



# CITY OF NEPTUNE BEACH

116 FIRST STREET, NEPTUNE BEACH, FLORIDA

## MEMORANDUM OFFICE OF THE CITY CLERK

**DATE:** August 4, 2009

**FROM:** Lisa Volpe, CMC, City Clerk

**TO:** Jim Jarboe, City Manager  
Leon Smith, Director of Public Services

**SUBJECT:** Notice of Intent to Sole Source

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The Notice of Intent to Sole Source for the purchase and installation of parts for ED PRO 2000® BIO MECHANICAL CLEANING AND PROCESSING SYSTEM for the City of Neptune Beach was advertised on July 20<sup>th</sup> and closed on August 3<sup>rd</sup>, 2009.

My office did not receive any responses.



100 Bridge Street  
Wheaton, IL 60187

Tel: 630.871.5844  
Fax: 630.871.0303  
www.in-pipe.com

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**Purchasing Quote**

Proposal Number: 2009- 1222  
Date: 6/22/2009  
Reference: Neptune Beach, FL  
Availability: 2 Weeks, ARO  
FOB: Customer Site  
Validity: Proposal valid for 90 days

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To:  
  
Neptune Beach  
2010 Forest Ave.  
Neptune Beach, FL 32266  
Phone: (904) 270-2422  
Fax: (904) 270-2418  
Email: mgreenwood@neptune-beach.com  
Attn: Mark Greenwood, Division Supervisor

From:  
  
In-Pipe Technology Company, LLC  
100 Bridge Street  
Wheaton, IL 60187-4841  
Phone: (630) 871-5844 x222  
Fax: (800) 804-9591  
E-mail: fkassir@in-pipe.com  
Attn: Fadi Kassir, COO

Item	Months	Item Code#	Description	Price Per Month
1	12	IPT-NEPT-1M	In-Pipe Treatment and Service	\$2,500.00

**Service and Expected Financial Savings Results:** The cost savings projections for are dependent upon the Client's cooperation with In-Pipe recommendations for operational control. In-Pipe intends to work within the operational framework established by the facility. However, variance from historical operating set points for control should be expected. In-Pipe and Client agree to create an Efficiency Team to evaluate and modify various set points at the plant to maximize In-Pipe's effectiveness.

**Termination / Remedy Period:** In the event the Client is not satisfied with the performance of the IPT service for thirty (30) consecutive days after the first three (3) months of treatment, the Client shall provide thirty (30) days written notice to IPTC. Upon receipt of said notice IPTC shall have 30 days to make modifications and demonstrate satisfactory performance. If the Client remains dissatisfied with the performance at the end of the notice period, the parties may terminate the agreement. The Client's only financial obligation in termination is to pay all outstanding invoices due to IPTC, including for the last full month of service provided prior to the thirty (30) day remedy period.



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Proposal Number:	2009-1192
Date:	6/19/2009
Reference:	Neptune Beach, FL

#### ***Payment Terms***

- IPTC shall invoice the Client on the first day of the month service is provided. If treatment is initiated during the month, the first month's service fee will be prorated for the time installed.
- Invoices are due net thirty (30) days.
- The contract shall remain in effect for twelve (12) consecutive months, unless terminated in accordance with "Termination / Remedy Period" above.
- Any modification to the contract will be subject to future negotiation.

***No Net Cost Guarantee:*** In-Pipe Technology® impacts many areas of capital, operational and maintenance costs. The level of impact and actual dollar savings varies from project to project and includes tangible, intangible, direct and avoided costs, all of which contribute to total value.

In-Pipe shall prepare cost information provided by the Client and with Client's cooperation construct a savings matrix, indicating the areas that In-Pipe has impacted. The Client agrees to supply this data in on an ongoing basis so In-Pipe can prepare and update the savings matrix and thereby demonstrate the savings generated by In-Pipe.

The application of In-Pipe includes in initial period of sewer cleaning and transition that may not produce significant gross savings during the first 60 days of the contract; therefore, costs for this period may be excluded in performance evaluation, the exception being reduction in odor perception and aeration energy in the aerobic digesters.

***Proprietary IPT Bulk Microbe Culture:*** The Client agrees that it will take appropriate measures to ensure that no analysis is allowed on the IPT bulk microbe culture reagents without prior written authorization by In-Pipe Technology Company, LLC. In-Pipe Technology methodology is protected by US Patents (#5,578,211 and 5,788,841 and Canada Patent # 2,272,689) owned by the company.



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***Offered By:***

In-Pipe Technology Company

A handwritten signature in black ink that reads 'Fadi Kassir'. The signature is written in a cursive, flowing style.

Fadi Kassir  
Chief Operating Officer

***Accepted By:***

Neptune Beach

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Purchase Order Number: \_\_\_\_\_



## About Us

### PRETREATING WASTEWATER IN THE COLLECTION SYSTEM IMPROVES TREATMENT ECONOMICS

In the early 20th century, cities began to adopt the biological methods that now form the basis by which wastewater treatment plants function. Microorganisms act to catalyze the oxidation of biodegradable organics and other contaminants generating innocuous by-products such as carbon dioxide, water and biomass (sludge). Simply put, bacteria grow and divide, producing biosolids and clean water effluent. Today, this metabolism occurs in wastewater treatment plants, which have the limits of size, retention time, processing capacity, and of course – municipal budgets.

In-Pipe Technology enhances this fundamental process by starting treatment at strategic locations throughout the sewer collection system. In-Pipe's patented technology transforms miles of sewer pipe into an active part of the wastewater treatment process, optimizing the entire infrastructure. This improves operating economics without additional capital expenditure. Since it uses natural, biological methods that work with the treatment plant's own processes, In-Pipe is a sustainable solution – environmentally and economically.

