

2008 ANNUAL OPERATOR WORKSHOP

SMALL TOWN SOLUTIONS



•NL Dept of Environment & Conservation

SPONSORED BY

**Operator Training & Certification
Water Resources Management
Division**

**Operator Education, Training &
Certification
NL Dept of Environment &
Conservation**

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ANALIZING ANALYZERS

BRIAN PETT
5 *SQUARE* CONSULTING
INC.
CALEDONIA, ONTARIO







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THE DECISION IS DO I
INSTALL
OR
DON'T I INSTALL



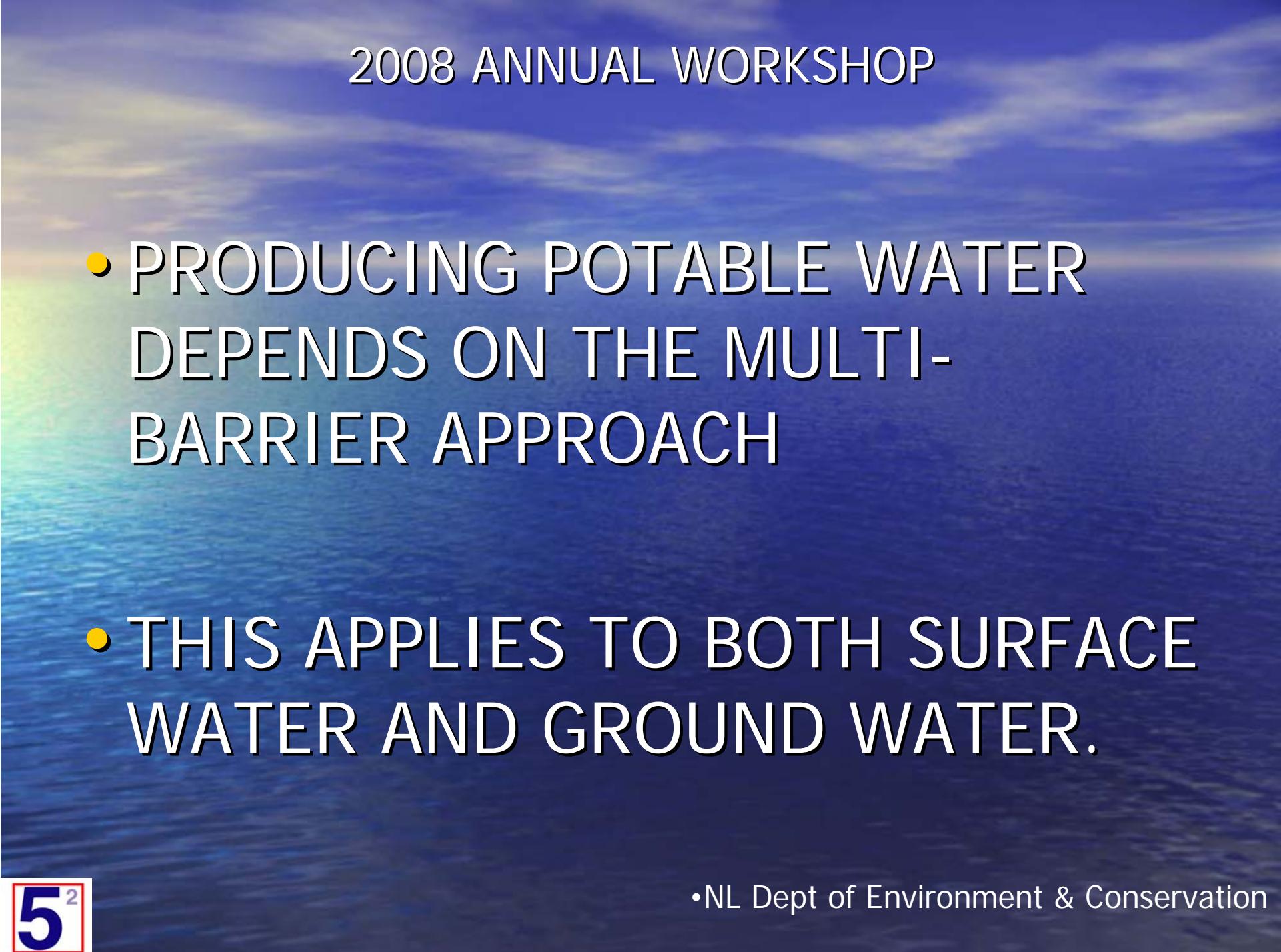
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- PRODUCING POTABLE WATER DEPENDS ON THE MULTI-BARRIER APPROACH
- THIS APPLIES TO BOTH SURFACE WATER AND GROUND WATER.

