Maine Center for Disease Control and Prevention
An Office of the Department of Health and Human Services

John E. Baldacci, Governor Brenda M. Harvey, Commissioner

Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street
11 State House Station
Augusta, Maine 04333-0011
Tel: (207) 287-5689
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July 13, 2009

Jet Inc.
Attn.: Trent Lydic, Product Manager
750 Alpha Drive
Cleveland, OH 44143

Subject: Product Registration, Jet Model J-500

Dear :

The Division of Environmental Health has completed a review of a registration application for your company's product. This information was submitted pursuant to Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (Rules), for code registration, for use in Maine.

The Jet Model J-500 consists of a multiple compartment tank, with a treatment capacity of 500 gallons per day. The first compartment provides primary treatment consisting of removal of settleable and floating solids. The second compartment consists of an aeration chamber with a spinning aspirator for aeration and a honeycombed fixed film growth medium. The third, and final, compartment is a settling chamber form which solids are collected and recirculated to the second chamber.

According to the information you provided, the Jet Model J-500 has been certified by the National Sanitation Foundation (NSF) pursuant to ANSI/NSF Standard 40 for residential wastewater treatment systems. On that basis, the Division has determined that the Jet Model J-500 is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of Jet Model J-500. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar or competing products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

xc: Product File

JET INC.®
750 Alpha Drive, Cleveland, Ohio 44143 U.S.A. • 440.461.2000 FAX 440.442.9008
email@jetincorp.com • www.jetincorp.com

Mr. James Jacobsen
286 Water Street, 3rd Floor
11 State House Station
Augusta, Maine 04333-0011

Dear Jim,

Please find the enclosed applications for a variety of Jet products. Jet Inc. has been producing equipment and supplies for onsite wastewater professionals since 1955. I have included the basic testing and certification reports if they are applicable to the products we provide. If you have any questions or require additional data on some or all of our products please feel free to contact me directly.

Thanks in advance for considering our products for use in the state of Maine.

Best regards,

Trent Lydic
Product Manager
Jet Inc.
1-800-321-6960 ext. 215
tlydic@jetincorp.com

Maine Department of Health and Human Services
Bureau of Health
Division of Health Engineering
Wastewater and Plumbing Control Program

APPLICATION FOR REGISTRATION OF EXPERIMENTAL SYSTEM/INNOVATIVE TECHNOLOGY OR ONSITE SEWAGE DISPOSAL SYSTEM PRODUCT

Please complete the following Sections. Please print or type.

Applicant

Company Name: Jet Inc.
Contact Person: Trent Lydic
Address: 750 Alpha Drive
Town/City: Cleveland State/Province: OH Zip Code: 44143
Country: USA
Telephone: 800-321-6960 e-mail: tlydic@jetincorp.com

Product

Product Name: Jet J-500CF Wastewater Treatment System
Model: J-500CF

Product Classification (choose one)

Primary or Secondary Treatment Unit

[ ] Septic Tank [ ] Extended Aerobic Treatment Unit [ ] Recirculating Aerobic Unit

[X] Aerobic Fixed Film Unit [ ] Other (specify) _____

Effluent Filter

[ ] Septic Tank Outlet Filter [ ] Post-Tank Filter [ ] Other (specify) _____

Disposal Device

[ ] Gravel-less Disposal Pipe [ ] Gravel-less Disposal Bed [ ] Chamber, Plastic

[ ] Chamber, Other [ ] Other (specify) _____

Miscellaneous

[ ] Pipe [ ] Effluent Flow Distribution Device [ ] Other (specify) _____

Claim

Describe the product's features (attach additional sheets if necessary).

The Jet J-500CF system is a fixed film aerobic treatment system that utilizes intermittent aeration cyles to reduce nitrogen compounds as well as the standard reductions in BOD and TSS. The system also includes a Zabel #300 filter to further reduce latent solids in the effluent from the plant.

Describe the product's performance (attach additional sheets if necessary).

The J-500 CF met the NSF 245 protocol for reduction of total nitrogen greater than 50%. The average effluent quality of the system during the six month test period was 11 ppm CBOD, 10 ppm TSS, and 9.7 ppm TKN.

Has the product received National Sanitation Foundation or Canadian Standards Authority approval?

[X] No [ ] Yes (If "yes", enclose a copy of the certification.)

IMPORTANT NOTE!

Don't forget to enclose relevant product literature, engineering specifications, studies, and third party certifications with this application.

I, Trent Lydic (print name), am the [X] applicant [ ] agent for the applicant of the subject product.

I state that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department to deny registration for use of the product in Maine.

[X] Signature of Applicant
[ ] Signature of Agent for Applicant

6/30/2009
Date

WASTEWATER TECHNOLOGY

Report on Evaluation of
Jet Inc.
Model J-500

Originally Evaluated as the
Jet Model J-353

under the provisions of
NSF Standard No. 40
on Individual Home
Aerobic Wastewater
Treatment Plants

NSF International
789 Dixboro Road
PO Box 130140
Ann Arbor, Michigan 48113-0140 USA

Gulf Coast Testing, LLC

SPECIFIC PERFORMANCE EVALUATION

Jet Inc.
Model J-500CF
Wastewater Treatment System

Under the provisions of

ANSI/NSF Standard 245 (2007)
Wastewater Treatment Systems – Nitrogen Reduction

ANSI/NSF Standard 40 (2005)
Residential Wastewater Treatment Systems

SPE111

December 2008

GCT GULF COAST TESTING, LLC

ANSI

EXECUTIVE SUMMARY

Gulf Coast Testing, LLC conducted testing and specific performance evaluation of the Jet Inc. Model J-500CF under the provisions of ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007). Gulf Coast Testing, LLC performed the testing from February 4, 2008 to August 24, 2008. The test was conducted at Gulf Coast Testing's wastewater facility located in Ascension Parish, Louisiana using wastewater diverted from a lift station supplied by a residential neighborhood. The test consisted of one week of dosing with sampling to allow for plant start-up, sixteen weeks of dosing at design flow, seven and a half weeks of stress test and an additional four weeks of dosing at design flow. Sampling started in the winter and continued into the summer, covering a wide range of operating temperatures. All data collected for the specific performance evaluation was collected pursuant to ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007) testing protocol and evaluated pursuant to Standard Methods for the Examination of Water and Wastewater 20th Edition.

The Jet Inc. Model J-500CF produced an effluent that successfully met the performance requirements established by ANSI/NSF Standard 40 (2005) for Class I effluent:

- During the first month of the evaluation, the maximum 7-day arithmetic mean was 12 mg/L for $CBOD_5$ and 9 mg/L for suspended solids, both below the allowed maximums of 56 and 63 mg/L respectively. The 30-day arithmetic mean during the first month of testing was 10 mg/L for $CBOD_5$ and 9 mg/L for suspended solids, both below the allowed maximums of 35 and 42 mg/L respectively.

- During the final five months of the evaluation, the maximum 7-day arithmetic mean was 19 mg/L for $CBOD_5$ and 18 mg/L for suspended solids, both below the allowed maximum of 40 and 45 mg/L respectively. The maximum 30-day arithmetic mean was 15 mg/L for $CBOD_5$, below the allowed maximum of 25 mg/L. The maximum 30-day arithmetic mean was 15 mg/L for suspended solids, below the allowed maximum of 30 mg/L.

- The effluent pH during the entire evaluation ranged between 7.06 and 7.94, within the required range of 6.0 to 9.0. The plant met the requirements for noise levels with less than 60 dbA at a distance of 20 feet in four different directions, as well as the requirements for color, threshold odor, oily film and foam.

The Jet Inc. Model J-500CF produced an effluent that also successfully meets the requirements of ANSI/NSF Standard 245 (2007).

- The average $CBOD_5$ of all effluent samples was 11 mg/L. This is well below the allowed maximum of 25 mg/L.

- The average TSS of all effluent samples was 10 mg/L. This is also well below the allowed maximum of 30 mg/L.

- The Jet Inc. Model J-500CF reduced the nitrogen to 27.4 percent of its original value over the entire evaluation period for an average total reduction of 72.6 percent. This figure was calculated by dividing the sum of the total nitrogen effluent over the entire period by the sum of the total nitrogen influent over the entire period. The average nitrogen removed by month is shown in the table below (Table 5 in the report). During the test, it is estimated 14,062 pounds of nitrogen was loaded and 9439 pounds of nitrogen was removed by the Jet Inc. Model J-500CF.

Month	Nitrogen Influent Data Days	Nitrogen Effluent Data Days	Avg Influent mg/L	Avg Effluent mg/L	Avg Nitrogen Reduction %
Feb	16	9	39.69	8.82	77.78%
Mar	16	13	38.06	6.44	83.09%
Apr	15	13	39.55	18.99	51.99%
May	10	10	43.50	9.92	77.19%
Jun	0	0	NA	NA	NA
Jul	6	6	35.23	18.31	48.03%
Aug	9	9	36.94	16.96	54.10%

PREFACE

Specific performance evaluation of residential wastewater treatment systems is achieved within the provisions of ANSI/NSF Standard 40 (2005): Residential Wastewater Treatment Systems and ANSI/NSF Standard 245 (2007): Wastewater Treatment Systems – Nitrogen Reduction, and prepared by Gulf Coast Testing, LLC (GCT).

Conformance with the Standard is recognized by issuance of the GCT Mark. This is not to be construed as an approval of the equipment, but a certification of the data provided by the test and an indication of compliance with the requirements expressed in these Standards.

Plants conforming to ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007) are classified as Class I or Class II plants according to the quality of effluent produced by the plant during the performance evaluation. Class I plants must also demonstrate performance consistent with the effluent color, odor, and oily film and foam requirements of the Standards. Additionally, Class I plants must meet the requirements of EPA Secondary Treatment Guidelines for five day carbonaceous biochemical oxygen demand, suspended solids and pH.

Permission to use the GCT Mark is granted only after the equipment has been tested and found to perform satisfactorily, and all other requirements of the Standards have been satisfied. Continued use of the Mark is dependent upon evidence of compliance with the Standards and GCT General and Program Specific Policies as determined by periodic inspection of the equipment at the factory, distributors and reports from the field.

ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007) require the testing laboratory to provide the manufacturer of a residential wastewater treatment system a report including significant data and appropriate commentary relative to the performance evaluation of the plant. GCT policy specifies GCT will provide specific performance evaluation reports to appropriate state regulatory agencies at publication. Subsequent direct distribution of the report by GCT is made only at the specific request of or by permission of the manufacturer.

The following report contains all the data collected in accordance with the testing and evaluations within these Standards, a description of the plant, its operation, key process control equipment, and a narrative summary of the test program, including test location, procedures and significant occurrences. The plant represented herein reflects the equipment authorized to bear the GCT Mark.

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CERTIFICATION CERTIFICATE

Gulf Coast Testing LLC's Residential Aerobic Wastewater Testing Program personnel have performed a complete specific performance evaluation of the Jet Inc. Model J-500CF five hundred gallon per day (500 gpd), Single Family Residence Wastewater Treatment System, manufactured by Jet Inc. of Cleveland, Ohio using the requirements and provision of the ANSI/NSF Standard 40 (2005), ANSI/NSF Standard 245 (2007) and the Gulf Coast Testing Wastewater Certification Quality Procedures Manual. The Jet Inc. Model J-500CF has successfully completed all the requirements of the ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007), Class 1 effluent.

The observations, data, analyses and results contained in this report are hereby certified to be correct.

All unit feeding and data collection was performed by Gulf Coast Testing, LLC at their wastewater test site in Ascension Parish located at 14378 Park Avenue, Prairieville, Louisiana. All laboratory testing, unless otherwise noted in the results, was performed at Gulf Coast Testing LLC's laboratory also located at 14378 Park Avenue, Prairieville, LA.

Jet Inc. and Gulf Coast Testing, LLC hereby agree to comply with the continual follow-up certification procedures as specified in the Gulf Coast Testing LLC's Wastewater Certification Manual. All data contained in this report is the property of Gulf Coast Testing, LLC and can only be released with the consent of Gulf Coast Testing, LLC.

William B. Daniel IV **12/10/2008**
Program Manager

Nelle Fruge' **12/10/2008**
Quality Assurance Officer

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1.0 PROCESS DESCRIPTION

The Jet Inc. Model J-500CF wastewater treatment plant utilizes a dual process biological system. The system uses activated sludge process in conjunction with an attached growth process to achieve biological treatment. Wastewater being treated flows through the fixed media portion of the treatment system. Naturally growing bacteria begins to form and attaches to the media as the wastewater flows through the system. Bacteria and other microorganisms form a fixed film covering a majority of the media. The thickness and color of the biomass on the media varies with location and oxygen availability. As the growth continues, the film begins to thicken and a shearing of the film will occasionally occur. This shearing of the biomass, or sloughing, occur during the treatment process, as will biological growth. The biology on the media will remove organics by adsorption and assimilation of soluble and suspended constituents.

The second biological process of this treatment system is commonly called activated sludge. This process uses suspended biological microorganisms to treat the wastewater. This microbial population requires biodegradable, organic material for both cell synthesis and energy. The microorganisms feed on the bacteria and effect the flocculation and setteability of the solids.

Both of these processes utilize aerobic bacteria. The aeration and mixing of the biological system is provided by a single center-feed aspirator. Only a single aerator is needed to provide the mixing and aeration necessary to keep both biological systems properly functioning. The aerator is operated in a cyclic condition alternating every thirty minutes in on/off cycles. The intermittent aeration induces an anoxic state within the treatment compartment which increases the breakdown of nitrogen compounds within the influent waste stream.

An additional filter contained within the clarifier acts as a tertiary filtration device, to further remove any additional suspended solids from the effluent prior to it exiting the tank.

2.0 PERFORMANCE EVALUATION

2.1 Description of Plant Evaluated

The Jet Inc. Model J-500CF system has a rated capacity of 500 gallons per day. Plant specifications and drawings are included in Appendix A. There are three basic zones or compartments to this treatment unit.

In the pretreatment zone, the principle function is primary clarification. The amount and nature of suspended solids that exit from this zone has a significant effect on the performance of the biological system. The pretreatment zone reduces the amount of solids entering into the biological treatment zone. Floating debris is also contained in this compartment. Although principally an anoxic system, some anaerobic digestion of the settled solids may occur.

From the pretreatment zone, the water passes through a submerged orifice into the biological treatment zone encountering a dual system of treatment: a submerged bio-filter and an activated sludge process. The fixed plastic media allows for a fixed-film reactor to function in conjunction with a conventional activated sludge process (a suspended growth reactor). The honeycomb, plastic media has an approximate volume of 19 cubic feet and is completely submerged in this compartment. Aeration is provided by a central aspirator that produces the oxygen necessary for both the suspended growth reactor and for the fixed-film reactor. The aeration unit draws air down the center shaft and creates small bubbles which are mixed throughout the compartment. The aerator operates intermittently in order to enhance the breakdown of nitrogen compounds. The fixed media allows for biological growth and digestion. Biological material can conducted by both the biological colonies which exist on the media and those which are free swimming. The biological sloughing that occurs from the fixed film reactor is re-suspended in the biological reactor. Solids wasting is used to keep the biomass at the proper MCRT (mean cell residence time).

The final compartment is the clarification zone which allows for settable solids to be removed from the clear supernatant (effluent) and returned by gravity to the aeration zone. The action of the aeration zone draws the solids from the clarifier back into suspension in the biological reactor. This occurs along the entire width of the unit through a slot at the bottom of the compartment. A final effluent filter is installed to remove additional particles from the effluent prior to it exiting the tank. Clear effluent rises to the top of the clarification zone, flows through the effluent filter, and into the discharge pipe.

2.1.1 Exposed Surfaces

The exposed surfaces were evaluated pursuant to Section 5.1 of ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007) and found to be in compliance.

2.1.2 Structural Integrity

A structural analysis was performed to evaluate the unit pursuant to Section 5.2 of ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007). The unit was determined to be structurally competent based on the use of 4000 psi concrete. An in situ visual inspection was performed both during and after the performance testing. The evaluation of the unit was found to be in compliance with this section.

2.1.3 Infiltration and Exfiltration

A 24 hour infiltration and exfiltration test was performed and evaluated pursuant to Section 5.3 of ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007). At the end of the 24 hour period, there was less than a 0.5% change in the initial water level of the system.

2.2 Test Protocol

Start up of the plant was accomplished by filling the plant with 2/3 water and 1/3 raw sewage. The plant was then dosed at the design loading rate of 500 gpd as follows:

6 a.m. to 9 a.m	35 percent of daily rated capacity (175 gallons)
11 a.m. to 2 p.m	25 percent of daily rated capacity (125 gallons)
5 p.m. to 8 PM	40 percent of daily rated capacity (200 gallons)

Dosing was accomplished by operating a pump to deliver multiple doses in five gallon increments to the test plant. Doses were spread uniformly over each dosing period.

After a start up period of one week, the plant was subjected to the following loading sequence:

Design loading	16.0 weeks
Stress loading	7.5 weeks
Design loading	4.0 weeks

During the design loading periods, flow proportioned 24-hour composite samples were collected of the influent and effluent three days per week during design loading and twice during each stress recovery period (the week following completion of each of the stress simulations described below).

For ANSI/NSF Standard 40 (2005), the influent samples were analyzed for ph, total suspended solids and five-day biochemical oxygen demand. The effluent samples were analyzed for pH, five-day carbonaceous biochemical oxygen demand and total suspended solids concentrations.

For ANSI/NSF Standard 245 (2007), the effluent samples were also analyzed for alkalinity, TKN (as N), Ammonia-N (as N), and Nitrite/nitrate-N (as N). The influent samples were analyzed for Alkalinity, TKN (as N), and Ammonia-N (as N).

On-site determinations of the effluent and influent temperature, pH, and dissolved oxygen were recorded.

Stress testing is designed to evaluate how the plant performs under non-ideal conditions, including varied hydraulic loadings and electrical or mechanical failure. The test sequence includes: (1) Wash Day stress, (2) Working Parent stress, (3) Power/Equipment Failure stress, and (4) Vacation stress. Appendix B contains detailed descriptions of the stress sequences.

During stress loading, influent and effluent 24-hour composite samples were collected on the day each stress condition was initiated. Twenty four hours after the completion of washday, working parent, and vacation stresses, influent and effluent 24-hour composite samples were collected for six (6) consecutive days. Forty eight hours after the completion of power/failure

stress, influent and effluent 24-hour composite samples were collected for five (5) consecutive days. The analyses and on-site determinations completed on the samples are the same as described for the design load testing.

In order for the plant to achieve Class I effluent, it is required to produce an effluent which meets the EPA guidelines for secondary effluent discharge:

(1) $CBOD_5$: The 30-day average of effluent samples shall not exceed 25 mg/L and each 7-day average of effluent samples shall not exceed 40 mg/L.
(2) Suspended Solids: Each 30-day average of effluent samples shall not exceed 30 mg/L and each 7-day average of effluent samples shall not exceed 45 mg/L.
(3) pH: Individual effluent values remain between 6.0 and 9.0

Requirements are also specified for effluent color, odor, oily film and foam, as well as maximum noise levels allowed from the plant.

2.3 Test Chronology

The system was installed under the direction of the manufacturer and the infiltration/exfiltration test was completed January 25, 2008. The plant was filled with 2/3 fresh water and 1/3 raw sewage and dosing was initiated at the rate of 500 gpd beginning January 28, 2008. Sampling started on February 4, 2008. The stress test sequence was started on June 2, 2008 and ended on July 16, 2008. Testing was completed on August 24, 2008.

3.0 ANALYTICAL RESULTS

3.1 Summary

Chemical analyses of samples collected during the evaluation were completed using the procedures in Standard Methods for the Examination of Water and Wastewater (20^{th} Edition) and USEPA methods. All the data generated during the evaluation is included in Appendix D. A summary of the results of the chemical analyses and on-site observations and measurements made during the evaluation are included in Table 1.

For ANSI/NSF Standard 40 (2005), the criteria for evaluating the analytical results from the testing are described in Section 8.5. See Appendix B. In completing the pass/fail determination for the data, an allowance is made for effluent suspended solids and $CBOD_5$ during the first month of testing. The 30 and 7 day averages during this time may not equal or exceed 1.4 times the effluent limits required for the rest of the test. This provision recognizes that an immature culture of microorganisms within the system may require additional time to achieve adequate treatment efficiency. Effluent $CBOD_5$ and suspended solids concentrations during the first calendar month of testing were within the limits allowed under this provision.

