ATTACHMENT 2

FIELD EVALUATION FORM FOR
OPERATION AND MAINTENANCE PERFORMANCE REPORTS FOR
DOMESTIC WASTEWATER FACILITIES

Florida Department of Environmental Regulation

July 1992
# FIELD EVALUATION FORM FOR
# OPERATION AND MAINTENANCE PERFORMANCE REPORTS FOR
# DOMESTIC WASTEWATER FACILITIES

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PHYSICAL CONDITION

Hydraulic and Organic Overloading

1. Is there evidence of past spills at the plant or through nearby (upstream) manholes? (Discoloration of the ground or a strong smell may indicate past spills at the plant.) ( ) yes ( ) no

2. Are raw sewage pumping stations, influent lines, overflow weirs, or other structures surcharged? ( ) yes ( ) no

3. Is there flow through bypass channels? ( ) yes ( ) no

4. Are there old high water lines or are the weirs on the clarifier flooded? ( ) yes ( ) no

5. Are there overflows at alternative discharge points, channels, or other areas? ( ) yes ( ) no

6. Are there any open-ended pipes that appear to originate in a process or storage area and periodically contain flows to the ground or to surface water? (Although these pipes have been disconnected from a closed system or otherwise removed from service, they can still be connected to a discharge source.) ( ) yes ( ) no

7. Is the facility receiving excessive septage dumping from septic tanks? ( ) yes ( ) no

8. Are checks for overflows performed routinely? ( ) yes ( ) no

General Condition

1. Is there evidence of corrosion problems at the treatment plant and in the collection system? ( ) yes ( ) no

2. Do any of the units or associated equipment show signs of excessive wear? ( ) yes ( ) no

Rule Requirements

1. Does each component, system, or process meet the applicable reliability standards required by Rule 17-600.400(1)(b), F.A.C.? ( ) yes ( ) no

2. Does the facility have adequate alarm systems for power or equipment failures as recommended by standard design references? ( ) yes ( ) no

Are they working properly? ( ) yes ( ) no

3. Is standby power or other equivalent provisions provided for all components, systems, and processes as recommended by standard design references? ( ) yes ( ) no
4. Are there adverse effects resulting from odors, noise, aerosol drift, and lighting at the facility? ( ) yes ( ) no

5. Are there piles of collected screenings, slurries, residuals, or by-products of treatment? (Their disposal, including run-off of any water, must be such that none enters surface waters or their tributaries.) ( ) yes ( ) no

Operating Problems

1. Are all components, systems, or processes (including associated equipment such as pumps, blowers, air compressors, oxygen systems, scum collection systems, residuals collection systems, diffusers, mechanical aerators, mechanical drives, mechanical mixers, motors, residuals heater, feed systems, backwash systems, control systems, flow measurement devices, automatic valves, ventilation fans, and other miscellaneous equipment) operating properly? ( ) yes ( ) no

If no, explain.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Are any components, systems, or processes out of service? ( ) yes ( ) no

If yes, complete the following table for each component, system, or process that is not operating.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date Out of Service</th>
<th>Type of Failure</th>
<th>Expected Date to Return to Service</th>
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3. Are there excessive noises associated with any component, system, or process? ( ) yes ( ) no

4. Is there any unusual equipment intended to correct operational problems (e.g. special pumps, floating aerators in diffused air systems, chemical feeders, temporary construction or structures, or any improvised systems)? ( ) yes ( ) no
5. Are all components, systems, and processes expected to continue to operate properly for the permit period? ( ) yes ( ) no

If no, explain.______________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Safety Features

1. Are proper safety precautions used for each component, system, and process? ( ) yes ( ) no

If no, explain.______________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

2. Is a written set of safety rules available to all employees? ( ) yes ( ) no

3. Is the plant generally clean and free from open trash areas? ( ) yes ( ) no

4. Is the plant site enclosed with a fence or otherwise designed with appropriate features that discourage the entry of animals or unauthorized persons? ( ) yes ( ) no

5. Are wastewater pipes clearly distinguished from product pipes? ( ) yes ( ) no

6. Are there any cross connections between a potable water supply and non-potable source? ( ) yes ( ) no

7. Does the plant have the following recommended safety equipment?
   a. Portable air blower (gas motor or electric motor operated) ( ) yes ( ) no
   b. Electric explosion-proof lantern ( ) yes ( ) no
   c. Safety harness ( ) yes ( ) no
   d. Hose mask with hand blower and 50-foot hose ( ) yes ( ) no
   e. Self contained breathing apparatus for plants using chlorine ( ) yes ( ) no ( ) not applicable
   f. Explosion and oxygen meters ( ) yes ( ) no

8. Is personal protective clothing provided (safety helmets, ear protectors, goggles, gloves, rubber boots with steel toes, etc.)? ( ) yes ( ) no

9. Are portable hoists available for equipment removal? ( ) yes ( ) no
10. Are ladders provided to enter manholes of wetwells (fiberglass or wooden for electrical work)? ( ) yes ( ) no

11. Are life preservers and throwlines provided adjacent to all basins, ponds, and lagoons? ( ) yes ( ) no

12. Are handrails provided and in-place around all basins and openings? ( ) yes ( ) no

13. Are all stairs, walkways, and platforms free of grease, oil, and debris and are nonskid surfaces used when needed? ( ) yes ( ) no

14. Is adequate lighting provided? ( ) yes ( ) no

15. Are all components, systems, and processes adequately ventilated? ( ) yes ( ) no

16. Are protective guards provided and in-place on all rotating machinery? ( ) yes ( ) no

17. Is all electrical circuitry enclosed and identified? ( ) yes ( ) no

18. Are appropriate warning signs posted (no smoking, high voltage, non-potable water, chlorine hazard, toxic and flammable gases, etc.)? ( ) yes ( ) no

19. Are emergency shower and eye wash facilities provided where needed? ( ) yes ( ) no

20. Are appropriate fire extinguishers provided where needed? ( ) yes ( ) no

21. Is instrumentation provided and operational for the detection of toxic and flammable gases and low oxygen levels? ( ) yes ( ) no

22. Do pressure vessels operate within their design rating and have a functional pressure relief? ( ) yes ( ) no ( ) not applicable

23. Are chemicals stored properly? ( ) yes ( ) no

24. Are undiked oil/chemical storage tanks used at the facility? ( ) yes ( ) no ( ) not applicable

25. Are chemical storage tanks designed to handle the particular chemical? ( ) yes ( ) no ( ) not applicable

26. Are storage bins provided with dust collectors and vents? ( ) yes ( ) no ( ) not applicable

27. Are storage bins large enough to avoid continuous filling which requires the presence of an operator all the time? ( ) yes ( ) no ( ) not applicable

28. Are access points for sampling dry points which can be reached safely? ( ) yes ( ) no
OPERATION AND MAINTENANCE PROGRAM

**Staffing**

1. Is the facility adequately staffed with certified operators in accordance with the requirements of Rule 17-602, F.A.C.? ( ) yes ( ) no

**Maintenance Management**

1. Is there an identification system to locate and identify all items of equipment? ( ) yes ( ) no

2. Does the facility maintain a records system which includes the following?

   a. Preventive and corrective maintenance work performed ( ) yes ( ) no
   b. Maintenance man-hours ( ) yes ( ) no
   c. Spare parts used in the repair ( ) yes ( ) no
   d. Name of the person performing the work ( ) yes ( ) no
   e. Maintenance related costs ( ) yes ( ) no

3. Is routine and preventive maintenance scheduled and performed on time? ( ) yes ( ) no

4. Are adequate spare parts and supply inventories maintained for each component, system, and process? ( ) yes ( ) no

5. Is the maintenance program adequate? ( ) yes ( ) no

   If no, explain. __________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

**Records Keeping**

1. Are records required by the permit maintained for a period of five years? ( ) yes ( ) no

2. Is the information required by the permit available, complete, and current? ( ) yes ( ) no

3. Are analytical results consistent with the data reported in the following?

   a. Monthly operating report ( ) yes ( ) no
   b. Limited wet weather discharge report ( ) yes ( ) no
c. Ground water monitoring report ( ) yes ( ) no
d. Reclaimed water or effluent analysis report ( ) yes ( ) no

4. Do sampling and analyses data include the following?
   a. Dates, times, and location of the sampling ( ) yes ( ) no
   b. The name of the individual performing the sampling ( ) yes ( ) no
   c. The analytical methods and techniques used ( ) yes ( ) no
   d. The results of the analyses and calibration ( ) yes ( ) no
   e. The dates of the analyses ( ) yes ( ) no
   f. The name of the person performing the analyses ( ) yes ( ) no
   g. The instantaneous flow at the grab sample station ( ) yes ( ) no

5. Do monitoring records include records for all parameters that must be monitored in accordance with the permit? ( ) yes ( ) no

6. Are flow meter calibration records available? ( ) yes ( ) no

7. Are laboratory equipment calibration and maintenance records adequate? ( ) yes ( ) no

8. Are plant records adequate and do they include the following?
   a. A copy of the Department permit ( ) yes ( ) no
   b. An up-to-date operation and maintenance manual ( ) yes ( ) no
   c. Record drawings ( ) yes ( ) no
   d. Schedules and dates of equipment maintenance repairs ( ) yes ( ) no
   e. Equipment suppliers manual ( ) yes ( ) no
   f. Equipment data cards or equal ( ) yes ( ) no

9. Are operating records adequate? ( ) yes ( ) no
10. Have all untreated bypasses and discharges or overflows been reported to the Department? ( ) yes ( ) no

If no, explain. __________________________________________________________
________________________________________________________________________
________________________________________________________________________

Sampling

1. Are samples taken at the sites specified in the permit? ( ) yes ( ) no

2. Is sampling and analysis completed for each parameter specified by the permit? ( ) yes ( ) no

3. Is the frequency of sampling in accordance with the permit? ( ) yes ( ) no

4. Is the method of sample collection (grab or composite) in accordance with the permit? ( ) yes ( ) no

5. Are sample collection procedures in accordance with the approved test procedures referenced in Rule 17-601.400(1)(a), F.A.C.? ( ) yes ( ) no

6. For flows of 100,000 gallons per day or greater, are recording flow meters and totalizers used? ( ) yes ( ) no ( ) not applicable

7. Are flow recording devices calibrated at least annually? ( ) yes ( ) no

Laboratory Analysis

1. Are all laboratory tests required by Department rules performed by a laboratory that has been certified by HRS, or, for on-site tests for dissolved oxygen, pH, and total chlorine residual, are all tests performed by a certified laboratory or under the direction of an operator certified in accordance with Chapter 17-602, F.A.C.? ( ) yes ( ) no
INDIVIDUAL COMPONENTS, SYSTEMS, AND PROCESSES
1. What is the location of the pump station? _________________________________

2. What are the design flows to the pump station? _______ gpm average
   _______ gpm peak

3. What are the actual flows to the pump station? _______ gpm average
   _______ gpm peak

4. What type of pump control system is used?
   ( ) variable speed ( ) constant speed

5. If the control system is variable speed, what type of controller is used?
   ____________________  ( ) not applicable

6. If multiple pumps are used, how is each unit operated?
   ( ) about 15-20% apart ( ) equally ( ) not alternated
   ( ) not applicable

   Is the system remotely monitored? ( ) yes ( ) no ( ) not applicable

7. Does the pump station have a bypass? ( ) yes ( ) no

   If yes, can the bypass flow be disinfected?
   ( ) yes ( ) no ( ) not applicable

8. Can the wet well be isolated into a minimum of two separate basins for
   maintenance? ( ) yes ( ) no

9. If one wet well basin is down for maintenance, how many pumps are operable?
   ____________________

10. Does the wet well design provide for equal division of flow to each of the
    pumps? ( ) yes ( ) no

11. What is the condition of the sump pump?
    ( ) good ( ) fair ( ) poor ( ) not applicable

12. What is the condition of the water seal systems?
    ( ) good ( ) fair ( ) poor ( ) not applicable

13. How often is the pump station checked? ( ) daily ( ) other
    ________________

14. What is the downtime of the pumps? _________________________________

15. What is the frequency of maintenance inspections by plant personnel?
    ______ /year
16. If the pump station is constant speed, do sudden surges affect the operation of the treatment facility when each pump is activated?
   ( ) yes  ( ) no  ( ) not applicable

17. What is the general condition of the raw wastewater pump station?
   ( ) good  ( ) fair  ( ) poor

18. What are the most common problems that the operator has had with the pump station? If there are problems with the screens, use the section on screens.

