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COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII

Surface Water Use Permit Applications,)	Case No. CCH-MA15-01
Integration of Appurtenant Rights and)	BRYAN SARASIN'S EXCEPTIONS TO HEARINGS
Amendments to the Interim Instream)	OFFICER'S PROPOSED FINDINGS OF FACT,
Flow Standards, Na Wai Eha Surface)	CONCLUSIONS OF LAW & DECISON AND ORDER
Water Management Areas of Waihee,)	CERTIFICATE OF SERVICE
Waiehu, Iao and Waikapu Streams, Maui)	
_____)	

CERTIFICATE OF SERVICE

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Wailuku, Hawaii, January 3, 2018

Bryan Sarasin Sr.
2294-Sarasin

Sarasin's Written Exceptions to the Proposed Findings of Fact, Conclusions of Law, and Decision and Order.

Aloha, these are the exceptions that I take to the Proposed Findings of Fact,

Conclusions of Law, and Decision and Order. **The bolded text are the areas that we take**

exception to:

1) Page 111 Lines 25-30 of the Proposed Findings of Fact, Conclusions of Law, and Decision and Order.

"2. Ponds 1 and 2 are each fed by 4-inch pipes from the kuleana `auwai. Pond 1 discharges into the kalo lo`i, along with additional water from the `auwai. Pond 2 discharges into the Sarasins' ditch, which then discharges back into the `auwai.

Ponds 3 and 4 are each fed by 2-inch pipes with water from the lo`i that has received water primarily from pond 1, and each discharges into the ditch, which then discharges back into the `auwai."

Ponds 3 and 4 are both fed by a single 4" pipe and both fill pipes for ponds 3 and 4 are also 4" pipes. The reason that 2" pipe was mentioned in our original SWUPA is because during our measurements we needed a full pipe to get as accurate of measurements as possible using the method that we chose, so we reduced them down to 2" for the test since we don't run either pond with a full 4" pipe of water.

2) Page 112 Lines 13-21 of the Proposed Findings of Fact, Conclusions of Law, and Decision and Order.

"The pipes must be flowing full." However, photos provided by the Sarasins show:

i. **the pipe for pond 1 had less than 4 inches—not 15 inches—of horizontal flow;**

ii. **the pipe for pond 2 had about 2 to 4 inches—not 23 inches—of horizontal flow;**

iii. **the pipe for pond 3 had about 6 inches—not 29 inches—of horizontal flow and the**

pipe was not full;

iv. and the pipe for pond 4 had a splashy flow—not 29 inches—and the pipe was not full.

(SWUPA 2294, Addendum at 2, Exh. pp. 1-7.)"

The photo's taken were not during the test or it would've shown the 4" pipes on ponds 3 and 4 restricted to 2" pipe. The pictures were a reference to the amount of water that was our existing use in our ponds at the time of the SWUPA application.

i. Based on the measurements that we made at the time that we did to the best of our ability and as economically as possible, we stand by them as being as accurate as we could conduct them, not measurements pulled out of thin air with no rhyme or reason behind them. The estimate based on the methods used at the time was 208GPM (which I wrongly calculated to 146,160 GPD for Pond #1, It should've been 299,520 GPD) (PP 6B in our original SWUPA) and after the proposed findings came out on November 1st we bought a 4" saddle propeller flow meter to get more accurate readings since exception was taken to our estimates. The flow for this pond (before the flow meter got plugged up with debris sometime between 5:30PM and 7:30PM) over 8 hours (9:30AM-5:30PM on Christmas Day 12/25/17) was 93,900 gallons (The Flow Meter Totalizer Started at 436,000 gallons at 9:30AM and ended up at 529,900 gallons at 5:30PM). This averages to 11,737.5 gallons per hour or 195.625 gallons per minute (which was basically off by 12-13 GPM from our original estimate or about 6% less and within the 10% margin of error based on our initial measurement). Multiplying 195.625 GPM X 60 minutes per hour X 24 hours in a day = 281,700 GPD. Attached are pictures of the flow meter reading at the start of the test and at the end as well as the flow coming out of the pipe to reference it with the picture in the original SWUPA application. This was the only time that the meter got plugged up during our three separate tests likely due to having the lowest fall and pressure through the fill pipe of all of our ponds.