Table 1
Summary of Analytical Results

							Total Test Days				203
		AVG	Std Dev	Min	Max	Med	1 Quart	2 Quart	3 Quart	4 Quart	Data Points
Dissolved Oxygen, mg/L	Aeration chamber	4.00	1.99	0.02	7.69	4.04	2.53	4.04	5.90	7.69	129
	Effluent	3.09	1.54	0.04	6.70	3.20	2.07	3.20	4.28	6.70	129
Ambient Temperature, °C	Influent	22.2	2.2	17.4	28.8	22.2	20.5	22.2	23.8	28.8	152
	Aeration chamber	22.6	2.7	16.4	27.4	22.7	20.4	22.7	24.6	27.4	129
	Effluent	22.5	2.6	16.1	27.7	22.7	20.3	22.7	24.3	27.7	129
pH	Influent	7.38	0.30	6.73	8.22	7.37	7.13	7.37	7.62	8.22	152
	Aeration chamber	7.54	0.14	7.06	7.94	7.56	7.47	7.56	7.64	7.94	129
	Effluent	7.57	0.13	7.21	7.91	7.57	7.49	7.57	7.66	7.91	129
BOD, mg/L	Influent	205	46	99	324	198	174	198	228	324	151
CBOD mg/L	Effluent	11	4	4	23	10	9	10	13	23	128
Total Suspended Solids, mg/L	Influent	192	60	58	366	186	150	186	224	366	152
	Aeration chamber	177	126	0	716	160	84	160	234	716	129
	Effluent	10	5	1	31	9	7	9	12	31	127
Volatile Suspended Solids, mg/L	Influent	74	44	2	234	72	46	72	96	234	152
	Aeration chamber	86	57	0	260	88	36	88	128	260	129
	Effluent	5	4	0	29	4	3	4	6	29	121
Settleable Solids, mL/L	Aeration chamber	11	21	5	200	5	5	5	5	200	129
color, cu	Effluent	108.5	5.0	98.9	119.4	108.3	105.9	108.3	110.4	119.4	24
Turbidity, ntu	Effluent	3.84	1.53	1.47	7.12	3.46	3.07	3.46	4.68	7.12	24
flow rate, sec/gal	Effluent	25	0	25	26	25	25	25	26	26	24
Alkalinity	Influent	280	36	190	430	270	260	270	290	430	97
	Effluent	179	53	130	380	160	140	160	195	380	73
Ammonia	Influent	32.67	5.41	16.80	42.60	33.60	29.90	33.60	36.40	42.60	97
	Effluent	6.75	7.18	1.10	37.00	3.50	2.00	3.50	7.43	37.00	69
TKN	Influent	38.97	5.25	29.40	65.00	38.60	35.70	38.60	41.45	65.00	97
	Effluent	9.70	9.08	1.40	38.00	6.30	2.85	6.30	12.30	38.00	71
Nitrate	Effluent	4.68	3.50	1.00	12.70	3.56	1.70	3.56	7.34	12.70	48
Nitrite	Effluent	0.50	0.45	0.02	2.92	0.42	0.16	0.42	0.62	2.92	63

Section 8.5.1.1 of the ANSI/NSF Standards provides guidance addressing the impact of unusual testing conditions, including sampling, dosing, or influent characteristics, on operation of a system under test. Specific data points may be excluded from 7 and 30 day average calculations where unusual conditions were determined to have an adverse impact on performance of the system, which rationale for the exclusion to be documented in the final report. No data points were excluded for this report.

Sections 3.6 and 8.2.1 of the ANSI/NSF Standards define influent wastewater characteristics as they apply to testing under the Standards. Typical domestic wastewater is defined as having a BOD_5 concentration between 100 and 300 mg/L and a suspended solids concentration between 100 and 350 mg/L. The 30-day average influent strength remained inside this specified range for the duration of this test.

3.2 Carbonaceous Biochemical Oxygen Demand

The Biochemical Oxygen Demand and the Carbonaceous Biochemical Oxygen Demand analyses were completed using method 5210 B of the Standard Methods for the Examination of Water and Wastewater, 20th edition. The results of the analyses completed on the samples collected during the testing are shown in Figure 1. All data collected for the testing period is included in the report sheets in Appendix D.

- Influent BOD_5:

The influent BOD_5 ranged from 99 to 324 mg/L during the evaluation, with an average concentration of 204 mg/L and a median concentration of 198 mg/L.

- Effluent $CBOD_5$:

The effluent $CBOD_5$ concentrations ranged from 4 to 23 mg/L over the course of the evaluation, with an average concentration of 11 mg/L. The median effluent $CBOD_5$ concentration was 10 mg/L.

For the first thirty days of the evaluation, ANSI/NSF Standard 40 (2005) requires that the effluent $CBOD_5$ not exceed 56 mg/L on a 7-day average or 35 mg/L on a 30-day average. For the remaining five months of the evaluation, the Standard requires that the effluent $CBOD_5$ not exceed 40 mg/L on a 7-day average or 25 mg/L on a 30-day average. Table 2 shows the 7 and 30 day average effluent $CBOD_5$ concentrations and the 30-day average influent $CBOD_5$ concentrations.

ANSI/NSF Standard 245 (2007) requires that the average of the samples shall not exceed 25 mg/L. Also per ANSI/NSF Standard 245, only samples collected during the design loading period are to be used in this calculation. Table 2 shows the design loading average $CBOD_5$ during the operation.

During the first thirty days of operation, the 7-day average effluent $CBOD_5$ ranged from 5 to 8 mg/L and the 30-day average was 7 mg/L. For the remaining six months of the

Table 2
$CBOD_5$ and BOD_5 Averages

7 Day Average		
Week	Data Days in Week	Effluent mg/L
1	4	10
2	5	11
3	5	12
4	5	9
5	5	9
6	5	8
7	5	10
8	5	7
9	5	14
10	5	10
11	5	13
12	5	10
13	5	12
14	5	11
15	5	12
16	5	9
17	1	8
18	6	17
19	1	18
20	4	12
21	4	10
22	0	NA
23	3	18
24	5	19
25	4	11
26	5	14
27	5	10
28	5	9
29	5	9

30 Day Average			
30 Day Period	Effluent Data Days	Influent mg/L	Effluent mg/L
1	21	185	10
2	22	216	9
3	21	186	11
4	17	213	10
5	15	220	14
6	17	203	15
7	15	204	9

Monthly Average		
Month	Influent mg/L	Effluent mg/L
Feb	184	11
Mar	214	8
Apr	186	12
May	216	10
Jun	215	14
Jul	209	15
Aug	204	10

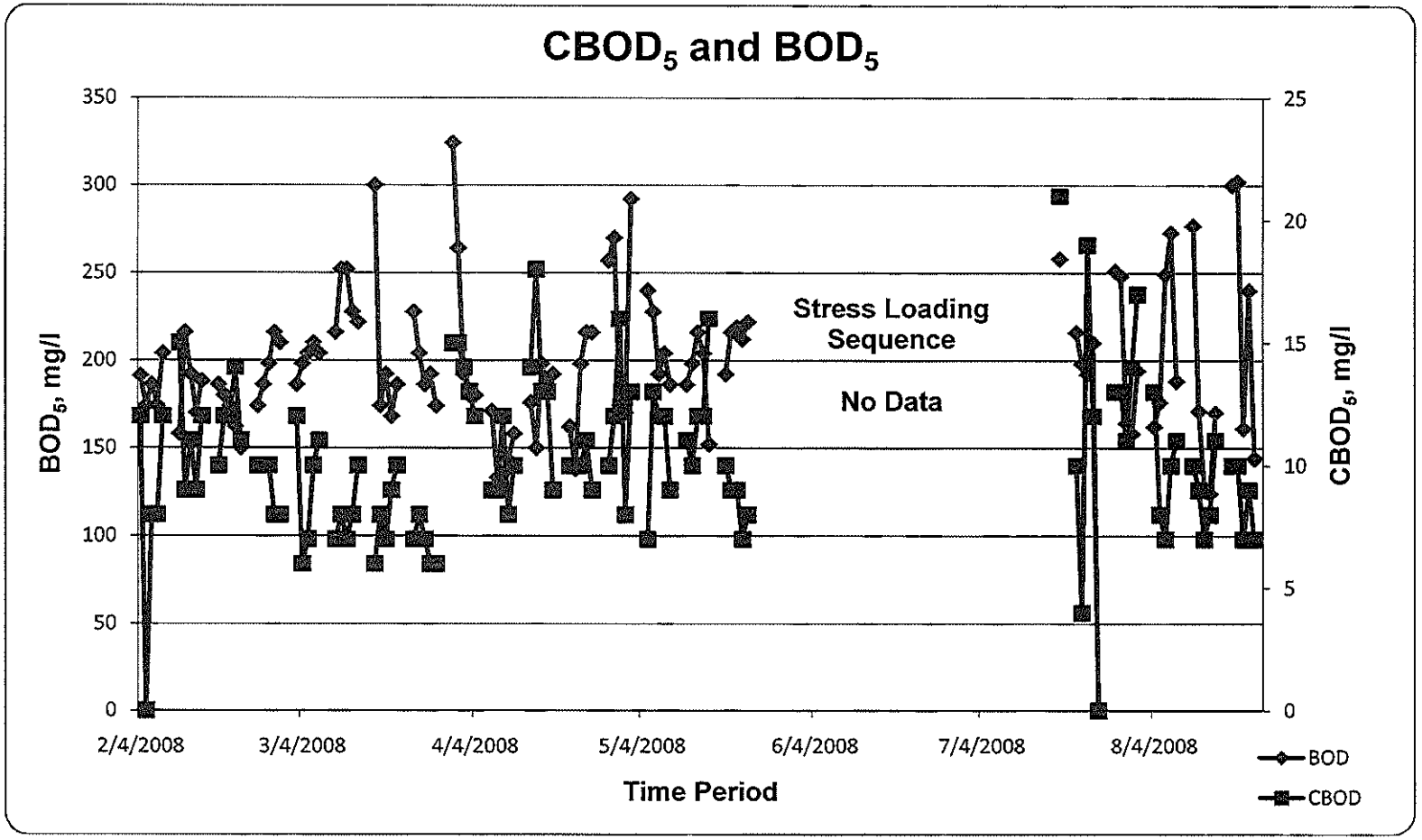


Figure 1

operation, the 7-day average effluent $CBOD_5$ ranged from 7 to 13 mg/L. The 30-day average ranged from 7 to 10 mg/L. The average $CBOD_5$ during the design loading is 10 mg/L. As shown in Table 2, the Jet Inc. Model J-500CF met the requirements of ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007) for effluent $CBOD_5$.

3.3 Suspended Solids

Suspended solids analyses were completed using Methods 2540D in Standard Methods for the Examination of Water and Wastewater (20th Edition). The results of the suspended solids analyses over the entire evaluation are shown in Figure 2. Data from the suspended solids analyses are summarized in Table 1. The data collected for the testing period is included in the report sheets in Appendix D.

- Influent suspended solids:

The influent suspended solids ranged from 58 to 366 mg/L during the evaluation, with an average concentration 192 mg/L. The median influent suspended solids concentration during the evaluation was 185 mg/L.

- Effluent Suspended Solids:

The effluent suspended solids concentration ranged from 1 to 31 mg/L during the evaluation, with an average concentration of 10 mg/L and a median concentration of 9 mg/L.

For the first thirty days of the evaluation, ANSI/NSF Standard 40 (2005) requires that the effluent suspended solids not exceed 63 mg/L on a 7-day average, or 42 mg/L on a 30-day average. For the remaining five months of the evaluation, the Standard requires that the effluent suspended solids not exceed 45 mg/L on a 7-day average or 30 mg/L on a 30-day average. Table 3 shows the 7 and 30 day suspended solids averages.

ANSI/NSF Standard 245 (2007) requires that the average of the samples shall not exceed 25 mg/L. Also per ANSI/NSF Standard 245 (2007), only samples collected during the design loading period are to be used in this calculation. Table 2 shows the design loading average suspended solids during the operation.

During the first calendar month of operation, the 7-day average effluent suspended solids ranged from 5 to 9 mg/L and the 30-day average was 7 mg/L. For the remaining five months of operation, the 7-day average suspended solids ranged from 4 to 11 mg/L and the 30-day averages ranged from 4 to 10 mg/L. The average suspended solids during the design loading are 9 mg/L. As shown in Table 3, the J-500CF unit met the requirements of ANSI/NSF Standard 40 (2005) and ANSI/NSF 245 (2007) for effluent suspended solids.

Table 3
Suspended Solids Averages

7 Day Average		
Week	Data Days in Week	Effluent mg/L
1	4	8
2	5	8
3	5	9
4	5	9
5	5	10
6	5	8
7	5	8
8	5	5
9	5	10
10	5	9
11	5	8
12	5	8
16	5	6
18	5	5
18	5	12
16	5	11
17	5	11
18	6	11
16	6	14
20	5	8
21	7	18
22	5	NA
23	7	14
24	5	11
25	5	17
26	5	17
27	5	4
28	5	13
29	5	10

30 Day Average			
30 Day Period	Effluent Data Days	Influent mg/L	Effluent mg/L
1	21	74	9
2	22	99	8
3	20	57	8
4	17	94	9
5	15	51	12
6	18	76	15
7	14	76	9

Monthly Average		
Month	Influent mg/L	Effluent mg/L
Feb	181	9
Mar	198	8
Apr	150	8
May	203	9
Jun	218	12
Jul	221	15
Aug	154	9

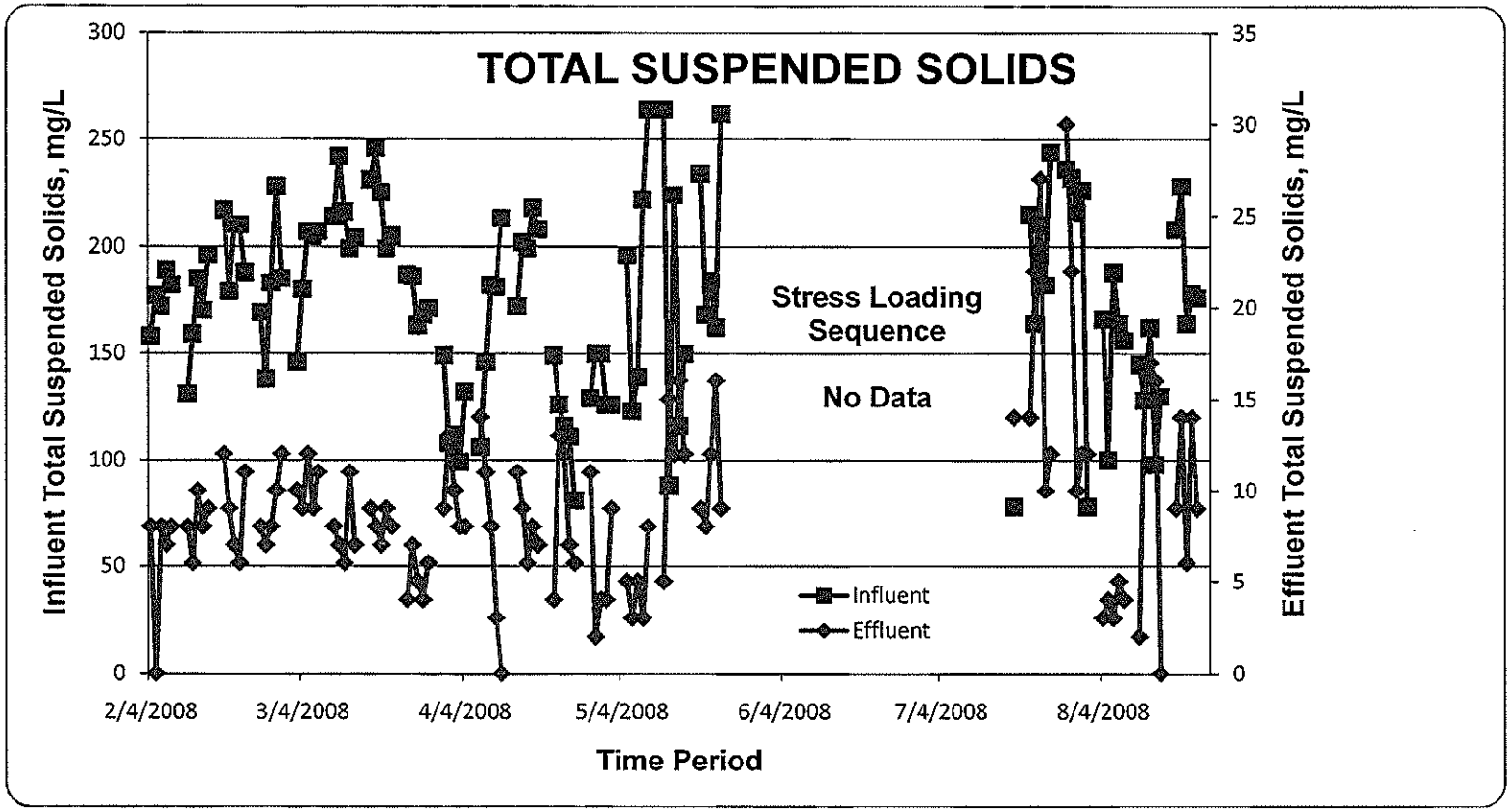


Figure 2

3.4 pH

Over the entire evaluation period, the influent pH ranged from 6.7 to 8.2 with an average and a median of 7.4. The effluent pH ranged from 7.2 to 8.0 during the evaluation with an average and a median of 7.6. The pH ranges were within the 6.0 to 9.0 range required by ANSI/NSF Standard 40 (2005) and ANSI/NSF Standard 245 (2007). The data collected for the testing period is included in the report sheets in Appendix D and summarized in Table 1.

3.5 Temperature

Influent temperatures over the evaluation period ranged from 17°C to 29°C with an average temperature of 25°C and a median temperature also of 22°C. The effluent temperature ranged from 16°C to 28°C with an average temperature of 22°C and a median temperature of 23°C. The data collected for the testing period is included in the report sheets in Appendix D and summarized in Table 1.

3.6 Dissolved Oxygen

Dissolved oxygen (DO) of the effluent was measured during the evaluation. The effluent DO ranged between 0.04 and 6.7 mg/L with an average of 3.1 mg/L and a median of 3.2 mg/L. The data collected for the testing period is included in the report sheets in Appendix D and summarized in Table 1.

3.7 Nitrogen

Ammonia and TKN of the influent and Ammonia, TKN, Nitrite, and Nitrate of the effluent were measured during the operation. ANSI/NSF Standard 245 requires the average total nitrogen concentration of all effluent samples shall be less than 50 percent of the average total nitrogen concentration of all influent samples. Table 4 shows the actual percent reduction over the course of the test over seven thirty day periods, with the exception of period 7 which has only twenty three days. Table 5 shows the actual percentage reduction over monthly time periods. Period 5 and the month of June have no data days as these time periods correspond to the stress loading sequence of the test. Section 8.4.3 of ANSI/NSF Standard 245 specifies for the purposes of determining system performance, only samples collected during the design loading period shall be used in the calculations.

The Jet Inc. Model J-500CF reduced the nitrogen to 27.4 percent of its original value over the entire evaluation period for an average total reduction of 72.6 percent. This figure was calculated by dividing the sum of the total nitrogen effluent over the entire period by the sum of the total nitrogen influent over the entire period. During the test, it is estimated 14,062 pounds of nitrogen was loaded and 9,439 pounds of nitrogen was removed by the Jet Inc. Model J-500CF

Table 4
Nitrogen Reduction by 30 Day Period

Period	Nitrogen Influent Data Days	Nitrogen Effluent Data Days	Avg Influent mg/L	Avg Effluent mg/L	Avg Nitrogen Reduction %
1	19	10	39.66	8.76	77.91%
2	17	14	37.63	7.22	80.82%
3	13	12	40.24	19.13	52.46%
4	9	9	43.96	10.10	77.02%
5	0	0	NA	NA	NA
6	6	6	35.23	18.31	48.03%
7	9	9	36.94	16.96	54.10%

Table 5
Nitrogen Reduction by Month

Month	Nitrogen Influent Data Days	Nitrogen Effluent Data Days	Avg Influent mg/L	Avg Effluent mg/L	Avg Nitrogen Reduction %
Feb	16	9	39.69	8.82	77.78%
Mar	16	13	38.06	6.44	83.09%
Apr	15	13	39.55	18.99	51.99%
May	10	10	43.50	9.92	77.19%
Jun	0	0	NA	NA	NA
Jul	6	6	35.23	18.31	48.03%
Aug	9	9	36.94	16.96	54.10%

3.8 Color, Threshold Odor, Oily Film, Foam

Three samples of the effluent were analyzed for color, odor, oily film and foam as prescribed in ANSI/NSF Standard 40 (2005). The effluent was acceptable according to the requirements in ANSI/NSF Standard 40 (2005), with color less than 15 units, non-offensive threshold odor, no visible evidence of oily film and no foam. The data collected for the testing period is included in the report sheets in Appendix D and summarized in Table 1.

3.9 Noise

A reading of the noise level at a distance of 20 feet in four directions from the plant was taken while the plant was in operation using a hand-held decibel meter. The reading was below the 60 dbA required under ANSI/NSF Standard 40 (2005).

4.0 REFERENCES

1. Grady, Jr., C.P., and H.C. Lim, Biological Wastewater Treatment: Theory and Applications, Marcel Dekker Publishers, New York, 1980.

2. "Environmental Protection Agency Guidelines for Secondary Treatment", Federal Register, Volume 28, No. 159, 1973.

3. APHA, AWWA, WPCF, Standard Methods for the Examination of Water and Wastewater, 20th Edition, American Public Health Associates, Washington, D.C.

4. WEF, ASCE, Design of Municipal Wastewater Treatment Plants (Volume I); Book Press, Inc., Brattleboro, Vermont, 1992.

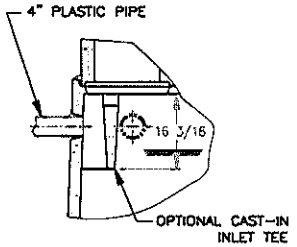
5. U.S. EPA, Methods for Chemical Analysis of Water and Wastes, U.S. Environmental Protection Agency, Washington, D.C.

