrasonic Level Sensor & Receiver	1	1	LS	$2,700.00	$2,700	$2,700
Coarse Bar Screen	1	1	EA	$2,250.00	$2,250	$2,250
Concrete Channel (for screen and Grit)	15	15	CY	$800.00	$12,000	$12,000
Slide Gates	6	6	EA	$1,500.00	$9,000	$9,000
1/8" Fine Screen	2	2	EA	$97,500.00	$195,000	$195,000
Vortex Grit Unit, Classifier, Washer	1	1	EA	$135,000.00	$135,000	$135,000
Misc. Piping & Fittings	1	1	LS	$25,000.00	$25,000	$25,000
Screen/Headworks Building (46' x 26')	1196	1196	SF	$125.00	$149,500	$149,500
Electrical/Controls	1	1	LS	$86,600.00	$86,600	$86,600
SUB-TOTAL					$624,450	$624,450
Membrane Bioreactors						
Site Work	1	1	LS	$20,000.00	$20,000	$20,000
MBR Foundation - Concrete	277.5	185	CY	$800.00	$222,000	$148,000
MBR Tank Walls - Concrete	337.5	225	CY	$800.00	$270,000	$180,000
MBR Equipment	1.5	1	LS	$1,350,000.00	$2,025,000	$1,350,000
MBR Guide and Removal System	1	1	LS	$37,500.00	$37,500	$37,500
WAS Pumps (1 hp)	3	2	EA	$10,500.00	$31,500	$21,000
Misc. Piping & Fittings	1.2	1	LS	$75,000.00	$90,000	$75,000
Building - (50' x 65')	3900	3250	SF	$125.00	$487,500	$406,250
Electrical/Controls	1.2	1	LS	$375,000.00	$450,000	$375,000
SUB-TOTAL					$3,633,500	$2,612,750
Aerobic Digestor						
Site Work	1	1	LS	$10,000.00	$10,000	$10,000
Digester Foundation - Concrete	250	250	CY	$800.00	$200,000	$200,000
Digester Tank - Concrete	190	190	CY	$800.00	$152,000	$152,000
Digester Tank Cover - Concrete	190	190	CY	$800.00	$152,000	$152,000
Blowers (80 hp, 2100 scfm)	2	2	EA	$37,500.00	$75,000	$75,000
Diffuser and stainless steel air assembly	1	1	LS	$12,500.00	$12,500	$12,500
Mixer	1	1	EA	$12,750.00	$12,750	$12,750
Misc. Piping and Fittings	1	1	LS	$7,500.00	$7,500	$7,500
Electrical/Controls	1	1	LS	$20,000.00	$20,000	$20,000
SUB-TOTAL					$641,750	$641,750
Disinfection System						
UV system	2	2	EA	$70,000.00	$140,000	$140,000
UV Electrical	1	1	LS	$32,000.00	$32,000	$32,000
Residual Chlorine System	1	1	LS	$5,000.00	$5,000	$5,000
Chlorine Analyzer	1	1	EA	$3,000.00	$3,000	$3,000
SUB-TOTAL					$180,000	$180,000
Dewatering						
Rotary Press	1	1	LS	$165,000.00	$165,000	$165,000
Conveyor System	1	1	LS	$50,000.00	$50,000	$50,000
Storage Pad	1	1	LS	$30,000.00	$30,000	$30,000
Odor Control	1	1	LS	$25,000.00	$25,000	$25,000
Electrical/Controls	1	1	LS	$60,000.00	$60,000	$60,000
SUB-TOTAL					$330,000	$330,000
Reclaimed Water Pump Station						
Reclaimed Water Pump Station (150 gpm at 150 feet - 10 Hp)	3	3	EA	$15,000.00	$45,000	$45,000
Cans, piping, buried header	1	1	LS	$75,000.00	$75,000	$75,000
Electrical/Controls	1	1	LS	$30,000.00	$30,000	$30,000
Enclosure/Building (20 x 20)	400	400	SF	$125.00	$50,000	$50,000
SUB-TOTAL					$200,000	$200,000

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MEMBRANE BIOREACTOR - CAPITAL

Site Fencing						
Site Fencing (200' x 200')	800	800	LF	$6.00	$4,800	$4,800
SUB-TOTAL					$4,800	$4,800
Office/Admin Building						
Building Space attached to MBR area (15 x 45)	675	675	SF	$125.00	$84,375	$84,375
SUB-TOTAL					$84,375	$84,375
Site Power						
Yard Electrical/Power Upgrades	1	1	LS	$100,000.00	$100,000	$100,000
Standby Generator	1	1	LS	$100,000.00	$100,000	$100,000
SUB-TOTAL					$200,000	$200,000
Site Piping						
Site Piping	1	1	LS	$150,000.00	$150,000	$150,000
SUB-TOTAL					$150,000	$150,000
Decomission Existing Lagoons						
Cell #2 Solids Removal	1	1	LS	$15,000.00	$15,000	$15,000
Cell #3 Solids Removal	1	1	LS	$15,000.00	$15,000	$15,000
Cell #4 Solids Removal	1	1	LS	$15,000.00	$15,000	$15,000
Earthwork/Site Work	1	1	LS	$20,000.00	$20,000	$20,000
SUB-TOTAL					$65,000	$65,000
Effluent Storage						
7-Day Effluent Storage (Use Existing Lagoon)	1	0	LS	$160,000.00	$160,000	$0
SUB-TOTAL					$160,000	$0

Sub-Total Construction Costs	$6,273,875	$5,093,125
Contractor Mob/Demob (2%)	$125,000	$102,000
Contractor Bonding, Admin, Insurance (10%)	$627,000	$509,000
Contingencies (20%)	$1,255,000	$1,019,000
Total Construction Costs (2007)	$8,280,875	$6,723,125
Engineering, Const Mngt, Admin, Legal (20%)	$1,656,000	$1,345,000
Total Project Capital Costs	$9,936,875	$8,068,125

