

## Drinking Water Systems Due Diligence

The owner of a drinking water system has a legal, moral and financial obligation to provide an adequate quantity of drinking water to each customer that is safe and at a reasonable pressure to meet their needs. Adequate quantity is usually between 3,000 and 6,000 gallons per house per month. The standard of “safe” is set by the Federal Safe Drinking Water Act and enforced at the state level by various governmental agencies in each state. Due diligence should be done in three areas: condition of infrastructure, operations, and compliance.

### Information/items to request from owner prior to any onsite diligence:

Aerial photo or use google earth to locate well(s) or other water source(s) locations. Look for replacement location prior to any onsite work being done. If no replacement location with adequate setbacks then walk away from deal before you spend any money on onsite work, unless you can tie up neighboring property. Does the existing well/source meet the setback standards today?

As built drawings of source, treatment, and distribution system (with shut off and meter locations)

Well log(s)

Water rights

Annual static water measurements (last 5 years)

Records of water production for last three years (at least monthly from each meters at source(s))

Records of water usage for last three years (at least monthly) from meters at each lot if there are any.

All water test results done in last 10 years (why 10 years? Some things are tested for every 9 years)

Name of lab where water is tested

Maintenance and Operations manual

Coliform sampling plan

Disinfection byproducts sampling locations

Lead and Copper sample sites

Emergency response plan

Cross connection control ordinance and plan

Master list of locations of all backflow assemblies and test results

High hazard sites listed (pools, waste water treatment)

Copies of Consumer Confidence Reports for last 3 years

Maintenance records

Reports of any inspections done on system (tanks, reservoirs, pump tests)



Can you connect to Public utilities?

Is there more than one well/spring?? Are they from the same aquifer?

Well log(s): (should contain when well was constructed, describes depth of well, construction details, where water was found...)

Aquifer stability: Is the area prone to declining aquifer issues?

Is the site in a restricted use area?

Do a flow test of well(s) with draw down measurements to determine specific capacity and compare to any records of past pump tests.

Is the flow rate adequate?

Do you need to do an aquifer analysis?

**Check surrounding well logs, contact geologists, well constructors... state regulators (Water Master)**

Is the well compliant with today's construction standards?

Is the surface seal of the well adequate: (repeat positive coliform bacteria or e-coli from samples taken at source indicate that either aquifer is contaminated or more likely surface seal of well is failing or inadequate.

Is the current source(s) set back adequately from sources of contaminants (septic, fuel, roads). Many older wells are not compliant with current set back standards?

Are the source(s) vulnerable to pollution?

Are the source(s) secure from vandalism?

Is there a location on the property for a replacement well(s) that meets setbacks from sewer system and other contaminants?

(Generally 100 feet from drain field lines and 50 from solid sewer lines, check local regs)

**Source pumping info:**

Pump size:                      model #:                                      pump curve (g.p.m. rating):

Is it adequate?

Wire size:

Drop pipe size:

Depth at which pump is set:

Replacement history:                                      Age of current pump:

Electrical power single or 3 phase:                                      Amp draw under load:

Is wiring to code?

Backup generator for power outages:

Size (KVA or KW):                      Condition:

Exercise schedule:                      fuel type:                                      auto transfer or manual:

Type and condition of system controls:

Are components adequately protected from freeze danger?

For due diligence what information can you gather?

For due diligence what information is better left for a professional consult?

## **Water Quality:**

Review lab results for the last 10 years for regulated contaminants (why 10 years? some things are only sampled for every 9 years),

    Microbiological contaminants (coliform bacteria, e-coli, giardia.....

    Inorganic contaminants: Regulated

    Is the area a known arsenic, or nitrate hot spot?

    Organic contaminants: VOC, SOC, and DBP's

    Radiological:

Have water tested for non-regulated inorganic contaminants (hardness, iron, manganese, tds, sulfur)

Do corrosion analysis of water using Baylis Curve or Langlier Saturation Index if necessary. At minimum test ph and hardness levels

**Examine Lead and Copper sampling results this is where corrosion issues generally are spotted first.**

Determine regulatory mandated sampling schedule and create average annual budget for sampling

Create asset management inventory of source components and determine life cycle and capital expenditure budget for each component.