_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
PUMPING

Residuals

1. What is the design residuals pumping rate? _______ gallons/day
2. What is the actual residuals pumping rate? _______ gallons/day
3. What types of residuals are pumped? ( ) primary  
   ( ) return activated sludge ( ) waste activated sludge  
   ( ) other _____________________________________________
4. How are residuals pumped? ( ) manually ( ) automatically
5. How often do the residuals pumps run? ______________________________
6. What is the frequency of maintenance inspections by plant personnel?  
   ______ /year
7. What is the general condition of the residuals pump station?  
   ( ) good ( ) fair ( ) poor
8. What are the most common problems that the operator has had with the pump 
   station? ____________________________________________
   ___________________________________________________________________
   ___________________________________________________________________
FLOW MEASUREMENT

1. What type of flow meter is used? ( ) propeller meter
   ( ) magnetic meter ( ) venturi tube ( ) flow tube
   ( ) positive displacement ( ) diaphragm meter ( ) weir
   ( ) Parshall flume ( ) rotameter ( ) other _____________

2. What is the design capacity of the flow measurement device?  
   ___________ mgd

3. What is the present wastewater flow measured? _____________ mgd

4. Where is the flow meter located?
   ___________________________________

5. Are the flow measurement device and associated instruments
   (totalizers, recorders, etc.) properly installed? ( ) yes ( ) no

6. Is there adequate straight length of pipe or channel before and after
   the flowmeter? ( ) yes ( ) no

7. Is the flow entering the flume reasonably well-distributed across the
   channel and free of turbulence, boils, or other disturbances?
   ( ) yes ( ) no ( ) not applicable

8. Is the flow measurement system capable of measuring the entire range
   of wastewater flow? ( ) yes ( ) no

9. Are flow measurements being properly made by plant personnel?
   ( ) yes ( ) no

10. Are flow records properly kept? ( ) yes ( ) no

11. Are sharp drops or increases in flow records accounted for?
    ( ) yes ( ) no

12. Does the flow chart exhibit uniform flow? ( ) yes ( ) no

13. Do any plant return flows discharge upstream from the meter?
    ( ) yes ( ) no

14. Are float and bubble wells clean and free of grease and debris?
    ( ) yes ( ) no ( ) not applicable

15. Are weirs free of debris? ( ) yes ( ) no ( ) not applicable

16. Are weirs or flumes broken or cracked?
    ( ) yes ( ) no ( ) not applicable

17. Are weir plates corroded or damaged, not sharp edged (< 1/8"), or not
    level? ( ) yes ( ) no ( ) not applicable

18. Are stilling wells clogged or broken?
    ( ) yes ( ) no ( ) not applicable
19. What is the frequency of calibration of the flow meter? 
_________/month

20. What date was the flow meter last calibrated? ________________

21. Who performed the calibration? ________________________________

22. What is the frequency of routine inspections for proper operation? 
_______ /day

23. What is the frequency of maintenance inspections by plant personnel? 
_______ /year

24. What is the general condition of the flow measurement facilities? 
( ) good  ( ) fair  ( ) poor

25. What are the most common problems that the operator has had with the 
flow meter? _______________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
PRELIMINARY TREATMENT

Screens

1. What is the design flows of the screens? _______ mgd average _______ mgd peak

2. What is the actual plant flow? _______ mgd average _______ mgd peak

3. What type of screens are used? ( ) manual ( ) mechanical

4. How many screens are there? _______

5. What is the capacity of each screen? _______ mgd

6. How large are the screen openings? _______ millimeters

7. What are the dimensions of the channels? ________________________________

8. What is the total daily volume of screenings? _______ cubic feet

9. What is the unit volume of screenings? _______ cubic feet/million gallons

10. Is there excessive screen clogging or build-up of debris against the screens? ( ) yes ( ) no

11. Is there a bypass channel? ( ) yes ( ) no

Does the bypass channel have a screen? ( ) yes ( ) no ( ) not applicable

12. Does the influent channel design provide equal division of flow to each screen? ( ) yes ( ) no

13. How are screenings disposed? ________________________________

14. What is the frequency of routine inspections for proper operation? _______ /day

15. What is the frequency of maintenance inspections by plant personnel? _______ /year

16. What is the downtime of the screens? ________________________________

17. What is the general condition of the screening facilities? ( ) good ( ) fair ( ) poor

18. What are the most common problems that the operator has had with the screening facilities? __________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

14
PRELIMINARY TREATMENT

Shredding and Grinding (Comminution)

1. How many shredding and grinding units are there? _______

2. What is the design capacity of each unit? ______ mgd

3. What is the actual flow to each unit? ______ mgd average
   ______ mgd peak

4. If multiple units are used, is the flow evenly distributed?
   ( ) yes ( ) no

5. What are the dimensions of the channels? __________________________

6. Is there a bypass channel? ( ) yes ( ) no

7. What is the general condition of the shredding and grinding
   facilities? ( ) good ( ) fair ( ) poor

8. What is the frequency of routine inspections for proper operation?
   ______ /day

9. What is the frequency of maintenance inspections by plant personnel?
   ______ /year

10. What is the downtime of the shredding and grinding facilities?
    __________________________

11. What are the most common problems that the operator has had with the
    shredding and grinding facilities? _________________________________
    ________________________________
    ________________________________
    ________________________________
Grit Removal

1. What is the design capacity of the grit removal system?
   ______ mgd average ______ mgd peak

2. What is the actual plant flow? ______ mgd average
   ______ mgd peak

3. What type of grit removal system is used? ( ) velocity controlled
   ( ) aerated ( ) constant head ( ) other ______________________

4. How many grit removal units are there? __________

5. What is the capacity of each unit? __________

6. What are the dimensions of the unit? ______________ cubic feet

7. What is the daily volume of grit? ____ cubic feet

8. What is the unit volume of grit? ______ cubic feet/million gallons

9. How is the grit collection equipment operated?
   ( ) manually ( ) time clock ( ) continuous duty

10. Is the grit system clogged? ( ) yes ( ) no

11. Is the grit system subject to odors? ( ) yes ( ) no

12. Is the organic content of the grit excessive? ( ) yes ( ) no

13. Is there a bypass channel? ( ) yes ( ) no

14. Does the influent channel design provide equal division of flows to
    each grit removal unit? ( ) yes ( ) no

15. How is the grit disposed? ________________________________

16. What is the frequency of routine inspections for proper operation?
    ______ /day

17. What is the frequency of maintenance inspections by plant personnel?
    ______ /year

18. What are the most common problems that the operator has had with the
    grit removal facilities? ______________________________________
                                ________________________________
                                ____________________________________
                                ____________________________________

16
### BIOLOGICAL TREATMENT

#### Activated Sludge

1. How many aeration basins are there? _______

2. What is the design capacity of each basin? ______ mgd

3. What is the actual flow to each basin? ______ mgd average
   ______ mgd peak

4. What is the flow regime? ( ) conventional ( ) step aeration
   ( ) complete mix ( ) pure oxygen ( ) other ________________

5. What type of aeration equipment is used?
   ( ) diffused air ( ) mechanical aerators ( ) other ________________

6. What are the dimensions of each aeration basin? ________________

7. What is the color of the activated sludge? ( ) black ( ) dark brown
   ( ) light brown ( ) other ________________

8. What is the odor of the activated sludge? ( ) septic ( ) earthy
   ( ) none ( ) other ________________

9. What characteristics most accurately describe the foam?
   ( ) light, crisp ( ) thick, dark ( ) heavy, white ( ) other ______

10. Are the tank contents mixed thoroughly? ( ) yes ( ) no

11. Are there excessive air leaks in the compressed air piping?
    ( ) yes ( ) no ( ) not applicable

12. Is the dissolved oxygen level in the aeration tank low (<1.0 mg/l)?
    ( ) yes ( ) no

13. Does mixing appear excessive? ( ) yes ( ) no

14. Does air rise in clumps? ( ) yes ( ) no

15. Do there appear to be dead spots in the aeration basin?
    ( ) yes ( ) no

   If yes, at what location? ________________________________

16. What is the depth of the sand and grit layer? _______ feet

17. What is the active capacity of the aeration basin?
    ___________ cubic feet

18. Is the process operating in its design mode? ( ) yes ( ) no

   If no, explain. ________________________________________
19. Are the return activated sludge pumps operating?  ( ) yes  ( ) no
   If no, what is the reason?  __________________________________________

20. Are there flow measurement devices for the return activated sludge and waste activated sludge systems? ( ) yes ( ) no

21. Does the aeration basin have a foam control system? ( ) yes ( ) no

22. If multiple basins are operating, is the flow distributed equally? ( ) yes ( ) no ( ) not applicable
   How is it distributed?  ________________________________________________

23. Are the characteristics of the basin contents different in the various units? ( ) yes ( ) no ( ) not applicable

24. How is the system operated? ( ) manually ( ) semi-automatically ( ) automatically ( ) computer-controlled ( ) other __________

25. What is the frequency of routine inspections for proper operation? ______ /day

26. What is the frequency of maintenance inspections by plant personnel? ______ /year

27. What is the general condition of the activated sludge facilities? ( ) good ( ) fair ( ) poor

28. What are the most common problems that the operator has had with the activated sludge system? __________________________________________
   ____________________________________________
   ____________________________________________
BIOLOGICAL TREATMENT

Trickling Filters

1. How many trickling filter units are there? ________

2. What is the design capacity of each unit? ________ mgd

3. What is the actual flow to each unit? ________ mgd average
   ________ mgd peak

4. What is the recycle flow? ________ mgd

5. How is the flow recycled? ( ) continuously ( ) intermittently

6. What is the filter classification? ( ) low rate
   ( ) intermediate rate ( ) high rate ( ) super-high rate

7. What type of media is used? ______________________________________

8. What is the depth of the media? __________ feet

9. What is the diameter of each unit? __________ feet

10. What is the color of the filter? ( ) black ( ) dark brown
    ( ) light brown ( ) other ________

11. What is the odor of the filter? ( ) septic ( ) earthy ( ) none
    ( ) other ________

12. Is there evidence of uneven flow distribution from the trickling
    filter arms or on the trickling filter surface? ( ) yes ( ) no

13. Is there clogging of the trickling filter distribution arm orifices?
    ( ) yes ( ) no

14. Is there evidence of filter clogging (e.g., ponding)?
    ( ) yes ( ) no

    If yes, explain. __________________________________________________

15. Is there evidence of filter flies? ( ) yes ( ) no

    Is there evidence of snails? ( ) yes ( ) no

    Is there evidence of roaches? ( ) yes ( ) no

16. Is there a leak at the center column of the trickling filter
distribution arms? ( ) yes ( ) no

17. Is there restricted rotation of the distribution arms?
    ( ) yes ( ) no
18. Is there grass or other vegetative material growing on the filter?  
( ) yes  ( ) no
If yes, what?  ______________________________________________________

19. Are there flow measurement devices for the recirculation flow?  
( ) yes  ( ) no

20. Are the recirculation pumps operating?  ( ) yes  ( ) no
If no, why?  ______________________________________________________

21. If multiple filters are operating, is the flow distributed equally?  
( ) yes  ( ) no  ( ) not applicable
How is it distributed?  ____________________________________________

22. Are the characteristics of the filter contents different in the various units?  
( ) yes  ( ) no  ( ) not applicable
If yes, describe.  __________________________________________________

23. How is the system operated?  ( ) manually  ( ) semi-automatically  
( ) automatically  ( ) computer-controlled  ( ) other ______________

24. What is the frequency of routine inspections for proper operation?  
_______ /day

25. What is the frequency of maintenance inspections by plant personnel?  
_______ /year

26. What is the general condition of the trickling filter facilities?  
( ) good  ( ) fair  ( ) poor

27. What are the most common problems that the operator has had with the trickling filter system?  __________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
Rotating Biological Contactors (RBCs)

1. How many RBC units (shafts) are there? ________

2. What is the design capacity of each unit? ________ mgd

3. What is the actual flow to each unit? ________ mgd average
   ________ mgd peak

4. What type of RBC media is used? ________________________________

5. What type of RBC drive is used? _________________

6. What is the surface area of each unit? _________________________

7. What is the color of the biomass? ( ) black ( ) dark brown
   ( ) light brown ( ) other ___________

8. What is the odor of the unit? ( ) septic ( ) earthy ( ) none
   ( ) other _______________________

9. Is there excessive breakage of rotating disks or shafts?
   ( ) yes ( ) no

10. Is rotation of the media uniform? ( ) yes ( ) no

11. Is the flow distributed equally to parallel shafts? ( ) yes ( ) no
    How is it distributed? ___________________________________________

12. Are the characteristics of the tank contents different in the various
    units? ( ) yes ( ) no ( ) not applicable
    If yes, describe. ________________________________________________

13. Are RBC units housed in a building? ( ) yes ( ) no
    Or does each unit have a cover? ( ) yes ( ) no

14. What is the frequency of routine inspections for proper operation?
    ______ /day

15. What is the frequency of maintenance inspections by plant personnel?
    ______ /year

16. What is the general condition of the RBC facilities?
    ( ) good ( ) fair ( ) poor

17. What are the most common problems that the operator has had with the
    RBC system? ____________________________________________________
    __________________________________________________________________
NITROGEN REMOVAL

Suspended Growth Nitrification

1. How many aeration basins are there? _______

2. What is the design capacity of each basin? _______ mgd

3. What is the actual flow to each basin? _______ mgd average
   _______ mgd peak

4. How many stages does the nitrification system have? _______
   
   What type of flow regime (e.g., conventional) does each stage have?
   
