

Let your SCADA System do the
Reporting for you



Automated Regulatory Reporting



Presenter: Jeremy Anderson, Project Manager & Sales Engineer



Process and Data Automation
670 West 36th Street
Erie, PA 16508
www.processanddata.com



Process and Data Automation Inc.



Let your SCADA System do Reporting for you



STATE OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STATISTICS AND QUALITY REGULATION

**Membrane Filtration
Monthly Direct Integrity Pressure Decay Testing (PDI) Report Form**

Form # PWS618 (REV. 03/2016)

Plant Name: _____ Plant Unit #: _____ (Refer to Inland Permit)

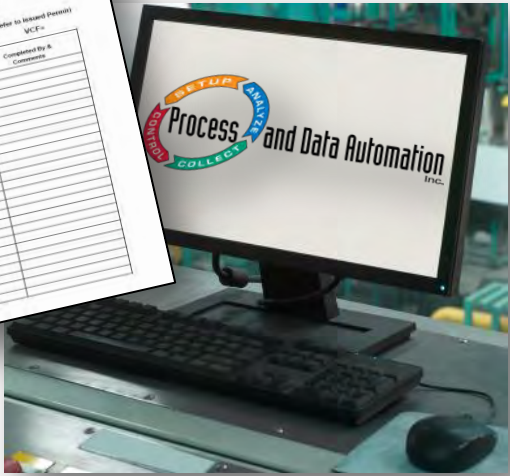
Membrane Unit #: _____

Month/Year: _____ Test Duration: _____

Operator: _____

Completed By & Comments: _____

| Code | Time | MTI Applied to Membrane | Pressure (PSI) | ALOR | Observed Air Leak (PSI) | Drop Rate (PSI/min) | Test Pressure (PSI) | ΔP (PSI) | Test Status | Test Results |
|---------|----------|-------------------------|----------------|------|-------------------------|---------------------|---------------------|----------|-------------|--------------|
| MEM0001 | 08:00:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0002 | 08:00:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0003 | 08:01:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0004 | 08:01:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0005 | 08:02:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0006 | 08:02:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0007 | 08:03:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0008 | 08:03:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0009 | 08:04:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0010 | 08:04:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0011 | 08:05:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0012 | 08:05:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0013 | 08:06:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0014 | 08:06:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0015 | 08:07:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0016 | 08:07:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0017 | 08:08:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0018 | 08:08:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0019 | 08:09:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0020 | 08:09:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0021 | 08:10:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0022 | 08:10:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0023 | 08:11:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0024 | 08:11:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0025 | 08:12:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0026 | 08:12:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0027 | 08:13:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0028 | 08:13:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0029 | 08:14:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0030 | 08:14:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0031 | 08:15:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0032 | 08:15:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0033 | 08:16:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0034 | 08:16:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0035 | 08:17:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0036 | 08:17:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0037 | 08:18:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0038 | 08:18:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0039 | 08:19:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0040 | 08:19:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0041 | 08:20:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0042 | 08:20:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0043 | 08:21:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0044 | 08:21:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0045 | 08:22:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0046 | 08:22:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0047 | 08:23:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0048 | 08:23:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0049 | 08:24:00 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |
| MEM0050 | 08:24:30 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 0 | |



Process and Data Automation
670 West 36th Street
Erie, PA 16508
www.processanddata.com



Design Considerations



What Data do you need to collect?



Who will be using the data?



Where are you collecting data from?



How long do you need to keep the data for?

Other Key Considerations

- Overall Cost
- Future Expansion
- Security of Data
- Redundancy



Department of Environmental Protection Standards



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Page 1 of 2

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF DRINKING WATER MANAGEMENT
MAXIMUM CONTAMINANT LEVELS (MCLs)
MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs)