Date, Time and Gallons Shown on Flow Meter's Totalizer:

12/25/17 9:30AM 00436000 (Start)

12/25/17 10:30AM 00447700 (11,700 gallons)

12/25/17 11:30AM 00459600 (11,900 gallons)

12/25/17 12:30PM 00471400 (11,800 gallons)

12/25/17 1:30PM 00483300 (11,900 gallons)

12/25/17 2:30PM 00495200 (11,900 gallons)

12/25/17 3:30PM 00506800 (11,600 gallons)

12/25/17 4:30PM 00518300 (11,500 gallons)

12/25/17 5:30PM 00529900 (11,600 gallons)

ii. Our initial estimate using the method shown in our SWUPA filing was 439,200GPD or 305GPM. Using the flow meter we found that over 24 hours between 9:29AM December 11-9:29AM December 12 we had a total of 426,000 gallons flow into Pond 2, this means that the GPD was 426,000, which was 13,200GPD less than we originally estimated. The GPD of 426,000 gallons averaged out to 295.83GPM or a little more than 9GPM less than we estimated originally. This is a 3% margin of error compared to our original estimate.

Date, Time and Gallons Shown on Flow Meter's Totalizer:

12/11/17 9:29AM 00001100

12/12/17 9:29AM 00427100

iii. Our initial estimate based on the methods used at the time was 292,320GPD or 203GPM combined for Ponds 3 and 4. We decided to monitor the flow through the pipe feeding both ponds since we had to dig down about 3 feet to get to a spot in the pipe to be able to monitor the flow. I found using our flow meter that the flow over 24 hours for both Ponds 3 and 4 combined was 266,400GPD or 185GPM. This means that each Ponds flow was 92.5GPM. In this case my calculations were off by around 9% which was our greatest margin of error of the 3 flow measurements, yet still within the 10% margin of error which shows that our initial method while inexact, showed a relatively accurate picture of the flows that we had going through our ponds at the time of our SWUPA submission.

Date, Time and Gallons Shown on Flow Meter's Totalizer:

12/28/17 Start 12:49PM 00536200

12/29/17 End 12:49PM 00802600

iv. Our initial estimate based on the methods used at the time was 292,320GPD or

203GPM combined for Ponds 3 and 4. We decided to monitor the flow through the pipe feeding both ponds since we had to dig down about 3 feet to get to a spot in the pipe to be able to monitor the flow. We found using our flow meter that the flow over 24 hours for both Ponds 3 and 4 combined was 266,400GPD or 185GPM. This means that each Ponds flow was 92.5GPM. In this case my calculations were off by around 9% which was our greatest margin of error of the 3 flow measurements, yet still within the 10% margin of error which shows that our initial method while inexact, showed a relatively accurate picture of the flows that we had going through our ponds at the time of our SWUPA submission.

Date, Time and Gallons Shown on Flow Meter's Totalizer:

12/28/17 Start 12:49PM 00536200

12/29/17 End 12:49PM 00802600

3) Page 112 Lines 22-27 of the Proposed Findings of Fact, Conclusions of Law, and Decision and Order.

"6. The Sarasins also do not explain:

i. why the inflow into pond 2 is about 3 times the inflow into pond 1;

ii. why the flows into ponds 3 and 4 are double the amount coming from pond 1; and

iii. why they include the flows into ponds 3 and 4 in the total flow, when their flows come from pond 1. "

i. The reason for the massive discrepency is that I made an error in my SWUPA, I correctly listed 208GPM but incorrectly listed 146,160GPD. The correct GPD number for Pond 1 should've been 299,520GPD. This would still be 139,680GPD less than Pond 2. In our metering results, I found that the GPD difference is 145,400GPD between Ponds 1 and 2, with Pond 2 using more water. Pond 1 uses a little less than 66% of the water that Pond 2 does. The reason for this is that Pond 2 is our largest Pond, it has a bigger elevation drop from the auwai to its fill pipe than Pond 1 does which gives it greater pressure and more flow. Being our biggest pond it can sustain the most fish of our 4 Ponds so in turn it also requires the most water of our ponds.