#### **Operating Savings & Efficiency**

In-Pipe increases operating efficiency by reducing influent organic loading and the costs associated with sludge handling and disposal, expensive chemicals, and energy usage.

The reduced loading at the plant, coupled with a more efficient microcosm reduces aeration requirements and provides significant energy savings.

#### **Water Quality**

In-Pipe Technology improves water quality for discharge or reuse by reducing influent organic loading and effluent pollutant levels. In-Pipe has helped compliant plants function more efficiently and has helped non-compliant plants achieve their targets.

By initiating productive microbiological activity in the collection system, In-Pipe digests organic matter as it moves through the entire system improving the influent bioavailability. In-Pipe can structure treatment design to address industrial inputs into the collection system. It works with both conventional treatment processes and new designs using membrane bioreactors.

#### **Collection System Issues**

In-Pipe reduces odors, corrosion, and fats, oil, and grease (FOG), extending the life of the infrastructure. In-Pipe works in the sewer collection system combating sulfate reducing bacteria that cause odors while metabolizing FOG. This reduces maintenance and energy costs.

## Company Profile & Service Offering

*In-Pipe provides engineered wastewater treatment services to municipalities and industries worldwide. In-Pipe engineers a solution for each customer based on a full system review and includes turnkey installation, service and maintenance.*

#### **Proven Improvements**

- Reduce Influent Loading
  - TSS 20-40%
  - BOD 20-40%
  - Ammonia 20-40%
  - Nitrates 20-40%
- Reduce Sludge Disposal >50%
- Reduce Energy Consumption (Kwh) 20% to >50%
- Control H<sub>2</sub>S Odor & Corrosion
- Control Fats, Oils, & Grease (FOG)
- Increase Plant Capacity

#### **Unmatched Expertise**

- Process Engineering
- Wastewater Treatment Plant Design Optimization
- Microbiology Laboratory
- Project Management
- Control Systems (SCADA) Programming and Remote Monitoring
- Microbial Production

#### **In-Pipe Technology**

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REAL SOLUTIONS. REAL RESULTS.

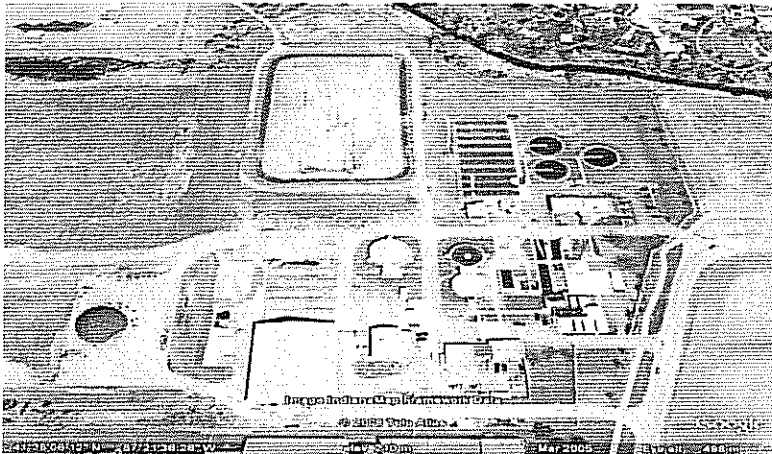
**North American Installation List**  
*Published June 3, 2009\**

IPT Customer	Flow	IPT Start Date	Specific Problems Addressed
Lakeland, FL	9.00 MGD	February, 2001	Capacity, Odor, Corrosion
Jellico, TN	0.50 MGD	August, 2001	Sludge Reduction, Plant Performance Efficiency, FOG, Odor,
Jackson, MS (Savannah)	12.00 MGD	February, 2002	Sludge Reduction, FOG, Odor
Sinking Spring, PA	0.60 MGD	March, 2002	Sludge Reduction, FOG, Odor
Kotzebue, AK – Wastewater Lagoon	0.50 MGD	May, 2002	Sludge Reduction, FOG, Odor
Madison, MS	1.00 MGD	May, 2002	FOG, Odor
Pearl River, MS	1.50 MGD	July, 2002	FOG, Odor
Jackson, MS (Trahon)	2.00 MGD	December, 2002	Sludge Reduction, Plant Performance Efficiency
Romeoville, IL	4.50 MGD	April, 2003	Compliance
Lake Harbor, MS- Wastewater Lagoon	0.10 MGD	July, 2003	Sludge Reduction, Odor
Twin Harbor, MS- Wastewater Lagoon	0.10 MGD	April, 2004	Sludge Reduction, Odor
Greenville, MS	6.00 MGD	September, 2004	Sludge Reduction, Power Reduction, FOG, Odor
Leesport, PA	0.25 MGD	February, 2005	Sludge Reduction, FOG
Ratliff Ferry, MS Wastewater Lagoon	0.04 MGD	March, 2005	Sludge Reduction, FOG, Odor
Rye, NY	0.50 MGD	February, 2006	FOG, Odor
Jackson, MS (Savannah) (Upgrade/Expansion)	35.00 MGD	August, 2006	Sludge Reduction, Power Reduction, FOG, Odor
Sarasota, FL	1.50 MGD	August, 2006	FOG, Odor
Richmond Hill, GA	1.00 MGD	December, 2006	BNR, FOG
Suffolk County, NY *funded by NYSERDA	0.80 MGD	January, 2007	Capacity, Sludge Reduction, Power Reduction
Terra Water Group Calgary, AB Canada	OEM Trial	April, 2007	Capacity, BNR, Sludge Reduction, Plant Performance Efficiency
Northampton, TX	1.00 MGD	April, 2007	Capacity, Sludge Reduction, Power Reduction, Plant Performance Efficiency, FOG, Odor, Corrosion
Sioux City, IA	14.0 MGD	May, 2007	Capacity, Sludge Reduction, Power Reduction, Plant Performance Efficiency, Odor, Corrosion
Crown Point, IN	5.20 MGD	August, 2007	Capacity, Sludge Reduction, Power Reduction, Plant Performance Efficiency, Odor
Lakeland, FL – North Plant	8.00 MGD	January, 2008	Sludge Reduction, Odor, FOG
Sarasota, FL Expansion	6.00 MGD	January, 2008	Plant Performance Efficiency
Veolia – Palmetto, FL (Demo)	1.40 MGD	February, 2008	Plant Performance Efficiency, FOG
Orange Park, FL	1.20 MGD	March, 2008	Plant Performance Efficiency, Capacity, BNR, Sludge Reduction, Odor Control
Hillsborough County, FL (Van Dyke WWTP)	1.80 MGD	April, 2008	Sludge Reduction, Odor Control, FOG Control
Olds, AB Canada	1.00 MGD	May, 2008	BNR, Plant Performance Efficiency, Odor
North Texas MUD – Panther Creek WWTP	2.50 MGD	May, 2009	Plant Performance Efficiency , Odor Control