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
OXIDATION DITCH - CAPITAL

Item	Class A Estimated Quantity	Class B Estimated Quantity	Class C Estimated Quantity	Unit	Installed Unit Price	Class A Total Price	Class B Total Price	Class C Total Price
Headworks (Flume, Grit, Screen)								
Site Work for Flume, Screen, and Grit	1	1	1	LS	$5,000.00	$5,000	$5,000	$5,000
6 Inch Parshall Flume	1	1	1	EA	$2,400.00	$2,400	$2,400	$2,400
Ultrasonic Level Sensor & Receiver	1	1	1	LS	$2,700.00	$2,700	$2,700	$2,700
Coarse Bar Screen	0	1	1	EA	$2,250.00	$0	$2,250	$2,250
Concrete Channel (for screen and Grit)	15	15	15	CY	$800.00	$12,000	$12,000	$12,000
Slide Gates	6	6	6	EA	$1,500.00	$9,000	$9,000	$9,000
1/8" Fine Screen	2	1	1	EA	$97,500.00	$195,000	$97,500	$97,500
Vortex Grit Unit, Classifier, Washer	2	1	1	EA	$135,000.00	$270,000	$135,000	$135,000
Misc. Piping & Fittings	1.5	1	1	LS	$25,000.00	$37,500	$25,000	$25,000
Screen/Headworks Building (46' x 26')	1794	1196	1196	SF	$125.00	$224,250	$149,500	$149,500
Electrical/Controls	1.5	1	1	LS	$62,200.00	$93,300	$62,200	$62,200
SUB-TOTAL						$851,150	$502,550	$502,550
Oxidation Ditch and Clarifiers								
Scaled Down from Wilder estimates	1.7	1	1	LS	$1,800,000.00	$3,060,000	$1,800,000	$1,800,000
SUB-TOTAL						$3,060,000	$1,800,000	$1,800,000
Tertiary Filtration								
Tertiary Filtration	1	1	0	LS	$900,000.00	$900,000	$900,000	$0
SUB-TOTAL						$900,000	$900,000	$0
Aerobic Digestor								
Site Work	1	1	1	LS	$10,000.00	$10,000	$10,000	$10,000
Digester Foundation - Concrete	250	250	250	CY	$800.00	$200,000	$200,000	$200,000
Digester Tank - Concrete	190	190	190	CY	$800.00	$152,000	$152,000	$152,000
Digester Tank Cover - Concrete	190	190	190	CY	$800.00	$152,000	$152,000	$152,000
Blowers (80 hp, 2100 scfm)	2	2	2	EA	$37,500.00	$75,000	$75,000	$75,000
Diffuser and stainless steel air assembly	1	1	1	LS	$12,500.00	$12,500	$12,500	$12,500
Mixer	1	1	1	EA	$12,750.00	$12,750	$12,750	$12,750
Misc. Piping and Fittings	1	1	1	LS	$7,500.00	$7,500	$7,500	$7,500
Electrical/Controls	1	1	1	LS	$20,000.00	$20,000	$20,000	$20,000
SUB-TOTAL						$641,750	$641,750	$641,750
Disinfection System								
Reuse/Refurbish Chlorine Disinfection System	1	1	1	LS	$50,000.00	$50,000	$50,000	$50,000
Additional Chlorine Contact Tank for Class A	49	0	0	CY	$800.00	$39,000	$0	$0
Dechlorination System	1	1	1	LS	$50,000.00	$50,000	$50,000	$50,000
Chlorine Analyzer	1	1	1	EA	$3,000.00	$3,000	$3,000	$3,000
Misc. Piping and Fittings	1	1	1	LS	$10,000.00	$10,000	$10,000	$10,000
Electrical/Controls	1	1	1	LS	$28,000.00	$28,000	$28,000	$28,000
SUB-TOTAL						$180,000	$141,000	$141,000
Dewatering								
Rotary Press	1	1	1	LS	$165,000.00	$165,000	$165,000	$165,000
Conveyor System	1	1	1	LS	$50,000.00	$50,000	$50,000	$50,000
Storage Pad	1	1	1	LS	$30,000.00	$30,000	$30,000	$30,000
Odor Control	1	1	1	LS	$25,000.00	$25,000	$25,000	$25,000
Electrical/Controls	1	1	1	LS	$60,000.00	$60,000	$60,000	$60,000
SUB-TOTAL						$330,000	$330,000	$330,000
Reclaimed Water Pump Station								
Reclaimed Water Pump Station (150 gpm at 150 feet - 10 Hp)	3	3	3	EA	$15,000.00	$45,000	$45,000	$45,000
Cans, piping, buried header	1	1	1	LS	$75,000.00	$75,000	$75,000	$75,000
Electrical/Controls	1	1	1	LS	$30,000.00	$30,000	$30,000	$30,000
Enclosure/Building (20 x 20)	400	400	400	SF	$125.00	$50,000	$50,000	$50,000
SUB-TOTAL						$200,000	$200,000	$200,000
Site Fencing								
Site Fencing (200' x 200')	800	800	800	LF	$6.00	$4,800	$4,800	$4,800
SUB-TOTAL						$4,800	$4,800	$4,800
Office/Admin Building								
Building Space (20 x 25)	500	500	500	SF	$125.00	$62,500	$62,500	$62,500
SUB-TOTAL						$62,500	$62,500	$62,500

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
STORAGE LAGOON AND LAND APPLICATION - CAPITAL

Item	Estimated Quantity	Unit	Unit Price	Total Price
Plant Headworks				
Ultrasonic Level Sensor & Receiver	1	LS	$2,700.00	$2,700
SUB-TOTAL				$2,700
Lagoon Transfer Structure/Piping Upgrades				
Replace Cell #1 to Cell #2 Transfer Structure	1	LS	$20,000.00	$20,000
Replace Cell #2 to Cell #3 Transfer Structure	1	LS	$20,000.00	$20,000
Cell #3 to Cell #4 Gate Valves	2	EA	$2,800.00	$5,600
Cell #4 to CCT Gate Valves	2	EA	$2,800.00	$5,600
SUB-TOTAL				$51,200
Storage Lagoon				
Clearing & Grubbing	42,000	CY	$3.00	$126,000
Excavation of Lagoon Site	63,000	CY	$3.00	$189,000
Excavation/Haul of Borrow Area	0	CY	$3.00	$0
Lagoon Embankment Fill	46,000	CY	$3.00	$138,000
Road/Approach Fill	1,000	CY	$3.00	$3,000
Retention Berm	4,500	LF	$3.00	$13,500
Top of Dike/Approach Aggregate Surfacing	1,200	CY	$10.00	$12,000
Exterior of Dike Aggregate Surfacing	1,500	CY	$15.00	$22,500
Transfer/Outlet Structures	2	EA	$27,500.00	$55,000
HDPE Liner	995,000	SF	$1.00	$995,000
HDPE Liner Ladders (50' OC)	80	EA	$625.00	$50,000
HDPE Liner Air Vents (25' OC)	160	EA	$100.00	$16,000
Pipe Penetration	2	EA	$7,500.00	$15,000
Liner Anchor Trench & Earthwork	3,900	LF	$6.00	$23,400
SUB-TOTAL				$1,658,400
North Canal Water Facilities				
Diversion Structure	1	LS	$20,000.00	$20,000
Weir for Flow Measuremernt	1	LS	$6,000.00	$6,000
Ultrasonic Level Sensor & Receiver	1	LS	$2,700.00	$2,700
EQ Pond	1	LS	$10,000.00	$10,000
Misc. Piping & Valves	1	LS	$7,500.00	$7,500
Electrical/Controls	1	LS	$5,000.00	$5,000
SUB-TOTAL				$51,200
South Canal Water Facilities				
Diversion Structure	1	LS	$10,000.00	$10,000
Weir for Flow Measuremernt	1	LS	$4,000.00	$4,000
Ultrasonic Level Sensor & Receiver	1	LS	$2,500.00	$2,500
EQ Pond	1	LS	$7,500.00	$7,500
Irrigation Pumps (30 hp)	2	EA	$10,000.00	$20,000
Misc. Piping & Valves	1	LS	$6,000.00	$6,000
Electrical/Controls	1	LS	$6,000.00	$6,000
SUB-TOTAL				$56,000
Irrigation Pump Station				
Site Work	1	LS	$5,000.00	$5,000
Wet-Well - Concrete	22	CY	$1,000.00	$22,000
Pump House (16' x 20')	320	SF	$125.00	$40,000
Effluent Irrigation Pumps (60 HP VFD)	2	EA	$30,000.00	$60,000
Flow Meter	1	LS	$6,000.00	$6,000