5. What type of aeration equipment (e.g., diffused air or mechanical
   aerators) does each stage have? ___________________________
   
6. What are the aeration basin(s) dimensions? _________________________

7. Characteristics of the Carbonaceous Oxidation Basin:

   What is the color of the activated sludge? ( ) black ( ) dark brown
   ( ) light brown ( ) other __________________________

   What is the odor of the activated sludge? ( ) septic ( ) earthy
   ( ) none ( ) other __________________________

   What characteristics most accurately describe the foam?
   ( ) light, crisp ( ) dark, thick ( ) heavy, white
   ( ) other __________________________

8. Characteristics of the Nitrification Basin:

   What is the color of the activated sludge? ( ) black ( ) dark brown
   ( ) light brown ( ) other __________________________

   What is the odor of the activated sludge? ( ) septic ( ) earthy
   ( ) none ( ) other __________________________

   What characteristics most accurately describe the foam?
   ( ) light, crisp ( ) dark, thick ( ) heavy, white
   ( ) other __________________________

9. Are the tank(s) contents mixed thoroughly? ( ) yes ( ) no

10. Are there excessive air leaks in the compressed air piping?
    ( ) yes ( ) no ( ) not applicable

11. Is the dissolved oxygen level in the aeration tank(s) low
    (<1.0 mg/l)? ( ) yes ( ) no
12. Does mixing appear excessive? ( ) yes ( ) no
13. Does air rise in clumps? ( ) yes ( ) no
14. Do there appear to be dead spots in tank(s)? ( ) yes ( ) no
   If yes, at what location? ___________________________________________
15. What is the depth of the sand and grit layer? ________ feet
16. What is the active capacity of the aeration basin?
   __________ cubic feet
17. Is the process operating in its design mode? ( ) yes ( ) no
   If no, explain ____________________________________________________
18. Are the RAS pumps operating? ( ) yes ( ) no
   If no, what is the reason? _________________________________________
19. Are there flow measurement devices for the RAS and WAS systems?
   ( ) yes ( ) no
20. Does the aeration basin(s) have a foam control system?
   ( ) yes ( ) no
21. If multiple basins for each step are operating, is the flow
distributed equally? ( ) yes ( ) no ( ) not applicable
   How is it distributed? _____________________________________________
22. Are the characteristics of the basin contents for each step different?
   ( ) yes ( ) no
   If yes, describe. ____________________________________________________
   __________________________________________________________________
23. Is there an alkaline buffer added? ( ) yes ( ) no
   If yes, what is it? __________________________________________________
   If yes, what is the dose? ____________________________________________
24. How is the system operated? ( ) manually ( ) semi-automatically
   ( ) automatically ( ) computer-controlled ( ) other ______________
25. What is the frequency of routine inspections for proper operation?
   ______ /day
26. What is the frequency of maintenance inspections by plant personnel?
   ______ /year
27. What is the general condition of the nitrification facilities?
   ( ) good  ( ) fair  ( ) poor

28. What are the most common problems that the operator has had with the nitrification system?
   __________________________________________
   __________________________________________
   __________________________________________
NITROGEN REMOVAL

Nitrifying Trickling Filters

1. How many stages does the nitrification system have? ________________

2. How many trickling filter units are there in each stage? _________

3. What is the design capacity of each unit? _______ mgd

4. What is the actual flow to each unit? _______ mgd average
   _______ mgd peak

5. What is the recycle flow to each stage? _________________________
   How is the flow recycled? ( ) continuously ( ) intermittently

6. What type of media is used? ________________________________

7. What is the depth of the media? ________________ feet

8. What is the diameter of each unit? ____________

9. Characteristics of the Oxidation Tower:
   What is the color of the filter? ( ) black ( ) dark brown
   ( ) light brown ( ) other ________________________
   What is the odor of the filter? ( ) septic ( ) earthy
   ( ) none ( ) other ____________________________

10. Characteristics of the Nitrification Tower:
    What is the color of the filter? ( ) black ( ) dark brown
    ( ) light brown ( ) other ________________________
    What is the odor of the filter? ( ) septic ( ) earthy
    ( ) none ( ) other ____________________________

11. Is there evidence of uneven flow distribution from the trickling
    filter arms or on the trickling filter surface? ( ) yes ( ) no

12. Is there clogging of the trickling filter distribution arm orifices?
    ( ) yes ( ) no

13. Is there evidence of filter clogging (e.g., ponding)?
    ( ) yes ( ) no
    If yes, explain. _________________________________________
14. Is there evidence of filter flies? ( ) yes ( ) no
Is there evidence of snails? ( ) yes ( ) no
Is there evidence of roaches? ( ) yes ( ) no

15. Is there a leak at the center column of the trickling filter
distribution arms? ( ) yes ( ) no

16. Is there restricted rotation of the distribution arms?
( ) yes ( ) no

17. Is there grass or other vegetative material growing on the filter?
( ) yes ( ) no
If yes, what? ________________________________________________

18. Are there flow measurement devices for the recirculation flow?
( ) yes ( ) no

19. Are the recirculation pumps operating? ( ) yes ( ) no
If no, why? ___________________________________________________
________________________________________________________________________

20. If multiple filters are operating for each stage, is the flow
distributed equally? ( ) yes ( ) no ( ) not applicable
How is it distributed? ____________________________________________

21. Are the characteristics of the filter contents different in the
various units of each stage? ( ) yes ( ) no ( ) not applicable
If yes, describe. _________________________________________________
________________________________________________________________________

22. How is the system operated? ( ) manually ( ) semi-automatically
( ) automatically ( ) computer-controlled ( ) other __________

23. Is there an alkaline buffer added? ( ) yes ( ) no
If yes, what is it? ________________________________________________
If yes, what is the dose? ____________________________________________

24. What is the frequency of routine inspections for proper operation?
______/day

25. What is the frequency of maintenance inspections by plant personnel?
______/year

26. What is the general condition of the nitrification facilities?
( ) good ( ) fair ( ) poor
27. What are the most common problems that the operator has had with the nitrification facilities?
NITROGEN REMOVAL

Nitrifying Rotating Biological Contactors

1. How many stages does the nitrification system have? __________

2. How many RBC units (shafts) are there in each stage? ______

3. What is the design capacity of each unit? ______ mgd

4. What is the actual flow to each unit? ______ mgd average
   ______ mgd peak

5. What type of RBC media is used? ____________________________

6. What type of RBC drive is used? ___________

7. What is the surface area of each unit? _______________

8. What is the color of the biomass? ( ) black ( ) dark brown
   ( ) light brown ( ) other ___________

9. What is the odor of the unit? ( ) septic ( ) earthy ( ) none
   ( ) other ______________________

10. Is there excessive breakage of rotating disks or shafts?
    ( ) yes ( ) no

11. Is rotation of the media uniform? ( ) yes ( ) no

12. Is the flow distributed equally to parallel shafts? ( ) yes ( ) no
    How is it distributed? _______________________________________

13. Are the characteristics of the tank contents different in the various
    units? ( ) yes ( ) no ( ) not applicable
    If yes, describe. _____________________________________________

14. Is there an alkaline buffer added? ( ) yes ( ) no
    If yes, what is it? _________________________________________
    If yes, what is the dose? _________________________________

15. Are RBC units housed in a building? ( ) yes ( ) no
    Or does each unit have a cover? ( ) yes ( ) no

16. What is the frequency of routine inspections for proper operation?
    ______ /day

17. What is the frequency of maintenance inspections by plant personnel?
    ______ /year
18. What is the general condition of the nitrification facilities?  
( ) good  ( ) fair  ( ) poor

19. What are the most common problems that the operator has had with the nitrification facilities?  ________________________________
   ________________________________
   ________________________________
## NITROGEN REMOVAL

### Denitrification

1. How many denitrification units are there? ________

2. What is the design capacity of each unit? ________ mgd

3. What is the actual flow to each unit? ________ mgd average
   ________ mgd peak

4. What is the type of denitrification system? ( ) suspended growth
   ( ) attached growth ( ) other _________________

5. What type of mixing equipment or media is used? ________________

6. What are the tank (or column) dimensions? ____________________

7. Are the tank contents mixed thoroughly? ( ) yes ( ) no

8. Does mixing appear excessive so as to cause oxygenation?
   ( ) yes ( ) no

9. Do there appear to be dead spots in the tank? ( ) yes ( ) no
   If yes, at what location? ______________________________________

10. Is the process operating in its design mode? ( ) yes ( ) no
    If no, explain. _______________________________________________

11. How is the system operated? ( ) manually ( ) semi-automatically
    ( ) automatically ( ) computer controlled ( ) other ______________

12. Is the wastewater temperature below 15°C? ( ) yes ( ) no

13. Is the wastewater pH below 6.0 or above 8.0? ( ) yes ( ) no

14. Is there excessive methanol? ( ) yes ( ) no

15. What is the frequency of routine inspections for proper operation?
   ______ /day

16. What is the frequency of maintenance inspections by plant personnel?
   ______ /year

17. What is the general condition of the denitrification facilities?
   ( ) good ( ) fair ( ) poor

18. What are the most common problems that the operator has had with the
    denitrification facilities? ______________________________________
    _____________________________________________________________
    _____________________________________________________________
CHEMICAL TREATMENT

Chemical Feeding and Conditioning

This chemical feeding checklist relates to the liquid phase only. For the chemical feeds for residuals processing, refer to the individual residuals processes.

1. What are the actual plant flows? _____ mgd average _____ mgd peak

2. What chemicals are used? ( ) lime ( ) alum ( ) ferric chloride ( ) sodium hydroxide ( ) other __________________________

3. Where is the chemical added? ( ) primary sedimentation ( ) aeration basin ( ) secondary sedimentation ( ) chemical treatment facilities ( ) other __________________________

4. What is the chemical dose? ________ mg/l ________ lbs/mgd

5. What is the principal purpose of the chemical addition?____________________

6. Is the chemical feed system automatically controlled? ( ) yes ( ) no

   If yes, what is the method of control? ( ) pH of the waste stream ( ) dose rate ( ) concentration per million gallons ( ) other ________________

7. What type of feed system is used? ( ) volumetric ( ) belt gravimetric ( ) loss-in-weight gravimetric ( ) metering pump ( ) other

8. Is there a portion-measuring device at the feed unit? ( ) yes ( ) no

9. Is pH being measured at the pH adjustment tank? ( ) yes ( ) no

10. Are chemicals left in the open atmosphere? ( ) yes ( ) no

11. Are chemicals outdated? ( ) yes ( ) no

12. Are chemicals stored, moved, and handled properly? ( ) yes ( ) no

13. Is there evidence of chemical spills between the storage area and the feed units? ( ) yes ( ) no

14. Are empty chemical containers properly disposed of? ( ) yes ( ) no

15. Are there appropriately sized berms or dikes at the liquid chemical feed units and storage areas? ( ) yes ( ) no ( ) not applicable

16. Is chemical dust present at the feed unit area or storage and transfer areas? ( ) yes ( ) no ( ) not applicable
17. Is a reserve supply of chemicals maintained? ( ) yes ( ) no
   How many days of supply is maintained? __________________________

18. What is the frequency of routine inspections for proper operation?
   _______ /day

19. What is the frequency of maintenance inspections by plant personnel?
   _______ /year

20. What is the general condition of the chemical feed facilities?
   ( ) good ( ) fair ( ) poor

21. What are the most common problems that the operator has had with the chemical feed systems?
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
CHEMICAL TREATMENT

Rapid Mix, Flocculation, and Chemical Clarification

1. What is the actual plant flow? _____ mgd average _____ mgd peak

2. What is the total flow through the chemical treatment system? _____ mgd

3. How many units are there for each operation? ____________________________

4. What is the flow through each unit? ______________________ mgd

5. If multiple units are used, is the flow divided equally?
   ( ) yes ( ) no ( ) not applicable
   If no, what is the problem? ___________________________________________

6. What type of rapid mixer is used? ( ) turbine ( ) propeller
   ( ) pneumatic ( ) other ____________________________

7. What type of flocculator is used? ( ) turbine ( ) paddles
   ( ) other ______________________________

8. What are the dimensions of the rapid mixing tank? ________________

9. What are the dimensions of the flocculation tank? ________________

10. What are the dimensions of the clarifier? __________________________

11. What is the depth of the sand and grit layer? ____________ feet

12. What is the chemical coagulant? ( ) lime ( ) alum
    ( ) ferric chloride ( ) ferric sulfate
    ( ) other ____________________________

13. What is the chemical dose? __________________________ mg/l

14. What is the detention time for rapid mixing? _____________ seconds
    What is the detention time for flocculation? _____________ minutes
    What is the detention time for clarification? _____________ hours

15. What is the overflow rate of the clarifier? _____________ gpd/ft²

16. What is the volume of residuals pumped? ____________ gallons/day

17. What is the solids concentration of the residuals pumped? ___ %
18. Is there an automatic chemical feed control system? ( ) yes ( ) no
   If yes, what is the method of control? ( ) pH of waste stream
   ( ) dose rate ( ) concentration per million gallons ( ) other
19. What is the frequency of routine inspections for proper operation?
   ______ /day
20. What is the frequency of maintenance inspections by plant personnel?
   ______ /year
21. What is the general condition of the rapid mix, flocculation, and
    clarification facilities? ( ) good ( ) fair ( ) poor
22. What are the most common problems that the operator has had with the
    rapid mix, flocculation, and clarification facilities? ______________
    ___________________________________________________________________
    ___________________________________________________________________
    ___________________________________________________________________
SEDIMENTATION

Primary

1. How many primary sedimentation basins are there? _______

2. What is the design capacity of each basin? _______ mgd average
   _______ mgd peak

3. What is the actual flow to each basin? _______ mgd average
   _______ mgd peak

4. What are the dimensions of the basins? _____________________________

5. Is the wastewater black or odorous? ( ) yes ( ) no

6. Is there an excessive accumulation of scum, grease, foam, or floating
   residuals in the clarifier? ( ) yes ( ) no

7. Are there excessive gas bubbles on the surface of the clarifier?
   ( ) yes ( ) no

8. Is there scum overflow, lack of adequate scum disposal, or is the scum
   pit full? ( ) yes ( ) no

9. Does the tank surface indicate improper residuals withdrawal (i.e.,
   excessive floating solids, gas, etc.)? ( ) yes ( ) no