ii. The total estimated GPD of Ponds 3 and 4 combined was 292,320GPD. I made a mistake

on the GPD number but not the GPM number for Pond 1 in the SWUPA. The correct GPD number should have been 299,520GPD which is a little more than the flows entering Ponds 3 and 4.

iii. It was my understanding to use the entire amount of water used which included that of Ponds 3 and 4 even if the water had already been used in Pond 1. Unless there is enough water in the auwai to fill Ponds 1 and 2 and enough remaining to go to the lo'i to blend with the Pond 1 discharge water (which would be ideal) we would use the discharge water from Pond 1 to fill Ponds 3 and 4 meaning that it would be reused water and not an additional 292,320GPD.

4) Page 112 Lines 28-30 of the Proposed Findings of Fact, Conclusions of Law, and Decision and Order.

"g. In contrast to this estimate of existing use for their aquaculture operations, Sarasin states that "the delivery of our kuleana water has been unreliable, limiting our existing uses." (SWUPA 2294, Addendum, at 1.)"

g. There have been many difficulties over the years in regards to the auwai being unrealiable at times and this past year was likely the very worst in this regard. All of these factors can disrupt the water flowing to all of us: When storms hit the water comes down exceptionaly dirty and full of debris, the banks of the auwai can break, parts of the auwai can back up and spill over due to debris coming down and blocking the auwai, branches, vines and their roots as well as cane grass also block the auwai. The intake in Spreckles ditch can and has been plugged up with sticks at times. On top of this WWC shuts down the ditch usually for 3-5 days seemingly every year to have the tunnels cleaned which is understandable. In the past year there was issues with fluctuating levels in Spreckles ditch mostly earlier in 2017. Leaks that myself and a few other users have repaired cost us over $1,000 not including our labor. Seemingly more usage upstream than there has been in the past. I do as much as I possibly can to keep the water flowing for our farm as well as our neighbors. Whether it be cleaning the auwai with a sickle and recently a steel tined rake to move mud and leaves after a big storm, cleaning the intake in Spreckles after a storm if WWC hasn't been able to at that time, fixing breaks in the banks, etc. Many of our neighbors know us because they see us in the auwai. I have gotten to be friends with a number of our neighbors because of this and they have at times worked beside us when there is much to do and they are available. Recently our Ohana, the Ishikawa and Kana Ohana's as well as Penny from the Hawaiian Island Land Trust repaired some leaking banks not far from the outfall from Spreckles ditch into our auwai. We have put in

many hours of sweat equity over the years to keep as much water flowing as possible for all of the users of the auwai. The more water that comes through our farm, the more water that the Hawaiian Island Land Trust as well as the Goo's have going to their properties since whatever water we use goes back into the auwai for their use.

5) Page 113 Lines 1-8 of the Proposed Findings of Fact, Conclusions of Law, and Decision and Order.

"h. The Sarasins also state that they know what stocking densities for their current water supply maximizes efficiency, and to maintain heavily stocked fishponds requires a good flow of water to oxygenate, cool, and cleanse the ponds. (2294-Sarasin-10.) [Hui/MTF and OHA, FOF B-416.]

i. However, even if their estimates were reasonable and accurate, they never correlate these flows—which are only estimates of flows from specified pipe sizes and the length of the exiting flow—with requirements for specified stocking densities for catfish."

h. This is correct, much like any farmer, a person will learn what works best in their particular system with experience. We have learned the best stocking densities for each of our ponds to maximize growth, yield and health within our system. If there is a shortage of water, then feeding all but stops which affects the growth and yield. Sometimes even more importantly it can affect the fish's health which can lead to mortality or worst case scenario, mass mortality. Anyone that has raised fish in an aquarium can attest to what happens when the water fouls due to overfeeding. In aquaculture you must balance that line with also feeding them enough to maximize growth.