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
STORAGE LAGOON AND LAND APPLICATION - CAPITAL

Misc. Piping & Valves	1	LS	$30,000.00	$30,000
Electrical/Controls	1	LS	$30,000.00	$30,000
SUB-TOTAL				$193,000
Disinfection System				
Liquid Hypochlorite System	1	LS	$7,500.00	$7,500
Contact Basin - Concrete	65	CY	$800.00	$52,000
Misc. Piping & Valves	1	LS	$10,000.00	$10,000
SUB-TOTAL				$69,500
Land Application Site				
Property Acquisition	160	ACRE	$8,000.00	$1,280,000
Canal/Ditch Abandonment & Earthwork	13,000	LF	$5.00	$65,000
Re-Route Ditch	1,600	LF	$8.00	$12,800
Groundwater Monitor Wells	4	EA	$15,000.00	$60,000
Irrigation System (Wheel Lines)	4	EA	$20,000.00	$80,000
SUB-TOTAL				$1,497,800
Site Fencing				
Site Fencing	11,000	LF	$6.00	$66,000
SUB-TOTAL				$66,000
Site Power				
Yard Electrical/Power Upgrades	1	LS	$80,000.00	$80,000
SUB-TOTAL				$80,000
Site Piping				
6" Pressure Main - Canal Water Irrig of Buffers	5,300	LF	$25.00	$132,500
8" Pressure Main - Irrig Pump Station to Land App Site	5,400	LF	$28.00	$151,200
12" Gravity Main - Canal to Irrig Pump Station	300	LF	$30.00	$9,000
Pressure Clean-Out Manhole	1	LS	$5,000.00	$5,000
Trench Rock Removal (10%)	610	CY	$110.00	$67,100
Gravel/Natural Surface Repair - Mains	10,900	LF	$7.50	$81,750
Asphalt Surface Repair - Mains	100	LF	$17.00	$1,700
Traffic Control	110	DAY	$250.00	$27,500
SUB-TOTAL				$475,750
Access Roads/Parking				
Gravel Access Road/Parking (Lagoon)	6,000	SY	$6.00	$36,000
Gravel Access Road (Land Application Site)	6,000	SY	$6.00	$36,000
SUB-TOTAL				$72,000

Sub-Total Construction Costs	**$4,273,550**
Contractor Mob/Demob (2%)	$85,000
Contractor Bonding, Admin, Insurance (10%)	$427,000
Contingencies (20%)	$855,000
Total Construction Costs (2007)	**$5,640,550**
Engineering, Const Mngt, Admin, Legal (20%)	$1,128,000
Total Project Capital Costs	**$6,768,550**

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
MEMBRANE BIOREACTOR - O&M

NEW BUDGET ITEMS

Item	Estimated Quantity	Unit	Unit Price	Total Price
Labor (Salary & Benefits)	1	FTE	$83,200.00	$83,200
Power				
Fine Screen (2 hp)	6,600	KWH	$0.06	$400
Grit Removal (5 hp)	32,600	KWH	$0.06	$1,960
Anoxic Tank Mixers (2.5 hp)	32,600	KWH	$0.06	$1,960
Pre-Aeration Mixers (2.5 hp)	16,300	KWH	$0.06	$980
Pre-Aeration Blowers (40 hp)	195,500	KWH	$0.06	$11,730
MBR Blowers (50 hp)	244,300	KWH	$0.06	$14,660
Recycle Pumps (10 hp)	65,200	KWH	$0.06	$3,910
Permeate Pumps (7.5 hp)	48,900	KWH	$0.06	$2,930
WAS Pumps (1 hp)	600	KWH	$0.06	$40
Digestor Blowers (35 hp)	171,100	KWH	$0.06	$10,270
Digestor Mixer (20 hp)	97,800	KWH	$0.06	$5,870
Belt Filter Press	13,100	KWH	$0.06	$790
Belt Filter Press Wash Water Pumps (2.5 hp)	2,400	KWH	$0.06	$140
Dewatered Solids Conveyor (5 hp)	4,700	KWH	$0.06	$280
Sludge Feed Pumps (3 hp)	2,800	KWH	$0.06	$170
UV	22,900	KWH	$0.06	$1,370
Reclaimed Water Pumps (10 hp)	65,200	KWH	$0.06	$3,910
Building Heating/Lights/Etc.	87,960	KWH	$0.06	$5,280
Chemicals				
Ferric Chloride (P-Removal)	21,900	LBS	$0.30	$6,570
Sodium Hypochlorite for Membrane Cleaning	80	GAL	$2.00	$160
Oxalic Acid for Membrane Cleaning	1	LS	$100.00	$100
Wastewater Sampling	1	LS	$10,000.00	$10,000
Professional Services/Engineering	1	LS	$10,000.00	$10,000
Short-Lived Asset Replacement				
Anoxic Mixers	1	LS	$750.00	$750
Pre-Aeration Mixers	1	LS	$750.00	$750
Pre-Aeration Blowers	1	LS	$2,500.00	$2,500
MBR Blowers	1	LS	$4,000.00	$4,000
Recycle Pumps	1	LS	$1,500.00	$1,500
Permeate Pumps	1	LS	$380.00	$380
WAS Pumps	1	LS	$1,050.00	$1,050
Pre-Aeration Fine Bubble Diffusers	1	LS	$540.00	$540
MBR Coarse Bubble Diffusers	1	LS	$1,030.00	$1,030
Membranes	1	LS	$20,000.00	$20,000
Chemical Cleaning Pumps	1	LS	$400.00	$400
Digestor Blowers	1	LS	$5,500.00	$5,500
Digestor Mixer	1	LS	$600.00	$600
Digestor Fine Bubble Diffusers	1	LS	$2,190.00	$2,190
Influent Flow Meter	1	LS	$250.00	$250
Effluent Flow Meter	1	LS	$250.00	$250
Chemical Feed Pumps	1	LS	$400.00	$400
Sludge Feed Pumps	1	LS	$1,000.00	$1,000
Polymer Feed Pumps	1	LS	$200.00	$200
Wash Water Pumps	1	LS	$500.00	$500