6. NSF/ANSI Standard 40 (2005), Residential Wastewater Treatment Systems, NSF International, Ann Arbor, Michigan.

7. NSF/ANSI Standard 245 (2007), Wastewater Treatment Systems, Nitrogen Reduction, NSF International, Ann Arbor, Michigan

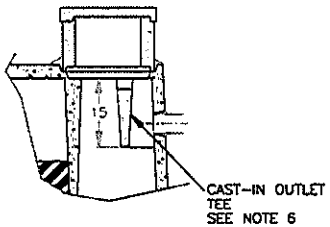
Appendix A

DETAIL 1

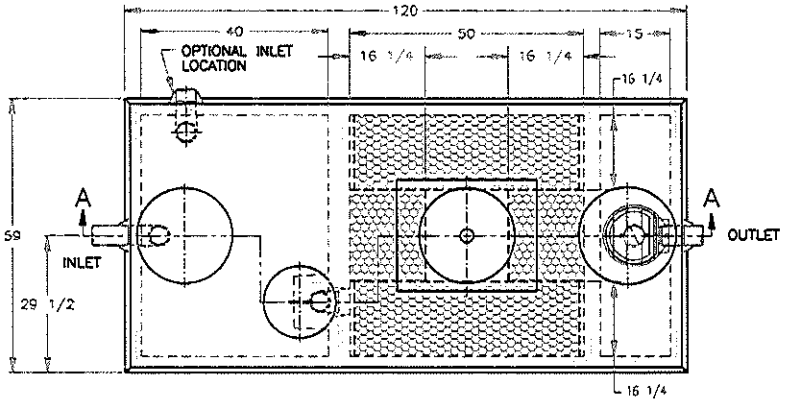


OPTIONAL INLET TEE

DETAIL 2



OPTIONAL CAST-IN TRANSFER TEE



NOTES:

1.) AERATOR MODEL 700 IS CYCLED ON FOR 30 MINUTES, OFF FOR 30 MINUTES.

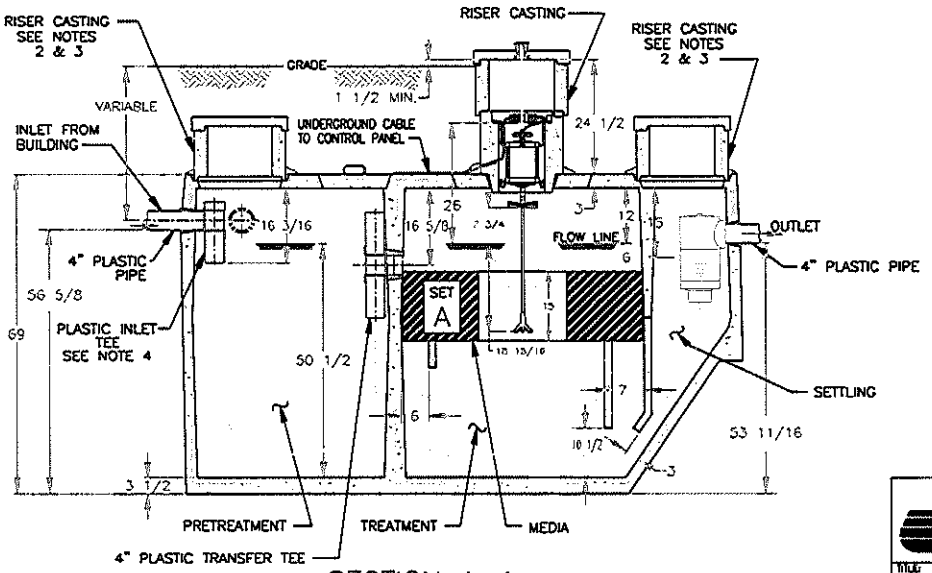
2.) IF AERATOR MOUNTING CASTING HAS NO RISER, RISERS ARE NOT REQUIRED HERE. REMOVABLE CONCRETE COVERS ARE REQUIRED.

3.) IF AERATOR MOUNTING CASTING HAS A RISER(S), COVERED RISERS ARE REQUIRED HERE. RISERS SHOULD BE DEVELOPED TO GRADE OR TO 6"-12" BELOW GRADE.

4.) PLANTS WHICH DO NOT USE A PLASTIC INLET TEE IN THE PRETREATMENT COMPARTMENT MAY USE AN OPTIONAL CAST-IN INLET TEE. SEE DETAIL 1.

5.) PLANTS WHICH DO NOT HAVE A PLASTIC TRANSFER TEE IN THE PRETREATMENT COMPARTMENT MAY USE AN OPTIONAL CAST-IN TRANSFER TEE. SEE DETAIL 2.

6.) THE POLYLOK ZABEL A300-8"X18" FILTER IS INSTALLED IN THE SETTLING CHAMBER.



SECTION A-A

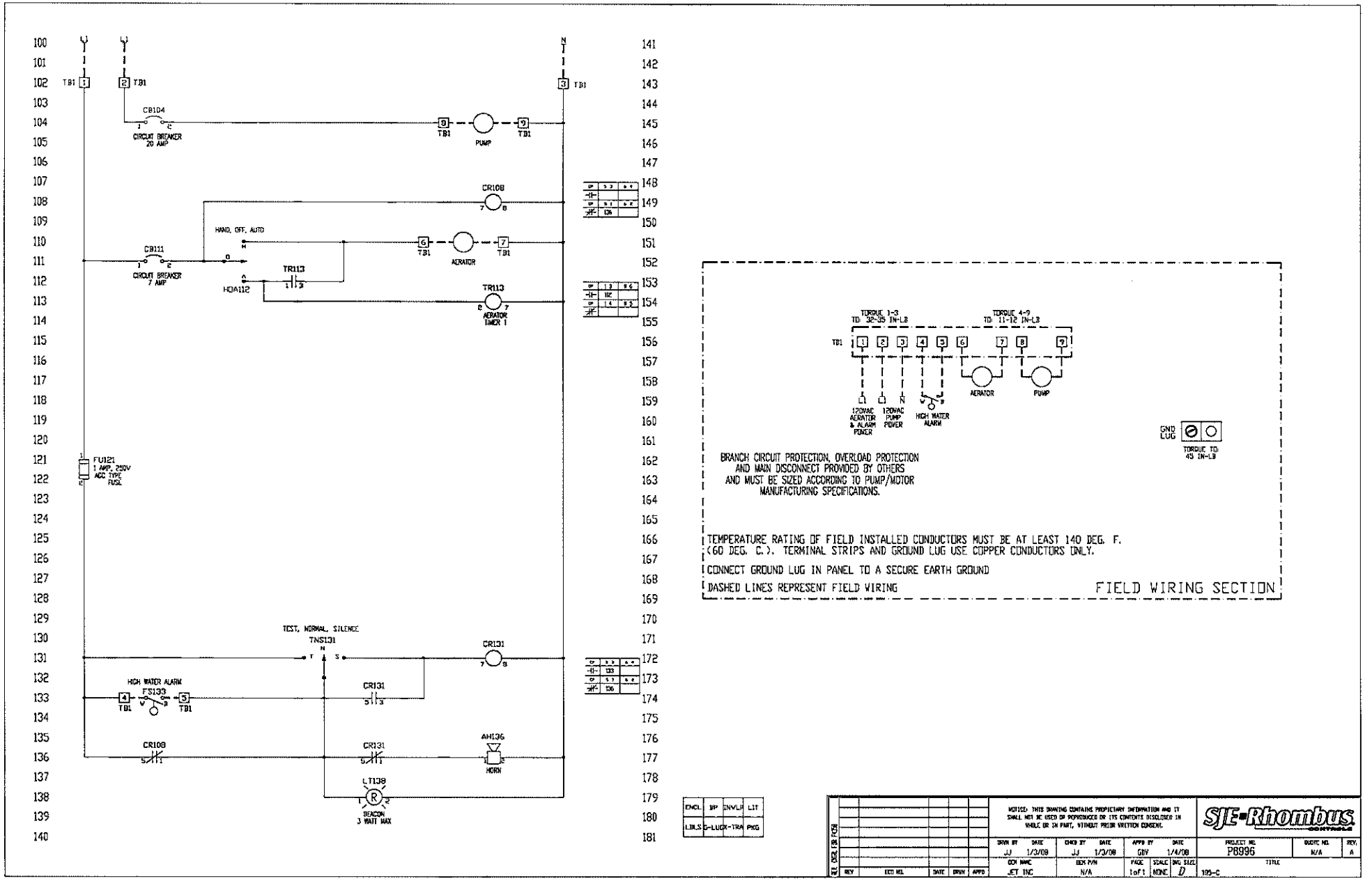
PATENTED ©MMI JET INC.

I	H	G	F	E	D	C	B	A	REV.	
									ECR NO.	
									DATE	

JET INC. CLEVELAND, OHIO

DRAWN BY: SDZ	DATE: 3-11-08
APPROVED BY: TML	DATE: 3-11-08
MATERIAL:	
TITLE: J-500CF 30-30 AERATION TIME	SCALE: NTS
USED ON: C	UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN INCHES DECIMALS ± .005 FRACTIONS ± 1/64 DEGREES ± 1°

DRAWING NUMBER: J-500CF



Appendix B

ANSI/NSF STANDARD 40 (2005)

PERFORMANCE TESTING AND EVALUATION

8.0 Performance testing and evaluation

This section describes the methods used to evaluate the performance of residential wastewater treatment systems. Systems shall be designated as Class I or Class II. The performance classification shall be based upon the evaluation of effluent samples collected from the system over a six-month period.

8.1 Preparations for testing and evaluation

8.1.1 The system shall be assembled, installed, and filled in accordance with the manufacturer's instructions.

8.1.2 The manufacturer shall inspect the system for proper installation. If no defects are detected and the system is judged to be structurally sound, it shall be placed into operation in accordance with the manufacturer's start-up procedures. If the manufacturer does not provide a filling procedure, 2/3 of the system's capacity shall be filled with water and the remaining 1/3 shall be filled with residential wastewater.

8.1.3 The system shall undergo design loading (see 8.2.2.1) until testing and evaluations are initiated. Sample collection and analysis shall be initiated within 3 weeks of filing the system and, except as specified in 8.5.1.2, shall continue without interruption until the end of the evaluation period.

8.1.4 If conditions at the testing site preclude installation of the system as its normally prescribed depth, the manufacturer shall be permitted to cover the system with soil to achieve normal installation depth.

8.1.5 Performance testing and evaluation of systems shall not be restricted to specific seasons.

8.1.6 When possible, electrical or mechanical defects shall be repaired to prevent evaluation delays. All repairs made during the performance testing shall not be permitted during the performance testing and evaluation period.

8.1.7 The system shall be operated in accordance with the manufacturer's instructions. However, routine service and maintenance of the system shall not be permitted during the performance testing and evaluation period.

> NOTE-The manufacturer may recommend or offer more frequent service and maintenance of the system but for purpose of performance testing and evaluation, service and maintenance shall not be performed beyond what is specified in the Standard.

8.2 Testing evaluation conditions, hydraulic loading, and schedules

8.2.1 Influent wastewater characteristics

The 30-d average BOD_5 concentration of the wastewater delivered to the system shall be between 100 mg/L and 300 mg/L.

The 30-d average TSS concentration of the wastewater delivered to the system shall be between 100 mg/L and 350 mg/L.

8.2.2 Hydraulic loading and schedules

The performance of the system shall be evaluated for 26 consecutive weeks. During the testing and evaluation period, the system shall be subjected to 16 weeks of design loading, followed by 7.5 weeks (52 days) of stress loading, and then an additional 2.5 weeks (18 days) of design loading.

8.2.2.1 Design loading

The system shall be closed 7 days a week with a wastewater volume equivalent to the daily hydraulic capacity of the system. The following schedule shall be adhered to for dosing:

Time frame	% rated daily hydraulic capacity
6:00 a.m. to 9:00 a.m.	approximately 35
11:00 a.m. to 2:00 p.m.	approximately 25
5:00 p.m. to 8:00 p.m.	approximately 40

8.2.2.2 Stress loading

Stress loading is designed to evaluate a system's performance under four non-ideal conditions. Systems shall be subjected to each stress condition once during the 6-month testing and evaluation period, and each of the four stress conditions shall be separated by 7 days of design loading (see 8.2.2.1).

8.2.2.2.1 Wash-day stress

The wash day stress shall consist of 3 wash days in a 5-day period. Each wash day shall be separated by a 24-h period. During a wash-day, the system shall be loaded at times and capacities similar to those delivered during design loading (see 8.2.2.1), however, during the first two dosing periods per day, the design loading shall include 3 wash loads (3 wash cycles and 6 rinse cycles).

8.2.2.2.2 Working-parent stress

For 5 consecutive days, the system shall be subjected to a working-parent stress. During this stress, the system shall be dosed with 40% of its daily hydraulic capacity between 6:00 a.m. and 9:00 a.m. Between 5:00 p.m. and 8:00 p.m., the system shall be dosed with the remaining 60% of its daily hydraulic capacity, which shall include 1 wash load (1 wash cycle and 2 rinse cycles).

8.2.2.2.3 Power/equipment failure stress

The system shall be dosed with 40% of its daily hydraulic capacity between 5:00 p.m. and 8:00 p.m. on the day the power/equipment failure stress is initiated. Power to the system shall then be turned off at 9:00 p.m. and dosing shall be discontinued for 48 hours. After 48 hours, power shall be restored and the system shall be dosed over a 3-h period with 60% of its daily hydraulic capacity, which shall include 1 wash load (1 wash cycle and 2 rinse cycles).

8.2.2.2.4 Vacation stress

On the day that the vacation stress is initiated, the system shall be dosed at 35% of its daily hydraulic capacity between 6:00 a.m. and 9:00 a.m. and at 25% between 11:00 a.m. and 2:00 p.m. Dosing shall then be discontinued of 8 consecutive days (power shall continue to be supplied to the system). Between 5:00 p.m. and 8:00 p.m. on the ninth day, the system shall be dosed with 60% of its daily hydraulic capacity, which shall include 3 wash loads (3 wash cycles and 6 rinse cycles).

8.2.3 Dosing volumes

The 30-d average volume of the wastewater delivered to the system shall be within 100% ±10% of the system's rated hydraulic capacity.

> NOTE – All dosing days, except those with dosing requirements less than the daily hydraulic capacity, shall be included in the 30-d average calculation.

8.2.4 Color, odor, foam, and oily film assessments

During the 6-month testing and evaluation, a total of 3 effluent samples shall be assessed for color, odor, foam, and oily film. The assessments shall be conducted on effluent composite samples selected randomly during the first phase of design loading (weeks 1-16), the period of stress loading (weeks 17-23.5), and the second phase of design loading (weeks 23.5-26).

8.3 Sample collection

8.3.1 General

8.3.1.1 A minimum of 96 data days shall be required during system performance testing and evaluation. No routine service or maintenance shall be performed on the system whether the time period to achieve the 96 data days falls within or exceeds 6 months.

8.3.1.2 All sample collection methods shall be in accordance with APHA's *Standard Methods for Examination of Water and Wastewater* unless otherwise specified.

8.3.1.3 Influent wastewater samples shall be flow-proportional, 24-h composites obtained during periods of system dosing. Effluent samples shall be flow-proportional, 24-h composites obtained during periods of system discharge.

8.3.2 Design loading

During periods of design loading, daily composite effluent samples shall be collected and analyzed 5 days a week.

8.3.3 Stress loading

During stress loading, influent and effluent 24-h composite samples shall be collected on the day each stress condition is initiated. Twenty-four hours after the completion of washday, working-parent, and vacation stresses, influent and effluent 24-h composite samples shall be collected for 6 consecutive days. Forty-eight hours after the completion of the power/equipment failure stress, influent and effluent 24-h composite samples shall be collected for 5 consecutive days.

8.4 Analytical descriptions

8.4.1 pH, TSS, BOD_5, and $CBOD_5$

The pH, TSS, and BOD_5 of the collected influent and the pH, TSS and $CBOD_5$ of the collected effluent 24-h composite samples shall be determined with the appropriate methods of APHA's *Standard Methods for the Examination of Water and Wastewater.*

8.4.2 Color, odor, oily film, and foam

8.4.2.1 General

The effluent composite samples shall be diluted 1:1000 with distilled water. Three composite effluent samples shall be tested during the 6-month evaluation period.

8.4.2.2 Color

The apparent color of the diluted effluent samples shall be determined with the visual comparison method described in APHA's *Standard Methods for the Examination of Water and Wastewater.*

8.4.2.3 Odor

A panel consisting of at least 5 evaluators shall qualitatively rate 200 mL aliquots of the diluted effluent samples as offensive or nonoffensive when compared to odor-free water prepared in accordance with APHA's *Standard Methods for the Examination of Water and Wastewater.*

8.4.2.4 Oily film and foam

Diluted effluent sample aliquots shall be visually evaluated for the presence of an oily film or foaming.

8.5 Criteria

8.5.1 General

8.5.1.1 If conditions during the testing and evaluation period result in system upset, improper sampling, improper dosing, or influent characteristics outside of the ranges specified in 8.2.1, an assessment shall be conducted to determine the extent to which these conditions adversely affected the performance of the system. Based on this assessment, specific data points may be excluded from the 7-d and 30-d averages of effluent measurements. Rationale for all data exclusions shall be documented in the final report.

8.5.1.2 In the event that a catastrophic site problem not described in this Standard including, but not limited to, influent characteristics, malfunctions of test apparatus, and acts of God, jeopardizes the validity of the performance testing and evaluation, manufactures shall be given the choice to:

1) Perform maintenance on the system, reinitiate system start-up procedures, and restart the performance testing and evaluation; or

2) With no routine maintenance performed, have the system brought back to pre-existing conditions and resume testing within 3 weeks after the site problem has been

identified and corrected. Data collected during the system recovery period shall be excluded from 7-d and 30-d averages of effluent measurements.

Note – Pre-existing conditions shall be defined as the point when the results of 3 consecutive data days are within 15% of the previous 30-d average(s).

8.5.1.3 A 7-d average discharge value shall consist of a minimum of 3 data days. If a calendar week contains less than 3 data days, sufficient data days may be transferred from the preceding calendar week to constitute a 7-d average discharge value. If there are not sufficient data days available in the preceding calendar week, the transfer of data days may take place from the following calendar week to constitute a 7-d average discharge value. No data day shall be included in more than one 7-d average discharge value.

8.5.1.4 A 30-d average discharge value shall consist of a minimum of 50% of the regularly scheduled sampling days per month. If a calendar month contains less than the required number of data days, sufficient data days may be transferred from the preceding calendar month to constitute a 3—d average discharge value. If there are sufficient data days available in the preceding calendar month, the transfer of data days may take place from the following calendar month to constitute a 30-d average discharge value. No data day shall be included in more than one 30-d average discharge value.

8.5.1.5 During the stress loading sequence, consisting of wash-day, working-parent, power/equipment failure, and vacation stress loading periods, data shall be collected from a minimum 2/3 of the total scheduled sampling days and from at least 2 of the scheduled sampling days during any single stress loading period.

8.5.2 Class I systems

The following criteria shall be met in order for a system to be classified as a Class I residential wastewater treatment system.

All requirements for each parameter shall be achieved except as provided for in 8.5.2.2.

8.5.2.1 EPA secondary treatment guideline parameters

8.5.2.1.1 $CBOD_5$

The 30-d average of $CBOD_5$ concentrations of effluent samples shall not exceed 25 mg/L.

The 7-d average of $CBOD_5$ concentrations of effluent samples shall not exceed 40 mg/L.

8.5.2.1.2 TSS

The 30-d average of TSS concentrations of effluent samples shall not exceed 30 mg/L.

The 7-d average of TSS concentrations of effluent samples shall not exceed 45 mg/L.

8.5.2.1.3 pH

The pH of individual effluent samples shall be between 6.0 and 9.0

8.5.2.2 Effluent concentration excursions

System performance shall not be considered outside the limits established for Class I systems if, during the first calendar month of performance testing and evaluation, 7-d average and 30-d average effluent $CBOD_5$ and TSS concentrations do not equal or exceed 1.4 times the effluent limits specified in 8.5.2.1.

> Note – The technology utilized in many residential wastewater treatment systems is biologically based. The allowance of excursions from the effluent limits established in this Standard during the first calendar month of performance testing and evaluation reflects the fact that an immature culture of microorganisms within the system may require additional time to achieve adequate treatment efficiency.

The value of 1.4 is based on the USEPA Technical Review Criteria for Group I Pollutants, including $CBOD_5$ and TSS.

8.5.2.3 Color, odor, oily film, and foam

8.5.2.3.1 Color

The overall rating of each of the three diluted composite effluent samples shall be nonoffensive.

8.5.2.3.2 Odor

The overall rating of each of the three diluted composite effluent samples shall be nonoffensive.

8.5.2.3.3 Oily film and foam

Oily films and foaming shall not be visually detected in any of the diluted composite effluent samples.

8.5.3 Class II systems

The following criteria shall be met in order for a system to be classified as a Class II residential wastewater treatment system.