April 2006

PRIMARY CONTAMINANTS

Volatiles Organic Chemicals (VOCs):

| | | | | | |
|-------------------------------|-------|------|----------------------------|-------|------|
| Acetone | 0.050 | mg/L | 1,1-DICHLOROETHANE | 0.1 | mg/L |
| Benzene | 0.010 | mg/L | 1,1,1-Trichloroethane | 0.050 | mg/L |
| Chloroform | 0.100 | mg/L | 1,2-Dichloroethane | 0.1 | mg/L |
| Hexachlorocyclopentadiene | 0.005 | mg/L | 1,2-Dichloroethene (cis) | 0.1 | mg/L |
| 1,1,2-Trichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,1,1-Trichloroethene | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,1,2-Trichloroethene (cis) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,1,2-Trichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethane | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (cis) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |

Synthetic Organic Chemicals (SOCs):

| | | | | | |
|-------------------------------|-------|------|----------------------------|-------|------|
| Acetone | 0.050 | mg/L | 1,1-DICHLOROETHANE | 0.1 | mg/L |
| Benzene | 0.010 | mg/L | 1,1,1-Trichloroethane | 0.050 | mg/L |
| Chloroform | 0.100 | mg/L | 1,2-Dichloroethane | 0.1 | mg/L |
| Hexachlorocyclopentadiene | 0.005 | mg/L | 1,2-Dichloroethene (cis) | 0.1 | mg/L |
| 1,1,2-Trichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,1,1-Trichloroethene | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,1,2-Trichloroethene (cis) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,1,2-Trichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethane | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (cis) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |
| 1,2-Dichloroethene (trans) | 0.1 | mg/L | 1,2-Dichloroethene (trans) | 0.1 | mg/L |

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

Membrane Filtration Pressure Decay Testing (PDT) Report Form

Membrane Unit #: _____ (Refer to issued Permit)

Month/Year: _____ Test Duration: _____ min V&V: _____ WCF: _____

Plant Name: _____
Plant Resolution Limit Initial: _____
A Post Upper Control Limit: _____

| Date | Time | HTU Applied to Membranes | Filterate Pressure (psid) | ALCR | TMP (psid) | Day Max (psid) | Test Pressure (psid) | Filter | Δ P Test (psid) | Test 1 within normal range? | Log | Completed by & Comments |
|-----------|----------|--------------------------|---------------------------|------|------------|----------------|----------------------|--------|-----------------|-----------------------------|-----|-------------------------|
| 6/21/2012 | 14:28:58 | 0 | 0 | 0 | 0 | 13 | 14 | - | - | 0 | | |
| 6/21/2012 | 14:38:38 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/22/2012 | 15:32:06 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/22/2012 | 16:07:58 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/22/2012 | 16:15:15 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/22/2012 | 08:01:14 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/22/2012 | 08:10:17 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/22/2012 | 08:27:10 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/27/2012 | 09:59:42 | 0 | 0 | 0 | 0 | 13 | 14 | -1 | -1 | 0 | | |
| 6/27/2012 | 09:50:14 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/27/2012 | 09:59:12 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/27/2012 | 09:59:06 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/27/2012 | 09:58:18 | 0 | 0 | 0 | 0 | 13 | 12 | -1 | -1 | 0 | | |
| 6/27/2012 | 09:58:30 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/27/2012 | 09:58:32 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | | |
| 6/27/2012 | 09:58:47 | 0 | 0 | 0 | 0 | 13 | 14 | -1 | -1 | 0 | | |
| 6/27/2012 | 09:50:37 | 0 | 0 | 0 | 0 | 13 | 14 | -1 | -1 | 0 | | |
| 6/27/2012 | 09:58:38 | 0 | 0 | 0 | 0 | 13 | 14 | -1 | -1 | 0 | | |
| 6/27/2012 | 11:57:47 | 0 | 0 | 0 | 0 | 13 | 14 | -1 | -1 | 0 | | |
| 6/27/2012 | 11:58:58 | 0 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | | |
| 6/27/2012 | 15:27:58 | 0 | 0 | 0 | 0 | 13 | 14 | -1 | -1 | 0 | | |
| 6/29/2012 | 15:23:18 | 0 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | | |
| 6/29/2012 | 16:38:38 | 0 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | | |
| 6/29/2012 | 16:11:41 | 0 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | | |