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
MEMBRANE BIOREACTOR - O&M

Belt for Belt Filter Press	1	LS	$700.00	$700
Conveyor Belt	1	LS	$200.00	$200
UV Ballasts	1	LS	$400.00	$400
UV Lamps	1	LS	$1,500.00	$1,500
Reclaimed Water Pumps	1	LS	$1,250.00	$1,250
Vehicles	1	LS	$2,000.00	$2,000
Misc Equipment/Repairs	1	LS	$15,000.00	$15,000
Biosolids Disposal				
Disposal Fee	50	TON	$15.00	$750
Hauling - Mileage	1,820	MILE	$1.00	$1,820
Sampling	1	LS	$2,000.00	$2,000

Sub-Total New O&M Costs	**$246,090**
Contingency (10%)	$24,610
Total New O&M Costs	**$270,700**

EXISTING BUDGET ITEMS NOT INCLUDED IN NEW O&M COST ESTIMATES

CITY OF FILER
WASTEWATER FACILITY IMPROVEMENTS
EXISTING BUDGET ITEMS TO CARRY FORWARD

Item	Cost	
Attorney	$500	
Audit	$1,590	
Backhoe Lease	$1,600	
Council & Mayor Salary	$4,120	
Farm Income	($4,000)	$100/ac @ 40 ac
Farm Rental	($12,400)	
Gas, Oil & Repair	$5,300	
Health Insurance	$24,400	
Health Insurance Repay	$5,000	
Radio/Repair	$600	
Retirement	$8,100	
S.S. & Med (FICA)	$5,800	
Salaries	$66,000	
Schools (Training)	$500	
Telephone	$800	
Unemployment	$500	
Worker's Comp.	$3,925	
Total Annual Cost	**$112,335**	

Total Annual Treatment Facility O&M Costs	**$383,035**

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
OXIDTATION DITCH - O&M

NEW BUDGET ITEMS

Item	Estimated Quantity	Unit	Unit Price	Total Price
Labor (Salary & Benefits)	1	FTE	$83,200.00	$83,200
Power				
Fine Screen (2 hp)	6,600	KWH	$0.06	$400
Grit Removal (5 hp)	32,600	KWH	$0.06	$1,960
Ditch Aerators (40 hp)	195,500	KWH	$0.06	$11,730
Ditch Mixers (10 hp)	48,900	KWH	$0.06	$2,930
Clarifier Mechanism & Spray Manifold	1	LS	$7,500.00	$7,500
RAS Pumps (10 hp)	65,200	KWH	$0.06	$3,910
WAS Pumps (1 hp)	600	KWH	$0.06	$40
Digestor Blowers (35 hp)	171,100	KWH	$0.06	$10,270
Digestor Mixer (20 hp)	97,800	KWH	$0.06	$5,870
Belt Filter Press	13,100	KWH	$0.06	$790
Belt Filter Press Wash Water Pumps (2.5 hp)	2,400	KWH	$0.06	$140
Dewatered Solids Conveyor (5 hp)	4,700	KWH	$0.06	$280
Sludge Feed Pumps (3 hp)	2,800	KWH	$0.06	$170
Reclaimed Water Pumps (10 hp)	65,200	KWH	$0.06	$3,910
Building Heating/Lights/Etc.	87,960	KWH	$0.06	$5,280
Chemicals				
Ferric Chloride (P-Removal)	21,900	LBS	$0.30	$6,570
Wastewater Sampling	1	LS	$10,000.00	$10,000
Professional Services/Engineering	1	LS	$10,000.00	$10,000
Short-Lived Asset Replacement				
Ditch Aerators	1	LS	$5,000.00	$5,000
Ditch Mixers	1	LS	$1,000.00	$1,000
Clarifier Mechanism & Spray Manifold	1	LS	$7,500.00	$7,500
Scum Equipment	1	LS	$100.00	$100
RAS Pumps	1	LS	$1,250.00	$1,250
WAS Pumps	1	LS	$1,050.00	$1,050
Digestor Blowers	1	LS	$5,500.00	$5,500
Digestor Mixer	1	LS	$600.00	$600
Digestor Fine Bubble Diffusers	1	LS	$2,190.00	$2,190
Influent Flow Meter	1	LS	$250.00	$250
Effluent Flow Meter	1	LS	$250.00	$250
Chemical Feed Pumps	1	LS	$400.00	$400
Sludge Feed Pumps	1	LS	$1,000.00	$1,000
Polymer Feed Pumps	1	LS	$200.00	$200
Wash Water Pumps	1	LS	$500.00	$500
Belt for Belt Filter Press	1	LS	$700.00	$700
Conveyor Belt	1	LS	$200.00	$200
Gas Chlorination System	1	LS	$500.00	$500
Dechlorination System	1	LS	$500.00	$500
Chlorine Analyzer	1	LS	$300.00	$300
Reclaimed Water Pumps	1	LS	$1,250.00	$1,250

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
OXIDTATION DITCH - O&M

Vehicles	1	LS	$2,000.00	$2,000
Misc Equipment/Repairs	1	LS	$15,000.00	$15,000
Biosolids Disposal Costs				
Disposal Fee	60	TON	$15.00	$900
Hauling - Mileage	1,820	MILE	$1.00	$1,820
Sampling	1	LS	$2,000.00	$2,000
			Sub-Total New O&M Costs	**$216,910**
			Contingency (10%)	$21,690
			Total New O&M Costs	**$238,600**