i. We have now provided flows monitored by a flow meter and would've done it sooner in spite of the near $1,000 expense had we thought that our initial estimates would be under the scrutiny that they have been in this document. I thank you for this opportunity to take exception to these points. To my knowledge no other Kuleana users used any flow metering equipment to get an accurate measurement. I would argue that for flows like ours, that our method used originally is far superior to the bucket method for example, I couldn't imagine trying to use a bucket on a near 300GPM flow! Regardless, you now have numbers that were accumulated from a flow meter instead of our best estimates so that you can see what kinds of flows we had when we first did our SWUPA and would like to have going forward to support our farm at full production. Our stocking densities vary due to the amount of water available to our farm. Our stocking densites moving forward will be dependant on the amount of water

available to us. In 2008 we stocked more fish due to having a substantially better supply of water. We now stock 4,500 less catfish on our farm to err on the side of caution for mortality and stunting due to variable flows. We strive to provide the highest quality fish possible. This is a loss of about $22,050 of salable catfish that we could raise again with the same supply of water that we had in 2008.

6) Page 365 Lines 16-21 of the Proposed Findings of Fact, Conclusions of Law, and Decision and Order.

"k. If the Sarasins seek more than 96,450 gpd for their aquaculture operations, they must submit additional evidence of: 1) the amount in use as of April 30, 2008; and 2) that the amount was necessary for economic and efficient utilization for the amount of catfish they had in their ponds at the time. In the alternative, they may submit a new-use SWUPA with additional evidence of the requirements for the specific amounts of catfish they wish to raise."

k. After reading the Proposed Findings of Fact, Conclusions of Law, and Decision and Order:

1) We are supplying additional evidence with our flow meter monitoring. We are currently seeking 707,700GPD for our aquacuture usage. This is the total of the full pipe flows of Ponds # 1 and #2 that we had back in 2008 and measured with a flow meter in 2017 to show what the flows were back in 2008 using a more accurate form of measurement. The GPD that we are requesting does not include the uses of Ponds #3 and #4 as it did in the initial SWUPA. It was my misunderstanding that we needed to include the flows of those ponds as well since it was "water used". Since it is seen as a re-use of the water from Pond #1 I am not including their flows here.

2) in 2017 we have had our worst growth for our fish and as a result of poor growth due to low volumes of water early in 2017, our worst yield as well as the longest gap between having market sized catfish for sale. A gap that was over 6 months long. If you can't feed the fish properly especially in the warm season where growth is best, they don't grow. From 2016 to 2017 our sales dropped by $10,682.30 simply because we were unable to grow the fish fast enough to get them to market due to poor water quantity conditions. The only reason that our monetary loss wasn't even higher was due to an above average first half of sales in 2016. Those losses will carry into at least the start of 2018. Minimal to non existent growth leads to stunting. When an animal is stunted they take a long time to improve their growth and sometimes they just don't grow much more at all. The fish that we have only recently taken to market are about

20% smaller than our usual market sized fish in spite of waiting longer than usual for them to achieve market size. This is tough on us as farmers as the work is the same but the yield is much, much worse. To maintain maximum growth, fish health and yield, the amount of water that we are requesting is known by us to provide these three critical aspects of aquaculture, because we have had lots of success with these flows on our farm.

Without flow like the ones that we are asking for it will be more of the same going forward which means economic inviability. A fairly consistent large flow of clean water is necessary for our aquaculture operations viability. I will mention again that the water that comes to and through our farm goes to our neighbors below us, the Goo's and the HILT's loi's. The water that we will use in the future will not be "wasted" but instead re-used by our neghbors below us. In closing, mahalo for the allocation that you have aready proposed for us. But please deeply consider my exceptions for the sake of our land, our farm and our family. The proposed findings do not provide us with enough water for our farm to function anywhere near a reasonable capacity or even at the level that it did in 2017 with all of the water and poor growth issues that we had. We have invested heavily in this operation without any County, State or Federal money and we have a proven track record of making aquaculture work on our Kuleana land with the blessing of Kuleana water and under our care. The water has flowed here ever since I can remember as a boy having been born and raised on this property, please restore the flow to what it was for us when we invested heavily into our farm and allow a third generation of Sarasin's to continue with our family legacy of being aquaculturists on our land. We look forward to testifying before you as the water is very critical to us. Mahalo, Bryan Sarasin Jr.