10. What volume of residuals are pumped? _______ gallons/day

11. What is the solids concentration of the residuals? _______ %

12. Are there settleable solids in the effluent? ( ) yes ( ) no

13. How are residuals pumped? ( ) manually ( ) automatically

14. How often do residuals pumps run? _______ number of times each day
    How long do residuals pumps run? _______ number of minutes each time

15. Does the residuals collection system show any signs of mechanical
    failure? ( ) yes ( ) no

16. Are there excessive residuals on the bottom of the basin (i.e.,
    inadequate residuals removal)? ( ) yes ( ) no

17. Are residuals withdrawal ports clogged? ( ) yes ( ) no

18. Does the influent baffle system accomplish its purpose?
    ( ) yes ( ) no

19. Does the effluent baffle system accomplish its purpose?
    ( ) yes ( ) no
20. Does the unit show signs of short circuiting and/or overloads? ( ) yes ( ) no

21. Are the effluent weirs level? ( ) yes ( ) no

22. Are the effluent weirs kept clean? ( ) yes ( ) no

23. If multiple units are used, is the flow distributed evenly? ( ) yes ( ) no ( ) not applicable

24. What is the frequency of routine inspections for proper operation? _______ /day

25. What is the frequency of maintenance inspections by plant personnel? _______ /year

26. What is the general condition of the primary sedimentation facilities? ( ) good ( ) fair ( ) poor

27. What are the most common problems that the operator has had with the primary sedimentation facilities? __________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
SEDIMENTATION

Final

1. How many final sedimentation basins are there? ________

2. What is the design capacity of each basin? ________ mgd average
   ________ mgd peak

3. What is the actual flow to each basin? ________ mgd average
   ________ mgd peak

4. What are the dimensions of the basins? _________________

5. Is chemical addition used to improve settling? ( ) yes ( ) no
   If yes, what chemical(s) are added? ____________________________

6. Is there an excessive accumulation of scum, grease foam, or floating
   residuals in the clarifier? ( ) yes ( ) no

7. Are there excessive gas bubbles on the surface of the clarifier?
   ( ) yes ( ) no

8. Is there scum overflow, lack of adequate scum disposal, or is the scum
   pit full? ( ) yes ( ) no

9. Does the tank surface indicate improper residuals withdrawal (i.e.,
   excessive floating solids, gas, etc.)? ( ) yes ( ) no

10. What volume of residuals is pumped? ________ gpd total
    ________ gpd RAS ______ gpd WAS

11. What is the solids concentration of the residuals? ___________ %

12. Are there settleable solids in the effluent? ( ) yes ( ) no

13. How are residuals pumped? ( ) manually ( ) automatically

14. How often do residuals pumps run? ________ number of times each day
    How long do residuals pumps run? ________ number of minutes each time

15. Does the residuals collection system show any signs of mechanical
    failure? ( ) yes ( ) no

16. Is there excessive residuals on the bottom of the basin (i.e.,
    inadequate residuals removal)? ( ) yes ( ) no

17. Is there excessive solids build-up in the center well of the
    clarifier? ( ) yes ( ) no

18. What is the depth of the sand and grit layer? ___________ feet
19. Are residuals withdrawal ports clogged? ( ) yes  ( ) no

20. Is the residuals blanket too high? ( ) yes  ( ) no

21. Is there deflocculation in the clarifier? ( ) yes  ( ) no

22. Is there pin floc in the overflow? ( ) yes  ( ) no

23. Is there billowing sludge in the clarifier? ( ) yes  ( ) no

24. Does the influent baffle system accomplish its purpose?  ( ) yes  ( ) no

25. Does the effluent baffle system accomplish its purpose?  ( ) yes  ( ) no

26. Does the unit show signs of short circuiting and/or overloads?  ( ) yes  ( ) no

27. Are the effluent weirs level? ( ) yes  ( ) no

28. Are the effluent weirs clean? ( ) yes  ( ) no

29. If multiple units are used, is the flow distributed evenly?  ( ) yes  ( ) no  ( ) not applicable

30. What is the frequency of routine inspections for proper operation?  
______/day

31. What is the frequency of maintenance inspections by plant personnel?  
______/year

32. What is the general condition of the final sedimentation facilities?  
( ) good  ( ) fair  ( ) poor

33. What are the most common problems that the operator has had with the final sedimentation facilities?  
________________________________________
________________________________________
________________________________________
Filtration

1. How many filter units are there? ________

2. What is the design capacity of each unit? ________ mgd average ________ mgd peak

3. What is the actual flow to each unit? ________ mgd average ________ mgd peak

4. What type of filters are used? ( ) gravity ( ) pressure

5. What type of filter media is used? ( ) sand ( ) dual media ( ) mixed media ( ) multi-media ( ) diatomaceous earth ( ) other ________

6. What is the surface loading rate? ________ gpm/ft²

7. What is the backwash rate? ________ gpm/ft²

8. What is the surface wash rate? ________ gpm/ft²

   What is the pressure of the surface wash? _____ psi

9. What type of control system is used? ( ) constant flow ( ) headloss ( ) time ( ) turbidity of effluent ( ) total gallons filtered ( ) other ________

10. Are the valves sequencing (opening and closing in order) correctly? ( ) yes ( ) no

11. Is there a coagulant aid (filtration aid) system? ( ) yes ( ) no

   If yes, what type? ____________________________________________

12. What are the dimensions of the filter? _________________________

13. How is the filter system operated? ( ) automatically ( ) manually ( ) semi-automatically ( ) other ____________________________

14. Is the filter surface clogged? ( ) yes ( ) no

15. Is the filter run short? ( ) yes ( ) no

16. Is there gravel displacement of the filter media? ( ) yes ( ) no

17. Is there formation of mud balls in the filter media? ( ) yes ( ) no

18. Is there air binding of the filter media? ( ) yes ( ) no

19. Is there a loss of filter media during backwashing? ( ) yes ( ) no
20. Is there recycled filter backwash water in excess of five percent of the wastewater flow treated?  ( ) yes  ( ) no

21. What is the frequency of routine inspections for proper operation?  
   ______ /day

22. What is the frequency of maintenance inspections by plant personnel?  
   ______ /year

23. What is the general condition of the filtration facilities?  
   ( ) good  ( ) fair  ( ) poor

24. What are the most common problems that the operator has had with the filtration facilities?  
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
DISINFECTION

Chlorination

1. How many chlorine contact basins are there? _______

2. What is the design capacity of each basin? _______ mgd average
   _______ mgd peak hourly flow

3. What is the actual flow to each basin? _______ mgd average
   _______ mgd peak hourly flow

4. What are the dimensions of the basins? _______

5. What is the detention time of each contact basin at peak hourly flow?
   _______ minutes

6. What chlorine dosage is applied? _______ mg/l

7. What is the normal level of chlorine residual in the basin effluent?
   _______ mg/l

8. Are disinfection standards being met? ( ) yes ( ) no

9. What type of chlorination system is being used? ( ) chlorine
cylinders ( ) on-site sodium hypochlorite generation ( ) sodium
   hypochlorite solution ( ) calcium hypochlorite solution

10. What is the design capacity of the chlorination system?
    _______ lbs/day

   What is the maximum capacity of the chlorination system?
    _______ lbs/day

11. What is the configuration of the chlorine contact basin? ( ) round
   ( ) rectangular ( ) other ______________________

12. Is the contact basin adequately baffled to minimize short-circuiting?
    ( ) yes ( ) no

13. How is chlorine introduced into the wastewater entering the contact
    basin? ( ) perforated diffusers ( ) injector with single entry point
    ( ) other ____________________

14. Are mechanical mixing provisions incorporated in the chlorine contact
    basins design? ( ) yes ( ) no

15. Is there an adequate reserve supply of chlorine? ( ) yes ( ) no

   How many days of supply is maintained? ___________

16. Are there high temperatures in the chlorination rooms?
    ( ) yes ( ) no
17. Is there a build-up of residuals in the basin? ( ) yes ( ) no
18. Are there gas bubbles in the basin? ( ) yes ( ) no
19. Is there floating scum and/or solids in the basin? ( ) yes ( ) no
20. Is there excessive foaming downstream? ( ) yes ( ) no
21. Is there evidence of toxicity (dead fish, other dead organisms) downstream? ( ) yes ( ) no
22. What is the frequency of routine inspections for proper operation? ______ /day
23. What is the frequency of maintenance inspections by plant personnel? ______ /year
24. What is the general condition of the chlorination facilities? ( ) good ( ) fair ( ) poor
25. What are the most common problems that the operator has had with the chlorination process? ____________________________________________
__________________________________________________________________
RESIDUALS TREATMENT

Chemical Conditioning

1. What is the actual volume of residuals conditioned? ___ gallons/day average

2. What is the design residuals volume? ___ gallons/day average

3. What type of residuals are conditioned? ( ) primary ( ) waste activated ( ) other _________________________

4. What type of chemical is used for conditioning? ( ) lime ( ) ferric chloride ( ) polymer ( ) other _______________

5. What is the chemical dosage? _____ lbs/ton dry solids average

6. How are chemicals purchased? ( ) dry ( ) liquid

7. What chemical storage volume is provided? ___________ days

8. How are the chemicals fed? ( ) automatically ( ) manually

9. If dry feeders are used, what type of feeder is used? ( ) volumetric ( ) gravimetric ( ) not applicable

10. Are chemical feeders automatically paced? ( ) yes ( ) no

11. If lime is used, how is the lime purchased? ( ) bags ( ) bulk ( ) not applicable

12. If lime feeding is used, is a vapor and dust collection system installed? ( ) yes ( ) no ( ) not applicable

13. Does the unit show signs of inadequate mixing? ( ) yes ( ) no

14. What is the frequency of routine inspections for proper operation? ______ /day

15. What is the frequency of maintenance inspections by plant personnel? ______ /year

16. What is the general condition of the residuals chemical conditioning facilities? ( ) good ( ) fair ( ) poor

17. What are the most common problems that the operator has had with the residuals chemical conditioning facilities? _______________________

____________________________________________________________________

____________________________________________________________________
Gravity Thickening

1. How many gravity thickeners are there? _______

2. What is the design influent flow to each thickener? _____ gallons/day average

3. What is the actual influent flow to the thickener? _____ gallons/day average

4. What type of residuals are fed to the thickener? ( ) primary ( ) waste activated ( ) other __________________

5. What are the dimensions of the thickener(s)? _________________

6. How much thickened residuals are pumped? ___ gallons/day average

7. What is the solids concentration in the influent residuals? ____ %

8. What is the solids loading rate? ______ lbs/day/sq ft

9. What is the solids concentration in the thickened residuals? ____ %

10. What is the settleable solids concentration in the supernatant? ______ mg/l

11. How are the influent residuals fed? ( ) intermittently ( ) continuously

12. How are the thickened residuals pumped? ( ) manually ( ) automatically

13. How often do the thickened residuals pumps run? ______ minutes/hour

14. How much downtime is there? _____ days/year

15. What is the frequency of cleaning? _____ /year

16. Does the influent baffle system accomplish its purpose? ( ) yes ( ) no

17. Does the residuals collection system show any signs of mechanical failure? ( ) yes ( ) no

18. Does the tank surface indicate improper residuals withdrawal (i.e., excessive floating solids, gas, etc.)? ( ) yes ( ) no

19. Does the effluent baffle system accomplish its purpose? ( ) yes ( ) no

20. Are the effluent weirs level? ( ) yes ( ) no
21. Are surfaces and the effluent weirs clean? ( ) yes ( ) no

22. If multiple units are used, is the flow distributed evenly? ( ) yes ( ) no ( ) not applicable

23. Does the unit show signs of short circuiting and/or overloads? ( ) yes ( ) no

24. What is the frequency of routine inspections for proper operation? _______ /day

25. What is the frequency of maintenance inspections by plant personnel? _______ /year

26. What is the general condition of the gravity thickening facilities? ( ) good ( ) fair ( ) poor

27. What are the most common problems that the operator has had with the gravity thickening facilities? __________________________
___________________________
___________________________
RESIDUALS TREATMENT

Flotation Thickening

1. How many air flotation thickening units are there? _________

2. What is the design influent flow to each thickener? _______ gallons/day average

3. What is the actual influent flow to each thickener? _______ gallons/day average

4. What are the dimensions of the thickener(s)? ______________________

5. What shape are the flotation tanks? ( ) circular ( ) rectangular

6. What type of residuals are fed to the thickener? ( ) waste activated ( ) other _______________

7. What is the volume of thickened residuals pumped? _______ gallons/day

8. What is the solids concentration in the influent residuals? ______ %

9. What is the solids loading rate? ______ lb/hour/sq ft

10. What is the air solids ratio? ______

11. What is the hydraulic loading or overflow rate? ______ gpm/sq ft

12. What is the solids concentration in the thickened residuals? ___ %

13. What is the suspended solids concentration in the subnatant? ___ mg/l

14. What is the solids removal efficiency? ___ %

15. Are flotation aids used? ( ) yes ( ) no

   If yes, what type? _______________________________________________

16. What is the average dosage of flotation aid? ____ lbs/ton dry solids

17. What is the thickness of the floating residuals blanket? ____ inches

18. How are influent residuals fed? ( ) intermittently ( ) continuously

19. What is the effluent recycle ratio as a percentage of the influent flow? _______

20. Are primary and secondary effluent readily available for auxiliary recycle? ( ) yes ( ) no

21. How are thickened residuals pumped? ( ) manually ( ) automatically
22. How often do thickened residuals pumps run? _________ minutes/hour