EXISTING BUDGET ITEMS NOT INCLUDED IN NEW O&M COST ESTIMATES

Item	Cost
Attorney	$500
Audit	$1,590
Backhoe Lease	$1,600
Council & Mayor Salary	$4,120
Farm Income	($4,000)
Farm Rental	($12,400)
Gas, Oil & Repair	$5,300
Health Insurance	$24,400
Health Insurance Repay	$5,000
Radio/Repair	$600
Retirement	$8,100
S.S. & Med (FICA)	$5,800
Salaries	$66,000
Schools (Training)	$500
Telephone	$800
Unemployment	$500
Worker's Comp.	$3,925
Total Existing O&M Costs	**$112,335**

Total Annual Treatment Facility O&M Costs	**$350,935**

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
STORAGE LAGOON AND LAND APPLICATION - O&M

NEW BUDGET ITEMS

Item	Estimated Quantity	Unit	Unit Price	Total Price
Power				
Irrigation Pumps (60 hp)	207,300	KWH	$0.06	$12,440
Chemicals				
Pesticides/Herbicides	1	LS	$500.00	$500
Sampling				
Groundwater	1	LS	$1,200.00	$1,200
Soils	1	LS	$200.00	$200
Short-Lived Asset Replacement				
5 hp Aerators	1	LS	$2,550.00	$2,550
7 hp Aerators	1	LS	$1,150.00	$1,150
Irrigation Pumps	1	LS	$1,500.00	$1,500
Canal Water Pumps	1	LS	$500.00	$500
Wheel Lines	1	LS	$3,000.00	$3,000
Hypochlorite Pumps	1	LS	$40.00	$40
Vehicles	1	LS	$1,000.00	$1,000
Influent Flow Meter	1	LS	$130.00	$130
Effluent Flow Meter	1	LS	$130.00	$130
Canal Flow Meters	1	LS	$250.00	$250
Canal Water Fees	160	Shares	$21.00	$3,360
Equipment Maintenance	1	LS	$5,000.00	$5,000
Crop Income	160	ACRES	($50.00)	($8,000)

* Assumes City will lease land to local farmer

Sub-Total O&M Costs	**$24,950**
Contingency (10%)	$2,500
Total O&M Costs	**$27,450**

EXISTING BUDGET ITEMS NOT INCLUDED IN NEW O&M COST ESTIMATES

Item	Cost
Attorney	$500
Audit	$1,590
Backhoe Lease	$1,600
Council & Mayor Salary	$4,120
Engineer	$7,500
Farm Income	($4,000)
Farm Rental	($12,400)
Gas, Oil & Repair	$5,300
Health Insurance	$24,400
Health Insurance Repay	$5,000
Heat	$1,800
Lab Testing	$7,500
Maintenance	$20,000
Power	$12,000
Pump Back Station	$2,500
Pump Maintenance	$3,500

CITY OF FILER
2007 WASTEWATER FACILITIES PLAN UPDATE
STORAGE LAGOON AND LAND APPLICATION - O&M

Radio/Repair	$600
Retirement	$8,100
S.S. & Med (FICA)	$5,800
Salaries	$66,000
Schools (Training)	$500
Telephone	$800
Unemployment	$500
WW Facility Upgrade	$30,000
Worker's Comp.	$3,925
Contingency	$25,100
Total Existing O&M Costs	**$222,235**
Total Annual Treatment Facility O&M Costs	**$249,685**

APPENDIX D

ERU ANALYSIS

CITY OF FILER
WASTEWATER FACILITIES PLAN
EQUIVALENT RESIDENTIAL USERS

	# of Units Before Project	# of Units After Project	ERUs Before Project	ERUs After Project
Residential				
Single Family	641	791 *	641	791
Multi-Family	119	119	119	119
SUB-TOTAL	760	910	760	910
Commercial				
Small Commercial (< 3.0 ERUs)	40	40	49	49
Large Commercial (> 3.0 ERUs)				
Everton Matress	1	1	4.5	4.5
Terry's One Stop	1	1	4.3	4.3
Filer Fair Grounds	1	1	6.0	6.0
Filer Laundromat	1	1	12.5	12.5
SUB-TOTAL	4	4	27	27
TOTAL COMMERCIAL	44	44	76	76
Public Buildings				
Filer Hwy Dist	1	1	1.0	1.0
US Post Office	1	1	1.0	1.0
Filer Rec District	1	1	3.0	3.0
Elementary School	1	1	29	29
Middle School	1	1	29	29
High School	1	1	41	41
SUB-TOTAL	6	6	104	104
TOTAL ERUs	**810**	**960**	**940**	**1,090**

* 150 new single family homes expected over the next 2 years.

APPENDIX E

PUBLIC WORKSHOP SUMMARY

A Public "Open House" style workshop was held on Sept. 6, 2006 at the Filer Fire Station between 4-7 pm to provide the community with information regarding the Filer Wastewater System's current conditions, the three replacement alternatives, and the Nov. 7. 2006 bond election.

The meeting was staffed by:

Robert E. Hegstrom, J-U-B Engineers, Inc.
Mark Holtzen, J-U-B Engineers, Inc.
Dan R. Adams, The Langdon Group, Inc.
Bryant J. Kuechle, The Langdon Group, Inc.

17 community members signed in at the meeting. Attendees included the Mayor, representatives from the City Council, Public Works, Police and Fire.

As of Sept. 12, 2006 one written comments has been submitted:

> *Lawrence Underwood*
> *PO Box 625*
> *Filer, Idaho 83328*
> *educate@filertel.com*
> *208-326-5158*
>
> *"Expand existing lagoon. 160 Acres can be condemned and purchased for farmland prices. There is no need to buy on the open market. Sewage treatment is the definition of land for a public use. Also, the system could be made more efficient by using water hyacinth plants in the lagoons. For more information, contact the San Diego sewer authority who has been using this system for 20+ years, Also, what about biogas generation to use for an electric cogeneration plant."*

To promote the meeting informational flyers were made available at City Hall; notice was printed on city utility bills; informational posters were posted throughout the town; a news release was distributed to all local media outlets; and a presentation was given to the Filer Kiwanis Club.

Text from the news release follows:

Filer Seeks Public Input for Wastewater System Improvements

Community Workshop Scheduled, Sept. 6 at Filer Fire Department

FILER— The Filer wastewater system is struggling to serve the current and projected needs of the community. The antiquated system is also insufficient for meeting regulatory requirements, now and in the future.

The City has authorized J-U-B Engineers, Inc. of Twin Falls to help develop a new wastewater system that will be efficient, cost-effective and compliant with regulatory criteria. The Langdon Group, an Idaho public involvement firm, is coordinating public outreach to identify solutions to this community problem.

