

MerMaid is the most advanced technology developed to analyze in detail hydraulic, electrical and efficiency elements of wastewater pump stations.

MerMaid was designed by a team headed by the same inventor who created over 20 years ago, the only other volumetric flow meter still on the market today. MerMaid has over 20 years of constant improvement.

MerMaid uses the most accurate volumetric flow algorithm, compared to other flow calculations used in RTUs and Scada systems based on preset pump capacities, pump curves, glorified pump run times or simplistic volumetric equation.

Applications:

- Inflow and Infiltration Analysis
- Dry/Wet Weather Flow Model
- Lift Station Maintenance
- Electrical Consumption and Electrical Analysis
- Pump Efficiency
- Hydraulic Calibration
- Collection System Capacity Analysis
- Cost of Not Repairing Pumps

Multiple reports and analysis:

- Most complete lift station evaluation report on the market
- Real Time Display
- Troubleshooting spreadsheet
- Motor Operation Summary
- Analog Input Analysis
- Digital Inputs
- Current and Voltage Analysis
- Monthly reports
- All Reports and Analysis are exportable in Excel and PDF formats.

Setup required:

- Wet well dimensions
- Pumps operation levels
- Size of electrical sensors
- Setup can be done before or after the installation of the data logger and can be edited when required.

LIFT STATION EVALUATION REPORT

Station: Carignan P4
Installation: Carignan P4
Contact: Eric Beaudoin

Layout: Initial layout
From: 1/7/2017 9:43:43 AM
Phone: 514-735-6800

Device: 151042
From: 7/6/2015 16:00:00 AM
Email: Eric@maidlabs.com

Dimensions	Geometry of well: Other	Distance	Volume
	Between start level for one pump and stop level	R	3,158 US gal
	Between start level for two pumps and start level of one pump	R	1,000 US gal
	Between start level for three pumps and start level of two pumps	R	1,000 US gal

Electricity	Input	Unit	Phase 1	Phase 2	Phase 3	Unit	Phase 3	Unit	Run time	Starts	Success
Voltage	Phase 1	V	483.0	0.0%	483.0	0.0%	483.0	0.0%	483.0		
Current	Motor 1	A	48.7	1.3%	44.2	-4.2%	47.5	2.9%	45.1	908.89	17,232
Current	Motor 2	A	42.3	2.1%	40.2	-5.0%	42.9	3.6%	42.4	1,817.11	19,427
Current	Motor 3	A	48.8	2.3%	45.2	-6.2%	49.1	2.9%	47.7	853.70	21,505

Efficiency	Pumps	Total	Phase 1	Phase 2	Phase 3	Run time	Events	Run capacity	Pumped volume	Efficiency	Average
		kWh	% kWh	kWh	kWh	hours		CFM	US gal	%	US gal/min
	None	3	0.0	1	1	1	1	3,968.12	56,548	3	627
	1	37,365	27.4	12,816	19,506	12,823	974.02	16,546	1,833	107,141	2,817
	2	81,526	49.2	20,894	19,301	21,243	1,746.80	18,918	1,523	199,878	494
	3	21,455	23.1	10,219	8,935	10,760	789.66	20,086	2,286	108,866	274

Annual Energy Cost

	Total	Phase 1	Phase 2	Phase 3
Cost per kWh	\$0.10	\$0.10	\$0.10	\$0.10
Cost per kWh	\$4,233.34	27.4%	\$15,783.42	3.3%
Pump 1	\$2,116.44	49.2%	\$17,450.67	13.3%
Pump 2	\$3,837.20	23.1%	\$13,064.68	-15.5%
Pump 3	\$669.71	4.3%	\$1,958.68	100%
Other	\$669.71	4.3%	\$1,958.68	100%
Total	\$15,308.68			

Total annual extra cost of electricity if no modification occurs: \$2,701 17%

Generated by Mermaid 2010 Date: 9/14/2010 10:25:14 AM © MAIDLABS 2010

Motor Summary Report

Motor	Run time	Starts	Success
Motor 1	1,746.80	17,232	17,232
Motor 2	1,746.80	19,427	19,427
Motor 3	1,746.80	21,505	21,505