Exhibit List of Pictures:

Page 1 Pictures:

A-McCrometer flow meter number

B-McCrometer model and serial numbers

C-McCrometer register showing that at the time of installation it was a new meter

D-Showing that we leveled the flow meter upon each installation for the most accurate results that we could provide.

Page 2 Pictures All in Reference to Pond #1:

A-Meter register showing approximate flow in GPM's and totalizer showing 00436000 gallons at the start of the monitoring at 9:30AM on 12/25/17.

B-Flow entering Pond #1 at the start of the monitoring at 9:30AM on 12/25/17.

C-Meter register showing approximate flow in GPM's and totalizer showing 00529900 gallons at 5:30PM on 12/25/17, the last reading before the meter would be plugged with debris which in turn no longer gave us accurate flows or measurements.

D-Flow entering Pond #1 at 5:30PM on 12/25/17

Page 3 Pictures All in Reference to Pond #1:

A-Removal of flow meter on 12/26/17 showing some debris that was around the propellar.

B-Debris that came out of the pipe that I netter out immediately after removing the meter and running water through the fill pipe.

C-Showing the minimal drop from the auwai into Pond #1 as well as dirty water that ran into the pond from storm runoff.

D-The water upstream from our intake where the auwai overflowed from storm runoff and as a result the muddy water ran into Pond #1.

Page 4 Pictures All in Reference to Pond #2:

A-Meter register showing approximate flow in GPM's and totalizer showing 00001100 gallons at the start of the monitoring at 9:29AM on 12/11/17

B-Flow entering Pond #2 at the start of the monitoring at 9:29AM on 12/11/17

C-Meter register showing approximate flow in GPM's and totalizer showing 00427100 gallons at the end of the monitoring at 9:29AM on 12/12/17

D-Flow entering Pond #2 at 9:29AM on 12/12/17

Page 5 Pictures All in Reference to Ponds #3 and #4:

A-Meter register showing approximate flow in GPM's and totalizer showing 00536400 gallons at the start of monitoring at 12:49PM on 12/28/17

B-No picture provided/Blank

C-Flow entering Pond #3 at the start of monitoring at 12:49PM on 12/28/17

D-Flow entering Pond #4 at the start of monitoring at 12:49PM on 12/28/17

Page 6 Pictures All in Reference to Ponds #3 and #4:

A-Meter register showing approximate flow in GPM's and totalizer showing 00802600 gallons at the end of monitoring at 12:49PM on 12/29/17

B-Picture of the hole that we dug down to install meter to get the combined flow for ponds #3 and #4.

C-Flow entering Pond #3 at the end of monitoring at 12:49PM on 12/29/17

D-Flow entering Pond #4 at the end of monitoring at 12:49PM on 12/29/17

Page 7 Pictures All in Reference to Monitoring Conducted on 12/25/17 and 12/28/17-12/29/17

A-Picture of the auwai next to Waihe'e School and mauka to Kahekili Highway, the Goo's and HILT's properties and the tranducer to monitor flows which is on the makai side of the highway. This area was plugged at the time of our monitoring of the flows for Ponds #1, #3 and #4 due to heavy rains on 12/20/17 and 12/21/17 which sent mud and debris into the auwai. Because of this, the flows that we monitored likely were not mirrored by the transducer since much of the water was not going to the auwai but instead into storm drainage. This picture shows the storm grate below the ditch and also a storm collection basin above the ditch which is fed by a pipe in the auwai to relieve high flows when the ditch plugs up under the road.

B-Showing the auwai overflowing its bank because of a blockage under the road from the storm runoff on 12/20 and 12/21 2017.