23. How much downtime is there? ________ days/year

24. What is the frequency of cleaning? _________ /year

25. Does the influent baffle system accomplish its purpose? ( ) yes ( ) no

26. Do the residuals collection systems show any signs of mechanical failure? ( ) yes ( ) no

27. Does the effluent baffle system accomplish its purpose? ( ) yes ( ) no

28. Are the effluent weirs level? ( ) yes ( ) no

29. Are surfaces and the effluent weirs clean? ( ) yes ( ) no

30. If multiple units are used, is the flow distributed evenly? ( ) yes ( ) no ( ) not applicable

31. Does the unit show signs of short circuiting and/or overloads? ( ) yes ( ) no

32. What is the frequency of routine inspections for proper operation? ______ /day

33. What is the frequency of maintenance inspections by plant personnel? ______ /year

34. What is the general condition of the flotation thickening facilities? ( ) good ( ) fair ( ) poor

35. What are the most common problems that the operator has had with the flotation thickening facilities? __________________________
_________________________________________________________________
_________________________________________________________________
RESIDUALS TREATMENT

Thermal Treatment

1. How many thermal treatment units are there? ______

2. What is the design residuals flow? ______ gpm
   What is the design temperature? ______ °F
   What is the design pressure? ______ lbs/sq in

3. What is the influent residuals flow? __________ gpm
   What is the operating temperature? ______ °F
   What is the operating pressure? ______ lb/sq in

4. What is the influent residuals solids concentration? ______ %

5. What is the volume of the treated residuals? _____ gal/day

6. What is the recycle liquor flow? __________ gal/day

7. What is the solids concentration of the treated residuals? ____ %

8. What is the BOD of the recycle liquor? ______ mg/l

9. What is the COD of the recycle liquor? ______ mg/l

10. What is the suspended solids concentration of the recycle liquor? ______ mg/l

11. How is the recycle or decant liquor treated? ________________

12. Does treatment of the recycle liquor upset the plant?
    ( ) yes ( ) no

13. How are the off-gases handled? _____________________________________________________________________

14. Are excessive odors present from off-gases? ( ) yes ( ) no

15. How frequently is the system operated? ______ /day
   How long is the system operated each time? ________ hours

16. How frequently is the system acid washed? _______ /year

17. What is the frequency of scale build-up inspections for the following items?

   heat exchanger ______ /year
   reactor ______ /year
   piping ______ /year
   oxidized residuals decant tank ______ /year
   other _________ /year
18. What is the frequency of system pressure checks to insure the integrity of pressure piping and fittings? _____ /year

19. If multiple units are used, is the flow distributed evenly?
( ) yes ( ) no ( ) not applicable

20. Does the unit show signs of overload? ( ) yes ( ) no

21. Does the method of stabilization comply with either the Process to Further Reduce Pathogens (PFRP) or the Process to Significantly Reduce Pathogens (PSRP) as described in Title 40 Code of Federal Regulation's Part 257? ( ) yes ( ) no

   If yes, which one? ( ) PFRP ( ) PSRP

   If no, explain. __________________________________________
   __________________________________________________________________________
   __________________________________________________________________________

22. What is the downtime of the thermal treatment units? __________

23. What is the frequency of routine inspections for proper operation? _____ /day

24. What is the frequency of maintenance inspections by plant personnel? _____ /year

25. What is the general condition of the thermal treatment units?
( ) good ( ) fair ( ) poor

26. What are the most common problems that the operator has had with the thermal treatment units? __________________________________________
   __________________________________________________________________________
   __________________________________________________________________________
## RESIDUALS TREATMENT

### Anaerobic Stabilization

1. How many anaerobic digesters are there? ________

2. What is the design influent flow to each digester? ________ gallons/day average

3. What is the actual influent flow to each digester? ________ gallons/day average

4. What type of digester is used? ( ) high rate ( ) low rate ( ) primary tank ( ) primary and secondary tank

5. What type of residuals are digested? ( ) primary ( ) waste activated ( ) other

6. What type of covers are used? ( ) fixed ( ) floating ( ) none

7. What is the volume of the digester? ____________ cubic feet

8. What is the influent solids concentration? ____________ %

9. What is the volatile solids content of the influent residuals? ______ %

10. What is the design volatile solids loading? ____________ lb/cu ft/day

11. How frequently do the residuals feed pumps run? ________

12. What is the duration of each run? ________

13. What is the depth of the scum blanket? ________ feet

14. What is the depth of the sand and grit layer? ________ feet

15. What is the active capacity of the digester? ____________ cubic feet

16. What is the actual volatile solids loading? ____________ lb/cu ft/day

17. What is the hydraulic loading? ________ days

18. What is the gas production rate? ____________ cu ft/lb VS destroyed

19. What is the average CO₂ content of the gas? ________ %

20. What is the average CH₄ (methane) content of the gas? ________ %

21. What is the average reduction in volatile solids? ________ %

22. What type of mixing is used in the primary tank? ____________
23. What provisions are made for heating? ______________

24. What is the solids concentration of the residuals withdrawn from the digester? ________ %

25. What is the average pH of the digester? ______________

26. What is the average temperature? _______ °F

27. What is the average alkalinity? ______________ mg/l

28. What is the average volatile acids content? __________ mg/l

29. At what point in the plant is the supernatant returned? _______

30. Is the supernatant treated before it is return to the plant?
   ( ) yes ( ) no

31. Are there metering provisions for return of the supernatant?
   ( ) yes ( ) no

32. What is the average return flow rate of the supernatant?
   ________ gal/day

33. What is the average BOD of the supernatant? __________mg/l

34. What is the average suspended solids content of the supernatant?
   ______ mg/l

35. Are the floating covers tilting? ( ) yes ( ) no

36. Is gas production adequate? ( ) yes ( ) no

37. Is the gas burner burning? ( ) yes ( ) no

38. Is the supernatant exuding a sour odor from either the primary or the secondary digesters? ( ) yes ( ) no

39. How frequently is the tank cleaned? _______________________

40. Does the method of stabilization comply with either the Process to Further Reduce Pathogens (PFRP) or the Process to Significantly Reduce Pathogens (PSRP) as described in Title 40 Code of Federal Regulation's Part 257? ( ) yes ( ) no

   If yes, which one? ( ) PFRP ( ) PSRP

   If no, explain. __________________________________________
   ___________________________________________________________________
   ___________________________________________________________________

41. What is the frequency of routine inspections for proper operation? ______ /day
42. What is the frequency of maintenance inspections by plant personnel? 
   ______ /year

43. What is the general condition of the anaerobic digesters? 
   ( ) good ( ) fair ( ) poor

44. What are the most common problems that the operator has had with the 
   anaerobic digesters? ______________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
RESIDUALS TREATMENT

Aerobic Stabilization

1. How many aerobic digesters are there? ________

2. What is the design influent flow to each digester? ________ gallons/day average

3. What is the actual influent flow to each digester? ________ gallons/day average

4. What are the dimensions of each unit? ______________

5. How many units are presently operating? ______________

6. What type of residuals are treated in the aerobic digester? ( ) waste activated ( ) primary ( ) primary and waste activated ( ) other ______________

7. How often are residuals applied to the digester? _______ /day

8. What is the total duration of influent pumping? ________ hours/day

9. How are influent residuals pumped? ( ) manually ( ) automatically

10. What is the solids concentration in the influent residuals? _____ %

11. What is the solids concentration in the aerobic digesters? _____ %

12. What type of aeration equipment is used? ( ) diffused air ( ) mechanical mixers ( ) combination ( ) other ______________

13. If diffused aeration is used, do air diffusers require frequent cleaning? ( ) yes ( ) no ( ) not applicable

14. What type of aerobic digesters are used? ( ) open ( ) closed

15. What type of aeration is provided? ( ) conventional ( ) pure oxygen

16. What is the residuals retention time? _______ days

17. What is the volatile suspend solids (VSS) loading? _______ lb VSS/cu ft/day

18. What type of feed system is used? ( ) continuous ( ) batch

19. What is the solids concentration of the residuals following settling? __________ %

20. How much waste residuals are pumped? __________ gallons/day

21. How often do waste residuals pumps run? _______ minutes/hour
22. How are residuals wasted? ( ) manually ( ) automatically

23. What volume of residuals are recycled back to the aerobic digester? ________ gallons/day average

24. What percentage of the influent residuals flow is the recycle residuals flow? _____ %

25. Are the contents of the tanks well mixed and relatively free of odors? ( ) yes ( ) no

26. Is there a foaming problem? ( ) yes ( ) no

27. What is the dissolved oxygen (DO) concentration in the aerobic digestion units? ______ mg/l

28. Are there provisions for pH adjustment by the addition of lime, sodium hydroxide, or sodium bicarbonate? ( ) yes ( ) no

29. What is the volume of supernatant flow? ______ gallons/day average

30. What is the BOD of the supernatant flow? _____ mg/l

31. What is the suspended solids concentration of the supernatant? ______ mg/l

32. What is the nitrate nitrogen concentration of supernatant? _____ mg/l

33. What is the ammonia nitrogen concentration of the supernatant? ____ mg/l

34. Is there excessive foaming in the tank? ( ) yes ( ) no

35. Are there objectionable odors in the aerobically digested residuals? ( ) yes ( ) no

36. Is the digester overloaded? ( ) yes ( ) no

37. Is there clogging of diffusers in the digester? ( ) yes ( ) no ( ) not applicable

38. What is the depth of the sand and grit layer? ____________ feet

39. What is the active capacity of the digester? _____________ cubic feet

40. Is there adequate supernatant removal? ( ) yes ( ) no

41. If multiple units are used, is the flow distributed evenly? ( ) yes ( ) no ( ) not applicable

42. Does the unit show signs of short circuiting and/or overloads? ( ) yes ( ) no
43. Does the method of stabilization comply with either the Process to Further Reduce Pathogens (PFRP) or the Process to Significantly Reduce Pathogens (PSRP) as described in Title 40 Code of Federal Regulation's Part 257? ( ) yes ( ) no

If yes, which one? ( ) PFRP ( ) PSRP

If no, explain. ___________________________________________________

____________________________________________________________________

____________________________________________________________________

44. What is the frequency of routine inspections for proper operation? _____ /day

45. What is the frequency of maintenance inspections by plant personnel? _____ /year

46. What is the general condition of the aerobic digesters? ( ) good ( ) fair ( ) poor

47. What are the most common problems that the operator has had with the aerobic digesters? ___________________________________________________

____________________________________________________________________
RESIDUALS TREATMENT

Centrifugation

1. How many centrifuges are there? ________

2. What is the design influent flow to each centrifuge? ________ gallons/minute

3. What is the actual influent flow to each centrifuge? ________ gallons/minute

4. How much cake is produced? _____ lb/day

5. What is the solids concentration of the influent residuals? ____ %

6. What type of centrifuges are used? ( ) solid bowl ( ) disc ( ) basket ( ) other ________

7. What is the solids recovery? _____ %

8. What is the solids concentration in the discharge cake? _____ %

9. How are the centrifuges, conveyers, and residuals feed pumping facilities operated? ( ) manually ( ) automatically

10. How often does each centrifuge operate? ________ /hour

How long does each centrifuge operate each run? _____ minutes

11. Are metering provisions available for the return of the centrate? ( ) yes ( ) no

12. Are there excessive solids in the fluid phase after centrifugation? ( ) yes ( ) no

13. Is the centrifugation residuals cake adequately dry? ( ) yes ( ) no

14. If multiple units are used is the influent flow distributed evenly? ( ) yes ( ) no

15. For multiple units are there provisions for equalization of the centrate flow? ( ) yes ( ) no

16. What type of conditioning chemicals are used? ( ) lime ( ) alum ( ) ferric chloride ( ) other ________

17. What amounts of chemicals are fed? ________ lbs/day

18. How often are chemicals fed? ________ cycles/hour

What is the feed time per cycle? ________ minutes/cycle

19. Does the unit show signs of overloading? ( ) yes ( ) no
20. What is the frequency of routine inspections for proper operation? _______ /day

21. What is the frequency of maintenance inspections by plant personnel? _______ /year

22. What is the general condition of the centrifuges? 
   ( ) good ( ) fair ( ) poor

23. What are the most common problems that the operator has had with the centrifuges? ______________________________________________________

   _____________________________________________________________
RESIDUALS TREATMENT

Vacuum Filtration

1. How many vacuum filters are there? _________

2. What is the design influent flow to each filter? _______ gallons/minute

3. What is the actual influent flow to each filter? _______ gallons/minute

4. What is the percent solids of the influent residuals? _______ %

5. What is the effective area of each vacuum filter? _______ sq ft

6. What is the design loading rate? ________________ lb/sq ft/hr

7. What is the percent solids in the discharge cake? _______ %

8. Are there settleable solids in the filtrate? ( ) yes ( ) no
   If yes, what is the solids concentration? _______ mg/l

9. How often does each vacuum filter run? _______________ /hour
   How long does each vacuum filter operate each run? _______ minutes

10. What type of conditioning chemicals are used? ( ) lime ( ) alum
    ( ) ferric chloride ( ) other _______________

11. What amount of chemicals are fed? _______ lbs/day

12. How are residuals pumped? ( ) manually ( ) automatically

13. How are chemicals fed? ( ) manually ( ) automatically

14. How often do residuals pumps run? _______________ /hour
   How long do residuals pumps run each cycle? _______ minutes

15. How often does conditioning equipment run? _______ /hour
   How long does conditioning equipment run each cycle? _______ minutes