\*Installation Lists are published on a quarterly basis.



## Crown Point Wastewater Treatment Plant Crown Point, IN



### Performance History and Discussion

The City of Crown Point selected In-Pipe to improve the treatment capacity at the Wastewater Treatment Plant (WWTP) without capital expansion of the current facility. In-Pipe's goal is to reduce the quantity of waste sludge for disposal, improve operating efficiency, and control odors at the plant.

The primary metrics for performance are decreased sludge production, improved destruction of organic material, and FOG and odor control while maintaining high effluent quality. In-Pipe uses the WWTP data to demonstrate performance of IPT. Service started in August 2007.

Prior to In-Pipe, Crown Point planned to upgrade the WWTP. The City investigated options to upgrade or replace several components to meet short and long term wastewater treatment needs. Increasing the capacity of the sludge storage building and a new tank for anaerobic digestion was planned to manage the growing quantity of sludge produced at the plant.

### Present Conditions

During the winter of 2008, the plant experienced mechanical failure of two of three clarifiers due to complications with the weather. As a result, nearly all of the biomass in the activated sludge system was eliminated through a washout of the remaining portion of MLSS. In-Pipe supplied additional microbes to select locations in the collection system and at the plant. Within two weeks, the grey, septic biomass was returned to a healthy brown color and the MLSS was rapidly rising.

In-Pipe has serviced Crown Point for more than 18 months. Using the collection system as an active part of the treatment process increases the efficiency of the WWTP and extends the life of existing infrastructure. Increased microbiological activity in the collection system and the plant provided significant benefits to Crown Point. By optimizing the vast collection system, In-Pipe will improve the economics of wastewater treatment.

## Project Profile

### Summary at a Glance

Project Installed: August 2007

Plant Size: 5.2 MGD

### Service Objectives:

- Reduce Sludge Disposal
- Increase Organic Capacity
- Reduce Energy Consumption for wastewater aeration

### Performance Summary:

- 57% Sludge Reduction
- 60% Decreased D.O. for wastewater aeration
- 36% Increased Volatile Solids Destruction
- 50% Decreased KWH Usage for wastewater aeration

### Financial Payback: \$190,000

Crown Point's Calculated Savings:

- \$74,100 Sludge Hauling
- \$65,700 Polymer Usage
- \$45,800 Energy Usage
- \$5,000 FOG Control

Reference: Chris Previs  
WWTP Manager  
219.662.3255

***"We feel we would have been in serious jeopardy of violating our permit if it was not for your quick response to our dilemma"***

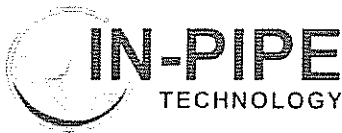
***- Chris Previs, WWTP Manager***

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## Greenville Wastewater Treatment Plant Greenville, MS



### Performance History and Discussion

Greenville selected In-Pipe Technology® Company, LLC in September 2004 to specifically address a segment of the collection system for the purpose of controlling Fats, Oils & Grease (FOG); and at the wastewater treatment plant (WWTP) for reducing and controlling WWTP electrical energy and waste solids disposal requirements.

Prior to the selection of In-Pipe, the WWTP was required to run a dedicated 500 horsepower (HP) air compressor for digester system waste solids processing and odor control. Since implementation of In-Pipe the air compressor is no longer required for digester system process control. Additionally, WWTP operators have noted a decrease in Fats, Oil and Grease (FOG) loading at the WWTP which will increase plant waste processing and ultra violet light (UV) disinfection efficiencies.

It is accepted by engineering professionals that the avoided cost savings achieved by turning off a piece of electrical equipment may be determined through standard calculations converting horsepower to electrical energy and using the electrical energy cost in \$/KwH. The following is a standard method of determining electrical savings due to not running a 500 HP electrical motor. For example: 500 HP x 0.746Kw/HP x 24 Hrs/Day x 365 Days/year x \$0.065/ KwH = \$212,386/year OR \$17,698 /mo. This engineering calculation assumes 100% compressor efficiency and a power factor of 1; and is conservative for compressors of the age of those at the Plant. Also the \$0.065 KwH cost requires updating with current monthly electric charges.