Working closely with the public to develop a system that meets the current and future needs of the community is essential to a successful project. A community workshop is scheduled for **Wednesday, September 6 at the Filer Fire Station (228 Main St.). The public is invited to stop by any time between 4 and 7 pm.** At the workshop, participants will learn more about the project and facility upgrades alternatives; share their perspectives; identify potential issues; and make recommendations.

A 2003 video inspection revealed that nearly 60 percent of the collection system pipes are severely deteriorated. Some sections of pipe are completely missing, allowing raw wastewater to channel directly through the soil. The poor condition of the sewer lines may lead to leakage of raw wastewater to the surrounding soil and aquifer, collapse of a line, increased infiltration/inflow, and limitations in the City's ability to properly clean the lines.

Additionally, the wastewater treatment facilities, originally constructed in 1976, are unable to meet current National Pollution Discharge Elimination System (NPDES) permit requirements, as well as anticipated future land application permit limits for phosphorus. The treatment plant also requires other upgrades for flow monitoring, lagoon aeration, piping, pumping facilities, and disinfection.

Without significant upgrades, Filer will continue to struggle to comply with Idaho Department of Environmental Quality (IDEQ) and Environmental Protection Agency (EPA) regulations. Environmental and public health threats may become real concerns and non-compliance with the regulatory permits may result in costly fines or other penalties. Additionally, IDEQ may limit new connections to the wastewater system in the near future unless the City makes necessary improvements.

A ballot measure to approve funding of wastewater facility improvements in Filer will go before voters in a November 7, 2006 revenue bond election. The value of the bond measure is dependent on the treatment facility alternative selected by the public and City.

If community members belong to a civic organization or community group that would prefer the project team conduct a workshop at their regularly scheduled meeting, they can contact The Langdon Group at 800-252-8929. Additional project information is available to download from The Langdon Group website: www.langdongroupinc.com.

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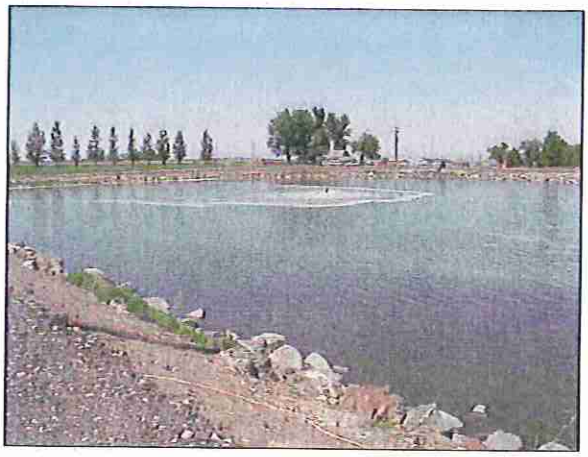
Filer Wastewater Bond Election: November 7, 2006
Public Awareness and Education Campaign

Passage of a $12.5 million bond in Filer, Idaho means the town will be able to move forward with critical improvements to their wastewater treatment facility and collection system. A campaign to build community support for the ballot measure was led by J-U-B Engineers and The Langdon Group (TLG), a public involvement subsidiary of J-U-B.

BACKGROUND

The Filer wastewater system is struggling to serve the current and projected needs of the community. The antiquated system is also insufficient for meeting regulatory requirements, now and in the future.

A 2003 video inspection revealed that nearly 60 percent of the collection system pipes are severely deteriorated. Some sections of pipe are completely missing, allowing raw wastewater to channel directly through the soil. The poor condition of the sewer lines may lead to leakage of raw wastewater to the surrounding soil and aquifer, collapse of a line, increased infiltration/inflow, and limitations in the city's ability to properly clean the lines.



Filer's existing lagoon system has insufficient aeration and is approaching its storage capacity

Additionally, the wastewater treatment facilities, originally constructed in 1976, are unable to meet current National Pollution Discharge Elimination System (NPDES) permit requirements, as well as anticipated future land application permit limits for phosphorus. The treatment plant also requires other upgrades for flow monitoring, lagoon aeration, piping, pumping facilities and disinfection.

If Filer were to continue without significant upgrades, they would continue to struggle to comply with Idaho Department of Environmental Quality (IDEQ) and Environmental Protection Agency (EPA) regulations. Environmental and public health threats would become real concerns and non-compliance with the regulatory permits may ultimately result in costly fines or other penalties. Additionally, IDEQ could limit new connections to the wastewater system.

IMPORTANCE OF BOND ELECTION

Voter passage of the bond demonstrates community support for the project and strengthens the City's position when applying for State and Federal grant money. Grants will reduce the amount of loan money necessary to fund the project, helping to minimize increases in user rates. Bond approval will provide a safe, reliable wastewater system that will comply with regulatory requirements and meet the current and future sewer needs of the community.

Without the bond, the city may have been forced to allow a judge to decide whether the upgrades are necessary and ordinary. This judicial confirmation process would have delayed the project and limit the city's grant funding opportunities. With the increasing costs of concrete, steel and fuel, a postponed project could have resulted in significant construction cost increases, and in turn, higher user rates. Non-approval of the bond might have resulted in violations of the city's Land Application and NPDES permits, leaving the door open for fines or other penalties from IDEQ and EPA.

CAMPAIGN

The project team worked closely with city officials to develop a plan that would ensure the voting public was educated and knowledgeable about issues surrounding Filer's wastewater treatment system.

As the primary project contact, J-U-B and TLG conducted informational presentations and question/answer sessions with city civic groups, a media outreach campaign, distributed print materials to the voting public, and facilitated three public meetings. Throughout the process, TLG maintained a project database and contact log.