16. If multiple units are used, is the flow distributed evenly? ( ) yes ( ) no

17. Does the unit show signs of short circuiting and/or overloads? ( ) yes ( ) no

18. Is there a high level of solids in the filtrate? ( ) yes ( ) no
19. Is the filter cake thin? ( ) yes ( ) no

20. Is the filter cloth binding? ( ) yes ( ) no

21. Is there a low vacuum on the filter? ( ) yes ( ) no

22. Is the vacuum filter media cleaned properly? ( ) yes ( ) no

23. What is the frequency of routine inspections for proper operation? _______ /day

24. What is the frequency of maintenance inspections by plant personnel? _______ /year

25. What is the general condition of the vacuum filters? ( ) good ( ) fair ( ) poor

26. What are the most common problems that the operator has had with the vacuum filters? ___________________________________________________
____________________________________________________________________
____________________________________________________________________
RESIDUALS TREATMENT

Pressure Filtration

1. How many pressure filters are there? _________

2. What is the design influent flow to each filter? ________ gallons/minute

3. What is the actual influent flow to each filter? ________ gallons/minute

4. What is the percent solids of the influent residuals? ______ %

5. What is the filter press volume? __________ cubic feet

6. What is the percent solids in the discharge cake? _____ %

7. Are there settleable solids in the filtrate? ( ) yes ( ) no
   If yes, what is the solids concentration? ________ mg/l

8. How often does each pressure filter run? ___________ /hr
   How long does each pressure filter operate each run? _______ minutes

9. If acid washing is provided, is a recirculating system included?
   ( ) yes ( ) no ( ) not applicable

10. What type of conditioning chemicals are used? ( ) lime ( ) alum
    ( ) ferric chloride ( ) other _______

11. What amount of conditioning chemicals are pumped? ______ lb/day

12. How are residuals pumped? ( ) manually ( ) automatically

13. How are chemicals fed? ( ) manually ( ) automatically

14. How often do residuals pumps run? _______________ /hour
    How long do residuals pumps run each cycle? _________ minutes

15. How often does conditioning equipment run? _______ /hour
    How long does conditioning equipment run each cycle? ____ minutes

16. If multiple units are used, is the flow distributed evenly?
    ( ) yes ( ) no ( ) not applicable

17. Does the unit show signs of short circuiting and/or overloads?
    ( ) yes ( ) no

18. Is there a high level of solids in the filtrate? ( ) yes ( ) no

19. Is the filter cake thin? ( ) yes ( ) no
20. Is there a residuals build-up on the belts and/or rollers of the filter press?  ( ) yes ( ) no

21. Is there excessive moisture in the belt filter press residuals cake?  ( ) yes ( ) no

22. Is there difficult cake discharge from the filter presses?  ( ) yes ( ) no

23. Does the filter cake stick to the solids-conveying equipment of the filter press?  ( ) yes ( ) no

24. Is there frequent media binding of the filter press?  ( ) yes ( ) no

25. What is the frequency of routine inspections for proper operation?  ______ /day

26. What is the frequency of maintenance inspections by plant personnel?  ______ /year

27. What is the general condition of the pressure filters?  ( ) good ( ) fair ( ) poor

28. What are the most common problems that the operator has had with the pressure filters?  ______________________________________________
________________________________________________________________________
RESIDUALS TREATMENT

Drying Beds

1. How many drying beds are there? _______

2. What is the design flow to each bed? ______ gallons/day average

3. What is the actual flow to each bed? ______ gallons/day average

4. What are the dimensions of the drying beds? ________________________

5. Are the residuals digested before they are applied to the drying bed? ( ) yes ( ) no

6. What types of residuals are applied to the drying beds? ( ) digested primary ( ) waste activated ( ) other _______________

7. What is the solids concentration of the residuals applied to the drying beds? ______________ %

8. What is the solids loading rate? ______ lbs/yr/sq ft

9. What is the population served by the treatment plant? ______________

10. What is the drying area provided? ______ sq ft/capita

11. What is the solids concentration of the dewatered residuals? ______ %

12. What is the typical drying time required? ______ days

13. Are there problems with flies or other insects? ( ) yes ( ) no

14. Are there problems with weeds? ( ) yes ( ) no

15. Is there an underdrain system? ( ) yes ( ) no

16. Are there provisions for the return of drainage waters to the plant? ( ) yes ( ) no

17. What is the typical sand depth? _________ inches

18. Are there any beds with sand depths less than 3 or 4 inches? ( ) yes ( ) no

19. Are vehicles and equipment operated on permanent vehicle treadways or on planks or plywood laid on tops of the beds? ( ) yes ( ) no

20. Are splash plates or diffusion devices in place when residuals are applied to the beds? ( ) yes ( ) no
21. Are partitions between and around the bed tight so that residuals will not flow from one compartment to another or outside the beds? ( ) yes ( ) no

22. Are residuals distributed evenly on the drying beds? ( ) yes ( ) no

23. Are there dry residuals remaining in the drying beds? ( ) yes ( ) no

24. Are all drying beds used? ( ) yes ( ) no

25. Are dry residuals stacked around drying beds where run-off may enter navigable waters? ( ) yes ( ) no

26. Is the drying time excessive? ( ) yes ( ) no

27. Is the filtrate from the drying beds returned to the front of the plant? ( ) yes ( ) no

28. What is the frequency of routine inspections for proper operation? _______ /day

29. What is the frequency of maintenance inspections by plant personnel? _______ /year

30. What is the general condition of the drying beds? ( ) good ( ) fair ( ) poor

31. What are the most common problems that the operator has had with the drying beds? ______________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________
DISPOSAL SYSTEMS

Outfalls

1. How many outfalls are there? _________

2. What type of receiving waters does the outfall(s) discharge to?
   ( ) ocean ( ) estuary ( ) lake ( ) river ( ) other ___________

3. What is the design capacity of each outfall?
   __________ mgd average __________ mgd peak

4. What is the present discharge at each outfall?
   __________ mgd average __________ mgd peak

5. What are the diameter and length of each outfall? ______________

6. Are the outfall diffusers functioning properly?
   ( ) yes ( ) no ( ) not applicable

7. Is the outfall(s) operating so that the discharge limitations
   specified in the permit are consistently met? ( ) yes ( ) no

8. How does the effluent flow in the outfall? ( ) gravity ( ) pressure
   If the flow is by gravity and if the outfall(s) extends into the
   receiving waters, is a manhole provided at the shore end of the
   outfall? ( ) yes ( ) no ( ) not applicable

9. Is adequate corrosion control provided (i.e., pipe coatings, cathodic
   protection, etc.)? ( ) yes ( ) no

10. For outfalls subject to tidal or high water backup, are flap valves or
    automatically closing gates functioning properly?
    ( ) yes ( ) no ( ) not applicable

11. Does the outfall(s) exhibit signs of scour or undercutting?
    ( ) yes ( ) no

12. Is the outfall(s) adequately protected from floodwaters, tides, and
    other hazards so as to reasonably ensure structural stability and
    prevent stoppage? ( ) yes ( ) no

13. Can effluent samples be obtained at a point after the final treatment
    process and before discharge to or mixing with the receiving waters?
    ( ) yes ( ) no

14. Are outfall and diffuser pipes routinely inspected for breakage and
    corrosion? ( ) yes ( ) no

15. What is the frequency of maintenance inspections by plant personnel?
    __________ /year
16. What is the general condition of the outfall facilities?
   ( ) good  ( ) fair  ( ) poor

17. What are the most common problems that the operator has had with the plant outfall(s)?
   __________________________________________
   __________________________________________
   __________________________________________
DISPOSAL SYSTEMS

Injection Wells

1. What is the name and address of the facility where the injection well(s) is located? ____________________________________________
   ____________________________________________
   ____________________________________________
   ____________________________________________

2. Are additional facilities served by the injection well(s)?
   ( ) yes  ( ) no
   If yes, what is the name and address of each additional facility?
   _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________

3. How many injection wells are there? ________

4. What is the maximum permitted flow to each injection well?
   ________ gpm/mgd (circle one)

5. How many days during the last year has the actual maximum flow to the well exceeded the maximum permitted flow? ______________

6. What was the average daily flow to each well during the last year?
   ________________ gpm/mgd (circle one)

7. What is the inside diameter of each well? _______ inches

8. Is there a fluid-filled annulus? ( ) yes ( ) no
   If yes, what type? ( ) tubing and packer ( ) fluid seal
   ( ) other (specify) __________________________

9. What percentage of the total flow to the domestic wastewater treatment plant is from non-domestic sources? _____ percent

10. Are there any wastestream sources that bypass the wastewater treatment plant and discharge directly to the wet well? ( ) yes ( ) no
    If yes, what percentage of the total flow to the well do these untreated wastes represent? ___________ percent

11. Does the fluid in the wet well appear to be free of solids/floateables? ( ) yes ( ) no
12. What instrumentation is found at each well head?
   ( ) injection pressure ( ) injection flow
   ( ) annulus pressure (fluid-filled annulus)
   ( ) annulus temperature (fluid-filled annulus)
   ( ) other (specify) ________________________________

13. What were the instrument readings during the inspection and the appropriate adjustment factors, if any?
   a. Injection pressure ____ psi
      Adjustment factor: __________________
   b. Injection flow ____ gpm/mgd (circle one)
      Adjustment factor: __________________
   c. Annulus pressure ____ psi
      Adjustment factor: __________________
   d. Other (specify) _______ units _________
      Adjustment factor: __________________

14. What is the general condition of the well head instruments?
   ( ) good ( ) fair ( ) poor

15. How often are the instruments calibrated? _________ /year

16. When were the instruments last calibrated (date)?
   a. Injection pressure ___/___/___
   b. Injection flow ___/___/___
   c. Annulus pressure ___/___/___
   d. Other (specify type) ___/___/___ Type: ______________

17. Is there surge and water hammer control equipment present?
   ( ) yes ( ) no

   If yes, what is the general condition of the surge and water hammer control equipment? ( ) good ( ) fair ( ) poor

   If poor, what is the problem? _____________________________
18. Has mechanical integrity testing been conducted within the last five years? ( ) yes ( ) no

If yes, complete the following:

a. Pressure test date ___/___/___
   Test pressure _________ psi
   Pressure loss _________ psi
   Test duration _________ hours/minute (circle one)

c. Temperature log date ___/___/___
   Is there any anomalous temperature data? ( ) yes ( ) no
   If yes, explain. _________________________________

d. Radioactive tracer survey date ___/___/___
   Was fluid movement indicated? ( ) yes ( ) no

19. What is the predetermined acceptable limits for annulus pressure? __________ psi
   Is the annulus pressure within the predetermined limits? ( ) yes ( ) no

20. How many monitoring wells are there associated with the injection system? __________

21. Where are the monitoring wells located relative to the injection well(s) (distance/direction)? ________________________________

22. Is each monitoring well functional? ( ) yes ( ) no
   If no, what is the problem? ________________________________

23. Which zones are the monitoring wells designed to monitor?

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<thead>
<tr>
<th>Well Number</th>
<th>Monitoring Interval</th>
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24. What volume of water is purged from each monitoring well prior to sampling? __________ gallons
25. How is the purge water disposed of?
   ( ) returned to wet well  ( ) returned to head of treatment plant
   ( ) surface water discharge (may require separate permit)
   ( ) on well pad or ground (not acceptable)
   ( ) other (specify) ____________________________________________

26. What chemical parameters are monitored and at what frequency are these parameters monitored?

   Parameter                          Frequency
   ____________________________________   _____________________________
   ____________________________________   _____________________________
   ____________________________________   _____________________________
   ____________________________________   _____________________________
   ____________________________________   _____________________________
   ____________________________________   _____________________________

27. Have any water quality trends been observed in the monitoring data?  ( ) yes  ( ) no

   If yes, which parameters are affected and what trend has been observed (increase/decrease)?