This example calculation can not take into account the additional \$/KwH cost savings due to the significantly decreased electrical power demand. It is our understanding that in some period of time, after a two year sustained period of demand reduction, the City may get as much as an 80% reduction in this demand charge at the WWTP.

### Present Conditions

At the end of 2008 a summary of economic benefits for the year stated 3+ years of continued elimination of the 500 HP air compressor required for aerobic digestion, greater than 60% reduction of waste sludge for disposal, and two years of extended life for the lagoon waste solids processing. This performance provided a financial payback to Greenville of approximately \$213,000 saved in annual expenses for energy consumption by reducing the KwH usage for the compressor.

Albert Holmes, WWTP Manager writes of In-Pipe "We have found this company to be very knowledgeable about wastewater treatment. Their service and attention to detail to our plant and digester process has been excellent. They are adept in assisting us to achieve our main project goal of keeping a 500 HP blower, normally required for digester operation, off line since they implemented their service. In addition, they provided us with a mass balance program to monitor digester performance. This program confirms that we are achieving biosolids reduction with little or no offensive digester odors".

## Project Profile

### Summary at a Glance

Project Installed: September 2004

Plant Size: 8.0 MGD

### Service Objectives:

- Reduce Sludge Disposal
- Reduce Power Consumption
- Control Hydrogen Sulfide (H<sub>2</sub>S) Odor and Corrosion
- Fats, Oils and Grease (FOG) Reduction

### Performance Summary:

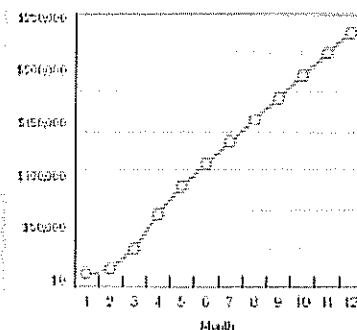
- 60% Sludge Reduction
- 100% Reduced Power for 500 HP Blower (blower turned off)

Financial Payback: \$213,000

Reference: Albert Holmes  
WWTP Manager  
662.378.1697

*"They are adept in assisting us to achieve our main project goal. This program confirms that we are achieving biosolids reduction with little or no offensive digester odors."*  
- Albert Holmes, WWTP Manager

Accumulated Energy Savings



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Rev021909-1



## Savanna Wastewater Treatment Plant Jackson, MS



### Performance History and Discussion

Jackson, MS selected In-Pipe Technology Company®, LLC for the Savanna WWTP with goals to reduce the quantity of waste sludge for disposal and control FOG in the collection system and at the plant. Jackson, the capital and largest city in Mississippi, was looking for ways to reduce sludge expenses from polymer to hauling and disposal fees.

In-Pipe was first introduced in Jackson on a limited basis beginning in 2002 for the purpose of controlling FOG and odors at certain locations. Over the course of the next two years In-Pipe was installed in several outlying small communities that feed in the Savanna system for the same reasons. In August 2006, the City entered into a contract with In-Pipe to expand to the entire Savanna collection system with the specific intent of reducing operating costs at the plant.

After five months with the technology in place, Jackson decreased the Waste Activated Sludge (WAS) production by 35%, improved the ratio of pounds of WAS per million gallons of treated effluent by 51%, and increased volatile solids reductions. After 8 months the plant experienced an absolute WAS reduction of 49% from 557 dry weight tons to 287 dry weight tons and a 61% increase in COD removal. This combination of WAS reduction calculated as a function of COD removed creates a 60% decrease in WAS yield.

Jackson also selected In-Pipe for the Trahon WWTP (2 MGD) in December 2002 with goals to reduce sludge production and improve plant efficiency to optimize digester operation. Sludge production decreased 60% down an average of 38 sludge loads hauled a month. Power for digester aeration decreased significantly from almost constant air delivery to approximately one hour per day for mixing.

### Present Conditions

In-Pipe continued in Jackson until October 2007 when a budget crisis forced the expansion service to terminate. In March 2008, six months after In-Pipe service was terminated, the WAS production had increased an average of 34% from 1.97 MGD to 2.64 MGD. In addition, the dry weight tons of sludge to be hauled for disposal had increased 39% from 103 tons to 143 tons during the three month period compared to previous year. In-Pipe is currently discussing a proposal with Jackson to resume service.

## Project Profile

### Summary at a Glance

Project Installed: August 2006

Plant Size: 38 MGD

### Service Objectives:

- Reduce Sludge Production
- Fats, Oils and Grease (FOG) Reduction

### Performance Summary:

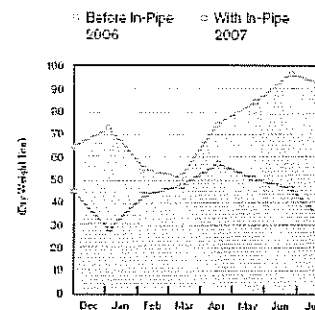
- 49% WAS (Waste Activated Sludge) Reduction
- 75% FOG Reduction

Reference: Anthony Harkless, P.E.  
Wastewater Engineer  
601.720.5944

*"In-Pipe Technology did more than just eliminate our grease problem - it eliminated our complaint problem as well. Storm and sewer overflow isn't a problem for us like it was."*