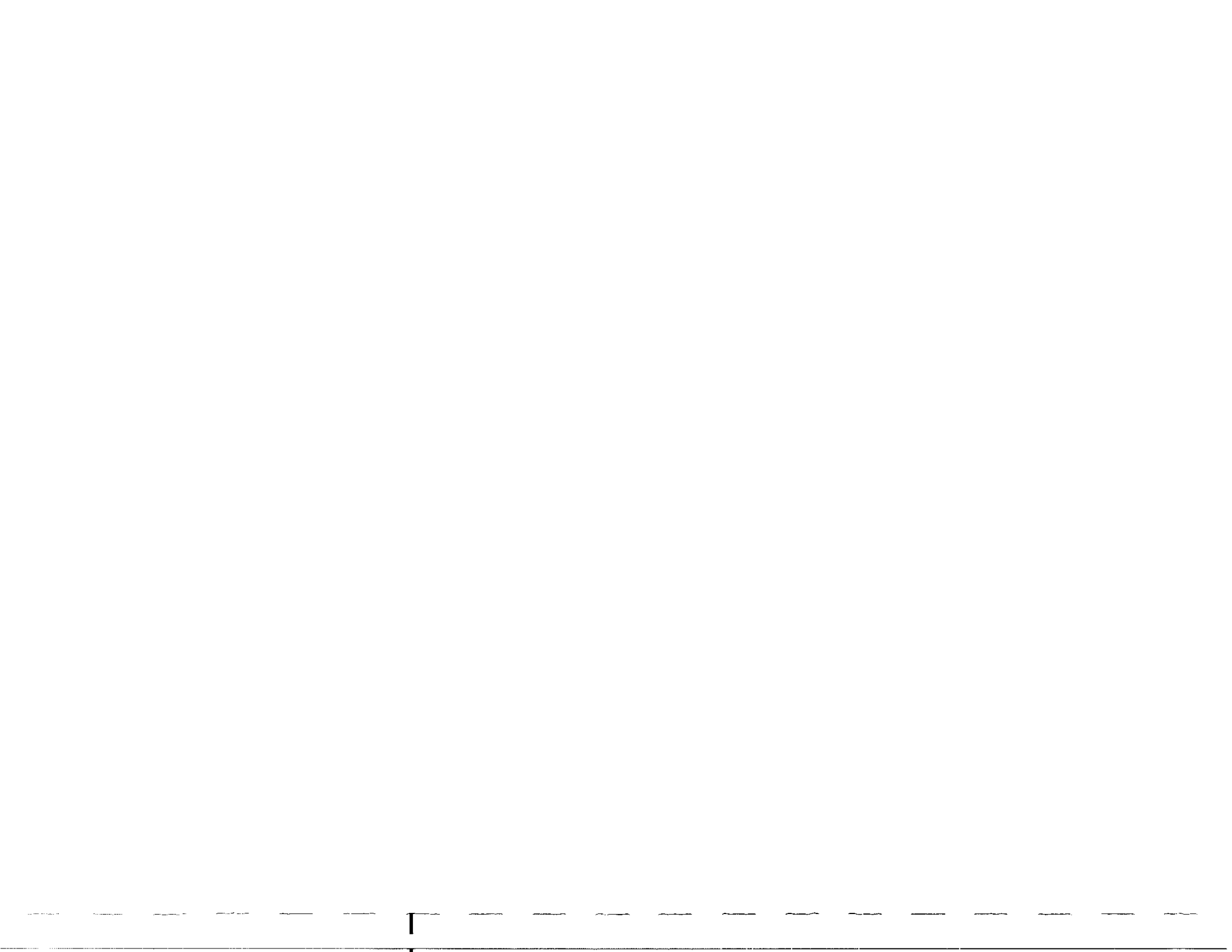
8.5.3.1 $CBOD_5$

Not more than 10% of the effluent $CBOD_5$ values shall exceed 60 mg/L.

8.5.3.2 TSS

Not more than 10% of the effluent TSS values shall exceed 100 mg/L.

Appendix C



- a detailed procedure for visual evaluation of system component functions;
- a description of olfactory and visual techniques for the evaluation of system effluent and mixed liquor;
- recommended methods for collecting effluent samples; and
- the expected effluent produced by the operational system as established through analytical methods described or referred to in NSF/ANSI 245.

6.2.3 Trouble shooting and repair manual

Manufacturers shall provide comprehensive and detailed troubleshooting and repair instructions to authorized representatives.

The manual shall be written so as to be easily understood by the intended reader and shall include, at a minimum:

- a guide for visually evaluating the system and narrowing the scope of the problem based on effluent characteristics, system operation, and history;
- a sequential method for isolating specific component failure; and
- a step-by-step guide for repairing or replacing all system components.

7 Other documentation

The manufacturer shall prepare and maintain documentation for each system including, at a minimum:

- a basic description of the system;
- complete drawings of the system;
- design basis data, including operating parameters (aeration requirements, recycle rates, etc.) essential for proper operation of the system under differing field conditions; and
- a comprehensive and detailed discussion of process fundamentals.

8 Performance testing and evaluation

This section describes the methods used to evaluate the performance of residential wastewater treatment systems designed to remove nitrogen from residential wastewater. Performance testing and evaluation shall not be restricted to specific seasons.

8.1 Preparations for testing and evaluation

The system shall be assembled, installed, and filled in accordance with the manufacturer's instructions.

The manufacturer shall inspect the system for proper installation. If no defects are detected and the system is judged to be structurally sound, it shall be placed into operation in accordance with the manufacturer's start-up procedures. If the manufacturer does not provide a start-up procedure, ⅔ of the system's capacity shall be filled with water and the remaining ⅓ shall be filled with residential wastewater.

The system shall undergo design loading (see 8.2.2.1) until testing and evaluations are initiated. Sample collection and analysis shall be initiated within three weeks of filling the system and shall continue without inter-

ruption until the end of the evaluation period, except as specified in 8.4.2.

If conditions at the test site preclude installation of the system at its normally prescribed depth, the manufacturer shall be permitted to cover the system with soil to achieve normal installation depth.

When possible, electrical or mechanical defects shall be repaired to prevent delays. All repairs made during the performance testing and evaluation shall be documented in the final report.

The system shall be operated in accordance with the manufacturer's instructions. However, routine service and maintenance of the system shall not be allowed during the testing and evaluation period.

NOTE – The manufacturer may recommend or offer more frequent service and maintenance of the system, but for purpose of performance testing and evaluation, the service and maintenance shall not be performed beyond what is specified in this Standard.

8.2 Testing conditions, hydraulic loading and schedules

8.2.1 Influent wastewater characteristics

Except as required by NSF/ANSI 40 for systems seeking concurrent NSF/ANSI 40 and Nitrogen Reduction certification, the average wastewater characteristics delivered to the system over the course of the testing shall fall within:

BOD_5 – 100 to 300 mg/L
TSS – 100 to 350 mg/L
TKN – 35 to 70 mg/L as N
Alkalinity – > 175 mg/L as $CaCO_3$ (alkalinity may be adjusted if inadequate)
Temperature – 10 to 30 °C
pH – 6.5 to 9 SU

Unless requested by the manufacturer, the raw influent shall be supplemented with sodium bicarbonate if the wastewater is found to be deficient in alkalinity. In addition, the influent shall be supplemented with urea to meet the required influent TKN concentration. The influent may also be supplemented with methanol to maintain a carbon:nitrogen ratio of no less than 5:1.

NOTE – For this testing, minimum alkalinity may be calculated as described in Annex A.

If the influent temperature drops below 10 °C, impacting the nitrification process, sample collection may be suspended until the influent temperature returns to 10 °C.

8.2.2 Hydraulic loading

The performance of the system shall be evaluated for a minimum of 26 wks. During the testing and evaluation period, the system shall be subjected to 16 wks of design loading, followed by 7.5 wks (52 d) of stress loading, and an additional period of design loading to obtain a minimum of 55 influent and effluent data sets collected during non-stress dosing period.

8.2.2.1 Design loading

The system shall be dosed 7 d/wk with a wastewater volume equivalent to the daily hydraulic capacity of the system. The following schedule shall be adhered to for dosing:

Time Frame	Approximate % rated daily hydraulic capacity
6 a. m. – 9 a. m.	35
11 a. m. – 2 p. m.	25
5 p. m. – 8 p. m.	40

NOTE – An individual dose shall be no more than 10 gal, unless the dosage system is based on a continuous flow, and the doses shall be uniformly applied over the dosing period.

8.2.2.2 Stress loading

Stress loading sequences shall begin in week 17 of the testing and will be completed in the order listed in the following sections. Each stress sequence shall be separated by 7 d of design loading, as described in 8.2.2.1.

8.2.2.2.1 Wash-day stress

The wash-day stress shall consist of 3 washdays in a 5-d period. Each washday shall be separated by a 24-h period. During a wash-day, the system shall be loaded at times and capacities similar to those delivered during design loading (see 8.2.2.1). However, during the first two dosing periods per day, the design loading shall include 3 wash loads (3 wash cycles and 6 rinse cycles).

8.2.2.2.2 Working-parent stress

For five consecutive days, the system shall be subjected to a working-parent stress. During this stress, the system shall be dosed with 40% of its daily hydraulic capacity between 6:00 a. m. and 9:00 a. m. Between 5:00 p. m. and 8:00 p. m., the system shall be dosed with the remaining 60% of its daily hydraulic capacity, which shall include 1 wash load (1 wash cycle and 2 rinse cycles).

8.2.2.2.3 Power/equipment failure stress

Power/equipment failure stress simulation shall consist of a flow pattern where approximately 40% of the total daily flow is received between 5 p. m. and 8 p. m. on the day when the power/equipment failure stress is initiated. Power to the system shall then be turned off at 9 p. m. and the flow pattern shall be discontinued for 48 h. After the 48-h period, power shall be restored and the system shall receive approximately 60% of the total daily flow over a 3-h period which shall include 1 wash load (1 wash cycle and 2 rinse cycles).

8.2.2.2.4 Vacation stress

Vacation stress simulation shall consist of a flow pattern where approximately 35% of the total daily flow is received between 6 a. m. and 9 a. m. and approximately 25% of the total daily flow is received between 11 a. m. and 2 p. m. on the day that the vacation stress is initiated. The flow pattern shall be discontinued for 8 consecutive days with power continuing to be supplied to the system. Between 5 p. m. and 8 p. m. of the ninth day, the system shall receive 60% of the total daily flow, which shall include 3wash loads (3 wash cycles and 6 rinse cycles).

8.2.3 Dosing volumes

The 30-d average volume of the wastewater delivered to the system shall be within 100% ± 10% of the system's rated hydraulic capacity.

NOTE – All dosing days, except those with dosing requirements less than the daily hydraulic capacity, shall be included in the 30-d average calculation.

8.3 Sample collection

8.3.1 Sampling frequency

Influent and effluent samples shall be collected three times per week during design loading periods and twice during each stress recovery period (the week following completion of each of the stress simulations described in 8.2.2.2). This schedule shall be continued in the event that testing is extended beyond the 26-wk minium.

8.3.2 Collection methods

All sample collection shall be in accordance with APHA's *Standard Methods for the Examination of Water and Wastewater*, unless otherwise specified. Influent wastewater samples shall be flow-proportional, 24-h composites obtained during periods of system dosing. Effluent samples shall be flow-proportional, 24-h composites obtained during periods of system discharge. Effluent samples shall be representative of all treated effluent discharged from the system, as sampled from a central point of collection of all treated effluent. Grab samples shall be collected for pH, temperature, and dissolved oxygen (DO). The location of the grab sample shall be appropriate to provide a sample that is representative of the influent or effluent, and shall be determined in conjunction with the manufacturer.

8.3.3 Analyses

The samples collected as described in 8.3.1 and 8.3.2 shall be analyzed as follows:

		Sample location		
Parameter	Sample type	Raw influent	Treated effluent	Testing location
BOD_5	24 h composite	X		Laboratory
$CBOD_5$	24 h composite		X	Laboratory
Total suspended solids	24 h composite	X	X	Laboratory
PH	Grab	X	X	Test site
Temperature (°C)	Grab	X	X	Test site
Dissolved oxygen	Grab		X	Test site
Alkalinity (as $CaCO_3$)	24 h composite	X	X	Laboratory
TKN (as N)	24 h composite	X	X	Laboratory
Ammonia-N (as N)	24 h composite	X	X	Laboratory
Nitrite/nitrate-N (as N)	24 h composite		X	Laboratory

8.3.4 Analytical methods

The appropriate methods in APHA's *Standard Methods for the Examination of Water and Wastewater* shall be used to complete the analyses indicated in 8.4.3.

8.4 Criteria

8.4.1 Testing conditions

If conditions during the testing and evaluation period result in system upset, improper sampling, improper dosing, or influent characteristics outside the ranges specified in 8.2.1, an assessment shall be conducted to determine the extent to which these conditions adversely affected the performance of the system. Based on this assessment, specific data points may be excluded from the averages. Rationale for all data exclusions shall be documented in the final report.

8.4.2 Catastrophic site problems

In the event that a catastrophic site problem not described in the Standard including, but not limited to, influent characteristics, malfunctions of test site apparatus and acts of God, jeopardizes the validity of the performance testing, manufacturers shall be given the choice to:

– Perform maintenance on the system, reinitiate system start-up procedures, and restart the performance testing; or

– With no routine maintenance performed, have the system brought back to pre-existing conditions and resume testing within 3 wks after the site problem has been identified and corrected. Data collected during the system recovery period shall be excluded from the effluent averages.

NOTE – "Pre-existing conditions" shall be defined as the point when the results of 1 wk's worth of sampling are within 15% of the averages of the samples from the previous 3 wks of sampling.

8.4.3 Effluent quality

For purposes of determining system performance, only samples collected during design loading periods, described in 8.2.2, shall be used in the calculations. The data collected during the stress sequences shall not be included in the calculations, but shall be included in the final report.

8.4.3.1 $CBOD_5$

The average $CBOD_5$ of all effluent samples shall not exceed 25 mg/L.

8.4.3.2 TSS

The average TSS of all effluent samples shall not exceed 30 mg/L.

8.4.3.3 Total nitrogen

The average total nitrogen concentration of all effluent samples shall be less than 50% of the average total nitrogen concentration of all influent samples.

8.4.3.4 pH

The pH of individual effluent samples shall be between 6.0 and 9.0 SU.

8.5 Final report

A final report shall be prepared that presents the following:

– All data collected in accordance with the testing and evaluations within this Standard;

– A table indicating the actual percent reduction over the course of the test (included in the Executive Summary, as well as in the body, of the report);

– Observations made during the testing;

– An estimation of the pounds of nitrogen loaded during the test and the pounds removed;

– A copy of the current edition of the Owner's Manual; and

– Process description and detailed dimensioned drawings of the system evaluated.

A supplemental report shall be prepared for any system(s) approved under the performance classification section (1.4) of this Standard, including process description(s) and dimensioned drawings.

Appendix D

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 1						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	2/4/2008	2/5/2008	2/6/2008	2/7/2008	2/8/2008	2/9/2008	2/10/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	5.87	a	6.19	5.93	5.92		
	Effluent	2.85	a	5.43	5.13	3.84		
Ambient Temperature, °C	Influent	23.8	23.1	19.8	18.8	19.2		
	Aeration chamber	23.3	a	19.8	18.8	20.2		
	Effluent	23.8	a	19.6	18.8	19.9		
pH	Influent	7.43	7.49	7.3	7.75	7.52		
	Aeration chamber	7.54	a	7.72	7.69	7.59		
	Effluent	7.36	a	7.68	7.66	7.38		
BOD, mg/L	Influent	191	174	186	174	204		
CBOD mg/L	Effluent	12	a	8	8	12		
Total Suspended Solids, mg/L	Influent	158	177	172	189	182		
	Aeration chamber	128	a	148	168	200		
	Effluent	8	a	8	7	8		
Volatile Suspended Solids, mg/L	Influent	75	68	98	73	75		
	Aeration chamber	64	a	84	72	108		
	Effluent	5	a	4	4	3		
Settleable Solids (mL/L)	Aeration chamber	25	a	10	10	10		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	250		250	270			
	Effluent							
Ammonia	Influent	36.30		33.00	34.60			
	Effluent							
TKN	Influent	44.10		44.20	36.40			
	Effluent							
Nitrate	Effluent							
Nitrite	Effluent							
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem

(a) Blown fuse

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 2						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	2/11/2008	2/12/2008	2/13/2008	2/14/2008	2/15/2008	2/16/2008	2/17/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	6.13	5.83	7.09	6.38	6.62		
	Effluent	4.93	4.25	4.21	5.28	4.87		
Ambient Temperature, °C	Influent	19.4	20.5	19.6	19	19.1		
	Aeration chamber	18.3	19.5	18.7	16.4	17.9		
	Effluent	18	19.2	18.9	16.1	18.2		
pH	Influent	7.62	7.83	7.84	7.92	7.62		
	Aeration chamber	7.59	7.58	7.62	7.65	7.62		
	Effluent	7.52	7.74	7.57	7.63	7.49		
BOD, mg/L	Influent	158	216	192	170	188		
CBOD mg/L	Effluent	15	9	11	9	12		
Total Suspended Solids, mg/L	Influent	131	159	185	170	196		
	Aeration chamber	180	176	144	192	128		
	Effluent	8	6	10	8	9		
Volatile Suspended Solids, mg/L	Influent	77	60	68	70	72		
	Aeration chamber	104	92	96	132	52		
	Effluent	4	3	5	4	3		
Settleable Solids (mL/L)	Aeration chamber	5	10	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	260		240	240			
	Effluent	140		150	160			
Ammonia	Influent	35.40		33.60	38.10			
	Effluent	2.10		7.53	1.80			
TKN	Influent	39.40		36.00	43.40			
	Effluent	1.70		9.83	2.60			
Nitrate	Effluent	10.400		11.200	<0.020			
Nitrite	Effluent	0.119		0.502	<0.020			
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 3						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	2/18/2008	2/19/2008	2/20/2008	2/21/2008	2/22/2008	2/23/2008	2/24/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	5.32	6.42	6.92	6.87	6.14		
	Effluent	4.95	6.7	5.81	5.41	4.31		
Ambient Temperature, °C	Influent	21.4	20.7	19.8	20.3	21.2		
	Aeration chamber	20.3	18.8	19.8	20.4	22.1		
	Effluent	20.3	19.2	20.2	20.3	22		
pH	Influent	7.7	7.68	7.47	7.62	7.63		
	Aeration chamber	7.48	7.6	7.61	7.39	7.62		
	Effluent	7.51	7.61	7.53	7.47	7.58		
BOD, mg/L	Influent	186	180	174	162	150		
CBOD mg/L	Effluent	10	12	12	14	11		
Total Suspended Solids, mg/L	Influent	217	179	210	210	188		
	Aeration chamber	224	220	300	216	192		
	Effluent	12	9	7	6	11		
Volatile Suspended Solids, mg/L	Influent	63	76	84	67	63		
	Aeration chamber	124	108	120	132	92		
	Effluent	8	4	2	3	6		
Settleable Solids (mL/L)	Aeration chamber	5	10	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	260	270	230	260	290		
	Effluent	130		150	160			
Ammonia	Influent	33.60	33.00	38.60	37.60	42.60		
	Effluent	1.60		2.40	1.70			
TKN	Influent	34.40	34.50	41.30	39.90	44.60		
	Effluent	2.10		1.90	2.10			
Nitrate	Effluent	2.800		7.400	12.700			
Nitrite	Effluent	0.229		0.173	0.131			
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 4						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	2/25/2008	2/26/2008	2/27/2008	2/28/2008	2/29/2008	3/1/2008	3/2/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	7.31	7.43	7.46	7.03	7		
	Effluent	4.81	4.82	3.92	4.77	4.69		
Ambient Temperature, °C	Influent	22.1	22.3	22.4	22.7	21.8		
	Aeration chamber	19.2	20.4	22.1	21.9	21.9		
	Effluent	19	20.6	22.4	22.1	21.9		
pH	Influent	7.43	7.48	7.68	7.73	7.52		
	Aeration chamber	7.39	7.49	7.47	7.64	7.61		
	Effluent	7.53	7.31	7.39	7.46	7.47		
BOD, mg/L	Influent	174	186	198	216	210		
CBOD mg/L	Effluent	10	10	10	8	8		
Total Suspended Solids, mg/L	Influent	169	138	183	228	185		
	Aeration chamber	232	208	244	288	292		
	Effluent	8	7	8	10	12		
Volatile Suspended Solids, mg/L	Influent	58	77	78	84	95		
	Aeration chamber	144	140	136	124	132		
	Effluent	5	4	4	7	7		
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	220	250	260	240	250		
	Effluent	130	140	140				
Ammonia	Influent	38.40	40.30	35.90	34.80	34.20		
	Effluent	1.90	2.30	2.00				
TKN	Influent	41.60	41.90	37.30	36.40	39.60		
	Effluent	1.90	1.90	1.70				
Nitrate	Effluent	7.830	<0.020	<0.020				
Nitrite	Effluent	<0.020	<0.020	<0.020				
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 5						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	3/3/2008	3/4/2008	3/5/2008	3/6/2008	3/7/2008	3/8/2008	3/9/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	7.31	6.93	6.76	5.09	5.27		
	Effluent	4.92	4.77	3.91	2.79	3.02		
Ambient Temperature, °C	Influent	19.4	19.4	18.3	20.8	17.4		
	Aeration chamber	19.1	18.7	18	18.1	18		
	Effluent	19.3	18.6	17.8	18.2	17.8		
pH	Influent	7.61	7.61	7.48	7.88	7.07		
	Aeration chamber	7.62	7.19	7.49	7.41	7.43		
	Effluent	7.59	7.42	7.42	7.41	7.41		
BOD, mg/L	Influent	186	198	204	210	204		
CBOD mg/L	Effluent	12	6	7	10	11		
Total Suspended Solids, mg/L	Influent	146	180	207	205	207		
	Aeration chamber	260	276	232	236	256		
	Effluent	10	9	12	9	11		
Volatile Suspended Solids, mg/L	Influent	75	63	77	83	94		
	Aeration chamber	136	136	132	140	124		
	Effluent	5	4	5	4	6		
Settleable Solids (mL/L)	Aeration chamber	10	10	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	280	270	270	290			
	Effluent	140		140	130			
Ammonia	Influent	33.70	37.20	35.40	26.90			
	Effluent	2.10		1.40	7.09			
TKN	Influent	38.40	40.40	38.60	34.20			
	Effluent	3.40		2.70	10.20			
Nitrate	Effluent	4.600		<0.020	10.500			
Nitrite	Effluent	0.230		0.020	0.629			
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 6						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	3/10/2008	3/11/2008	3/12/2008	3/13/2008	3/14/2008	3/15/2008	3/16/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	5.94	6.03	5.93	6.04	6.17		
	Effluent	3.07	3.19	3.47	3.48	3.45		
Ambient Temperature, °C	Influent	19.4	20.1	21	21.2	21.4		
	Aeration chamber	20.3	19.4	19.8	20.7	20.9		
	Effluent	20.1	19.6	19.4	20.5	21.2		
pH	Influent	7.17	7.37	7.07	6.94	7		
	Aeration chamber	7.42	7.46	7.51	7.5	7.49		
	Effluent	7.38	7.4	7.46	7.48	7.48		
BOD, mg/L	Influent	216	252	252	228	222		
CBOD mg/L	Effluent	7	8	7	8	10		
Total Suspended Solids, mg/L	Influent	214	242	216	199	204		
	Aeration chamber	304	296	228	340	320		
	Effluent	8	7	6	11	7		
Volatile Suspended Solids, mg/L	Influent	183	114	140	115	120		
	Aeration chamber	180	96	104	152	164		
	Effluent	3	4	3	5	4		
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	270	290	280	270			
	Effluent	130		130	140			
Ammonia	Influent	32.50	37.20	36.40	37.40			
	Effluent	2.00		<1	<1			
TKN	Influent	39.40	43.10	39.30	39.80			
	Effluent	3.10		1.40	<1			
Nitrate	Effluent	7.720		<1	<1			
Nitrite	Effluent	0.201		<0.020	<0.020			
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