Civic Group Presentations

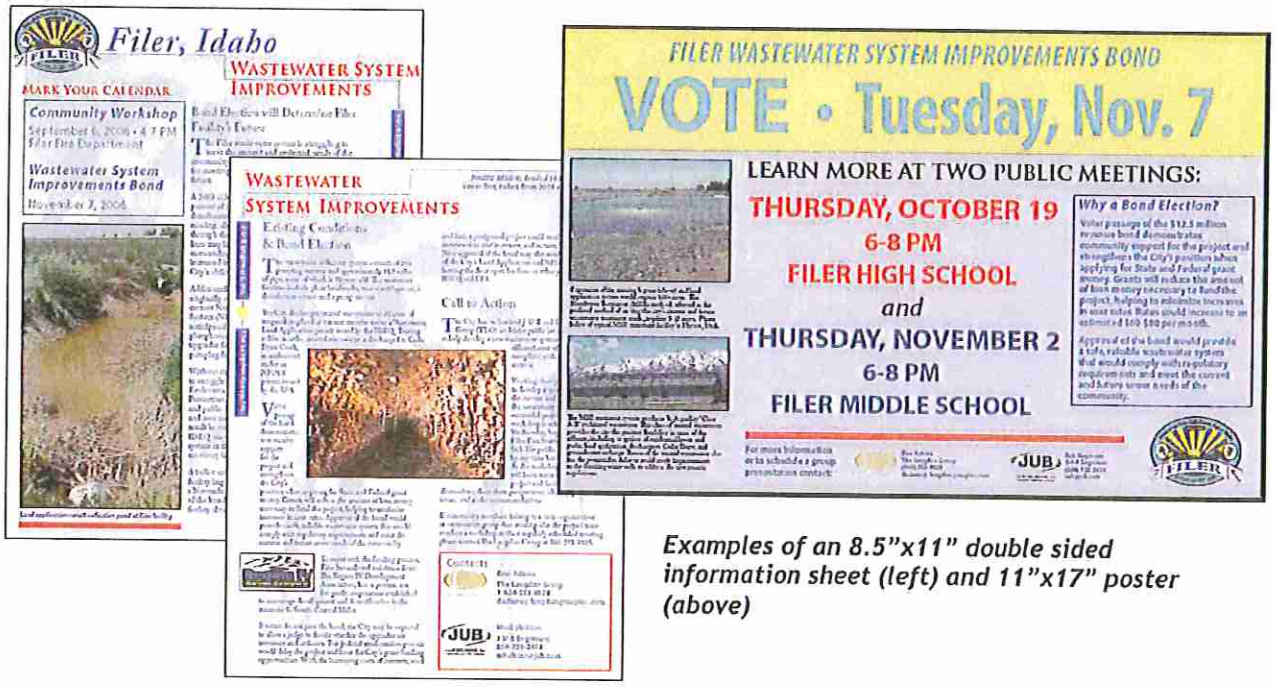
- Scheduled and presented to area groups:
  - Kiwanis (2 times)
  - Ministerial Group
  - Senior Center (2 times)
  - Cedar Lanes Bowling Alley all-you-can eat pizza lunch
- Designed and produced informational display boards for each presentation

Media Relations

- Drafted and distributed three news releases at various stages of the process to southern Idaho print, television, and radio outlets
- Assisted Filer Mayor with creation and distribution of guest editorials to area newspapers
- Served as technical experts for television and newspaper interviews

Print Materials

- Coordinated with city officials to draft text and determine primary messages of two information flyers
- Created project design and brand used in print material, display boards and posters
- Designed, created and distributed two informational flyers at different stages of the project:
  - Provided at civic group presentations
  - Distributed to all elementary students to bring home
  - Provided at three public information meetings
  - Made available at City Hall
  - Made available at all schools
  - Made available at the phone company
  - Made available at Filer Library
- Designed, created and distributed three informational posters at different stages of the project
- Included two public meeting notices in monthly utility bills
- As project's primary contact, Langdon Group contact information provided

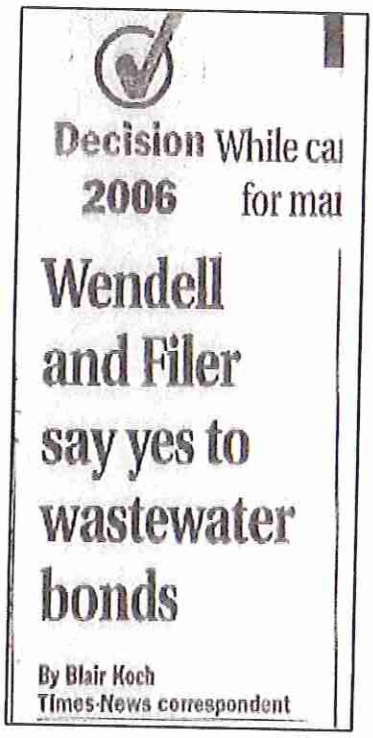


Examples of an 8.5"x11" double sided information sheet (left) and 11"x17" poster (above)

Public Informational Meetings

- Community Workshop: Sept. 6, 2006 at the Filer Fire Station
  - Presented three wastewater treatment facility options and asked the public to vote on their preferred option
  - Media outreach; KMVT television coverage, Times News reported
  - Answered questions and received comment
- Public Open House: Oct. 19, 2006 at Filer High School
  - Presented preferred treatment option
  - Media outreach, Times News reported
  - Answered questions and received comment
- Public Open House: Nov. 2, 2006 at Filer Middle School
  - Project overview and election campaign
  - Media outreach
  - Answered questions and received comment

Examples of 24"x36" display boards used at public informational meetings and civic group presentations



Decision 2006 While cai for mai

Wendell and Filer say yes to wastewater bonds

By Blair Koch
Times-News correspondent

RESULTS

The campaign resulted in passage of the $12.5 million bond by a margin of 281 to 71 - despite the fact that passage of the wastewater bond would raise user rates to as much as $60 - $80 per month. The current user rate is $15.50 per month.

Headline from Nov. 8, 2006 editon of Times News

Filer seeks public input for wastewater system improvements

Community workshop scheduled
Wednesday, September 6 at Filer Fire Department

FILER — The Filer wastewater system is struggling to serve the current and projected needs of the community. The antiquated system is also insufficient for meeting regulatory requirements, now and in the future.

The city has authorized J-U-B Engineers, Inc. of Twin Falls to help develop a new wastewater system that will be efficient, cost-effective and compliant with regulatory criteria. The Langdon Group, an Idaho public involvement firm, is coordinating public outreach to identify solutions to this community problem.

Working closely with the public to develop a system that meets the current and future needs of the community is essential to a successful project. A community workshop is scheduled for **Wednesday, September 6 at the Filer Fire Station, 228 Main Street. The public is invited to stop by any time between 4 and 7 pm.**

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See Workshop, page 2

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Workshop

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Center slates classes for

Times New 10/23/06

Push to inform Filer residents on wastewater system continues

By John E. Swayze
Times-News correspondent

FILER — The Filer City Council continues campaigning to inform residents about a wastewater system improvement bond election on Nov. 7, but Thursday evening's workshop at the high school attracted no public response.

"I hope no news is good news, but maybe we'll get a better turnout at the middle school," Councilman Bob Parent said.

Brought on line in 1964, increased residential development has pushed the current lagoon treatment system to the edge of capacity.

Based on public input heard during a workshop that J-U-B Engineers of Twin Falls and representatives from the Langdon Group conducted in September, city officials are asking residents to approve a $12.5 million revenue bond to build a high-tech membrane bioreactor. Approximately $4.6 million of the bond would also be used to replace 7.3 miles of deteriorated sewer line extending from U.S Highway 30 to North Street and Fair Avenue to Stevens Street.