*- Anthony Harkless, Wastewater Engineer*

Total Sludge Reduced, Tons  
35 MGD Facility Served by In-Pipe Technology



### In-Pipe Technology

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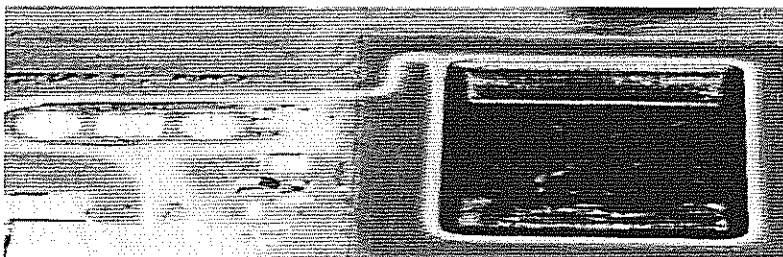
fax 630.871.0303

info@in-pipe.com in-pipe.com

Rev021909-1



## Town of Olds Wastewater Treatment Plant Olds, AB Canada



### Performance History and Discussion

Town of Olds selected In-Pipe Technology® Company, LLC with goals to improve the biological treatment capacity at the wastewater treatment plant (WWTP) without capital expansion of the current facility. The Town of Olds, located in Mountain View County along the Highway 2 corridor, planned to upgrade the WWTP. Designed and constructed over 30 years ago, the Town investigated options to upgrade or replace several components to meet short and long term wastewater treatment needs; however, the biological treatment capacity of the plant has never been increased.

The Olds WWTP receives an annual average flow of 1.0 MGD (3785 m<sup>3</sup>/day), but significant wet weather flow approximately six times the annual average has been experienced at the plant. The WWTP operating data indicates that the plant experiences trouble processing current loading and meeting the discharge limits. The plant contains six (6) Rotating Biological Contactor (RBC) units to remove biodegradable organic matter in the wastewater. The plant was designed and constructed in 1976/77. With the exception of the RBCs, The Town has upgraded several components of the plant since it was originally built. As a result of the conditions of the units, an inability to consume dissolved organic compounds caused overloading, contributing to poor effluent quality.

After 3 months of the technology in place, Olds decreased influent BOD load 26% from 829 kg/day to 609 kg/day and influent TSS load 19% from 691 kg/day to 560 kg/day. After 6 months, the plant decreased effluent TSS 61% from 30.7 mg/l to 11.8 mg/l and effluent CBOD 49% from 31.7 mg/l to 16 mg/l. A noteworthy change in the collection system is improved FOG control at two historical trouble spots. Reduced accumulation and remediation of old FOG deposits with In-Pipe eliminated the need for an additional chemical treatment and removed floating masses on the water surface. In addition, the WWTP grease collection manhole servicing the Primary Digester only requires hauling every four days compared to every other day.

### Present Conditions

In-Pipe has serviced Olds for 8 months. Scott Chant, Manager of Public Works and Utilities, reports the RBC units have improved dramatically with In-Pipe exhibiting a healthy reddish-brown color. The Public Works Association of Alberta recently recognized the Town of Olds for their innovative way of dealing with wastewater. The town received the project of the year award by the association for their success with this technology.

In a statement to the *Olds Albertan*, Scott said "we're going to a regional system and instead of trying to spend a lot of capital dollars upgrading the plant for additional capacity this is one way of dealing with the problem. We are seeing effects on the system in the first six months. It should just continually get better results as we go on."

## Project Profile

### Summary at a Glance

Project Installed: May 2008

Plant Size: 1.0 MGD

### Service Objectives:

- Reduce Influent Organic Load
- Improve Effluent Quality
- Control Hydrogen Sulfide (H<sub>2</sub>S) Odor and Corrosion
- Reduce Fats, Oils, and Grease (FOG)

### Performance Summary:

- 26% Reduced Influent Organic Load

### Financial Payback:

Reference: Scott Chant  
Manager of Public  
Works and Utilities  
403.556.8880

### Town of Olds wins "2008 Alberta Public Works Association Project of the Year"



L-R: Scott Chant, Manager of Public Works and Utilities, Darren Durrie, President Alberta Public Works Assoc., Ghayna Robinson, Waste Net Ltd., Stacy Dyer, Executive Director Alberta Public Works Assoc.

**"We're going to a regional system and instead of trying to spend a lot of capital dollars upgrading the plant for additional capacity this is one way of dealing with the problem.**

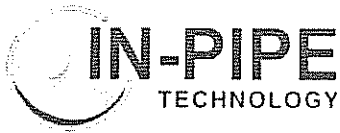
**We are seeing effects on the system in the first six months. It should just continually get better results as we go on."**

**- Scott Chant, Manager of Public Works and Utilities**

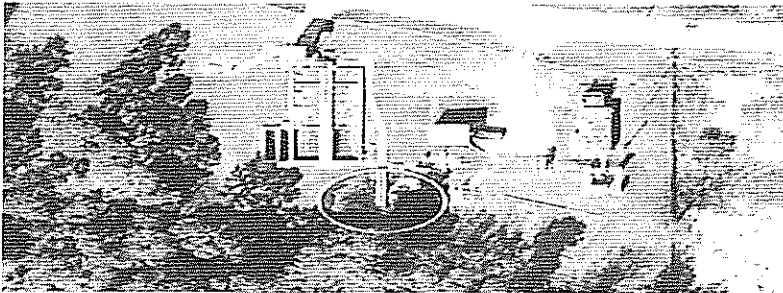
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## Northampton Municipal Utility District Spring, TX



### Performance History and Discussion

Northampton Municipal Utility District (MUD) selected In-Pipe Technology Company<sup>®</sup>, LLC with goals to reduce influent organic load, reduce the quantity of waste sludge for disposal, and control odor and Fats, Oil, and Grease (FOG) in the collection system. The primary metrics for performance are visual inspection of the treated areas, decreased influent loading, and decreased sludge production.