   Parameter                          Trend Observed
   ____________________________________  ___________________________________
   ____________________________________  ___________________________________
   ____________________________________  ___________________________________

28. What type of monitoring well instrumentation is present?
   ( ) pressure  ( ) water level

29. When was the monitoring well instrumentation last calibrated?
   ____/___/___

30. Does the water level/pressure data show a trend?  ( ) yes  ( ) no

   If yes, what is the trend?  ______________________________________________

31. Are there any fluid leaks, or evidence of fluid leaks, at the injection or monitoring well heads?  ( ) yes  ( ) no

32. Do the well heads, valves, and other surface appurtenances appear to be in good working order and well maintained?
   ( ) yes  ( ) no

33. What is the general condition of the injection and monitoring well heads and other surface appurtenances?
   ( ) good  ( ) fair  ( ) poor

34. What is the emergency discharge method?
   ( ) other well(s)  ( ) surface waters  ( ) percolation ponds
   ( ) other (specify) ____________________________________________
35. Are facilities in place to use the specified emergency discharge method? ( ) yes ( ) no

36. Are the injection and monitoring well heads fenced or otherwise protected from accidental damage by heavy equipment? ( ) yes ( ) no

37. Are plant operators familiar with procedures for emergency shut down of the injection system? ( ) yes ( ) no

38. Is an emergency procedures manual located on-site? ( ) yes ( ) no
Part II Slow Rate Land Application Systems; Restricted Public Access

1. Is at least secondary treatment provided? ( ) yes ( ) no
2. Is at least basic disinfection provided? ( ) yes ( ) no
3. If a subsurface application system is used, does the reclaimed water never exceed 10 mg/l of TSS? ( ) yes ( ) no ( ) not applicable
4. Does the treatment facility have a permitted capacity of at least 0.1 mgd? ( ) yes ( ) no
5. Are ground water monitoring facilities provided and is monitoring regularly performed (normally quarterly)? ( ) yes ( ) no
6. Are background, intermediate, and compliance wells provided and monitored? ( ) yes ( ) no ( ) not applicable
7. Are monitoring wells well marked? ( ) yes ( ) no ( ) not applicable
8. Are monitoring wells operational and well maintained? ( ) yes ( ) no ( ) not applicable
9. Are there any violations of ground water standards at the compliance wells? ( ) yes ( ) no ( ) not applicable
10. Is there evidence of potential ground water quality problems at the intermediate wells? ( ) yes ( ) no ( ) not applicable
11. Are system storage facilities provided and do they have adequate capacity? ( ) yes ( ) no ( ) not applicable
12. Are the storage facilities lined? ( ) yes ( ) no ( ) not applicable
13. Is there evidence of seepage through the berms? ( ) yes ( ) no ( ) not applicable
14. Is there evidence of discharge over the tops of the berms, erosion of the berms, or of any illegal discharge devices? ( ) yes ( ) no ( ) not applicable
15. Are piping, control, and pumping facilities operational and well maintained? ( ) yes ( ) no ( ) not applicable
16. Is there evidence that the storage facilities are used? ( ) yes ( ) no ( ) not applicable
17. Are the berms well maintained (including vegetation control)? ( ) yes ( ) no ( ) not applicable
18. Is a mosquito control program in place? ( ) yes ( ) no ( ) not applicable
19. Is there evidence of mosquito problems?
   ( ) yes ( ) no ( ) not applicable

20. Is an emergency overflow structure provided and is it well maintained and usable?
    ( ) yes ( ) no ( ) not applicable

21. Are storage facilities enclosed with a fence or other facilities that preclude public access?
    ( ) yes ( ) no ( ) not applicable

22. Are any features provided that enable reduction in setback distances?
    ( ) yes ( ) no

   If yes, specify:

   ( ) High-level disinfection
   ( ) Class I reliability
   ( ) Subsurface application systems
   ( ) Continuous vegetated barrier at least 5 feet high
   ( ) Low trajectory, low pressure nozzles or surface application

23. Are adequate setback distances provided from the wetted area to the property lines or buildings?
    ( ) yes ( ) no ( ) not applicable

24. Are adequate setback distances provided to potable water supply wells, Class I waters, and Class II waters?
    ( ) yes ( ) no ( ) not applicable

25. Is the wetted area at least 100 feet from outdoor public eating, drinking, and bathing facilities?
    ( ) yes ( ) no ( ) not applicable

26. Are transmission facilities located at least 100 feet from public water supply wells?
    ( ) yes ( ) no ( ) not applicable

27. Is there evidence of hydraulic problems such as ponding or run-off from the site?
    ( ) yes ( ) no ( ) not applicable

28. Is public access adequately restricted by fencing or posting of advisory signs?
    ( ) yes ( ) no ( ) not applicable

29. Are distribution piping, pumping, and other appurtenances well maintained and operational?
    ( ) yes ( ) no ( ) not applicable

30. Is there evidence of clogging of nozzles or other facilities?
    ( ) yes ( ) no ( ) not applicable

31. Is there evidence of or public complaints about aerosol drift off of the site, odors, or other nuisance conditions?
    ( ) yes ( ) no ( ) not applicable

32. Are the distribution facilities labeled?
    ( ) yes ( ) no ( ) not applicable

33. Are above ground hose bibbs present?
    ( ) yes ( ) no ( ) not applicable
34. Are supplemental fertilizers or residuals applied to the site?
   ( ) yes ( ) no ( ) not applicable

35. If fertilizers or residuals are applied, are they applied in moderate amounts such that the nutrient needs of the crops are not exceeded?
   ( ) yes ( ) no ( ) not applicable

36. Is there evidence that fertilizer or residuals application results in ground water quality problems (nitrogen is main concern)?
   ( ) yes ( ) no ( ) not applicable

37. What crops are grown? ______________________________________

38. Are the crops routinely harvested and removed from the site?
   ( ) yes ( ) no ( ) not applicable

39. Are underdrains or perimeter drainage features provided?
   ( ) yes ( ) no ( ) not applicable

   If yes, specify:

   ( ) Underdrains
   ( ) Perimeter drains

40. Does the water collected in underdrains or perimeter drainage features meet appropriate effluent limits? ( ) yes ( ) no ( ) not applicable

41. What is the average annual hydraulic loading rate (based on the total wetted area)? ________________ inches/week

42. Are cattle allowed to graze on the site? ( ) yes ( ) no

   If yes, what type?

   ( ) Beef cattle
   ( ) Dairy cattle
   ( ) Others _________________________

43. If dairy cattle graze on the site, are they kept off the site for at least 15 days after application of reclaimed water?
   ( ) yes ( ) no ( ) not applicable

44. If edible food crops are grown, please complete the checklists for Part III reuse systems and for edible crop irrigation.
REUSE SYSTEMS

Part III Slow Rate Land Application Systems; Public Access; Residential Irrigation; and Edible Crops

1. Is at least secondary treatment provided? ( ) yes ( ) no

2. Is high-level disinfection provided? ( ) yes ( ) no

3. Do the treatment facilities have permitted capacities in excess of the minimum system size requirements (0.1 mgd for public access systems, 0.5 mgd for residential irrigation, 0.5 mgd for edible crop irrigation)? ( ) yes ( ) no

4. Is there a DER-approved cross-connection control program covering the areas served by reclaimed water? ( ) yes ( ) no

5. Is there a uniform system for color coding and/or marking reclaimed water pipes? ( ) yes ( ) no

6. Does the utility inspect all new connections to the reclaimed water system? ( ) yes ( ) no

7. Does the utility provide routine inspections of existing connections to the reclaimed water system? ( ) yes ( ) no

8. Is an approved industrial pretreatment program in-place? ( ) yes ( ) no ( ) not needed

9. Is the industrial pretreatment program enforced? ( ) yes ( ) no

10. Is there a DER-approved operating protocol on-site and available to the operators? ( ) yes ( ) no ( ) not needed

11. Has the operating protocol been updated and approved annually? ( ) yes ( ) no

12. What set points are contained in the operating protocol for the following items?
   Turbidity: ____________ NTU
   Chlorine Residual: _______________ mg/l
   Other Parameter (specify): Parameter: _______________
                               Limit: _______________ mg/l

13. Are the operators familiar with the operating protocol? ( ) yes ( ) no

14. Does the operator use the operating protocol to control the facility and to make judgments on the quality of the reclaimed water being produced? ( ) yes ( ) no
15. Is the 5.0 mg/l TSS limit met at all times for reclaimed water sent to the reuse system? ( ) yes ( ) no

16. Are the high-level disinfection criteria for fecal coliforms met at all times for reclaimed water sent to the reuse system? ( ) yes ( ) no

17. Have the operators simulate a case where turbidity or chlorine residuals violate the limits set in the operating protocol. Is the reclaimed water of "unacceptable quality" diverted to the reject storage system or permitted alternative discharge system? ( ) yes ( ) no

18. Are continuous monitoring devices provided for measuring turbidity (after filter/before chlorination) and chlorine residual (after contact chamber)? ( ) yes ( ) no

19. Are these instruments in good repair and used in the operation and control of the facilities? ( ) yes ( ) no

20. Are the filters in operation and in good repair? ( ) yes ( ) no

21. Are chemical feed facilities provided? ( ) yes ( ) no

22. What chemicals can be added? _________________________________

23. Are the chemical feed facilities in operation and in good repair? ( ) yes ( ) no

24. Can the high-level disinfection criteria be met without chemical addition? ( ) yes ( ) no

25. Is the reclaimed water flowing out of the filters and chlorination system very clear? ( ) yes ( ) no

26. Is the turbidity measurement being reported consistent with the appearance of the reclaimed water? ( ) yes ( ) no

27. Are system storage facilities provided to store reclaimed water of acceptable quality? ( ) yes ( ) no

28. Are system storage facilities used? ( ) yes ( ) no

29. Are system storage facilities well maintained and fully operational? ( ) yes ( ) no

30. Are system storage facilities (including golf course lakes) used for temporary storage (as opposed to being used as "percolation ponds" with no effort to pump out of them for irrigation purposes)? ( ) yes ( ) no

31. Are lined reject storage facilities provided to store reclaimed water of unacceptable quality? ( ) yes ( ) no
32. Is there evidence that reject storage facilities are used?  
( ) yes ( ) no

33. Is the reject storage system well maintained and fully operational?  
( ) yes ( ) no

34. If automatic control and diversion are provided, are the systems operational, well maintained, and used?  
( ) yes ( ) no ( ) not applicable

35. Is reclaimed water released to the system storage and reuse system only during periods when an operator is present?  
( ) yes ( ) no ( ) not applicable (other reliability measures provided)

36. Is stored reject water returned to the treatment facilities for additional treatment and disinfection?  
( ) yes ( ) no ( ) not applicable

37. Are the facilities for return of reject water to the treatment facilities well maintained, operational, and in use?  
( ) yes ( ) no ( ) not applicable

38. Are reclaimed water pipes and appurtenances appropriately marked and color coded?  
( ) yes ( ) no

39. Are advisory signs posted alerting the public that reclaimed water is being used?  
( ) yes ( ) no

40. Are there illegal surface water discharge points?  
( ) yes ( ) no

41. Is there evidence of abuse of the system, such as significant run-off off-site, or severe ponding?  
( ) yes ( ) no

42. Are low trajectory nozzles used within 100 feet of outdoor public eating, drinking, or bathing facilities?  
( ) yes ( ) no

43. Is reclaimed water applied within 75 feet of potable water supply wells?  
( ) yes ( ) no

44. Are distribution systems and pumps operational and well maintained?  
( ) yes ( ) no

45. Are ground water monitoring facilities provided and is monitoring regularly performed (normally quarterly)?  
( ) yes ( ) no

46. Are background, intermediate, and compliance wells provided and monitored?  
( ) yes ( ) no ( ) not applicable

47. Are monitoring wells well marked?  
( ) yes ( ) no ( ) not applicable

48. Are monitoring wells operational and well maintained?  
( ) yes ( ) no ( ) not applicable
49. Are there any violations of ground water standards at the compliance wells? ( ) yes ( ) no ( ) not applicable

50. Is there evidence of potential ground water quality problems at the intermediate wells? ( ) yes ( ) no ( ) not applicable

51. Are above ground hose bibbs present on reclaimed water lines? ( ) yes ( ) no ( ) not applicable

52. Is there evidence of or public complaints about aerosol drift, odors, or other nuisance conditions? ( ) yes ( ) no ( ) not applicable
REUSE SYSTEMS

Part III Slow Rate Land Application Systems; Edible Crops

1. Does the treatment facility have a permitted capacity of at least 0.5 mgd? ( ) yes ( ) no

   Note: The minimum system size is reduced to 0.1 mgd if the following conditions are met:
   a. A direct contact method of irrigation is not used.
   b. The crop produced is processed before human consumption.
   c. Public access to the site is restricted.

2. What edible crops are grown? ________________________________________

3. What edible crops are commercially processed (thermal processing) before being sent to commercial markets? ____________________________

4. List the edible crops produced that are **always** peeled, skinned, or cooked by consumers? ____________________________________________

5. What types of application methods are used when irrigating with reclaimed water? ________________________________________________

6. Does the DER permit accurately describe the crops grown, processing provided, and application methods? ( ) yes ( ) no ( ) not applicable

7. Is a direct contact method (spray irrigation) used on crops that are not peeled, skinned, cooked, or thermally processed before human consumption (does not include irrigation of citrus or tobacco)? ( ) yes ( ) no ( ) not applicable

8. Is public access to the site restricted by fencing or by posting of advisory signs? ( ) yes ( ) no ( ) not applicable

9. Are the farm workers aware of the fact that reclaimed water is being used for irrigation? ( ) yes ( ) no ( ) not applicable
REUSE SYSTEMS

Part IV Rapid Rate Land Application Systems

1. Is at least secondary treatment provided? ( ) yes ( ) no

2. Is at least basic disinfection provided? ( ) yes ( ) no

3. Does the reclaimed water never exceed 12 mg/l of nitrate (as N)? ( ) yes ( ) no ( ) not applicable

4. Does the treatment facility have a permitted capacity of at least 0.1 mgd? ( ) yes ( ) no

5. Are ground water monitoring facilities provided and is monitoring regularly performed (normally quarterly)? ( ) yes ( ) no

6. Are background, intermediate, and compliance wells provided and monitored? ( ) yes ( ) no ( ) not applicable

7. Are monitoring wells well marked? ( ) yes ( ) no ( ) not applicable

8. Are monitoring wells operational and well maintained? ( ) yes ( ) no ( ) not applicable

9. Are there any violations of ground water standards at the compliance wells? ( ) yes ( ) no ( ) not applicable

10. Is there evidence of potential ground water quality problems at the intermediate wells? ( ) yes ( ) no ( ) not applicable

11. Are system storage facilities provided and do they have adequate capacity? ( ) yes ( ) no ( ) not applicable

12. Are the storage facilities lined? ( ) yes ( ) no ( ) not applicable

13. Is there evidence of seepage through the berms? ( ) yes ( ) no ( ) not applicable

14. Is there evidence of discharge over the tops of the berms, erosion of the berms, or of any illegal discharge devices? ( ) yes ( ) no ( ) not applicable