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- CHLORINATION IS ONE OF THE LAST BARRIERS BEFORE WATER HITS THE FINAL BARRIER THE DISTRIBUTION SYSTEM (UNLESS THERE IS OFF SITE STORAGE)

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- ASSUMING YOU HAVE MET ALL THE BARRIER CRITERIA
- THE FREE CHLORINE THAT YOU ADD SHOULD BE ABLE TO DO IT'S JOB - DISINFECTION

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- THE NL GOVERNMENT REGULATIONS REQUIRE THAT YOU
 1. HAVE CONTINUOUS CHLORINATION
 2. CARRY A FREE CHLORINE RESIDUAL OF 0.3 mg/l LEAVING THE PLANT.
 3. CARRY A FREE CHLORINE RESIDUAL IN THE DISTRIBUTION SYSTEM

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- WITH THE ADDITION OF CHLORINE YOU HAVE TO BE ABLE TO MEASURE YOUR RESIDUAL
- THERE ARE A COUPLE OF THINGS TO CONSIDER AND PRECAUTIONS.

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- WHY DO I NEED TO OBTAIN RESIDUALS
 - MANDATORY THAT YOU CHLORINATE
 - OBTAINING A BACTERIOLOGICAL SAMPLE ONE OF THE BEST WAYS TO TELL YOU IF WATER IS SAFE.

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- DROP IN CHLORINE RESIDUAL INDICATES CHANGE IN WATER QUALITY SUCH AS:
 - CHLORINE DEMAND IS HIGHER (I.E. HIGHER TURBIDITY)
 - AMMONIA LEVEL HAS INCREASED
 - IRON &/OR MANGANESE