Prior to In-Pipe, Northampton experienced significant FOG accumulation in the collection system resulting in costly cleaning and maintenance. Old deposits of FOG trapped within the collection system must enter the WWTP. This attributed to increased organic loads that resulted in a larger quantity of sludge produced. Northampton selected In-Pipe as a cost effective alternative for reducing maintenance and operating expenses associated with sludge hauling and collection system maintenance and cleaning.

### Present Conditions

Influent flow to the WWTP increased 5% during In-Pipe Technology service. Influent TSS load to the WWTP decreased 24% and influent BOD load decreased 6%. In-Pipe Service Reports indicate that FOG control is improved at lift stations in the collection system. FOG and odor are rated on a scale from 1 to 5 with 1 being "none" in both cases. The average rating for 12 locations during this metric period for FOG is 1.2 and odor 1.4. The Willow Creek Country Club lift station appears to be the most inconsistent; however, FOG was reported as moderate to low for each of the last three months. In addition, Northampton reported scheduled maintenance for cleaning decreased, which provides financial payback to the MUD.

Evaluation of the total sludge hauled compares one year with In-Pipe beginning April 2007 to the previous year. The volume of sludge hauled decreased 30 % from 1,004,200 gallons to 706,720 gallons during April through May 2008. Sludge hauling costs are provided with the volume hauled. Based on a 32% reduction, Northampton saved almost \$17,500 on sludge hauling in one year since In-Pipe was installed.

In a letter to In-Pipe nine months after installation, Bill Black, VP- Board of Directors stated: "Within a very short time after In-Pipe services began the grease problem was nearly eliminated and we have not had to vacuum a single lift station in 2007.

Further, the sludge hauled has been reduced by 32% without really trying. We fully expect this number to improve when we implement your suggestions regarding the operation of the digester".

## Project Profile

### Summary at a Glance

Project Installed: April 2007

Plant Size: 1.0 MGD

### Service Objectives:

- Reduce Sludge Disposal
- Improved Effluent Quality
- Reduce Influent Organic Load
- Control Hydrogen Sulfide (H<sub>2</sub>S) Odor
- Control Fats, Oils, and Grease (FOG)

### Performance Summary:

- 30% Sludge Reduction
- 72% Effluent Ammonia Reduction
- 47% Effluent CBOD Reduction
- 26% Reduced Influent Organic Load

Financial Payback: \$17,500

Reference: Bill Black, P.E.  
VP Board of Directors  
281.376.3499

*"Within a very short time after In-Pipe services began the grease problem was nearly eliminated and we have not had to vacuum a single lift station in 2007.*

*Further, the sludge hauled has been reduced by 32% without really trying. We fully expect this number to improve when we implement your suggestions regarding the operation of the digester".*

*- Bill Black, VP  
Board of Directors*

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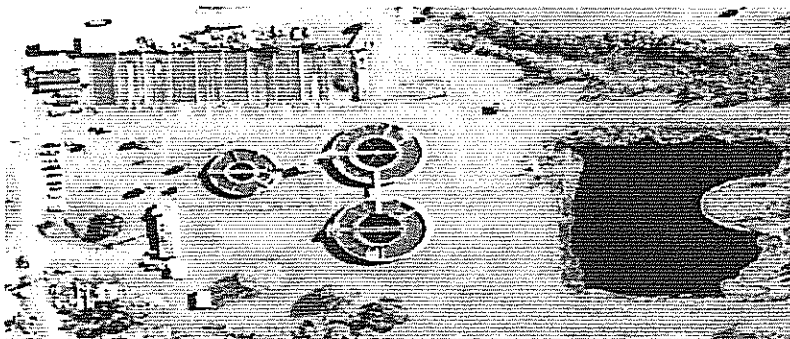
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Rev022009-1



## Orange Park Wastewater Treatment Plant Orange Park, FL



### Performance History and Discussion

The town of Orange Park selected In-Pipe Technology Company®, LLC in March, 2008 to improve the Ash Street WWTP performance, reduce influent organic load, reduce influent nitrogen  $\geq 15\%$ , control Fats, Oil, and Grease (FOG) in targeted lift stations (Milwaukee and Plainfield), and reduce final bio-solids for disposal.

Prior to In-Pipe, Orange Park planned to upgrade the WWTP. The new design plan was to convert plants 2 and 3 into Biological Nutrient Removal (BNR) and plant 1 into a digester. Orange Park reported no construction activity at the WWTP has impacted plant performance or process.

The WWTP is rated for 2.5 MGD, but receives an annual average flow of 0.9 MGD. A tight collection system reduces the impact of I/I (Infiltration and Inflow). Orange Park reported significant FOG accumulation "hot spots" in the collection system resulting in accumulation forming in the clarifier and poor settling at the plant.

### Present Conditions

Influent flow to the WWTP increased 1% MGD during the metric period compared to the previous year. Influent TSS load to the WWTP decreased 14%, influent CBOD decreased 49%, and influent TN decreased 16%.

Influent ammonia and TN graphs modeled the concentrations to illustrate the pattern of values using regression analysis. Influent TN with In-Pipe shows a decreasing pattern of values. The average TN concentration from May through November is 33 mg/l compared to the November through April average of 37 mg/l prior to In-Pipe.

Influent ammonia with In-Pipe shows a decreasing pattern of values. The average concentration from May through November is 23.8 mg/l compared to the November through April average of 24.5 mg/l prior to In-Pipe.