	Week	Week 7						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	3/17/2008	3/18/2008	3/19/2008	3/20/2008	3/21/2008	3/22/2008	3/23/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	4.73	4.62	4.73	4.6	7.69		
	Effluent	4.68	4.64	4.64	4.67	4.06		
Ambient Temperature, °C	Influent	20.2	20.4	21.2	20.1	18.3		
	Aeration chamber	21.4	20.8	20.6	19.1	17.7		
	Effluent	21	20.6	20.4	18.9	16.4		
pH	Influent	7.01	7	6.93	7.7	7.2		
	Aeration chamber	7.53	7.49	7.46	7.41	7.6		
	Effluent	7.48	7.49	7.49	7.5	7.41		
BOD, mg/L	Influent	300	174	192	168	186		
CBOD mg/L	Effluent	6	8	7	9	10		
Total Suspended Solids, mg/L	Influent	231	246	225	199	205		
	Aeration chamber	228	224	312	296	412		
	Effluent	9	8	7	9	8		
Volatile Suspended Solids, mg/L	Influent	183	114	140	115	120		
	Aeration chamber	140	124	104	152	164		
	Effluent	5	5	5	4	4		
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	290	280	260	270			
	Effluent	140		140	150			
Ammonia	Influent	29.40	31.40	33.40	33.70			
	Effluent	2.20		1.10	1.40			
TKN	Influent	36.30	37.30	38.70	38.40			
	Effluent	3.10		1.80	2.10			
Nitrate	Effluent	3.820		<1	4.210			
Nitrite	Effluent	0.121		<0.020	0.239			
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 8						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	3/24/2008	3/25/2008	3/26/2008	3/27/2008	3/28/2008	3/29/2008	3/30/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	2.4	1.47	6.78	6.58	6.47		
	Effluent	3.63	3.58	3.51	3.47	3.53		
Ambient Temperature, °C	Influent	19.7	18.8	21.4	20.3	21.4		
	Aeration chamber	18.8	18.6	19.7	20.6	20.6		
	Effluent	18.7	18.4	19.4	20.4	20.8		
pH	Influent	7.58	7.68	7.07	7.03	7.63		
	Aeration chamber	7.44	7.47	7.44	7.43	7.41		
	Effluent	7.48	7.5	7.49	7.51	7.5		
BOD, mg/L	Influent	228	204	186	192	174		
CBOD mg/L	Effluent	7	8	7	6	6		
Total Suspended Solids, mg/L	Influent	187	186	163	168	171		
	Aeration chamber	260	324	160	200	236		
	Effluent	4	7	5	4	6		
Volatile Suspended Solids, mg/L	Influent	86	98	93	79	77		
	Aeration chamber	164	260	108	112	96		
	Effluent	3	3	3	4	3		
Settleable Solids (mL/L)	Aeration chamber	10	5	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	270		260	260			
	Effluent	150		140	140			
Ammonia	Influent	36.30		29.40	27.20			
	Effluent	1.80		1.70	<1			
TKN	Influent	39.70		33.00	32.80			
	Effluent	2.60		2.50	<1			
Nitrate	Effluent	1.940		3.410	1.320			
Nitrite	Effluent	0.178		0.273	<0.020			
Total Phos.	Influent	5.90		6.30	7.23			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 9						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	3/31/2008	4/1/2008	4/2/2008	4/3/2008	4/4/2008	4/5/2008	4/6/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	4.62	0.7	3.76	3.06	3.41		
	Effluent	3.77	1.26	0.64	2.55	6.32		
Ambient Temperature, °C	Influent	22.6	22.3	23.2	22.3	22.4		
	Aeration chamber	21.3	22.6	22.7	22.4	22.6		
	Effluent	21.2	22.3	23	21.9	22.3		
pH	Influent	7.09	7.82	7.43	7.72	7.62		
	Aeration chamber	7.06	7.4	7.51	7.55	7.41		
	Effluent	7.43	7.42	7.42	7.63	7.79		
BOD, mg/L	Influent	324	264	192	180	180		
CBOD mg/L	Effluent	15	15	14	13	12		
Total Suspended Solids, mg/L	Influent	149	108	112	99	132		
	Aeration chamber	200	408	52	24	192		
	Effluent	9	13	10	8	8		
Volatile Suspended Solids, mg/L	Influent	45	15	31	57	68		
	Aeration chamber	56	188	12	28	78		
	Effluent	7	9	4	6	5		
Settleable Solids (mL/L)	Aeration chamber	5	200	10	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	270	260	260	260			
	Effluent	140		160	160			
Ammonia	Influent	36.30	33.00	34.50	33.70			
	Effluent	1.90		1.80	4.20			
TKN	Influent	39.60	34.60	38.60	36.30			
	Effluent	2.80		2.90	5.70			
Nitrate	Effluent	3.290		4.830	11.400			
Nitrite	Effluent	0.191		0.276	0.492			
Total Phos.	Influent	7.23		8.43	8.11			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 10						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	4/7/2008	4/8/2008	4/9/2008	4/10/2008	4/11/2008	4/12/2008	4/13/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	2.59	4.32	4.08	4.07	4.92		
	Effluent	5.78	3.62	2.89	2.74	2.81		
Ambient Temperature, °C	Influent	22.4	23.4	22.2	23.9	24.3		
	Aeration chamber	22.3	23.1	22.5	24.2	24.3		
	Effluent	22.3	23.1	22.6	24.7	24.4		
pH	Influent	7.67	7.67	7.66	7.57	7.64		
	Aeration chamber	7.48	7.53	7.57	7.58	7.61		
	Effluent	7.86	7.49	7.53	7.54	7.61		
BOD, mg/L	Influent	171	133	135	143	158		
CBOD mg/L	Effluent	9	9	12	8	10		
Total Suspended Solids, mg/L	Influent	106	146	182	181	213		
	Aeration chamber	12	20	28	20	128		
	Effluent	14	11	8	3	<2		
Volatile Suspended Solids, mg/L	Influent	39	76	101	121	143		
	Aeration chamber	8	8	8	8	60		
	Effluent	3	3	<2	<2	<2		
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	280		270	270			
	Effluent	130		150	160			
Ammonia	Influent	28.50		39.10	36.40			
	Effluent	4.50		1.70	3.40			
TKN	Influent	29.40		44.70	40.60			
	Effluent	5.10		2.80	5.70			
Nitrate	Effluent	12.200		6.600	6.930			
Nitrite	Effluent	0.637		0.334	0.392			
Total Phos.	Influent	8.31		8.93	9.32			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 11						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	4/14/2008	4/15/2008	4/16/2008	4/17/2008	4/18/2008	4/19/2008	4/20/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	4.64	2.94	5.63	4.91	4.9		
	Effluent	4.33	4.5	3.58	3.75	4.27		
Ambient Temperature, °C	Influent	20.7	18.6	20.7	22.1	22.3		
	Aeration chamber	19.3	17.6	17.8	19.8	21.9		
	Effluent	18.9	17.6	18.7	20.3	22.3		
pH	Influent	7.8	7.98	7.9	7.8	7.74		
	Aeration chamber	7.68	7.68	7.72	7.72	7.69		
	Effluent	7.69	7.76	7.76	7.69	7.69		
BOD, mg/L	Influent	176	150	198	186	192		
CBOD mg/L	Effluent	14	18	13	13	9		
Total Suspended Solids, mg/L	Influent	172	202	199	218	208		
	Aeration chamber	156	80	32	100	40		
	Effluent	11	9	6	8	7		
Volatile Suspended Solids, mg/L	Influent	58	53	56	82	87		
	Aeration chamber	72	40	16	52	32		
	Effluent	5	4	3	5	4		
Settleable Solids (mL/L)	Aeration chamber	5	15	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	280		290	260	280		
	Effluent	150		140	130			
Ammonia	Influent	30.50		32.80	34.20	36.20		
	Effluent	6.50		6.00	26.20			
TKN	Influent	35.40		36.40	38.50	40.10		
	Effluent	8.70		16.20	31.90			
Nitrate	Effluent	7.320		<1	<1			
Nitrite	Effluent	0.111		0.086	0.044			
Total Phos.	Influent	10.03		10.40	10.60			

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 12						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	4/21/2008	4/22/2008	4/23/2008	4/24/2008	4/25/2008	4/26/2008	4/27/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	3.8	2.73	2.57	4.51	4.5		
	Effluent	3.24	2.74	3.41	3.11	3.1		
Ambient Temperature, °C	Influent	22.6	24.2	22.1	21.6	22		
	Aeration chamber	22.4	23.4	21.8	22.4	22		
	Effluent	22.6	24.1	22.4	22.8	23		
pH	Influent	7.89	7.48	7.84	7.99	7.97		
	Aeration chamber	7.19	7.51	7.6	7.7	7.7		
	Effluent	7.27	7.6	7.61	7.7	7.7		
BOD, mg/L	Influent	162	138	198	216	216		
CBOD mg/L	Effluent	10	10	10	11	9		
Total Suspended Solids, mg/L	Influent	149	126	116	111	81		
	Aeration chamber	4	84	168	104	52		
	Effluent	4	13	12	7	6		
Volatile Suspended Solids, mg/L	Influent	2	33	13	35	21		
	Aeration chamber	4	44	88	44	48		
	Effluent	2	1	4	1	6		
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	260		290	270			
	Effluent	140		160	140			
Ammonia	Influent	30.00		42.00	36.30			
	Effluent	4.40		25.50	37.00			
TKN	Influent	39.50		48.80	50.70			
	Effluent	6.30		35.50	38.00			
Nitrate	Effluent	11.400		<1	<1			
Nitrite	Effluent	0.511		0.083	0.104			
Total Phos.	Influent	10.88		10.60	4.13			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 13						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	1.79	2.67	1.59	3.5	3.03		
	Effluent	1.37	4.02	1.18	3.46	1.99		
Ambient Temperature, °C	Influent	21.8	20.9	22.1	22.1	24.3		
	Aeration chamber	21.5	21.6	22.7	22.6	24.1		
	Effluent	21.7	21.7	22.8	22.4	24.4		
pH	Influent	7.47	7.02	7.61	7.65	7.94		
	Aeration chamber	7.53	7.57	7.57	7.59	7.54		
	Effluent	7.56	7.64	7.6	7.62	7.55		
BOD, mg/L	Influent	257	270	174	170	292		
CBOD mg/L	Effluent	10	12	16	8	13		
Total Suspended Solids, mg/L	Influent	129	150	150	126	126		
	Aeration chamber	68	104	16	12	316		
	Effluent	11	2	4	4	9		
Volatile Suspended Solids, mg/L	Influent	27	49	39	51	44		
	Aeration chamber	28	56	12	8	92		
	Effluent	9	1	3	2	6		
Settleable Solids (mL/L)	Aeration chamber	5	12	5	5	15		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	260		270	280			
	Effluent	140		140	130			
Ammonia	Influent	33.60		36.40	35.60			
	Effluent	3.40		2.70	2.00			
TKN	Influent	38.30		41.30	39.40			
	Effluent	5.10		8.60	4.10			
Nitrate	Effluent	<1		5.500	3.790			
Nitrite	Effluent	0.026		0.055	0.419			
Total Phos.	Influent	10.40		10.40	11.20			

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 14						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	5/5/2008	5/6/2008	5/7/2008	5/8/2008	5/9/2008	5/10/2008	5/11/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	3.86	3.71	7.27	3.04	4.46		
	Effluent	2.72	4.06	0.21	1.76	0.19		
Ambient Temperature, °C	Influent	21.6	23.2	21.4	23.2	23		
	Aeration chamber	21.7	22.8	21.2	24.9	22.7		
	Effluent	20.8	22.8	21.6	24.7	24.1		
pH	Influent	7.75	7.92	7.12	7.41	8.22		
	Aeration chamber	7.62	7.55	7.73	7.49	7.68		
	Effluent	7.71	7.69	7.58	7.61	7.58		
BOD, mg/L	Influent	240	228	192	204	186		
CBOD mg/L	Effluent	7	13	12	12	9		
Total Suspended Solids, mg/L	Influent	196	123	139	222	264		
	Aeration chamber	44	28	28	32	36		
	Effluent	5	3	5	3	8		
Volatile Suspended Solids, mg/L	Influent	64	69	33	117	136		
	Aeration chamber	28	16	24	16	28		
	Effluent	3	3	2	1	6		
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	280		280	290			
	Effluent	130		140	140			
Ammonia	Influent	40.50		33.10	37.00			
	Effluent	2.00		4.60	2.50			
TKN	Influent	48.60		37.40	42.10			
	Effluent	2.20		8.50	5.30			
Nitrate	Effluent	7.700		3.000	3.000			
Nitrite	Effluent	0.117		0.684	0.115			
Total Phos.	Influent	11.65		10.48	10.80			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 15						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	5/12/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	4	4.02	6.78	1.49	1.76		
	Effluent	1.03	1.04	1.48	0.65	0.71		
Ambient Temperature, °C	Influent	21.8	21.6	23.9	20.4	20.7		
	Aeration chamber	22.7	22.5	23.9	20.3	20.4		
	Effluent	22.1	22	25.3	20	20.1		
pH	Influent	6.85	6.88	7.02	7.09	7.13		
	Aeration chamber	7.65	7.63	7.8	7.7	7.64		
	Effluent	7.64	7.62	7.71	7.52	7.55		
BOD, mg/L	Influent	186	198	216	204	152		
CBOD mg/L	Effluent	11	10	12	12	16		
Total Suspended Solids, mg/L	Influent	264	88	224	116	150		
	Aeration chamber	8	104	116	92	120		
	Effluent	5	15	12	16	12		
Volatile Suspended Solids, mg/L	Influent	22	22	18	18	14		
	Aeration chamber	0	16	64	32	92		
	Effluent	1	9	9	9	6		
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	280		290	290			
	Effluent	130		190	200			
Ammonia	Influent	36.90		26.00	35.40			
	Effluent	4.30		1.10	4.80			
TKN	Influent	38.60		32.00	41.30			
	Effluent	6.70		3.50	6.30			
Nitrate	Effluent	2.310		4.800	3.940			
Nitrite	Effluent	0.517		<0.020	2.920			
Total Phos.	Influent	12.18		11.69	10.93			

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 16						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	5/19/2008	5/20/2008	5/21/2008	5/22/2008	5/23/2008	5/24/2008	5/25/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	3.6	4.5	4.91	3.6	3.41		
	Effluent	4.34	3.51	2.57	2.08	1.52		
Ambient Temperature, °C	Influent	24.2	24	24.1	23.8	22.4		
	Aeration chamber	23.7	23.5	25.1	23.6	22.1		
	Effluent	24.7	23.6	25.3	23.3	22		
pH	Influent	7.4	7.52	7.58	7.3	6.98		
	Aeration chamber	7.39	7.58	7.56	7.64	7.59		
	Effluent	7.54	7.58	7.63	7.62	7.63		
BOD, mg/L	Influent	192	216	219	212	222		
CBOD mg/L	Effluent	10	9	9	7	8		
Total Suspended Solids, mg/L	Influent	234	168	184	162	262		
	Aeration chamber	144	228	152	208	164		
	Effluent	9	8	12	16	9		
Volatile Suspended Solids, mg/L	Influent	124	78	102	96	112		
	Aeration chamber	84	124	44	136	112		
	Effluent	4	4	9	9	6		
Settleable Solids (mL/L)	Aeration chamber	5	7	5	5	5		
color (cu)	Effluent	101.6		110.4	113.3			
Turbidity (ntu)	Effluent	3.94		1.79	7.12			
flow rate (sec/gal)	Effluent	25		25	26			
Alkalinity	Influent	340		340	310			
	Effluent	200		160	170			
Ammonia	Influent	32.20		36.00	34.80			
	Effluent	2.40		7.40	1.90			
TKN	Influent	65.00		40.20	50.40			
	Effluent	4.10		8.20	3.40			
Nitrate	Effluent	7.000		3.400	2.300			
Nitrite	Effluent	0.152		0.319	0.413			
Total Phos.	Influent	11.41		11.83	11.48			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 17						
	Type Loading	Wash Day Stress						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	5/26/2008	5/27/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	6/1/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	4.07						
	Effluent	2.07						
Ambient Temperature, °C	Influent	25.4	25	26.4	25.4	20.1		
	Aeration chamber	26.2						
	Effluent	26.1						
pH	Influent	7.71	7.27	7.13	7.09	7.31		
	Aeration chamber	7.53						
	Effluent	7.61						
BOD, mg/L	Influent	198	192	285	263	285		
CBOD mg/L	Effluent	8						
Total Suspended Solids, mg/L	Influent	332	366	98	272	358		
	Aeration chamber	72						
	Effluent	11						
Volatile Suspended Solids, mg/L	Influent	212	234	66	186	224		
	Aeration chamber	48						
	Effluent	4						
Settleable Solids (mL/L)	Aeration chamber	5						
color (cu)	Effluent	103.6		103.7	109.1			
Turbidity (ntu)	Effluent	3.42		3.41	6.49			
flow rate (sec/gal)	Effluent	25		26	26			
Alkalinity	Influent	390		290	320			
	Effluent	170						
Ammonia	Influent	40.30		29.20	36.90			
	Effluent	1.90						
TKN	Influent	47.40		36.40	42.30			
	Effluent	4.10						
Nitrate	Effluent	3.200						
Nitrite	Effluent	0.073						
Total Phos.	Influent	11.33		9.77	10.97			

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 18						
	Type Loading	Wash Day Stress					Working Parent Stress	
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	6/2/2008	6/3/2008	6/4/2008	6/5/2008	6/6/2008	6/7/2008	6/8/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	3.05	3.03	1.98	4.66	4.04	3.87	
	Effluent	1.97	1.95	2.43	3.12	4.88	4.47	
Ambient Temperature, °C	Influent	26.5	26	24.2	22.5	21.2	24.3	
	Aeration chamber	27	27.4	26	23.7	23.2	24.4	
	Effluent	27.3	27.7	24.7	23.1	22.6	24.1	
pH	Influent	7.42	7.4	7.31	7.19	7.58	7.45	
	Aeration chamber	7.47	7.48	7.58	7.91	7.94	7.71	
	Effluent	7.56	7.58	7.72	7.76	7.86	7.82	
BOD, mg/L	Influent	184	214	270	300	155	172	
CBOD mg/L	Effluent	12	13	19	23	20	12	
Total Suspended Solids, mg/L	Influent	126	191	316	128	162	172	
	Aeration chamber	48	44	40	68	48	96	
	Effluent	12	4	7	17	7	18	
Volatile Suspended Solids, mg/L	Influent	31	52	162	48	84	35	
	Aeration chamber	12	16	16	12	24	36	
	Effluent	5	1	4	11	3	7	
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5	5	5	
color (cu)	Effluent	114.4		110.4	112.6			
Turbidity (ntu)	Effluent	3.92		6.79	4.92			
flow rate (sec/gal)	Effluent	25		25	25			
Alkalinity	Influent	340		430	260			
	Effluent	170		160	190			
Ammonia	Influent	32.50		31.40	25.70			
	Effluent	3.50		2.40	7.00			
TKN	Influent	39.30		38.60	37.90			
	Effluent	4.70		3.90	10.30			
Nitrate	Effluent	<1		1.200	3.710			
Nitrite	Effluent	0.800		0.417	0.510			
Total Phos.	Influent	10.86		11.62	9.78			

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 19						
	Type Loading	Working Parent Stress						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	6/9/2008	6/10/2008	6/11/2008	6/12/2008	6/13/2008	6/14/2008	6/15/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber						2.79	2.53
	Effluent						2.51	3.01
Ambient Temperature, °C	Influent	29	23	24	24	24	22.7	22.3
	Aeration chamber						23.4	22.9
	Effluent						23.9	22.8
pH	Influent	7.36	7.43	7.23	7.47	7.56	7.11	7.03
	Aeration chamber						7.09	7.11
	Effluent						7.43	7.38
BOD, mg/L	Influent	267	322	132	177	224	251	254
CBOD mg/L	Effluent						18	18
Total Suspended Solids, mg/L	Influent	260	302	220	118	244	190	208
	Aeration chamber						92	96
	Effluent						14	8
Volatile Suspended Solids, mg/L	Influent	58	10	6	12	66	52	84
	Aeration chamber						36	52
	Effluent						7	5
Settleable Solids (mL/L)	Aeration chamber						5	5
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	320		340	380			
	Effluent				270			
Ammonia	Influent	30.00		39.50	37.70			
	Effluent				9.40			
TKN	Influent	42.20		47.80	43.00			
	Effluent				13.70			
Nitrate	Effluent				1.300			
Nitrite	Effluent				0.512			
Total Phos.	Influent	13.40		11.13	11.14			