Data Quality Certification Mechanism

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    graph TD
        A[Data Quality Certification Mechanism] --> B[Data Quality Certification Mechanism]
        B --> C[Data Quality Certification Mechanism]
        C --> D[Data Quality Certification Mechanism]
        D --> E[Data Quality Certification Mechanism]
        E --> F[Data Quality Certification Mechanism]
        F --> G[Data Quality Certification Mechanism]
        G --> H[Data Quality Certification Mechanism]
        H --> I[Data Quality Certification Mechanism]
        I --> J[Data Quality Certification Mechanism]
        J --> K[Data Quality Certification Mechanism]
        K --> L[Data Quality Certification Mechanism]
        L --> M[Data Quality Certification Mechanism]
        M --> N[Data Quality Certification Mechanism]
        N --> O[Data Quality Certification Mechanism]
        O --> P[Data Quality Certification Mechanism]
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        R --> S[Data Quality Certification Mechanism]
        S --> T[Data Quality Certification Mechanism]
        T --> U[Data Quality Certification Mechanism]
        U --> V[Data Quality Certification Mechanism]
        V --> W[Data Quality Certification Mechanism]
        W --> X[Data Quality Certification Mechanism]
        X --> Y[Data Quality Certification Mechanism]
        Y --> Z[Data Quality Certification Mechanism]
    
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Cyclic Equipment Efficiency Monitor Flowchart

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    graph TD
        A[Cyclic Equipment Efficiency Monitor Flowchart] --> B[Cyclic Equipment Efficiency Monitor Flowchart]
        B --> C[Cyclic Equipment Efficiency Monitor Flowchart]
        C --> D[Cyclic Equipment Efficiency Monitor Flowchart]
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        X --> Y[Cyclic Equipment Efficiency Monitor Flowchart]
        Y --> Z[Cyclic Equipment Efficiency Monitor Flowchart]
    
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Workload Calculator

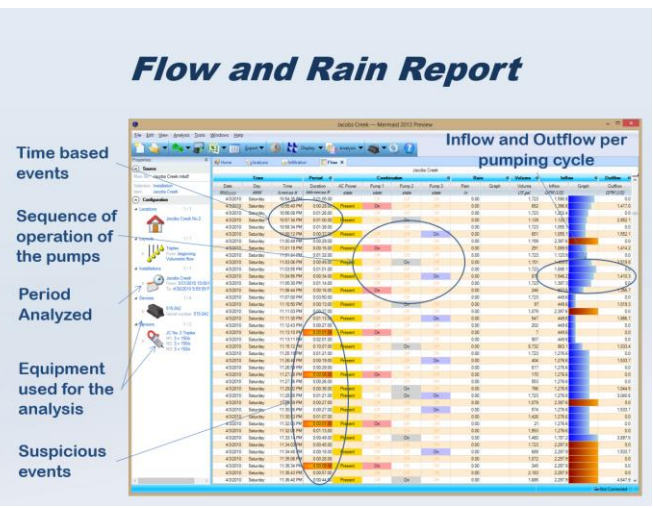
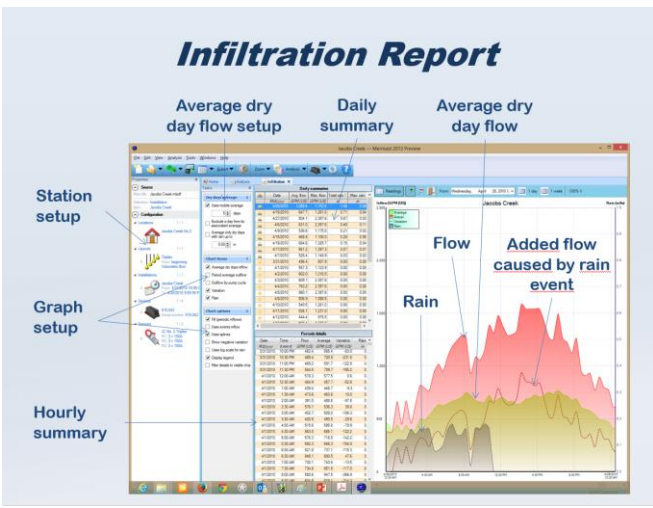
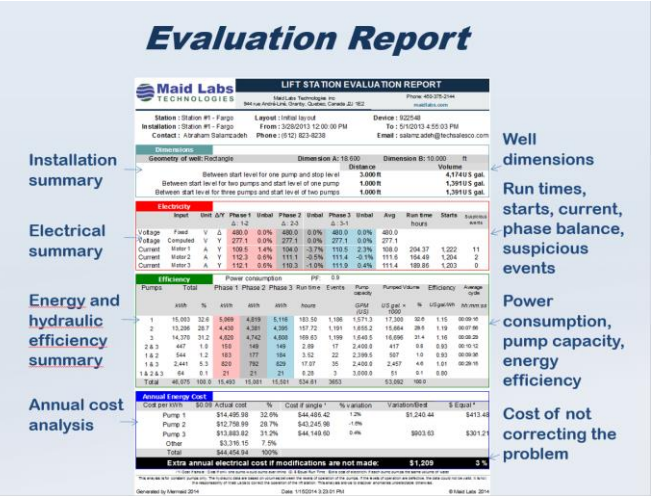
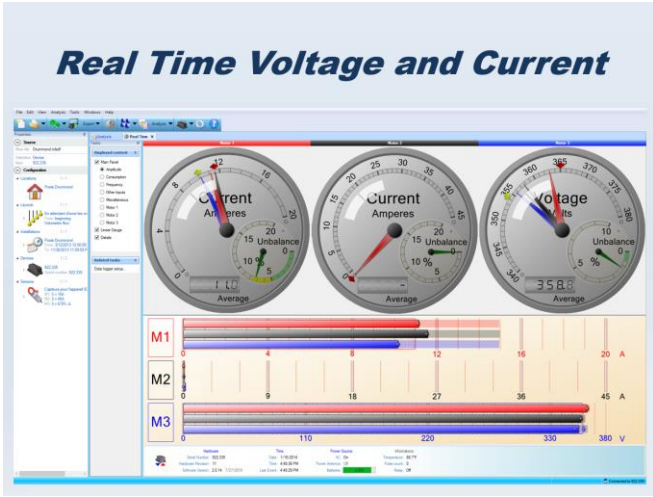
Efficiency Calculator