"We're in the same boat with a lot of the communities around here," Mayor Bob Templeman said. "Trying to keep up with growth and finding the money to do it."

An MBR system, similar to the facility under construction in Jerome, is an expandable 5-to-15 acre project that breaks down wastewater and filters pollutants using a series of membrane filters and ultraviolet irradiation. The remaining solids are compacted and dried for disposal. The resulting water is suitable for irrigation and groundwater recharge.

Annual maintenance and operating costs for an MBR system are estimated at $299,755.

"It's hard to say for sure but I feel pretty confident that, from design to completion, this system could be up and running by the end of 2008," J-U-Bs Rob Hegstrom stated.

Additional informational workshops on the proposed wastewater system are scheduled for the following dates:

- Tuesday, at 12:30 p.m. at the Filer United Methodist Church, 318 Union Avenue.
- Thursday, Nov. 2 from 6-8 p.m, in the Filer Middle School, 299 U.S. Highway 30.

Bond election polls will be open on Nov. 7 from 8 a.m. to 8 p.m. in the Filer Middle School gymnasium.

John Swayze covers the Filer area for the Times-News. He can be reached at 326-7212 or by e-mail at swayzej@aol.com.

ORDINANCE 563-vacating certain street right-of-way, "Ragen's Way", located in Block 3 of the Southwest 93 Commercial Subdivision.

A motion was made by Suellen Lammers and seconded by Bob Parent to waive the second reading and read the third time by title only. Roll call vote: Don Barkley, aye; Suellen Lammers, aye; Bob Parent, aye; and Darin Stoddard, aye. Motion carried.

Mayor Templeman read ORDINANCE 563 by title only for the third reading.

A motion was made by Bob Parent to adopt ORDINANCE 563. Seconded by Don Barkley. Motion carried.

Waste Water Facility Project Update--Rob Hegstrom of JUB Engineers, gave a short presentation and update on the WW Facility Project. Presentations have been given at the Senior Center and Kiwanis. The City is hosting a workshop at the Fire Station on Wednesday, September 6th. JUB Engineers, the Langdon Group and Region IV Development will conduct the workshop. Discussion was held.

New Business

Approval of the proposed Findings, Fact & Conclusion--Special Use Permit Application, Jennifer Doty, 2206 Alex Drive.

A motion was made by Darin Stoddard to approve the Findings, Fact and Conclusion for the Special Use Permit submitted by Jennifer Doty. Seconded by Don Barkley. Roll call vote: Don Barkley, aye; Suellen Lammers, aye; Bob Parent, aye; and Darin Stoddard, aye. Motion carried.

Brian Dey had some questions regarding developer agreements, zoning questions and plan checks. Discussion was held.

A motion was made by Don Barkley to adjourn. Seconded by Bob Parent. Motion carried.

The meeting was adjourned at 8:55 p.m..

Bob Templeman, Mayor

ATTEST:

Shari Hart, City Clerk

REGULAR CITY COUNCIL MEETING
OCTOBER 17, 2006

THE FILER CITY COUNCIL HELD A REGULAR CITY COUNCIL MEETING ON TUESDAY, OCTOBER 17, 2006 IN THE COUNCIL CHAMBERS.

The meeting was called to order and a quorum present by Mayor Templeman at 7:31 p.m. with the following persons present:

Mayor	Bob Templeman
Council Member	Don Barkley
Council Member	Suellen Lammers
Council Member	Bob Parent
Area of Impact	Brian Dey
City Attorney	Fritz Wonderlich
City Clerk	Shari Hart

Also present were DPW Bud Compher, Mark Holtzen, John Swayze, and Marion & Joann Fenn.

Added to the agenda was to review increased fees for annexation and rezone and review a record retention schedule.

Marion & Joann Fenn, 1014 Lauren Lane--rear lot line setbacks. Mr. & Mrs. Fenn had filed for a building permit to construct a patio cover attached to the rear of their home. The patio cover would have been within 10 feet of their rear lot line. The City's current set back is 20 feet. Mr. & Mrs. Fenn asked the Council what could be done, if anything, to allow them to add a patio cover. All the surrounding homes have similar issues and problem with meeting the setback. Mayor Templeman stated the Council is going to review setbacks in the near future and understand the problem the Fenn's are having. No action was taken.

Wastewater Facility Project Update--Mark Holtzen, JUB Engineers, gave a brief update. A public meeting will be held on October 19, 2006 in the Filer High School at 6:00 pm to 8 pm.

Capacity Fees --Mark Holtzen presented the Council & Mayor with drafts of some proposed capacity fees for the water and wastewater systems. Discussion was held.

Record retention schedule and proposed fee increases
The Council received copies of a sample draft of a record retention schedule resolution. Discussion was held. The Council also received proposed increases for annexation fees, rezone fees and updating the code books to reflect the maximum citation charges from $300 to $1000. Discussion was held to reduce dog citations from misdemeanors to infractions. Fritz was directed to draft the necessary notices.

Library Report Suellen Lammers
Rural Economic Darin Stoddard

Unfinished Business

Waste Water Project Update--Rob Hegstrom of JUB Engineers stated there wasn't any new information to report on. Dates for holding public hearings/open houses were discussed. Mayor Templeman announced a meeting with the ministerial association will be held Thursday morning at "In His Name" church, October 12th-Senior Center at 12:noon, October 24th-Kiwanis at 12:noon. Two tentative dates were set for evening meetings on Oct 19th from 6-8 pm at the Middle School and November 2nd from 6-8 pm in the High School. Bob Parent will confirm those facilities and report back.

New Business

Guy Ramsey, 782 Rayborn Circle, had questions for the Council on his right of way to his property that was established and recorded 29 years ago. Mr. Ramsey asked for some clarification on property taxes and accesses. City Attorney Fritz Wonderlich stated the City really couldn't help Mr. Ramsey and advised him to contact his attorney. More discussion was held.

Rear lot set backs

A question regarding rear lot line set backs for covered decks had came up and a request was made for clarification on exactly what was allowed. The building permit in question is requesting a permit for a covered deck within ten (10) feet of the rear lot line. City Attorney Fritz Wonderlich said it was not allowed and did not meet Filer City Code set backs. Council agreed.

A motion was made by Suellen Lammers and seconded by Bob Parent to adjourn. Motion carried.
The meeting adjourned at 8:10 p.m..

Bob Templeman, Mayor

ATTEST:

Shari Hart, City Clerk