In October 2008, Mike Kelter, P.E. of Legacy Civil Engineers recommended continued implementation of In-Pipe to Orange Park. The evaluation indicated that In-Pipe has been effective in reducing the build-up of Fats, Oils and Greases in the collection system; has been effective in improving solids settling in the clarifier and the digesters; and has been effective in reducing hydrogen sulfide odors. While the effectiveness on ammonia and TN reductions and reduced air delivery for treatment required further analysis, the plant operators were able to reduce the run-time on one 75-HP blower through most of the summer months, which is unprecedented in plant records.

## Project Profile

### Summary at a Glance

Project Installed: March 2008

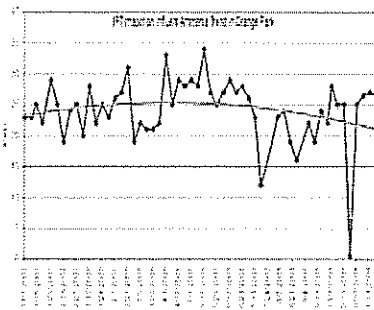
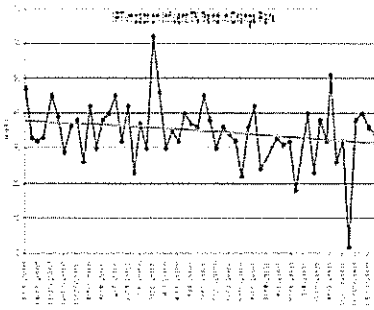
Plant Size: 1.2 MGD

### Service Objectives:

- Reduce Sludge Production
- Control Fats, Oils, and Grease (FOG)
- Reduce Influent Organic Load
- Reduce Influent Nitrogen

### Performance Summary:

- 40% Reduction Influent Organic Load
- 53% Reduction Effluent Total Nitrogen



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Rev022009-2



## Sarasota Wastewater Treatment Plant Sarasota, FL



### Performance History and Discussion

The City of Sarasota selected In-Pipe Technology® Company, LLC to achieve operational benefits and cost savings for the collection system. Sarasota initiated a pilot program in the Bird Key Area in August 2006 to control Fats, Oil, and Grease (FOG) and hydrogen sulfide odor. In January 2008, In-Pipe Technology expanded treatment to the entire collection system.

FOG accumulation has been a historical problem for the City of Sarasota. Excessive accumulation in the past has clogged pipes and covered the water surface of many Sarasota lift stations. In the worst cases, wastewater surges from the collection system created costly operation and maintenance issues. During pre-treatment inspections, many Sarasota lift stations were observed to have heavy FOG accumulation with old deposits stuck to the wet well walls and very little visible water surface.

Sarasota and In-Pipe mutually agreed to create a start up strategy that minimized the impact at the treatment plant of sloughed material and old deposits of FOG released from the collection system during installation and start-up. While the exact condition of the collection system was not completely known, Sarasota believed there could be an inordinate amount of material within the sewer system that could be displaced and adversely affect plant operations. Therefore, installation proceeded over the course of four months with separate phases of installation to limit the amount of material entering the plant. The installation phases utilized a radial approach beginning with dosing locations closest to the treatment plant. Phase 4 of installation was completed May 6, 2008.

### Present Conditions

Visual inspections from the collection system reported by the service team confirm significantly improved wet well conditions. FOG accumulation is controlled and greatly reduced in many locations. In addition, odor in the same wet wells was reported as minimal and under control.

Solution sulfide results from LS 30 installed in 2006 have maintained a 0.3 mg/l level, with a pH between 7.4 and 7.8, for greater than one year with In-Pipe. This is a 70% reduction from 1.0 mg/l.

The WWTP experienced improved settling ability of the secondary clarifiers with much of the floating debris or stringy masses associated from FOG eliminated. Microscopic photos illustrate filamentous bacteria with supporting floc in the mixed liquor, which is highly desirable for the WWTP. By improving the microbiology of the collection system, In-Pipe helps Sarasota improve the economics of wastewater treatment.

## Project Profile

### Summary at a Glance

Project Installed: August 2006

Plant Size: 7.5 MGD

### Service Objectives:

- Control Hydrogen Sulfide (H<sub>2</sub>S) Odor and Corrosion
- Fats, Oils and Grease (FOG) Reduction

### Performance Summary:

- 70% H<sub>2</sub>S Reduction
- Reduced Accumulation and Diminished Old Deposits of FOG



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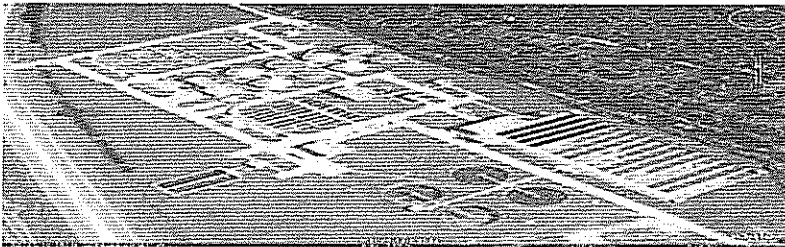
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Rev 021909-1



## Sioux City Wastewater Treatment Plant Sioux City, IA



### Performance History and Discussion

Sioux City selected In-Pipe Technology® Company, LLC for the purpose of controlling hydrogen sulfide odor and corrosion as a cost effective alternative to Siemens Bioxide™ and ferric chloride. Sioux City located on the northwest Iowa border approximately 100 miles north of Omaha spent nearly \$700,000 in odor control chemical consumption in 2006.

Service started in May 2007 with goals to document treatment benefits beyond odor and corrosion control. Reducing influent organic load and the quantity of sludge produced are In-Pipe Technology benefits for the Wastewater Treatment Plant (WWTP). The primary metrics for performance are sensory odor perception in the collection system, decreased influent loading, and decreased sludge production. In-Pipe uses the WWTP data to document performance of IPT.