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 20						
	Type Loading	Working Parent Stress			Power Failure/Equipment Stress			
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	6/16/2008	6/17/2008	6/18/2008	6/19/2008	6/20/2008	6/21/2008	6/22/2008
	Dosed Volume (Gals)	500	500	500	500	325	0	300
Dissolved Oxygen, mg/L	Aeration chamber	4.49	4.58	3.75	3.82			
	Effluent	3.02	3.8	5.42	5.4			
Ambient Temperature, °C	Influent	20.4	23.2	22.4	23.4	22.8		
	Aeration chamber	22.3	24.2	24.8	24.6			
	Effluent	22.7	25.2	24.1	24.8			
pH	Influent	7.34	6.96	7.09	7.08	7.12		
	Aeration chamber	7.64	7.72	7.73	7.71			
	Effluent	7.72	7.8	7.91	7.87			
BOD, mg/L	Influent	301	268	121	220	252		
CBOD mg/L	Effluent	16	12	9	10			
Total Suspended Solids, mg/L	Influent	168	178	263	203	180		
	Aeration chamber	16	0	40	80			
	Effluent	16	5	11	1			
Volatile Suspended Solids, mg/L	Influent	3	26	5	75	48		
	Aeration chamber	4	0	40	0			
	Effluent	0	2	8	1			
Settleable Solids (mL/L)	Aeration chamber	5	5	5	5			
color (cu)	Effluent	101.6		107.1	103.8			
Turbidity (ntu)	Effluent	3.41		3.91	1.72			
flow rate (sec/gal)	Effluent	25		26	26			
Alkalinity	Influent	340		200	340	310		
	Effluent	380		290	230			
Ammonia	Influent	33.50		39.00	37.40	29.00		
	Effluent	2.40		8.40	9.40			
TKN	Influent	44.30		42.60	42.60	35.40		
	Effluent	5.70		12.30	13.60			
Nitrate	Effluent	1.200		<1	1.700			
Nitrite	Effluent	0.413		0.590	0.089			
Total Phos.	Influent	12.52		11.02	11.40	11.42		

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 21						
	Type Loading	Power Failure/Equipment Stress						Vacation Stress
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	6/23/2008	6/24/2008	6/25/2008	6/26/2008	6/27/2008	6/28/2008	6/29/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber			4.55	5.2	d	4.97	5.03
	Effluent			3	4.28	d	4.19	4.27
Ambient Temperature, °C	Influent	22.6	20.1	20.5	25.6	24.6	25.4	24.7
	Aeration chamber			25.9	25.7	d	25.8	25.4
	Effluent			24.5	24.1	d	25	24.8
pH	Influent	7.3	7.27	7.14	7.39	7.51	6.99	7.08
	Aeration chamber			7.64	7.64	d	7.61	7.65
	Effluent			7.73	7.85	d	7.83	7.74
BOD, mg/L	Influent	186	228	198	147	201	204	204
CBOD mg/L	Effluent			11	9	d	9	11
Total Suspended Solids, mg/L	Influent	144	259	348	312	224	312	302
	Aeration chamber			128	148	d	152	156
	Effluent			20	31	d	11	8
Volatile Suspended Solids, mg/L	Influent	51	41	77	66	76	70	48
	Aeration chamber			120	148	d	72	112
	Effluent			12	29	d	6	3
Settleable Solids (mL/L)	Aeration chamber			5	5	d	5	5
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	320		280	280			
	Effluent			230	190			
Ammonia	Influent	22.30		22.00	23.10			
	Effluent			5.90	6.30			
TKN	Influent	31.90		33.00	37.10			
	Effluent			6.50	9.80			
Nitrate	Effluent			<1	1.400			
Nitrite	Effluent			0.985	0.584			
Total Phos.	Influent	11.14		11.92	9.63			

(a) Site problem (b) Laboratory problem (d) Sampler malfunction

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 22						
	Type Loading	Vacation Stress						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	6/30/2008	7/1/2008	7/2/2008	7/3/2008	7/4/2008	7/5/2008	7/6/2008
	Dosed Volume (Gals)	125	0	0	0	0	0	0
Dissolved Oxygen, mg/L	Aeration chamber							
	Effluent							
Ambient Temperature, °C	Influent	21.3	21.2	18.5	23.8	21.5		
	Aeration chamber							
	Effluent							
pH	Influent	7.16	7.15	7.23	7.16	7.17		
	Aeration chamber							
	Effluent							
BOD, mg/L	Influent	137	302	236	317	230		
CBOD mg/L	Effluent							
Total Suspended Solids, mg/L	Influent	127	195	308	264	302		
	Aeration chamber							
	Effluent							
Volatile Suspended Solids, mg/L	Influent	11	46	53	84	78		
	Aeration chamber							
	Effluent							
Settleable Solids (mL/L)	Aeration chamber							
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	280		270	300			
	Effluent							
Ammonia	Influent	31.00		25.40	28.70			
	Effluent							
TKN	Influent	37.50		30.40	35.90			
	Effluent							
Nitrate	Effluent							
Nitrite	Effluent							
Total Phos.	Influent	10.30		10.49	10.80			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 23						
	Type Loading	Vacation Stress						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	7/7/2008	7/8/2008	7/9/2008	7/10/2008	7/11/2008	7/12/2008	7/13/2008
	Dosed Volume (Gals)	0	0	375	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber					2.36	0.53	0.51
	Effluent					0.19	0.05	0.05
Ambient Temperature, °C	Influent	17.5	18.2	23.7	19.1	22.1	24.4	24.3
	Aeration chamber					24.3	25	25.4
	Effluent					23.1	24.2	25.1
pH	Influent	7.17	7.36	7.35	7.3	7.05	7.39	7.39
	Aeration chamber					7.72	7.55	7.51
	Effluent					7.71	7.53	7.5
BOD, mg/L	Influent	177	174	188	146	220	99	111
CBOD mg/L	Effluent					14	19	20
Total Suspended Solids, mg/L	Influent	300	184	312	58	170	218	235
	Aeration chamber					196	100	108
	Effluent					9	24	9
Volatile Suspended Solids, mg/L	Influent	10	38	46	20	58	88	142
	Aeration chamber					76	4	20
	Effluent					4	9	4
Settleable Solids (mL/L)	Aeration chamber					5	5	5
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	280		300	280			
	Effluent							
Ammonia	Influent	21.70		41.50	22.30			
	Effluent							
TKN	Influent	30.40		49.70	34.40			
	Effluent							
Nitrate	Effluent							
Nitrite	Effluent							
Total Phos.	Influent	12.14		12.48	10.26			

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 24						
	Type Loading	Vacation Stress			Design Loading			
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	7/14/2008	7/15/2008	7/16/2008	7/17/2008	7/18/2008	7/19/2008	7/20/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	0.54	1.74	0.13	1.8	3.28		
	Effluent	1.44	1.42	0.1	1.16	0.46		
Ambient Temperature, °C	Influent	23.8	23.4	24.2	20.4	22.9		
	Aeration chamber	26.7	20.3	25	25.4	26.3		
	Effluent	25.9	20.3	23.9	24.2	24.6		
pH	Influent	7	7.09	7.54	7.19	7.4		
	Aeration chamber	7.55	7.59	7.58	7.62	7.6		
	Effluent	7.65	7.65	7.65	7.68	7.61		
BOD, mg/L	Influent	230	258	180	257	258		
CBOD mg/L	Effluent	20	22	15	17	21		
Total Suspended Solids, mg/L	Influent	208	224	262	276	78		
	Aeration chamber	140	348	148	148	380		
	Effluent	11	9	6	14	14		
Volatile Suspended Solids, mg/L	Influent	118	108	174	174	62		
	Aeration chamber	44	184	48	80	136		
	Effluent	8	4	3	5	1		
Settleable Solids (mL/L)	Aeration chamber	5	30	5	15	25		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	260		260	310			
	Effluent	240		300	270			
Ammonia	Influent	27.90		31.20	20.30			
	Effluent	20.10		21.70	19.70			
TKN	Influent	35.70		32.50	35.90			
	Effluent	26.90		26.50	31.20			
Nitrate	Effluent	2.000		<1	<1			
Nitrite	Effluent	0.624		0.166	0.494			
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 25						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	7/21/2008	7/22/2008	7/23/2008	7/24/2008	7/25/2008	7/26/2008	7/27/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	0.13	0.1	1.82	0.86	2.43		
	Effluent	0.36	0.04	0.14	0.96	1.57		
Ambient Temperature, °C	Influent	21.2	20.2	18.2	18.8	19.5		
	Aeration chamber	25.7	24.7	23.4	26.4	25.7		
	Effluent	25.3	24.7	22.6	25.4	24.3		
pH	Influent	7.37	7.35	7.51	7.56	7.34		
	Aeration chamber	7.49	7.14	7.61	7.55	7.41		
	Effluent	7.5	7.21	7.56	7.5	7.56		
BOD, mg/L	Influent	216	198	192	210	b		
CBOD mg/L	Effluent	10	4	19	12	b		
Total Suspended Solids, mg/L	Influent	215	164	210	182	244		
	Aeration chamber	444	664	84	232	220		
	Effluent	14	22	27	10	12		
Volatile Suspended Solids, mg/L	Influent	20	59	60	72	86		
	Aeration chamber	156	164	60	144	168		
	Effluent	7	11	17	3	5		
Settleable Solids (mL/L)	Aeration chamber	20	40	7	20	5		
color (cu)	Effluent							
Turbidity (ntu)	Effluent							
flow rate (sec/gal)	Effluent							
Alkalinity	Influent	300		260	310			
	Effluent	260		300	180			
Ammonia	Influent	22.30		20.70	31.90			
	Effluent	16.80		3.00	3.60			
TKN	Influent	31.70		36.90	34.30			
	Effluent	29.34		8.20	7.88			
Nitrate	Effluent	<1		<1	1.100			
Nitrite	Effluent	0.963		0.640	0.819			
Total Phos.	Influent	10.12			10.63			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 26						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	7/28/2008	7/29/2008	7/30/2008	7/31/2008	8/1/2008	8/2/2008	8/3/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	0.58	2.12	1.57	4.85	4.12		
	Effluent	0.12	2.57	2.05	2.58	1.55		
Ambient Temperature, °C	Influent	19.4	27.2	25.1	20.9	23.8		
	Aeration chamber	26.1	26.9	26.6	26.3	24.8		
	Effluent	25.8	26.2	26.1	25.2	24.2		
pH	Influent	7.37	6.98	6.99	7.08	6.91		
	Aeration chamber	7.45	7.56	7.54	7.57	7.64		
	Effluent	7.46	7.38	7.37	7.49	7.53		
BOD, mg/L	Influent	251	248	164	158	194		
CBOD mg/L	Effluent	13	13	11	14	17		
Total Suspended Solids, mg/L	Influent	236	232	216	226	78		
	Aeration chamber	344	120	116	56	60		
	Effluent	30	22	10	12	12		
Volatile Suspended Solids, mg/L	Influent	42	88	78	96	18		
	Aeration chamber	212	108	96	44	36		
	Effluent	19	18	10	4	9		
Settleable Solids (mL/L)	Aeration chamber	5	5	10	5	5		
color (cu)	Effluent	106.9		107.4	109.2			
Turbidity (ntu)	Effluent	3.49		3.21	2.76			
flow rate (sec/gal)	Effluent	25		25	25			
Alkalinity	Influent	210		190	270			
	Effluent	240		240	220			
Ammonia	Influent	16.80		20.90	33.30			
	Effluent	13.80		12.00	13.40			
TKN	Influent	35.20		34.90	38.40			
	Effluent	15.30		21.80	15.80			
Nitrate	Effluent	<1		1.000	1.000			
Nitrite	Effluent	1.013		1.000	1.012			
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 27						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	8/4/2008	8/5/2008	8/6/2008	8/7/2008	8/8/2008	8/9/2008	8/10/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	4.56	3.23	3.72	2.17	2.15		
	Effluent	2.54	3.02	3.14	3.32	2.31		
Ambient Temperature, °C	Influent	25.3	22.2	22.9	24.7	24.2		
	Aeration chamber	27.3	26.1	24.2	25	24.6		
	Effluent	27.1	25.1	23.6	25.2	24.1		
pH	Influent	7.42	7.19	7.2	7.23	7.31		
	Aeration chamber	7.59	7.5	7.58	7.47	7.53		
	Effluent	7.49	7.54	7.59	7.61	7.66		
BOD, mg/L	Influent	162	176	249	273	188		
CBOD mg/L	Effluent	13	8	7	10	11		
Total Suspended Solids, mg/L	Influent	166	100	188	164	156		
	Aeration chamber	256	344	284	464	716		
	Effluent	3	4	3	5	4		
Volatile Suspended Solids, mg/L	Influent	98	42	116	104	100		
	Aeration chamber	124	100	132	244	80		
	Effluent	1	<2	<2	<2	<2		
Settleable Solids (mL/L)	Aeration chamber	5	15	10	20	50		
color (cu)	Effluent	106.6		109.1	119.4			
Turbidity (ntu)	Effluent	2.94		3.78	4.92			
flow rate (sec/gal)	Effluent	25		25	25			
Alkalinity	Influent	270		300	300			
	Effluent	170		240	220			
Ammonia	Influent	27.30		34.60	28.40			
	Effluent	1.10		10.20	16.60			
TKN	Influent	35.50		39.10	32.50			
	Effluent	13.30		18.10	18.00			
Nitrate	Effluent	<1		<1	<1			
Nitrite	Effluent	<0.020		0.982	0.990			
Total Phos.	Influent	10.17		12.28				

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week	Week 28						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	8/11/2008	8/12/2008	8/13/2008	8/14/2008	8/15/2008	8/16/2008	8/17/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	3.58	0.92	0.02	3.73	0.9		
	Effluent	3.77	2.28	3.12	3.77	2.55		
Ambient Temperature, °C	Influent	24	20.9	25.1	23.5	23.2		
	Aeration chamber	24.8	26.1	25.8	26.1	25.2		
	Effluent	24.1	25.4	26.1	25.1	24		
pH	Influent	6.94	7.02	7.2	7.33	7.46		
	Aeration chamber	7.65	7.45	7.34	7.51	7.43		
	Effluent	7.61	7.6	7.61	7.56	7.5		
BOD, mg/L	Influent	277	171	127	124	170		
CBOD mg/L	Effluent	10	9	7	8	11		
Total Suspended Solids, mg/L	Influent	145	128	162	98	130		
	Aeration chamber	108	324	232	176	298		
	Effluent	2	15	17	16	<2		
Volatile Suspended Solids, mg/L	Influent	87	30	78	56	18		
	Aeration chamber	24	68	100	108	228		
	Effluent	4	12	16	15	<2		
Settleable Solids (mL/L)	Aeration chamber	5	40	10	10	35		
color (cu)	Effluent	111.6		107.4	106.9			
Turbidity (ntu)	Effluent	1.47		2.31	3.43			
flow rate (sec/gal)	Effluent	25		25	26			
Alkalinity	Influent	280		260	270			
	Effluent	200		220	270			
Ammonia	Influent	31.40		31.00	37.30			
	Effluent	<1		2.40	14.20			
TKN	Influent	34.80		37.90	42.30			
	Effluent	2.20		14.00	25.50			
Nitrate	Effluent	<1		1.100	1.000			
Nitrite	Effluent	0.909		0.987	0.993			
Total Phos.	Influent	10.90		10.89	10.67			

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

	Week	Week 29						
	Type Loading	Design Loading						
	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Date	8/18/2008	8/19/2008	8/20/2008	8/21/2008	8/22/2008	8/23/2008	8/24/2008
	Dosed Volume (Gals)	500	500	500	500	500	500	500
Dissolved Oxygen, mg/L	Aeration chamber	2.72	1.63	1.62	2.09	1.52		
	Effluent	2.65	3.77	3.2	3.43	3.77		
Ambient Temperature, °C	Influent	25.2	21.9	24.7	25.3	24.6		
	Aeration chamber	25.7	25.6	25.8	25.7	24.2		
	Effluent	27	26.4	25.1	25.3	24.3		
pH	Influent	7.33	7.29	7.28	6.73	6.93		
	Aeration chamber	7.64	7.45	7.35	7.34	7.46		
	Effluent	7.6	7.56	7.59	7.52	7.57		
BOD, mg/L	Influent	300	302	161	240	144		
CBOD mg/L	Effluent	10	10	7	9	7		
Total Suspended Solids, mg/L	Influent	208	228	164	178	176		
	Aeration chamber	260	220	336	248	176		
	Effluent	9	14	6	14	9		
Volatile Suspended Solids, mg/L	Influent	52	112	78	86	78		
	Aeration chamber	104	124	88	104	128		
	Effluent	4	6	3	8	5		
Settleable Solids (mL/L)	Aeration chamber	12	35	70	25	90		
color (cu)	Effluent	117.4		111.8	98.9			
Turbidity (ntu)	Effluent	5.92		3.94	3.11			
flow rate (sec/gal)	Effluent	25		25	25			
Alkalinity	Influent	270		260	230			
	Effluent	220		210	200			
Ammonia	Influent	31.20		29.90	33.80			
	Effluent	9.50		12.40	12.30			
TKN	Influent	32.50		38.00	39.90			
	Effluent	13.80		16.70	13.20			
Nitrate	Effluent	<1		1.700	1.300			
Nitrite	Effluent	0.915		0.987	0.946			
Total Phos.	Influent							

(a) Site problem (b) Laboratory problem

(c) Weather problem (d) Other

LOCATION: A-5

GULF COAST TESTING, LLC
JET INC. MODEL J-500CF

Test Start Date: 02/04/2008
Test End Date: 08/24/2008

	Week										
	Type Loading										
	Day						Total Test Days				203
	Date										
	Dosed Volume (Gals)	AVG	Std Dev	Min	Max	Med	1 Quart	2 Quart	3 Quart	4 Quart	Data Points
Dissolved Oxygen, mg/L	Aeration chamber	4.00	1.99	0.02	7.69	4.04	2.53	4.04	5.90	7.69	129
	Effluent	3.09	1.54	0.04	6.70	3.20	2.07	3.20	4.28	6.70	129
Ambient Temperature, °C	Influent	22.2	2.2	17.4	28.8	22.2	20.5	22.2	23.8	28.8	152
	Aeration chamber	22.6	2.7	16.4	27.4	22.7	20.4	22.7	24.6	27.4	129
	Effluent	22.5	2.6	16.1	27.7	22.7	20.3	22.7	24.3	27.7	129
pH	Influent	7.38	0.30	6.73	8.22	7.37	7.13	7.37	7.62	8.22	152
	Aeration chamber	7.54	0.14	7.06	7.94	7.56	7.47	7.56	7.64	7.94	129
	Effluent	7.57	0.13	7.21	7.91	7.57	7.49	7.57	7.66	7.91	129
BOD, mg/L	Influent	205	46	99	324	198	174	198	228	324	151
CBOD mg/L	Effluent	11	4	4	23	10	9	10	13	23	128
Total Suspended Solids, mg/L	Influent	192	60	58	366	186	150	186	224	366	152
	Aeration chamber	177	126	0	716	160	84	160	234	716	129
	Effluent	10	5	1	31	9	7	9	12	31	127
Volatile Suspended Solids, mg/L	Influent	74	44	2	234	72	46	72	96	234	152
	Aeration chamber	86	57	0	260	88	36	88	128	260	129
	Effluent	5	4	0	29	4	3	4	6	29	121
Settleable Solids (mL/L)	Aeration chamber	11	21	5	200	5	5	5	5	200	129
color (cu)	Effluent	109	5	99	119	108	106	108	110	119	24
Turbidity (ntu)	Effluent	3.84	1.53	1.47	7.12	3.46	3.0675	3.46	4.68	7.12	24
flow rate (sec/gal)	Effluent	25	0	25	26	25	25	25	26	26	24
Alkalinity	Influent	280	36	190	430	270	260	270	290	430	97
	Effluent	179	53	130	380	160	140	160	195	380	73
Ammonia	Influent	32.67	5.41	16.80	42.60	33.60	29.90	33.60	36.40	42.60	97
	Effluent	6.75	7.18	1.10	37.00	3.50	2.00	3.50	7.43	37.00	69
TKN	Influent	38.97	5.25	29.40	65.00	38.60	35.70	38.60	41.45	65.00	97
	Effluent	9.70	9.08	1.40	38.00	6.30	2.85	6.30	12.30	38.00	71
Nitrate	Effluent	4.68	3.50	1.00	12.70	3.56	1.70	3.56	7.34	12.70	48
Nitrite	Effluent	0.50	0.45	0.02	2.92	0.42	0.16	0.42	0.62	2.92	63
Total Phos.	Influent	10.39	1.71	4.13	13.40	10.80	10.10	10.80	11.41	13.40	56

(a) Site problem (b) Laboratory problem
(c) Weather problem (d) Other

Appendix E

INSTALLATION-TANK & AERATOR

J-500CF MEDIA PLANT

GCT LISTED J-500CF PLANT

- These instructions apply to the J-500CF.
- The J-500CF plant has been tested and meets the NSF standard 40/245 criteria for a class I NSF listing.

TANK INSTALLATION

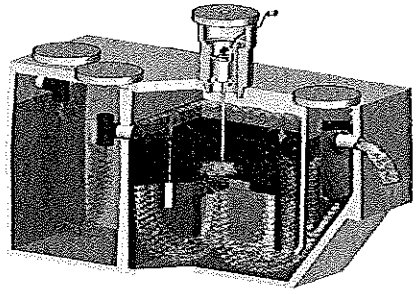
Only sanitary wastewater should be permitted to enter the system. The plant is not designed to receive flow from footer drains or roof downspouts. Water softener backwash must not be discharged into the system. The system should be located in an area which provides protection of the air intake from snow, ice or debris which may accumulate.