For due diligence what information can you gather?

For due diligence what information is better left for a professional consult?

## **Water Treatment:**

Is the water being treated and why?

Chlorination, UV light (is a daily chlorine residual level reading required?)

Is there adequate contact time?

Has a tracer study been done to determine contact time?

Turbidity (surface water requirement):

Filtration:

Iron or hardness removal:

Arsenic:

Nitrate:

Ph adjustment for corrosion control

Is there a safety feature/alarm in the event of treatment failure?

Have treatment equipment inspected by a professional

Are all equipment and chemicals used compliant with ANSI 60 and 61, or other equivalent standards?

Are copies of the MSDS present for each chemical used? Is proper PPE present?

Backup generator for power outages: size: condition:

Exercise schedule: fuel type: auto transfer or manual:

Create asset management inventory of treatment components and determine life cycle and capital expenditure budget for each component.

Risk of freeze damage:

For due diligence what information can you gather?

For due diligence what information is better left for a professional consult?

### **Questions to ask current operator:**

How long have they worked here?

How many hours a day, week, month does it take them to operate the system?

What tasks do they complete on a weekly, monthly basis?

If it was their system what would they change?

When was their last vacation?

Can they go on vacation or does the system need daily attention?

How often is power lost?

What was the last major repair done to the system?

What type and size of pipes are there in the system and where are they at?

**Compare answers their answers with as built they are generally more accurate. Have them go over as built and give their commentary on it.**

How many water leaks are there every year?

Any areas worse than others for leaks?

Is the current owner proactive in fixing stuff or only when it breaks?

Are there any projects coming up?

Have them give you a wish list of projects listed in order of importance to them.

Who reads the water meters at sources and how often?

Who reads water meters at each lot and how often?

## **Distribution System:**

As built drawing showing

Location, size, age, type including schedule or pressure rating of pipes.

Location of: valves, meters, fire hydrants

Location of: Storage tank(s), Reservoirs, and booster pump(s)

History or maintenance log(s) of repairs

### **Type, size, age and condition of storage tanks or reservoirs.**

Do they have 1 to 3 days capacity during high usage?

Does the system provide water for firefighting purposes?

Is the pumping/reservoir system adequate for firefighting? Call fire department

Are there any fire hydrants?

What is the scheduled testing of the hydrant?

Is the pumping system/reservoir system adequate for peak demand?

When were they last inspected and cleaned?

Is there a schedule to have them routinely inspected and cleaned?

### **Type and condition of system controls for storage tanks, and booster pumps**

### **Type and condition of any booster pumps**

Pump size:                      model #:                      pump curve (g.p.m. rating):

Is it adequate for peak flow (6:00am to 8:00am):

Wire size:

Pipe size:

Replacement history:                      Age of current pump:

Electrical power single or 3 phase:                      Amp draw under load:

Is wiring to code?

Backup generator for power outages:

Size (KVA or KW):                      Condition:

Exercise schedule:                      fuel type:                      auto transfer or manual:

Are components adequately protected from freeze danger?

### **Condition of existing distribution piping**

How deep is pipe buried?

Is there any bedding of the pipe? (There should ideally be 6" to 12" of sand under the pipe and minimum of 12" above pipe)

Is there any tracer wire in the system and where is it?

Type of soil in system (clays, silt, sands, gravels, boulders...)?

### **Clay soil and galvanized pipes are a bad combo**

Pick 2 to 4 spots in system and dig down and have a look at the condition of the pipes. Choose areas where there is galvanized pipe, lower quality or old pipes

**Do a pressure survey at multiple locations through-out park (areas furthest from pumps, on small lines, or highest points in park are good candidate locations for pressure checks. Talk to current residents**

Is the system routinely flushed?                      How many times per year?

Create asset management inventory of Distribution components and determine life cycle and capital expenditure budget for each component.