Sioux City stressed to In-Pipe the importance of controlling odor and corrosion during the high impact summer months between May and August as a significant factor to evaluate In-Pipe. H<sub>2</sub>S data collected during 2008 is a direct comparison to the same time period in 2007. It is important to note that atmospheric H<sub>2</sub>S obtained during May through August 2007 provide data without the use of chemical injections as a baseline.

### Present Conditions

In-Pipe has demonstrated significant benefits to Sioux City. Atmospheric H<sub>2</sub>S in 2008 decreased 58% and solution sulfides decreased 70% on average for all monitoring locations during May through August compared to baseline values obtained in 2007. Influent flow to the WWTP increased 12% during this period while influent TSS load decreased 39% and total sludge production decreased 26%.

In the first year of service, In-Pipe determined the amount of organic material eliminated within the sewer by comparing the Major Industrial Users (MIU) discharge information to the WWTP influent loads. Using the cost factors associated with MIU charges determined by Sioux City, In-Pipe calculated a savings of \$340,000 for Sioux City by not processing the load at the WWTP. The combination of MIU savings and the difference in the cost of In-Pipe versus previous chemical treatment saved Sioux City \$643,000 in 12 months.

After 18 months of service, In-Pipe has delivered odor control performance at a substantial savings and with far greater sewer coverage compared to prior chemical treatments. Decreased chemical consumption, improved degradation of organic material within the sewer, decreased sludge production, and the system wide FOG control has provided a holistic solution to Sioux City that is far beyond simple collection system odor control.

## Project Profile

### Summary at a Glance

Project Installed: May 2007

Plant Size: 15 MGD

### Service Objectives:

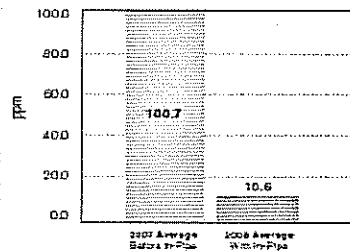
- Control Hydrogen Sulfide (H<sub>2</sub>S) Odor and Corrosion

### Performance Summary:

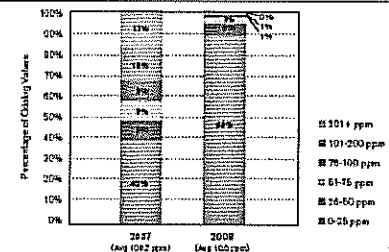
- 55-90% H<sub>2</sub>S Reduction
- 26% Sludge Reduction
- 39% TSS Reduction

Financial Payback: \$643,000

Annual Average Atmospheric H<sub>2</sub>S



Distribution of Atmospheric H<sub>2</sub>S Values



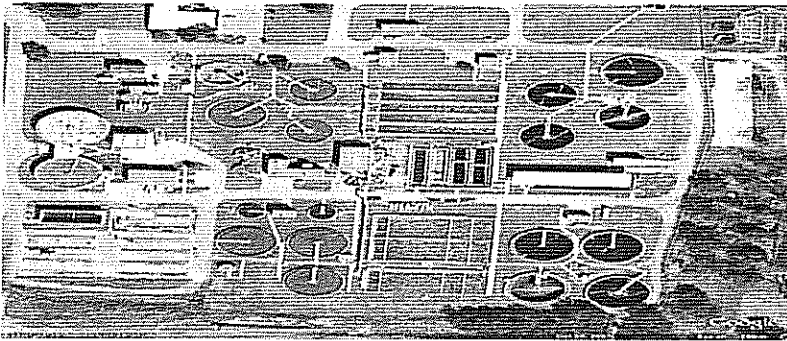
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## North Texas — Panther Creek WWTP Frisco, TX



### Improving the Economics of Wastewater Treatment

In the early 20th century, cities began to adopt the biological methods that now form the basis by which wastewater treatment plants function. Microorganisms act to catalyze the oxidation of biodegradable organics and other contaminants generating innocuous byproducts such as carbon dioxide, water and biomass (sludge). Simply put, bacteria grow and divide producing biosolids and clean water effluent. Today, this metabolism occurs in wastewater treatment plants, which have the limits of size, retention time, processing capacity, and of course — municipal budgets.

In-Pipe Technology enhances this fundamental process by starting treatment at strategic locations throughout the sewer collection system. In-Pipe's patented technology transforms miles of sewer pipe into an active part of the wastewater treatment process, optimizing the entire wastewater infrastructure. This improves operating economics without additional capital expenditure. Since it uses natural, biological methods that work with the treatment plant's own processes, In-Pipe is a sustainable solution — environmentally and economically.

### Operating Savings & Efficiency

In-Pipe increases operating efficiency by reducing influent organic loading and the costs associated with sludge handling, expensive chemicals, and energy usage.

The reduced loading at the plant, coupled with a more efficient microcosm, can reduce aeration requirements and provide significant energy savings.

In-Pipe provides engineered wastewater treatment services to municipalities and industries worldwide. In-Pipe engineers a solution for each customer based on a full system review by our engineering team. In-Pipe's monthly service contracts are structured to yield net savings and include all engineering, installation, service and maintenance.

# New Project Announcement

**Project Installed:** May 2009

**Plant Size:** 2.5 MGD

### Service Objectives:

- Control Hydrogen Sulfide (H<sub>2</sub>S) Odor and Corrosion
- Increase Organic Capacity
- Reduce Electrical Consumption
- Reduce Sludge Disposal
- Reduce Chemical Usage

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