C-Showing the splashboard and transducer below the road with the water line clearly below its normal height.

D-Showing the splashboard and transducer below the road with the water line clearly below its

normal height.

 Sarasin

A

B

C

D

A


12/25/2017
GALLONS PER MINUTE
100
300
400
500
600
700
0 0 4 3 6 0
GALLONS X 100
HEMET, CALIFORNIA
McCROMETER

B


12/25/2017

C


12/25/2017
GALLONS PER MINUTE
100
300
400
500
600
700
800
900
1000
0 0 5 2 9 9
GALLONS X 100
HEMET, CALIFORNIA

D


12/25/2017

A

B

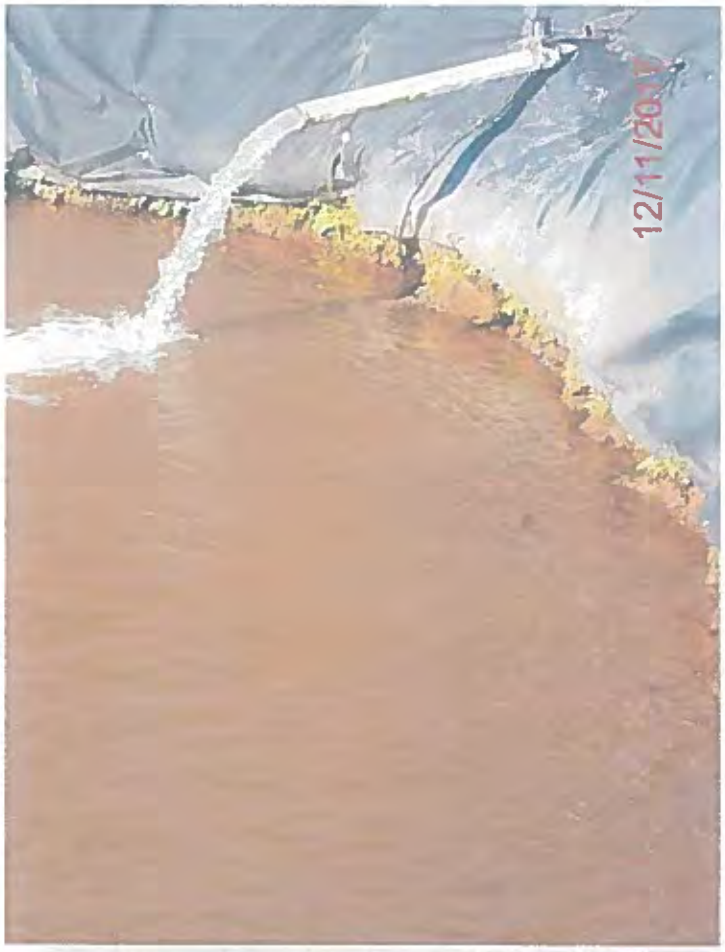
C

D

A


12/1
GALLONS PER MINUTE
GALLONS X 100

B


12/11/2017

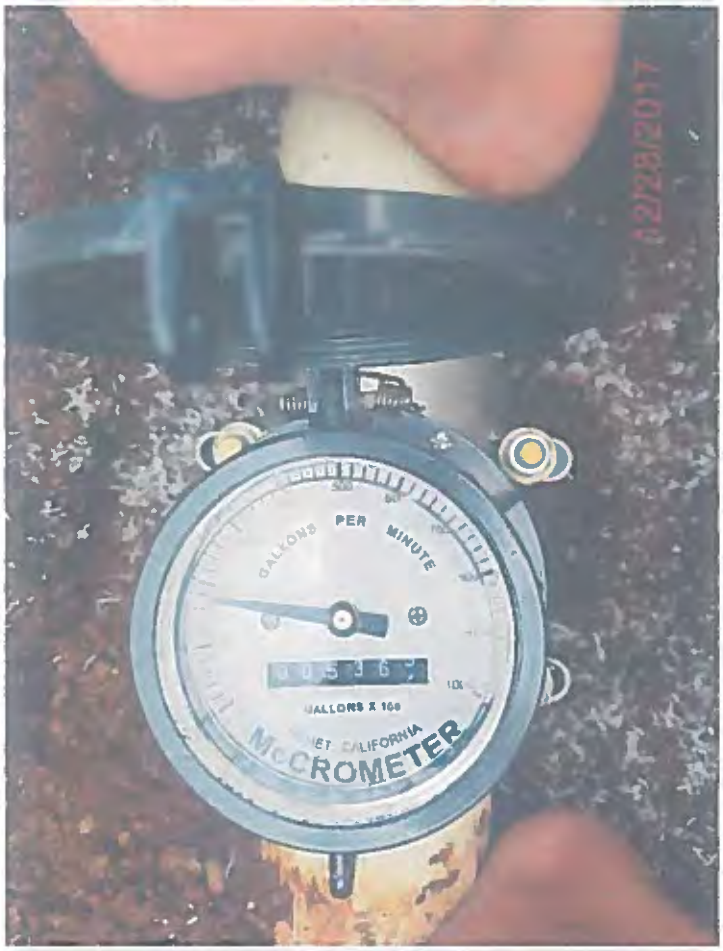
C


12/12/2017
GALLONS PER MINUTE
0 0 4 2 7 1
GALLONS X 100
HEMET, CALIFORNIA

D


12/12/2017

A


12/28/2017
GALLONS PER MINUTE
GALLONS X 100
McCROMETER

B

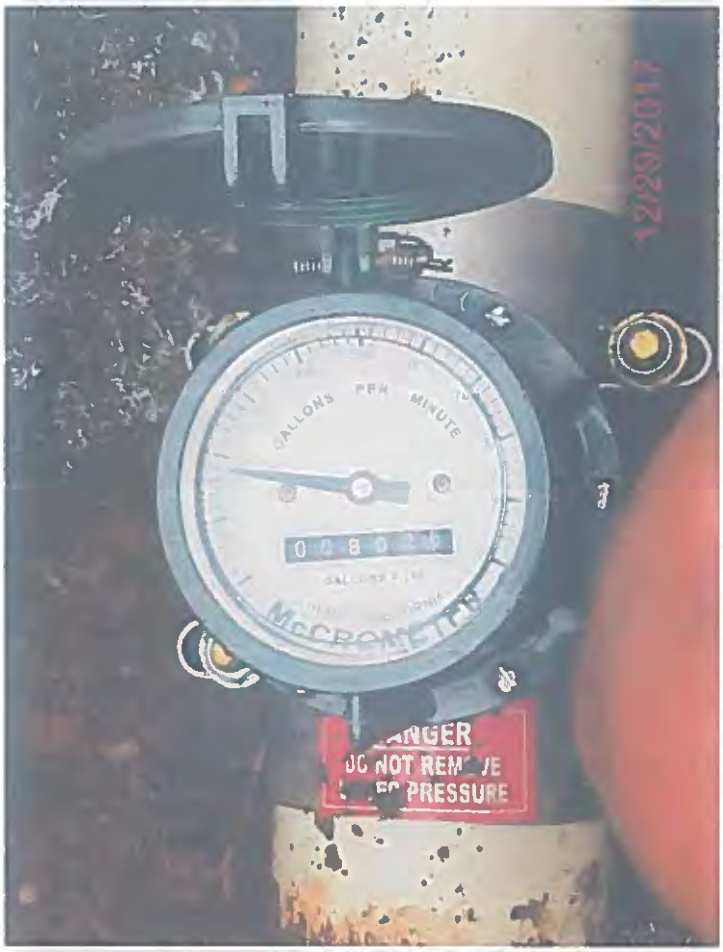
C

D


12/28/2017

Page 6 Sarasin

A



B

C

D

A

B

C


12/28/2017
3.30
3.20
3.10
3.00
2.90
2.80
2.70
2.60
2.50
2.40

D


12/28/2017
3.30
3.20
3.10
3.00
2.90
2.80
2.70
2.60
2.50
2.40