15. Are piping, control, and pumping facilities operational and well maintained? ( ) yes ( ) no ( ) not applicable

16. Is there evidence that the storage facilities are used? ( ) yes ( ) no ( ) not applicable

17. Are the berms well maintained (including vegetation control)? ( ) yes ( ) no ( ) not applicable

18. Is a mosquito control program in place? ( ) yes ( ) no ( ) not applicable
19. Is there evidence of mosquito problems?  
   ( ) yes ( ) no ( ) not applicable  

20. Is an emergency overflow structure provided and is it well maintained 
    and usable? ( ) yes ( ) no ( ) not applicable  

21. Are storage facilities enclosed with a fence or other facilities that 
    preclude public access? ( ) yes ( ) no ( ) not applicable  

22. Are any features provided that enable reduction in setback distances? 
   ( ) yes ( ) no  
   If yes, specify:  
   ( ) High-level disinfection  
   ( ) Class I reliability  
   ( ) Site adjacent to a right-of-way  

23. Are adequate setback distances provided from the wetted area to the 
    property lines or buildings? ( ) yes ( ) no ( ) not applicable  

24. Are adequate setback distances provided to potable water supply wells, 
    Class I waters, and Class II waters? ( ) yes ( ) no ( ) not applicable  

25. Are transmission facilities located at least 100 feet from public 
    water supply wells? ( ) yes ( ) no ( ) not applicable  

26. Is there evidence of a reduction in infiltration rates over the last 
    permit period? ( ) yes ( ) no  

27. Is there evidence of hydraulic problems such as ponding or run-off 
    from the site? ( ) yes ( ) no ( ) not applicable  

28. Is public access to the overall site adequately restricted by fencing 
    or posting of advisory signs? ( ) yes ( ) no ( ) not applicable  

29. Are the infiltration basins surrounded by a fence or other features 
    that preclude public access? ( ) yes ( ) no ( ) not applicable  

30. Are distribution piping, pumping, and other appurtenances well 
    maintained and operational? ( ) yes ( ) no ( ) not applicable  

31. Is there evidence of clogging of distribution or other facilities? 
    ( ) yes ( ) no ( ) not applicable  

32. Is there evidence of or public complaints about odors, excessive 
    ground water mounding, or other nuisance conditions? 
    ( ) yes ( ) no ( ) not applicable  

33. Are the distribution facilities labeled?  
   ( ) yes ( ) no ( ) not applicable
34. Are above ground hose bibbs present?  
( ) yes  ( ) no  ( ) not applicable

35. Are two or more infiltration basins provided?  
( ) yes  ( ) no  ( ) not applicable

36. Is the system operated with an alternating wetting and drying cycle?  
( ) yes  ( ) no  ( ) not applicable

If yes, basin is wetted for ___ days and is dried for ____ days.

37. Are the basins allowed to fully dry before being reloaded?  
( ) yes  ( ) no  ( ) not applicable

Note: If the basins are not allowed to dry, the system is subject to 
regulation as an other system under Part VII of Chapter 17-610, F.A.C. 
This will require higher levels of treatment and reliability.

38. Are the berms well maintained?  ( ) yes  ( ) no  ( ) not applicable

39. Are the basin bottoms routinely scarified or otherwise maintained to 
maintain percolation rates?  ( ) yes  ( ) no  ( ) not applicable

40. Is adequate freeboard provided (3 feet from normal maximum fill line 
to the top of the berm)?  ( ) yes  ( ) no  ( ) not applicable

41. Is an emergency overflow or discharge device provided to ensure that 
water in the basin will not reach within 1 foot of the top?  
( ) yes  ( ) no  ( ) not applicable

42. Are the emergency overflow or discharge facilities well maintained and 
operational?  ( ) yes  ( ) no  ( ) not applicable

43. Are underdrains or perimeter drainage features provided?  
( ) yes  ( ) no  ( ) not applicable

If yes, specify:  
( ) Underdrains  
( ) Perimeter drains

44. Does the water collected in underdrains or perimeter drainage features 
meet appropriate effluent limits?  ( ) yes  ( ) no  ( ) not applicable

45. What is the average annual hydraulic loading rate (as applied to the 
total bottom area of all infiltration basins)?  
____________________ inch/day
REUSE SYSTEMS

Part V Absorption Field Systems

1. Is at least secondary treatment provided? ( ) yes ( ) no
2. Is at least basic disinfection provided? ( ) yes ( ) no
3. Does the reclaimed water never exceed 12 mg/l of nitrate (as N)? ( ) yes ( ) no ( ) not applicable
4. Does the reclaimed water never exceed 10 mg/l TSS? ( ) yes ( ) no ( ) not applicable
5. Does the treatment facility have a permitted capacity of at least 0.1 mgd? ( ) yes ( ) no
6. Are ground water monitoring facilities provided and is monitoring regularly performed (normally quarterly)? ( ) yes ( ) no
7. Are background, intermediate, and compliance wells provided and monitored? ( ) yes ( ) no ( ) not applicable
8. Are monitoring wells well marked? ( ) yes ( ) no ( ) not applicable
9. Are monitoring wells operational and well maintained? ( ) yes ( ) no ( ) not applicable
10. Are there any violations of ground water standards at the compliance wells? ( ) yes ( ) no ( ) not applicable
11. Is there evidence of potential ground water quality problems at the intermediate wells? ( ) yes ( ) no ( ) not applicable
12. Are system storage facilities provided and do they have adequate capacity? ( ) yes ( ) no ( ) not applicable
13. Are the storage facilities lined? ( ) yes ( ) no ( ) not applicable
14. Is there evidence of seepage through the berms? ( ) yes ( ) no ( ) not applicable
15. Is there evidence of discharge over the tops of the berms, erosion of the berms, or of any illegal discharge devices? ( ) yes ( ) no ( ) not applicable
16. Are piping, control, and pumping facilities operational and well maintained? ( ) yes ( ) no ( ) not applicable
17. Is there evidence that the storage facilities are used? ( ) yes ( ) no ( ) not applicable
18. Are the berms well maintained (including vegetation control)? ( ) yes ( ) no ( ) not applicable
19. Is a mosquito control program in place?  
( ) yes  ( ) no  ( ) not applicable

20. Is there evidence of mosquito problems?  
( ) yes  ( ) no  ( ) not applicable

21. Is an emergency overflow structure provided and is it well maintained and usable?  
( ) yes  ( ) no  ( ) not applicable

22. Are storage facilities enclosed with a fence or other facilities that preclude public access?  
( ) yes  ( ) no  ( ) not applicable

23. Are any features provided that enable reduction in setback distances?  
( ) yes  ( ) no

If yes, specify:

( ) High-level disinfection
( ) Class I reliability
( ) Site adjacent to a right-of-way

24. Are adequate setback distances provided from the wetted area to the property lines or buildings?  
( ) yes  ( ) no  ( ) not applicable

25. Are adequate setback distances provided to potable water supply wells, Class I waters, and Class II waters?  
( ) yes  ( ) no  ( ) not applicable

26. Are transmission facilities located at least 100 feet from public water supply wells?  
( ) yes  ( ) no  ( ) not applicable

27. Is there evidence of a reduction in infiltration rates over the last permit period?  
( ) yes  ( ) no

28. Is there evidence of hydraulic problems such as wetness at the ground surface, ponding, or run-off from the site?  
( ) yes  ( ) no  ( ) not applicable

29. Are adequate advisory signs posted around the site?  
( ) yes  ( ) no  ( ) not applicable

30. Are distribution piping, pumping, and other appurtenances well maintained and operational?  
( ) yes  ( ) no  ( ) not applicable

31. Is there evidence of clogging of distribution or other facilities?  
( ) yes  ( ) no  ( ) not applicable

32. Is there evidence of or public complaints about odors, run-off, excessive ground water mounding, or other nuisance conditions?  
( ) yes  ( ) no  ( ) not applicable

33. Are the distribution facilities labeled?  
( ) yes  ( ) no  ( ) not applicable
34. Are above ground hose bibbs present?  
   ( ) yes ( ) no ( ) not applicable

35. Are two or more distribution systems provided?  
   ( ) yes ( ) no ( ) not applicable

36. Is the system operated with an alternating wetting and drying cycle?  
   ( ) yes ( ) no ( ) not applicable

   If yes, system is wetted for ____ days and is dried for ____ days.

37. Are the distribution systems rested before being reloaded?  
   ( ) yes ( ) no ( ) not applicable

   Note: If the distribution systems are not allowed to rest, the system 
   is subject to regulation as an other system under Part VII of Chapter 
   17-610, F.A.C. This will require higher levels of treatment and 
   reliability.

38. Is the property well maintained? ( ) yes ( ) no ( ) not applicable

39. Is the absorption field operated such as to use the overlying 
   vegetation? ( ) yes ( ) no

40. Is the vegetation routinely cut and the cuttings removed from the 
   site? ( ) yes ( ) no ( ) not applicable

41. Are underdrains or perimeter drainage features provided?  
   ( ) yes ( ) no ( ) not applicable

   If yes, specify:

   ( ) Underdrains
   ( ) Perimeter drains

42. Does the water collected in underdrains or perimeter drainage features 
   meet appropriate effluent limits? ( ) yes ( ) no ( ) not applicable

43. What is the average annual hydraulic loading rate (as applied to the 
   total bottom area of all distribution systems' trenches)?  
   __________________ inch/day
WETLAND SYSTEMS

1. What is the acreage of the wetland? ___________ acres

2. What is the annual average discharge to the wetland? _________ mgd

3. What is the average annual hydraulic loading to the wetland? 
   ___________ inches/week

4. What is the maximum annual hydraulic loading to the wetland? 
   ___________ inches/week

5. What is the minimum annual hydraulic loading to the wetland? 
   ___________ inches/week

6. What is the annual loading rate of total phosphorus to the wetland? 
   ___________ grams per square meter per year

7. What is the annual loading rate of total nitrogen to the wetland? 
   ___________ grams per square meter per year

8. Who is responsible for operating the spreader structure(s) which 
   discharges the effluent into the wetland? 
   ( ) wastewater treatment plant operator ( ) consulting firm ________
   ( ) other ________________

9. What operational criteria are used to determine needed adjustments to 
   the spreader structure(s)? __________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________

10. Does the spreader structure(s) distribute the effluent effectively 
    over the discharge point into the wetland? ( ) yes ( ) no

11. Are there any signs of erosion or ponding at the initial discharge 
    into the wetland? ( ) yes ( ) no

12. Is there a build-up of foreign materials which evaded screening at the 
    wastewater treatment plant? ( ) yes ( ) no

13. How does the effluent flow through the wetland? 
    ( ) channels ( ) sheets ( ) other _____________________________
    _____________________________
    _____________________________

    Does the effluent sheet flow through with even coverage in all parts 
    of the wetland or does it tend to channelize in certain areas? 
    __________________________________________________________________
    __________________________________________________________________

14. Is the perimeter of the wetland posted with signs indicating that 
    effluent is being applied to the area? ( ) yes ( ) no

15. Is the public allowed access to the wetland? ( ) yes ( ) no
If no, how is access prevented? ______________________________________
____________________________________________________________________
____________________________________________________________________

16. Is a holding pond on-site? ( ) yes ( ) no

If yes, what is the capacity of the holding pond?
_______ million gallons

17. Has any effluent not meeting pretreatment requirements been discharged into the wetland system? ( ) yes ( ) no

How are such discharges typically avoided? ____________________________
____________________________________________________________________
____________________________________________________________________

18. Is the odor in the wetland system offensive? ( ) yes ( ) no

19. Has the discharge to the wetland impacted the type, nature, or function of the wetland? ( ) yes ( ) no

Explain. ____________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

20. What portion of the year is the wetland predominantly dry? _______

____________________________________________________________________

21. Has the discharge to the wetland affected historic water levels, periods of time the wetland is predominantly dry, or periods of time the wetland is predominantly wet? ( ) yes ( ) no

22. Have there been die-offs or shifts in vegetative composition at either the initial discharge into the wetland or other points throughout the wetland? ( ) yes ( ) no

23. Have there been changes in fish or amphibian populations since the discharge to the wetland was initiated? ( ) yes ( ) no

24. Have there been any shifts in pH, dissolved oxygen, or other water quality parameters since the discharge was initiated? ( ) yes ( ) no

If yes, why? ______________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
25. Are threatened or endangered species (e.g., ospreys, eagles, alligators, etc.) present? ( ) yes ( ) no

If yes, please list species, locations, and approximate dates seen.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

26. What is the general condition of the wetland?
( ) good ( ) fair ( ) poor

27. What is the frequency of routine inspections of the wetland?
_______ /year

28. Who is responsible for each aspect of operational monitoring of the receiving/treatment wetland required by the permit?

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

29. Are all wetland stations permanently marked? ( ) yes ( ) no

If yes, how are they marked? __________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

30. What type of stage monitor is used at each site? ______________

______________________________________________________________________
______________________________________________________________________

31. Is each stage monitor operating properly? ( ) yes ( ) no

32. Are wetland samples taken at the sites specified in the permit? ( ) yes ( ) no

33. Is sampling and analysis completed for each parameter specified by the permit? ( ) yes ( ) no

34. Is the frequency and methodology of sampling in accordance with the permit? ( ) yes ( ) no

35. Is laboratory analysis conducted in accordance with the permit? ( ) yes ( ) no
36. Are copies of current and past wetland reports kept at the wastewater treatment plant? ( ) yes ( ) no

Is the amount of information and the detail provided in these reports consistent with that required by the permit? ( ) yes ( ) no

37. What are the most common problems with the wetland? ________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________