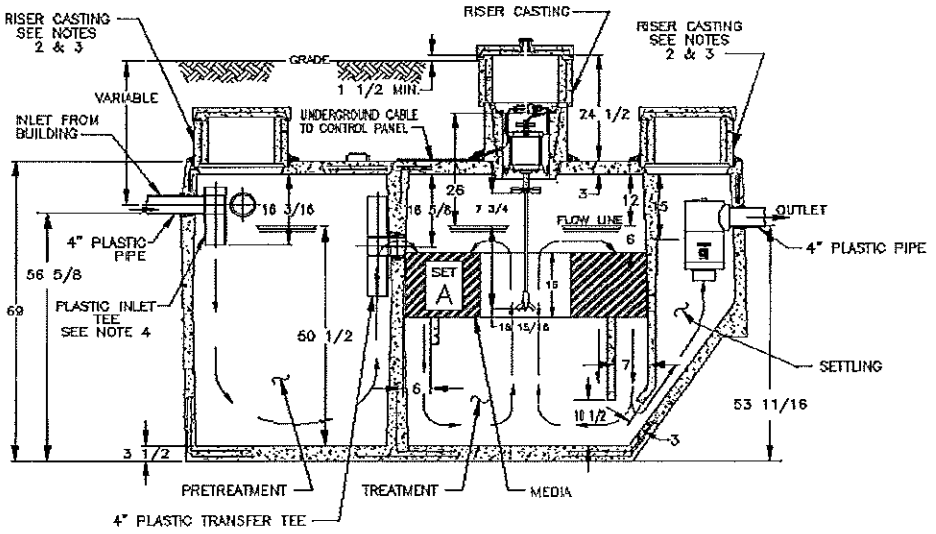
It is important that all local regulations, state laws and plumbing codes regarding the plant installation are followed. Items such as the connection of plumbing fixtures to the tank inlet line, position of inlet and discharge lines, grade and any other aspects of plant or plant related plumbing should be checked with the appropriate contractors to make sure all work conforms to state and local regulations.

Location of the tank must be in accordance with The Health Department regulations. Choose a ground location which will not flood, which provides adequate fall and allows installation of lines which are as short and as straight as possible.

There are many considerations in proper installation of a tank and the most important of which is that the tank installation meets the Health Department's regulations. Some major items are: Have solid earthen pad; consider sand or small pea gravel pad; seal tank at shop if set in one piece; seal at the job site if delivered in sections; tank must be level within 1" from end to end and side to side; use mastic sealant for sealing risers and mounting casting; seal inlet and outlet sewer lines to tank; backfill carefully around tank; fill tank with water.

REPRESENTATIVE J-500CF PLANT





The media installation should be done by the distributor before the tank is delivered. The J-500CF can treat up to 500 GPD and requires the A media set.

AERATOR INSTALLATION

IMPORTANT

- When installing the aerator, be extremely careful with the aspirator shaft. It has a critical straightness tolerance. It should not touch anything except liquid. Remember that the fit between the coupling and the shaft is quite close. Be careful not to burr or dirty the ends of the shaft or coupling.
- The aerator models have been carefully designed and built to give years of trouble-free operation. To assure long, trouble-free life, it is absolutely necessary to follow the aerator installation and handling instructions.
- The life of the aerator depends on a straight shaft. Never lift the aerator by the shaft or subject the shaft to any bending, bumping or strain.
- Always inspect the final outlet and test for proper drainage at the time of installation.

- The aerator is sealed to protect it from water damage by flooding. However, it is not designed to operate underwater. Do not disassemble it or remove any parts.
- The control panel instructions contain a wiring diagram and detailed wiring instructions. These are included in every control panel box and in the Distributor's Notebook. A wiring diagram and detailed instructions are also on the inside of each control panel box.

BEFORE GOING TO THE JOB SITE

The contractor should be contacted to check on the following items:

- □ There should be access to the facility and tank location.
- □ Take additional risers to the install, they may be needed.
- □ The plumbing must be complete so a proper drainage test can be run.
- □ Verify that the correct control panel is installed and connected to the system. For the J-500CF, a control panel with a timer set to 30 minute on/off cycle is required.
- □ The control panel must be an authorized Jet Control Panel.
- □ The underground cable must be connected, extended to the tank, and inside the aerator mounting casting.
- □ There must be enough cable in the mounting casting to extend 48" above grade.
- □ The tank should also be full to the flow line.

INSTALLATION STEPS

1. **Turn Off Power**
   Turn the aerator Control Panel switch to "OFF". Next turn the power that controls this circuit at the main panel "OFF".
2. **Install Plastic Inlet Tee**
   Attach the tee to the influent pipe with the short pipe pointing down. Seal the influent pipe in place.
3. **Install Plastic Transfer Tee**
   Install the tee in the submerged transfer hole on the inlet compartment side. Refer to the drawing for the appropriate plant (J-500CF). Seal the tee in place.
4. **Install Plastic Outlet Tee/Effluent Filter**
   Attach the tee to the effluent pipe with the short pipe pointing down. Seal the effluent pipe in place. Next install the filter, please see the appendix for filter installation and maintenance.
5. **Check Aerator/Flow Line Measurements**
   The location of the aerator flow line is very important. Measure the distance from the ledge in mounting casting to the liquid level in the tank (filled to the flow line). If it is between 25"-27", the aerator location is correct. If it is not, change the aerator mounting casting
6. **Check Vent Position**
   Check the position of the vent cap in the cover. It must be installed in the center of the cover, as shown in the illustration. If the cap is not centered, the outside-air-hose will bend and air to the aerator will be cut off.
7. **Inspect Outlet**
   Inspect the final discharge point of the system to insure it is not and can not be blocked. If there is a chance that it may become blocked in the future, inform the

owner and contractor that this situation must be corrected before the aerator is installed. Inform them that the blockage will lead to improper drainage and repeated stoppages.

8. **Effluent Sample Means**
   There are four sample taking means from which samples may be taken. One of these methods must be chosen prior to plant installation and necessary arrangements made during installation to incorporate this method into the overall system. The means are as follows:
   A. Final Outlet Samples- Can be taken at the final outlet point if it is accessible. The final outlet must be elevated sufficiently to allow a free-flowing sample to be taken.
   B. Sample Cross Samples- The cross must be as close as possible to the discharge end of the tank. One horizontal arm of the cross should act as the first section of the discharge line from the tank. The other horizontal arm acts as a continuation of the discharge line. One vertical arm of the cross extends downward and the other extends up to grade. The arm to grade should be covered with a removable cover. This is highly recommended if lab sampling is or will be required.
   C. Distribution Box Samples- To use this method, the box must have an inlet line high enough above the box floor so that a free-flowing sample can be taken. Also the top of the box must be slightly above grade and covered with a removable cover. If the box doesn't meet these qualifications it must be modified or this method of sample collection cannot be used.
   D. A sample from inside the plant outlet baffle may be taken. The outlet must have an open top and the plant discharge line must lead directly to it. It must also be accessible from grade and covered with a removable cover.
9. **Test for Proper Drainage**
   Be sure the tank is full to the flow line. Fill the bathtub, laundry sink, and other fixtures that drain into the system. Then simultaneously drain all the fixtures and flush the toilets. Go quickly to the tank and observe any rise in the water level. It's sometimes necessary to observe the tank for as long as ten minutes in order to give the water time to reach it. In other cases, water reaches it almost immediately. If the water rises over 3" and does not go down immediately, inform the contractor that the aerator can not be installed until the situation is corrected.
10. **Unpack Aerator**
    Remove the control panel and vent cap. Carefully remove the aspirator shaft. Slide the foam restrictor onto the shaft so that the side of the foam restrictor labeled "This side toward motor" faces away from the aspirator. Set this down gently in a safe place and remove the parts bag, owner's manual, and aerator. Inspect all the parts for shipping damage. Immediately notify Jet Inc. and the carrier if there is any damage. Exposing the aerator to severe cold, such as the back of a truck or an unheated storage area could cause the breaker to trip when power is first applied. To prevent this problem, keep the aerator in a warm area for a short time before the installation. After the aerator is initially started, cold weather will not affect its operation.

11. Electrical Connection

Before proceeding, make sure the power is "OFF" at both the aerator Control Panels and the main electrical panel in the house. Test all three leads of the cable with a neon glow tester to be sure the power is "OFF". Check the dimension of the underground cable to make sure it is not smaller than 23/64" x 11/64". If it is smaller, the grommet (Included with the female plug) will not be watertight.

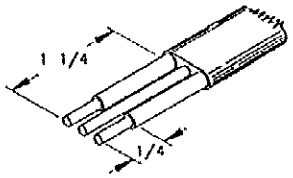
A. Factory-installed cord & connector.

□ Install female half of the electrical connector on the end of the cable on the mounting casting. Follow the wiring instructions furnished with the electrical connector.

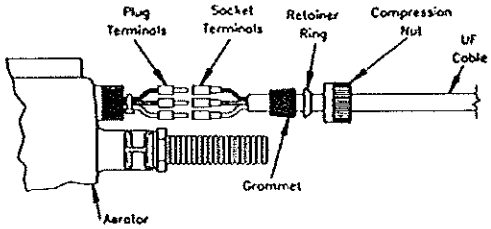
□ Connect the two halves of the electrical connector.

B. Wiring the aerator direct.

□ Strip the jacket off the cable coming from the facility approximately 1- ¼" as shown in the illustration. Strip ¼" of the insulation from the black and white lead wires.



C. Slide the compression nut, retainer ring, and grommet from the parts bag onto the cable as shown in the illustration.



□ Push the factory applied plug terminals on the aerator leads into the socket terminals on the cable, black to black, white to white, and green to ground.

□ Crimp the socket terminals from the parts bag onto the black, white, and ground wires of the cable.

□ Push all three connectors into the component enclosure at the same time so that the un-stripped portion of the cable is 1 ½" inside the threaded bushing.

□ Slide the grommet, retainer ring, and compression nut into place. Tighten the compression nut as tight as possible by hand. Then, tighten the compression nut with pliers until it will go no further. If the retainer ring or cable starts to twist, back off the compression nut and start over.

D. How to make a power cord assembly.

1. Cut a piece of cable 15" long for a power cord to be connected to the aerator.
2. Strip and connect one end of the power cord to the aerator following

instructions for wiring aerator direct. (above)

3. Connect the male half of the electrical connector to the other end of the power cord, following the wiring instructions furnished with the electrical connector.
4. Install the female half of the electrical connector on the end of the cable in the mounting casting, follow the wiring instructions furnished with the electrical connector.

NOTE: Aerator power cord assemblies are available with or without the connector.

12. **Install Foam Restrictor and Aspirator Shaft**
    An aerator lying on its side would rest on the foam restrictor and bend the motor shaft. For this reason, it is necessary to either block up the lower end of the aerator, or allow it to overhang on an object during the installation of the aspirator shaft. Slide the foam restrictor down the shaft until it stops. Tighten the set screw firmly. The Allen key should spring, but do not tighten it so much that it slips and rounds the hex socket. To ease future disassembly, many distributors apply a light coating of lubricant, to the end of the motor and aspirator shaft. If the lubricant is applied, do not use too much or allow it to get into the hollow end of the connector or shaft.
    Current aerators use shafts with plastic aspirators on the end. Aerators must have the appropriate aspirator tip assembly. Never use an aerator shaft equipped with the wrong aspirator tip assembly.
13. **Fit Brackets**
    If the bumpers on the bottom brackets do not press against all sides of the mounting casting, remove the aerator and push the brackets out until all of them touch the sides. The fit should be snug, but not tight enough to push bumpers off when the aerator is installed. If mounting casting risers are used, it is easier to install and remove an aerator using the lift fork. The lift fork can be screwed onto a piece of 1" threaded pipe. A 5ft. length should be adequate for most installations. The lift fork should be positioned under the aerator lift handle.
14. **Install Drip Loops**
    Install the aerator in the mounting casting and push the cable down below the connector an inch or two. This forms a "drip loop" which channels the water running down the cable away from the aerator.
15. **Rotate Aerator Clockwise**
    Looking down at the installed aerator, rotate it clockwise until one of the mounting brackets engages anti-rotation block in the mounting casting. This prevents cutting off the air supply by twisting the air hose and also eliminates electrical problems caused by twisted cables.
16. **Outside-Air-Hose**
    Aerators are equipped with a hose adapter and a 4 ½" length of attached hose. The hose must be in place to insure fresh air for proper treatment and to prevent possible moisture damage to the bearings on certain models.

If one or more risers are used, a longer hose is required. Remove the air hose from the top of the aerator and cut a piece from bulk coil and install it. It must be long enough to fit completely on the plastic hose adapter and go straight up into the center of the vent. With one riser, the hose length should be 15 ½" long. Each additional riser will require an additional 11" of hose. Be sure the hose is properly installed in the vent cap. It must not be bent or kinked when the riser cover is replaced. After the riser cover is in place, remove the vent cap and check the position of the hose. It should be in the vent body but not too close to the vent lid to restrict air flow.

17. Perform Electrical Test

The instructions on the inside of the control panel cover describe Control Panel operation.

A. Check that the Control Panel installed is the correct one for the system.
B. Before turning on the circuit breaker, check the wiring to be sure all the above instructions have been followed. If necessary, have the electrical contractor correct the work.
C. Set the control panel switch to the "OFF" position. Turn the power to the control circuit "ON" at the main panel. With the power "ON", the aerator warning light should not glow unless there is a current sensor.
D. If the control panel is equipped with a time clock, set the Control Panel switch to the "AUTO" position.
E. Turn the Control Panel switch "OFF" and kill the power from the main breaker. Install the aerator and connect it to the power supply.
F. Turn the Control Panel switch to "CONT". The aerator should run and the aerator warning light should not glow. If installed, warning buzzer should not sound.
G. Since the Control Panel is equipped with a timer, set the Control Panel switch at the "AUTO" position The aerator should cycle on and off once and the aerator warning light should not glow. Also, the warning buzzer should not sound.
H. If these tests or checks are not satisfactory, correct the wiring.
I. When all checks are completed, make sure the control panel switch is in the "AUTO" position for panels with a time clock. For the J-500CF the timer should be set to on 30 off 30. Close and secure the control panel cover.

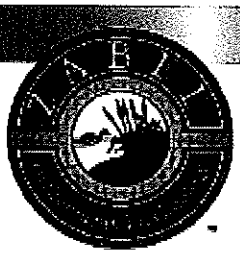
18. Observe Aerator Operation

It should be quiet and free from excessive vibration. Heavy vibration indicates shaft damage. If heavy vibration occurs, install a new shaft and return the damaged shaft to the factory.

19. Final Steps

A. Fill in the "Installation and Service Record" card.
B. Explain "Owner's Manual" to owner and wire manual to the Control Panel. Instruct the owner to fill in the "Owner Warranty Registration" card and mail it in.

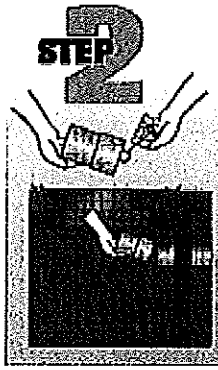
Appendix



INSTALLATION
A100™/300™-8 Series Filter

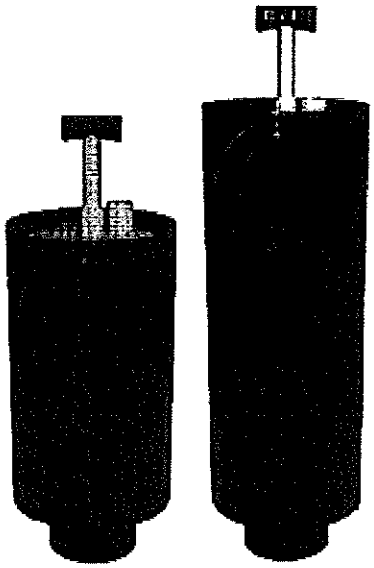
New System Installation: A100-8's, and A300-8's

STEP 1 Locate the outlet of the septic tank and remove the tank cover

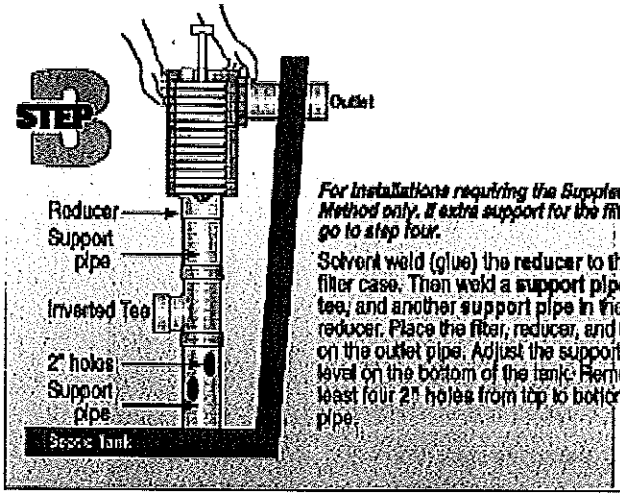


STEP 2 Before installation place the filter case on the outlet pipe, to make sure it will be centered under the access opening. If not, Solvent weld (glue) additional pipe to the outlet pipe.

Note: Always clean and prime all pipe before solvent welding.

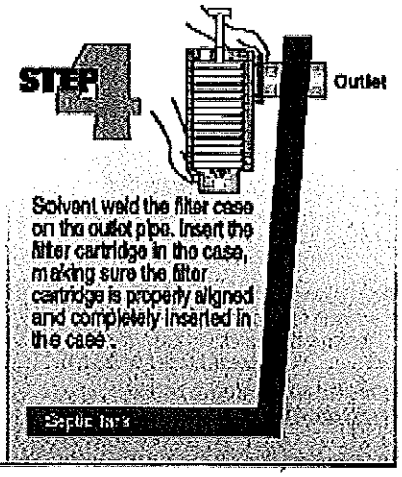


A100-8x18-VCF **A300-8x26-VCF**



For installations requiring the Supplementary Support Method only. If extra support for the filter is not needed, go to step four.

Solvent weld (glue) the **reducer** to the bottom of the filter case. Then weld a **support pipe**, an **inverted tee**, and another **support pipe** in the bottom of the reducer. Place the filter, reducer, and the support pipe on the outlet pipe. Adjust the support pipe so it rests level on the bottom of the tank. Remove and cut at least four 2" holes from top to bottom in the support pipe.



Solvent weld the filter case on the outlet pipe. Insert the filter cartridge in the case, making sure the filter cartridge is properly aligned and completely inserted in the case.

Existing System Installation

- Same as New System, except the tank must be pumped before the installation of the filter.

NSF Residential Applications Certified to ANSI/NSF Standard 46

Notes:

- If you have purchased a Zabel® SmartFilter®, additional installation instructions can be found in the SmartFilter Alarm System box.
- The outlet access opening of the tank, under which the filter is centered, should be at least 12" in diameter to allow for easy removal of the filter cartridge.
- A riser to grade over the outlet access opening is recommended and may be required in certain states.
- If the filter can not be installed in the existing tank, it can be installed using a Zeus® Basin System. In this case, the New System installation instructions will be used.

The product(s) shown are covered by the following patents:

U.S. 4,710,295, 5,593,584 Other Patents Pending

Call for a **free** ZABEL ZONE® • **1-800-221-5742** • **Or Order Online:** www.zabelzone.com

GCT GULF COAST TESTING, LLC

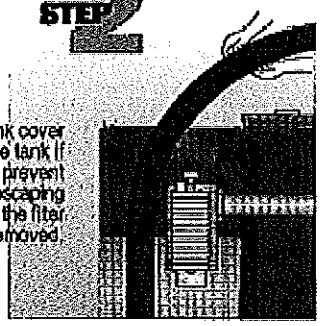
MAINTENANCE
A100™/300™-8 Series Filter

The interval for servicing septic tanks is set by state and local code. Throughout the United States there is a wide difference of opinion on what this interval should be, but most regulatory agencies suggest two to five years. The Zabel® filter, which does not increase the frequency of servicing for the tank, should be cleaned when the septic tank is normally inspected and pumped. However, our filter is virtually self-cleaning. The continued action of the anaerobic organisms on the Zabel filter causes lodged particles to disintegrate and fall to the bottom of the tank. If your filter contains a SmartFilter® alarm, you will be notified by an alarm when the filter needs servicing.

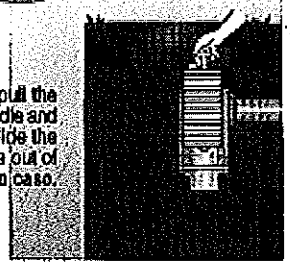
To service the filter:
**Servicing any Zabel Filter should only be done by a certified septic tank pumper or installer.*

STEP 1 Locate the outlet of the septic tank.

STEP 2 Remove the tank cover and pump the tank if necessary to prevent any solids from escaping to the field when the filter is removed.



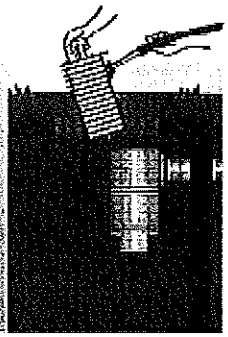
STEP 3 Firmly pull the filter handle and slide the cartridge out of the case.



STEP 4 While holding the cartridge over the access opening rinse off the cartridge with fresh water, being careful to rinse all septage material back into the tank.