For due diligence what information can you gather?

For due diligence what information is better left for a professional consult?

**Talk to current residents what is their opinion of water quality and pressure?**

When was the system last down?

Have there ever been water shortages or usage restrictions?

## Compliance:

**The cost of non-compliance is increased risk exposure. It doesn't matter how much liability insurance you have if you are not compliant your insurance company will not cover you.**

What is the system classification? Distribution:      Treatment:      Cross Connection:

Who are the regulatory authorities for:

Operations:

Water rights:

Construction or modifications to system:

What is the regulatory climate like?

Have any modifications been made to the system that do not have plan review approval?

Does the system have the following:

Maintenance and Operations Manual with:

Coliform sampling plan,

Disinfection byproducts sample location identified,

Lead and copper sampling locations,

Emergency response plan,

Cross Connection Control ordinance and plan

MSDS for chemicals used

Is a licensed operator required? Do you want to be the operator if you buy the park?

Does the system have a licensed operator? Are they licensed at the right level?

Is the licensed operator onsite or subcontracted offsite?

Is the current operator interested in staying on after your purchase?

Review current contract if subcontracted:

Does the current operator have the correct license?

What kind of liability insurance do they carry?

What is the response time for emergencies per contract?

**You don't want to hire current operator to do your due diligence. They will say they are doing a great job. You do want to interview them and have them present when your professional walks through the system to inspect it.**

Is system compliant with all testing requirements?

Have there been any violations or citations in last 6 years?

Are there any fines levied against the system?

Are there any outstanding violations?

When did the regulatory authority last inspect the system?

Were any violations or issues discovered at the last inspection?

When is the next scheduled inspection?

Talk to regulatory authority and get a feel for their opinion of the park and any issues coming down the road. Use above questions to get them talking.

Can you have the regulatory authority do a walkthrough of the system as part of due diligence? Do you want them onsite?

**Put a clause in purchase agreement allowing regulatory authority to be onsite as part of due diligence.**

Is there a minimum psi requirement for all homes in the system?

**Rate regulation:** can you charge for the cost of providing water to the tenants?

Can you charge more than the actual cost? Can you charge a processing fee?

**What state agency regulates the rates charged?** Public Utility Commission?

**Call and verify current system is in compliance with PUC rate regulations regarding charging tenants for water.**

**Is the system compliant with state water rights law and regulations?**

For due diligence what information can you gather?

For due diligence what information is better left for a professional consult?

## Finalize Due Diligence

Compile reports of third parties:

General assessment of condition of system:

Identify any red flags or issues to take to owner:

Is the water safe to drink?                      Is there a place to put a replacement source?

Is there a significant risk of the aquifer failing or declining?                      Are you comfortable with this?

Any capital projects that should be discussed with seller?

Will you be able to sleep at night if you own this system?                      Who will operate it?

Who will respond to emergency or non-emergency calls?

Identify areas to cut costs

Create Annual Operating budget and compare with what was given by owner

Finalize capital expenditure budget for source, treatment, and distribution.

Create list and budget for near term capital projects

Can you pass along the operating cost of providing drinking water to tenants?

If you cannot pass along cost of operation and maintenance to tenants what is the cost per lot to cover these costs?

What is average lot rent of park on city utilities in the area where tenants pay for water and sewer?

What is the average lot rent of parks on city utilities in the area when park pays water and sewer?

What is the cost per lot to cover projected capital expenditures?

Is the number of occupied lots adequate to support the operational and capital costs of the system?

**Bottom Line what premium is received for the added risk and headache.**

What is the average market cap rate in this area for public utility parks?                      What is cap rate on this park?

What are average cash on cash returns for parks with public utilities in this area?                      What will the cash on cash return be on this park?

Is there any benefits received from potential owner financing to offset these risks?

What amount of capital reserves will be needed on this park?

What return could you be earning on the money tied up in capital reserves?

Is your holding period long enough to recover capital costs incurred in the near term?

**What is the exit strategy? Exit cap price, financing availability, potential buyer pool**