Self Adjusting Mechanism

Sensors Wizard

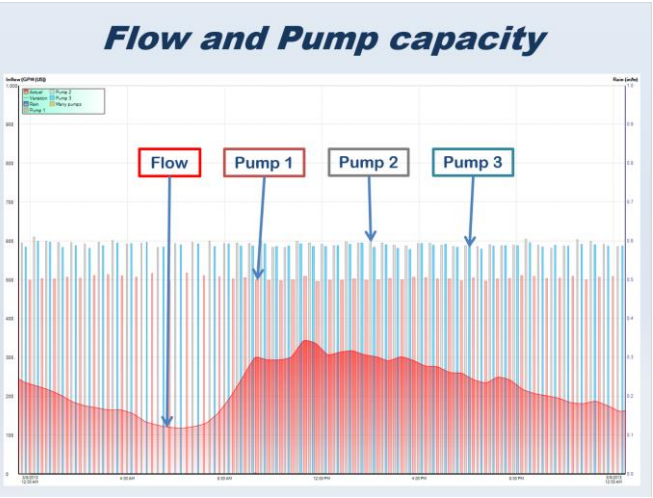
Level Measurement Wizard

Station Layout Wizard



Monthly Reports

		April 2013														
Date	Day	Rain	Inflow		Pump 1				Pump 2				Pump 3			
			Volume	Rate	Time	Starts	Time	Starts	Time	Starts	Time	Starts	Time	Starts		
01	Mon	0.00	328,558	223.0	8:50 AM	522.8	47	02:30:55	611.9	47	02:57:48	601.1	47	02:29:29		
02	Tue	0.00	385,195	267.5	3:22 A	512.1	48	04:29:50	614.2	48	03:16:54	603.8	48	02:31:06		
03	Wed	0.00	410,400	285.0	3:08 P	523.6	47	04:58:28	613.1	47	03:26:08	603.2	46	03:31:19		
04	Thu	0.00	322,275	220.7	6:02 P	518.7	24	02:20:57	599.4	24	01:28:54	611.8	56	08:06:19		
05	Fri	0.00	366,325	254.4	6:41.0	509.3	35	03:43:38	600.1	33	02:22:20	491.7	62	05:50:58		
06	Sat	0.00	404,887	281.2	4:16 P	509.5	45	05:03:48	608.0	46	03:22:47	594.4	46	03:32:12		
07	Sun	0.00	421,802	293.0	6:23 PM	524.0	43	05:07:00	605.2	47	03:35:20	590.0	46	02:38:36		
08	Mon	0.00	463,288	321.7	4:40.9	521.9	47	05:43:01	603.7	47	03:55:18	593.3	47	03:58:42		
09	Tue	0.00	422,028	293.7	6:41.0	527.0	31	04:58:50	609.4	30	03:31:54	606.7	49	03:38:02		
10	Wed	0.00	412,728	286.6	4:48.5	522.9	46	05:11:19	601.1	47	03:30:32	595.7	46	02:32:38		
11	Thu	0.00	440,567	298.8	3:06.6	504.8	47	05:05:05	602.1	47	03:22:34	594.7	47	02:39:54		
12	Fri	0.00	372,779	258.0	3:03.0	479.6	43	04:34:13	600.3	28	01:54:01	517.3	60	05:29:33		
13	Sat	0.00	426,406	296.1	4:38.0	524.9	43	05:17:06	601.8	43	03:34:45	595.2	45	02:41:07		
14	Sun	0.00	431,187	299.4	4:04.0	517.4	47	05:22:19	601.2	47	03:28:54	594.1	47	03:43:47		
15	Mon	0.00	470,095	326.9	4:37.8	517.0	44	05:57:39	602.5	45	03:52:54	591.8	45	04:05:14		
16	Tue	0.00	560,064	390.6	6:05.9	520.4	38	06:49:43	581.9	35	05:59:38	601.7	35	02:37:07		
17	Wed	0.00	541,374	376.0	6:41.0	509.2	42	08:12:20	608.7	46	04:52:33	608.7	41	03:56:15		
18	Thu	0.00	533,342	370.4	6:41.0	491.5	44	08:07:04	605.7	41	03:49:31	595.8	40	03:50:21		
19	Fri	0.00	494,307	343.3	4:06.5	511.4	40	07:15:03	601.0	42	03:45:15	592.0	43	03:54:43		
20	Sat	0.00	455,852	316.6	4:01.8	496.3	45	06:25:43	600.8	45	03:40:12	595.4	45	03:42:40		
21	Sun	0.00	460,248	324.5	4:20.7	527.9	44	06:34:00	600.1	44	03:43:44	590.1	44	03:51:57		
22	Mon	0.00	494,406	343.4	4:00.9	511.4	40	07:04:56	602.7	43	03:51:12	592.7	43	04:00:25		
23	Tue	0.00	491,137	341.1	4:27.6	505.2	43	06:45:25	605.7	44	03:53:09	596.5	44	04:02:22		
24	Wed	0.00	504,146	350.1	4:48.2	510.8	44	07:06:13	605.7	43	03:54:31	595.0	43	04:05:47		
25	Thu	0.00	516,021	358.9	6:41.0	503.7	44	07:25:05	609.9	44	03:50:18	601.5	45	03:55:56		
26	Fri	0.00	541,669	376.2	4:27.3	518.0	42	07:46:40	611.2	42	03:57:40	603.9	42	04:08:15		
27	Sat	0.00	535,397	371.8	4:02.1	513.9	40	07:54:17	599.8	40	04:02:07	591.0	40	04:12:54		
28	Sun	0.00	576,754	403.3	6:01.0	520.5	33	08:25:12	602.2	34	03:40:34	601.2	33	03:52:10		
29	Mon	0.00	620,074	431.2	5:27.9	512.9	23	14:19:44	603.3	23	02:36:14	595.2	23	02:46:59		
30	Tue	0.00	674,755	466.6	5:02.6	510.8	25	14:22:42	606.2	27	02:48:06	603.9	26	03:04:38		
Total		0.0	14,080,305	3226.6	6:41.0	513.0	596.5	1:256	1982.3	1:256	1:054.1	587.3	1:254	1:19.3		



A 30 days Trial version of the MerMaid software can be downloaded from www.maidlabs.com/software-mermaid