- Chapter 109 of the safe drinking act is the ruling document. It Specifies:
 - Filter Plants
 - Well Systems and Rechlorination Points
 - General Systems
- Reporting Standards
 - Frequency of records to be taken for chemicals, filters, etc.
- Up and Coming Rules/Programs
 - LT2
 - Distribution Optimization
 - Secondary Contamination due to aging infrastructure





Data System Methods

Hand Jam



| Pros | Cons |
|----------|----------------------|
| Low Cost | Resource Reliability |
| | Shared Resources |



Data System Methods

Local Chart
Recorder/ OIT

| Pros | Cons |
|---------------------------------|------------------------|
| Reliable Data | Failure of Instruments |
| Removes Testing, Just Recording | Limited Trending |
| | No Digital Query |





Data System Methods

SCADA/HMI Computer

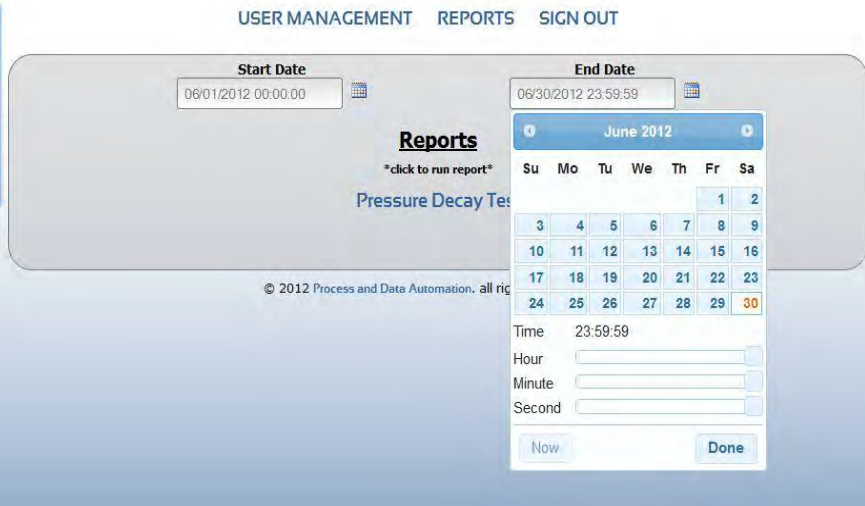
| Pros | Cons |
|--|---|
| Eliminates Human testing and recording | Data Query by file naming structure |
| Utilizes Print Screens as Reporting | Data is not Dynamic |
| | Instrument Failure |
| | Raw Data can be .CSV and not secured from editing |





Data System Methods

Web-based Application



| Pros | Cons |
|--|--|
| Database | Higher Cost |
| Dynamic Reporting | Changing and Expanding the App is best by creator. |
| Friendly with Digital Based Hand Jamming | |
| Developed to work with existing Hardware Platforms | |
| Configured for end-user | |



Process and Data Automation
Inc.



Data System Methods

Historical Trending
Software



GE
Intelligent Platforms



**Rockwell
Automation**



CitectSCADA



Process and Data Automation
670 West 36th Street
Erie, PA 16508
www.processanddata.com



Important Information & Resources

- **DEP Regulations and Resources**
 - Chapter 109 of the PA Code 'Safe Water Drinking Act'
<http://www.pacode.com/secure/data/025/chapter109/chap109toc.html>
 - Sample Collection & Data Management (Data Integrity)
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-85563/3800-BK-DEP4318.pdf>
- **Tips to Implementation of a SCADA System**
 - Find a trusted Partner to work with you through the entire migration phase
 - All raw data must be secured from public editing
 - Understand your needs and the value of having a reporting system.



**Visit Booth #xx for our
extended Information &
Resources Hand-out**



Process and Data Automation
Inc.



Industry Partners:



SIEMENS



GE
Intelligent Platforms

Questions?

Thank you for attending our presentation!

Visit us at Booth #43

Jim Barish
V.P. Sales & Client Services
(814) 882-6983 Mobile
(814) 866-9600 ext. 230
jbarish@processanddata.com

Jeremy Anderson
Sales Engineer
(814) 403-3894 Mobile
(814) 866-9600 ext. 237
janderson@processanddata.com



Process and Data Automation
670 West 36th Street
Erie, PA 16508
www.processanddata.com