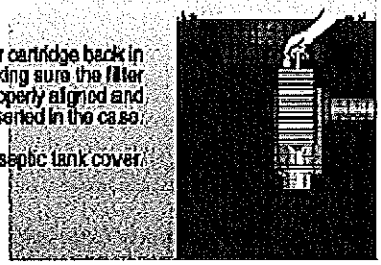
Before replacing cartridge be sure to check for and clean if necessary the outlet screen within the case.

**Note: It is not necessary to clean the filter cartridge. The biomass growing on the filter aides in the pretreatment process and should be left on the filter. (If necessary, the cartridge may be disassembled for cleaning.)*



STEP 5 Insert the filter cartridge back in the case making sure the filter cartridge is properly aligned and completely inserted in the case.

Replace the septic tank cover.



NSF Residential Applications Certified to ANSI/NSF Standard 46

The product(s) shown are covered by the following patents:
U.S. 4,710,295, 5,593,584 Other Patents Pending

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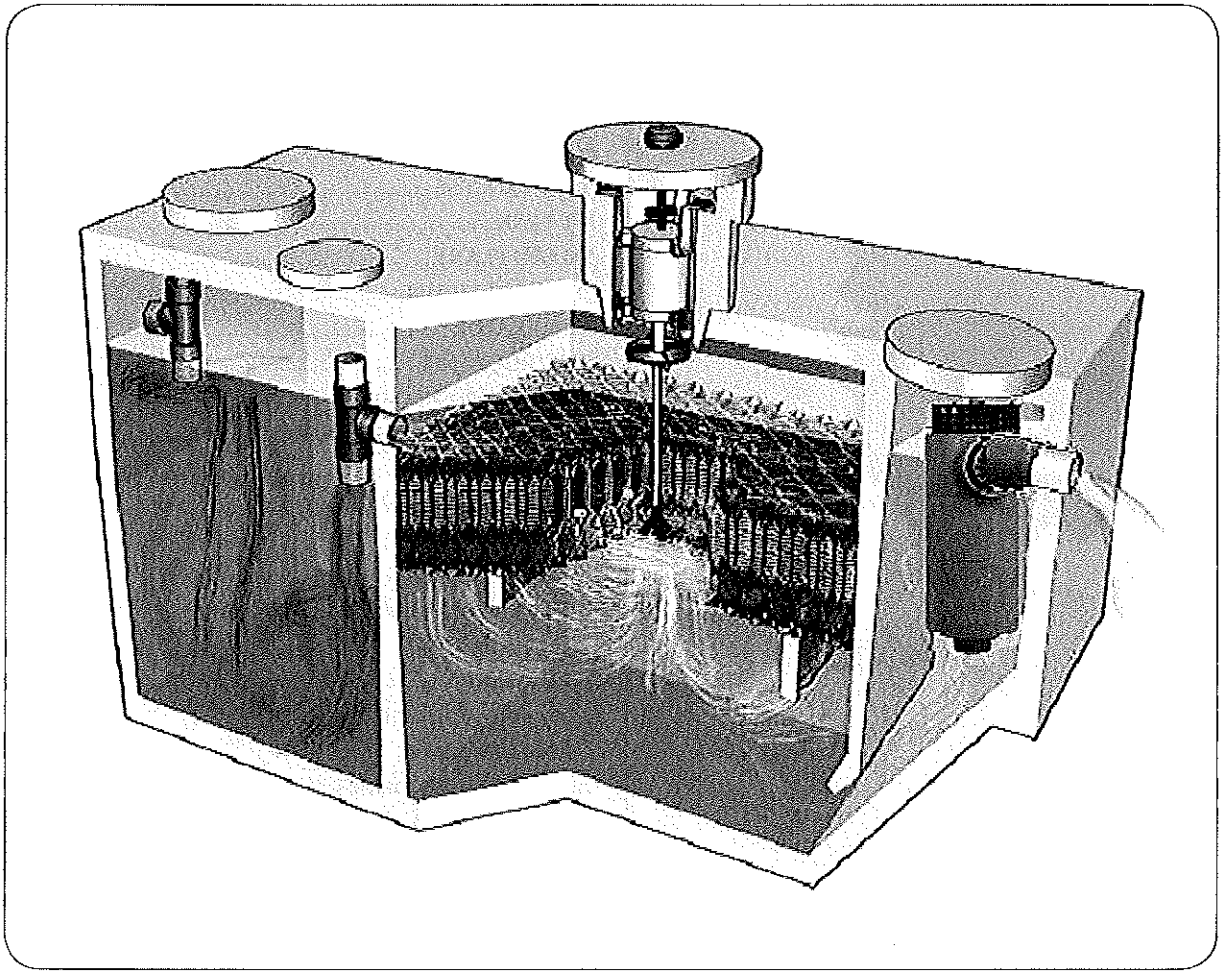
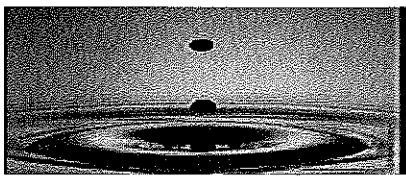
Appendix F

JET INC.®

J-500CF BAT® Media Plant

OWNER'S MANUAL





J-500CF BAT® Media Plant

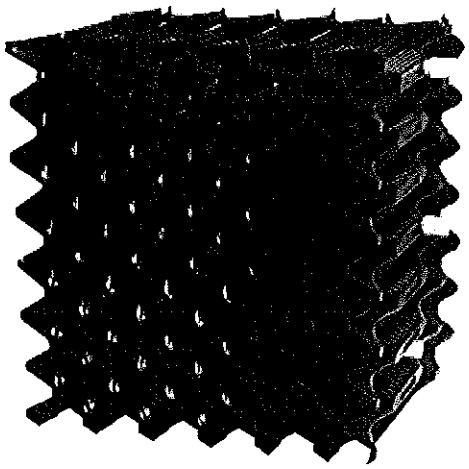
PLANT MODEL

The J-500CF Jet Media Plant is available in 500 gpd ("gpd" means "gallons per day" and refers to the way wastewater treatment plants are rated). The J-500CF media plant has been tested and meets the NSF Standard 40 and 245 criteria. Most 500 gpd plants serve single family dwellings. Larger plants are normally required to serve other buildings.

BAT® PROCESS

Your plant uses Jet's exclusive wastewater treatment process called Biologically Accelerated Treatment, or BAT® for short.

In this process, millions of microorganisms attach themselves to the media. The Jet Aerator supplies the oxygen utilized by the microorganisms to convert the waste to colorless, odorless liquids and gases. This process provides an extraordinarily high degree of treatment.



BAT® MEDIA

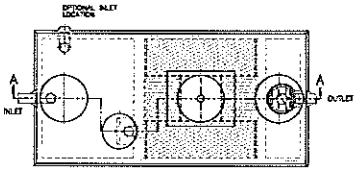
CONTENTS

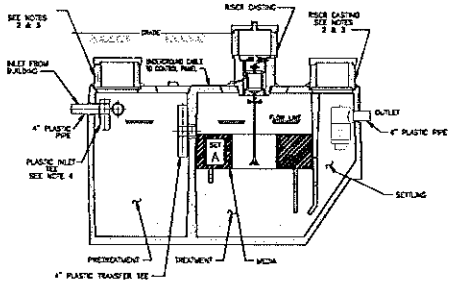
JET TANK

The tank has three compartments. Arrows on the diagram indicate the flow direction. The Pretreatment Compartment, on the left, receives wastewater and treats it physically and biologically. The Jet Aerator provides mixing and injects fresh air into the Treatment Compartment contents. The model 500 gpd tank has only one aerator, a filter, and a media pack with a built in pretreatment tank.

The wastewater flows through the plant, receiving treatment as it travels to the Settling Compartment. Here, fine particles settle and return to the Treatment Compartment, for further processing, leaving only a clear, odorless liquid for final discharge.

500 GPD PLANT





Note: Drawings are not to scale

JET AERATOR

The aerator is the only mechanical component in your plant. It requires no owner maintenance. The aerator is factory set to run at specific timing which encourages nutrient reduction. Do not change these settings.

Fresh, outside air is drawn into the Treatment Compartment by the aerator. Air travels down the mounting casting cover air vent through the aerator and into the tank, providing oxygen for the treatment process. Any foam is controlled by the foam restrictor.

Aerator operation is very quiet. If the plant is located near an open window, you may detect the sound of air moving into the treatment tank. For virtually silent operation, please ask your Jet Distributor to install an Aerator Silencer.

Jet has a sealed aerator. The aerator is sealed to protect it from damage by water. However, it is not designed to operate under water. If a high water level occurs, the control panel circuit breaker will open, shutting off power to the aerator. The warning light will turn "on". If this happens, press the circuit breaker reset button on the control panel to restart the aerator.

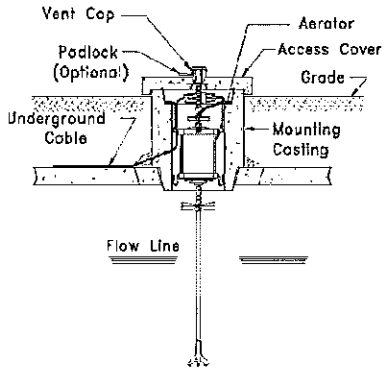
EFFLUENT FILTER

The A300-8"x18" can achieve a finer 1/32" level of filtration. This makes the filter perfect for many applications where fine suspended solids are present. The filter is installed in the settling compartment. For the J-500CF plant, the A300-8"x18" is specified.

This filter has disc dam technology and is NSF certified. It is used here for residential applications, but also allows for high TSS removal. The two major benefits to having this filter installed is that it can extend the life of distribution systems and will keep additional latent solids in the septic tank.

As a homeowner, you should never try to fix any filter problems on your own. The filter contains an alarm and if it goes off, please alert the distributor or service provider immediately. Typically this will occur when the filter requires cleaning.

This particular filter does not increase the frequency of servicing for the tank. It should be cleaned at the time the tank is normally pumped and cleaned. However, this filter is virtually self-cleaning. The continued action of the anaerobic organisms on the filter causes lodged particles to disintegrate and fall to the bottom of the tank.



- Never handle your aerator. Call your Jet Distributor if any service is necessary.
- When the Aerator Access Cover is removed and reinstalled, it is important to place the Outside Air Hose in the vent cap. The hose must not be obstructed.
- Never disassemble or work on the aerator. This voids the warranty.
- Power at the main electrical panel must be turned off before any authorized service is performed on the aerator, the control panel or any other wiring.

CONTROL PANEL

The control panel should be mounted where it can be easily accessed and seen. The wiring diagram and instructions are inside the control panel cover. Energy requirements are 115 Volt, 60 Hz. Electrical work must be performed in accordance with the requirements of the National Electrical Codes and local codes.

If the red visual alarm beacon is lit and an audible alert buzzer sounds, the circuit breaker has opened to protect the aerator or filter. To restart the aerator, press the internal circuit breaker reset button. If the breaker does not stay "set", causing the light and buzzer to repeatedly operate, contact your Jet Distributor. If the alarm is for the filter, please contact your Jet Distributor immediately.

Both the buzzer and alert light can be silenced by toggling the external switch.

If the buzzer and alert lights come on repeatedly, silence the alarms and immediately call your Jet Distributor to service.

JET-CHLOR® CHLORINATION

Your plant may be equipped with a JET-CHLOR® Tablet Chlorinator. It is installed on the plant discharge line.

If you have a chlorinator, read the "Installation and Operation" manual. This gives instructions for easy operation and maintenance.

We strongly recommend you use only JET-CHLOR® Tablets. They are EPA approved while many others are not. See your local dealer to purchase JET-CHLOR® and to receive additional information.

CHLOR-AWAY® DECHLORINATION

If you have a chlorinator, your plant may be equipped with the Jet Dechlorinator. This is installed after the chlorinator on the discharge line.

We strongly recommend that you use only CHLOR-AWAY® Tablets in your dechlorinator. Our tablets are highly effective and cost efficient. See your local dealer to purchase CHLOR-AWAY® and to receive additional information.

BIO JET-7®

- BIO JET-7® is a natural, organic, non-toxic liquid that gets new plants and plants that have just completed their 3-year service off to a running start. When used as directed, BIO JET-7® can prevent grease traps from clogging and eliminates septic tank odors. It really works!
- If your neighbors are experiencing odor problems from thier septic tank, suggest they get a bottle of BIO JET-7®. It is their first line of defense for dealing with their septic odor problems.
- Periodic application of BIO JET-7® and following the recommended plant maintenance will keep your plant running in top form.

INSPECTION & SERVICE

LOCAL DISTRIBUTOR

The local Jet Distributor who installed your Jet Plant is trained, experienced and properly equipped to handle service and answer any questions. Your distributor's name and phone number are posted on the cover of your control panel. You can also search for a list of available service providers in your area on our website www.jetincorp.com.

LIMITED WARRANTY & SERVICE POLICY

Your Limited Warranty and Inspection/Service Policy are printed on a card accompanying this manual.

RENEW YOUR INSPECTION/SERVICE POLICY

For the first two years, your Jet Distributor provides free inspection and service. This Inspection/Service Policy includes four scheduled service and maintenance calls at no charge. After the first two years, renew your Inspection/Service Policy with your Jet Distributor.

PLANT SERVICE – 3 YEAR CYCLE

Service	Months					
	6	12	18	24	30	36
6-Month	☒	☒	☒	☒	☒	☒
12-Month		☒		☒		☒
3-Year						☒

SERVICE INTERVALS

6-Month Service: This comprehensive service call includes collection and assessment of a post-treatment sample, inspection, servicing, cleaning, removal, reinstallation and testing of the aerator and filter by a trained serviceman.

12-Month Service: This call provides all elements of the 6-Month Service as well as media cleaning.

3-Year Service: This service provides all steps in the 6- and 12-month service and tank pumping, if necessary. This is also the best time to have the filter cleaned if needed. If you have not renewed your Inspection/ Service Policy, you will be charged for the 30- and 36-month service calls. Tank pumping is not included under your Jet Distributor's Inspection/ Service Policy. It is charged to you by your tank pumper. If you have kept your service policy in force, there will be no charge for aerator service. **Make sure you notify your Jet Distributor before you have your tank pumped. If the tank pumper is not familiar with Jet's media and media has not been cleaned before pumping, severe damage to the media can occur. This is potentially very costly to repair.**

DO'S & DON'TS

Avoid These Items

Do not put any of the following items in your plant or sewage system. They will cause serious damage to the plant's biological process and equipment.

1. Plastic, sanitary products, scouring pads, condoms, mop strings, "disposable" diapers, towels, lint, rags, etc. These items will collect in your plant and require more frequent pumping.
2. Paints, paint thinner, chemicals, grease, solvents and sanitizer. These kill the good bacteria in your plant.
3. Water softener backwash. Route to drainage ditch, storm sewer or downspout drainage system.
4. Heavy plumbing cleaners and toilet tank tablets that will kill off the good bacteria in your plant.
5. Concentrated detergents or detergents that contain phosphates.

Things to Do

- Know the location of your control panel and check periodically for alarm conditions.
- Keep a record of pumping, inspections, and maintenance.
- Practice water conservation to reduce the amount of water going into the Jet System.
- Learn the location of your Jet system, avoid constructing patios, decks, and paved surfaces over your system.
- Divert roof drains and surface water away from your Jet system.
- Keep sump pump water and house footing drains away from the Jet system.
- Reduce heavy water usage periods by separating dishwashing and laundry from shower time.
- Use dryer sheets in the dryer in place of liquid fabric softeners in the wash cycle.

PLANT LANDSCAPING AND VACATION USAGE

PLANT LANDSCAPING

Most owners plant grass over their Jet Plant. Many owners prefer planting a flower bed. Myrtle, Pachysandra, or shrubbery is also attractive. Do not position anything permanently over below-grade access covers. They must be accessible for service (Note: Some systems may already have all three access covers extended above grade. Refer to drawings on page three for access cover locations). It is very important that the finished grade slope away from the plant. Also, grade must be at least 1" below the bottom of the access covers.

VACATIONS & INTERMITTENT USE

If your plant serves a vacation home or a building in which all occupants will be absent part of the time, the plant should be left running and cycled as it is during any absences. This will clean the Treatment Compartment during the absence and keep the plant in top operating condition.

LIFETIME EXCHANGE PROGRAM

EXCHANGE PROGRAMS

All Jet aerators are covered under our lifetime exchange policy. Your aerator is automatically enrolled in our pro-rated exchange program so you will never have to pay full price for an exchange aerator should your original aeration unit fail. Contact your authorized Jet distributor for more details regarding this unique advantage to owning a Jet system.

For additional information on Jet systems reference the FAQ section on our website www.jetincorp.com

30 MONTH LIMITED WARRANTY

Jet Inc. warrants every new Jet aerator against defective materials and workmanship, under normal service, for 30 months commencing on the date of original installation if a complete warranty card is returned to Jet Inc. within 20 days from the date of installation or within 20 days after the original purchaser moves into the building or home serviced by the aerator or on the date of shipment from the factory if no warranty card is returned within the time period described above.

To make a claim under this warranty notify your Jet Distributor. All aerators covered under the warranty must be returned to the factory by a Jet Distributor. Jet Inc., at its option, may elect to repair or replace the aerator, or refund the purchase price of the aerator. Jet Inc. will provide the appropriate remedy within 60 days after confirming that the claim is covered by the warranty. Jet Inc. reserves the right to replace the aerator with an aerator of comparable quality and does not guarantee that it will match the original aerator. If any warranty repair is needed, it will be made at the factory. The owner shall assume all responsibility for freight charges to and from the factory. If there are parts missing from the returned aerator, an additional charge will be made.

If there is any in-warranty media repair or replacement, this will be taken care of by the Jet Distributor at the installation, with no charge for labor or materials. Media damage caused by owners or unauthorized persons is not covered under the warranty.

This warranty does not cover any Jet aerators damaged due (1) to disassembly by unauthorized persons, (2) improper installation, (3) misuse, (4) lightning, (5) external damage, (6) improper or altered wiring, (7) improper overload protection, (8) failure to follow the instructions in the Owner's Manual (9) failure to maintain a service policy after the free initial service policy expires. This warranty applies to all Jet 700LL Series Aerators made by and bearing the name Jet Inc. This warranty also does not cover any of the building, home wiring, plumbing, drainage or any other part of the disposal system.

JET INC. SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGE CAUSED BY DEFECTIVE COMPONENTS OR MATERIALS OR FOR ANY LOSS INCURRED BECAUSE OF THE INTERRUPTION OF SERVICE, OR ANY OTHER SPECIAL CONSEQUENTIAL, OR INCIDENTAL DAMAGES OR EXPENSES ARISING FROM THE MANUFACTURE, SALE, USE OR MISUSE OF ANY JET PRODUCTS COVERED HEREUNDER. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (IF APPLICABLE), AND IS IN EFFECT ONLY FOR THE WARRANTY PERIOD SPECIFIED ABOVE. (SOME STATES DO NOT ALLOW EXCLUSIONS OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES SO THE ABOVE MAY NOT APPLY TO YOU.) SOME STATES DO NOT ALLOW LIMITATIONS OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

Jet Inc. reserves the right to revise, change or modify the construction and design of any and all Jet products or any component part or parts thereof, without incurring any obligation to make such changes or modifications in present equipment. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

ATTENTION!

AERATOR WARRANTY IS VOID IF A 7 AMP CIRCUIT BREAKER AND A JET CONTROL PANEL ARE NOT USED.

About Jet

Our Mission Statement: To be the #1 worldwide provider of advanced onsite wastewater treatment systems known for the quality of our systems, customer service and business integrity.

The Company

Founded in 1955, David S. MacLaren acted on an innovative idea. While working closely with his father, Albert MacLaren, they designed and patented an aerator for family homes that would more effectively treat and dispose of residential wastewater, changing the technology in the wastewater treatment business forever! A close look at our competitors will highlight how much of an innovator we are as most of the competing concrete tanks are modeled after our design, but they can't copy another Jet innovation, our patented BAT® media. This makes Jet the true pioneer and a leader in onsite wastewater treatment both in residential and commercial settings. Offering a high level of customer service and cutting edge products in an ever changing industry, Jet is the LEADER in wastewater technology. Jet's representatives design, install and service the best products in the industry!

The Products

Jet concentrates on water pollution control, producing equipment and components for package wastewater treatment plants. Starting with a residential plant, the company refined and worked with this product so that today it is the most accepted, largest selling home plant in the country. Next, Jet added a complete line of commercial plants designed to serve factories, apartments, hospitals, service stations, trailer parks, and dozens of similar installations located beyond city sewer lines. To support its commercial plants, Jet offers a complete line of optional equipment and accessories. A unique feature of Jet's Commercial Plant is the patented Jet Air-Seal Diffuser® . The first truly non-clog diffuser in the field, it has been acclaimed by health authorities and engineers. Jet's product lines also include JET-CHLOR® Wastewater Disinfectant Systems, CHLOR-AWAY® Dechlorination Systems, Jet Tablet Feeders, BIO JET-7®-a natural, organic wastewater additive, Lift Stations, Liquid Level Alarms, Controllers and a broad range of additional wastewater treatment products and equipment. Field-proven in thousands of installations, Jet plants have successfully undergone hundreds of testing programs and performance evaluations at the local, state, and national levels.

The Distributor

Jet has a strong network of distributors that are licensed to sell, install, and service Jet Treatment Plants. Jet works with these local distributors, guiding them with training and follow-up in engineering, production, sales and office procedures. The company arranges frequent training seminars at its factory and sends factory specialists to aid the distributor in their territory. Jet prides itself on this program of close cooperation with its distributors, and credits this with being one of the major elements contributing to the distributors' success. As Jet's management puts it: "Jet products plus Jet training plus Jet Distributors makes an unbeatable Onsite Wastewater Treatment Team."