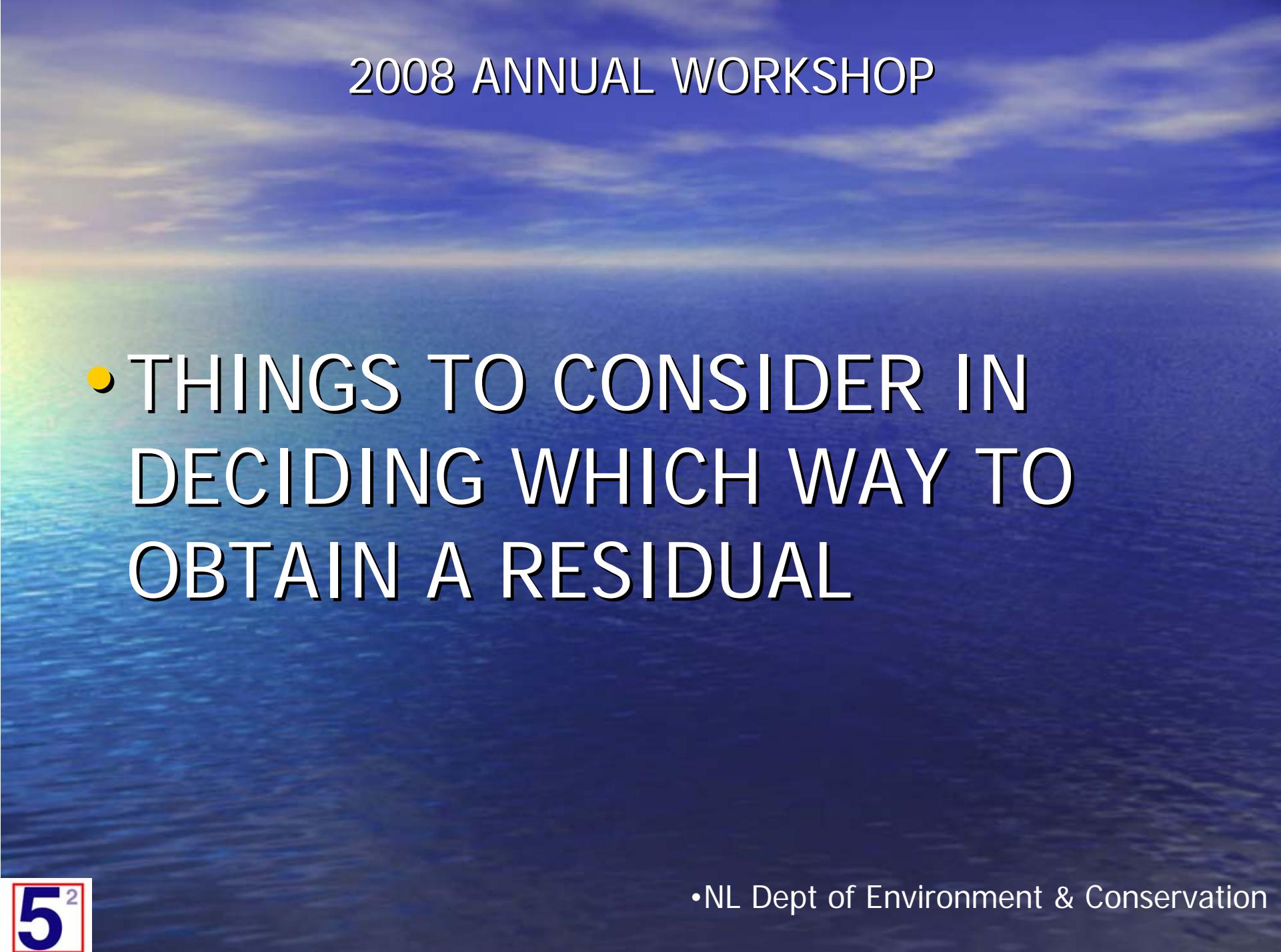
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- INCREASE IN FLOW

- CHEMICAL FEED PUMP NOT
FLOW PACED

-FAILURE OF CHEMICAL FEED
PUMP

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- THINGS TO CONSIDER IN DECIDING WHICH WAY TO OBTAIN A RESIDUAL

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- WHAT METHOD SHOULD I USE TO OBTAIN A RESIDUAL
- OPERATOR OR ON SITE CHLORINE ANALYZER

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- THE SIMPLEST
BUT MAYBE
NOT THE
MOST
ECONOMICAL
IS AN
OPERATOR



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- HOW MANY EMPLOYEES DO I
HAVE

- HOW MANY PLANT SAMPLES
& HOW MANY PLACES IN
DISTRIBUTION SYSTEM DO I
HAVE TO TAKE A RESIDUAL

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- WHAT IS TRAVEL TIME TO
EACH LOCATION

- STAFF TIME – DAILY,
WEEKENDS, HOLIDAYS,
VACATION TIME

- IS THERE A TELEPHONE
LINE TO SITE

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- CAN SOMEONE ON SITE
MAINTAIN THEM

- DO I JUST WANT A BASIC
SYSTEM WITH NO HISTORICAL
TRENDING OR DATA LOGGER
CAPABILITIES.

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- DECISION IS MADE TO BUY ONE
- WELL WHAT KIND/MAKE SHOULD YOU BUY
- WHAT "BELLS & WHISTLE" DO YOU WANT

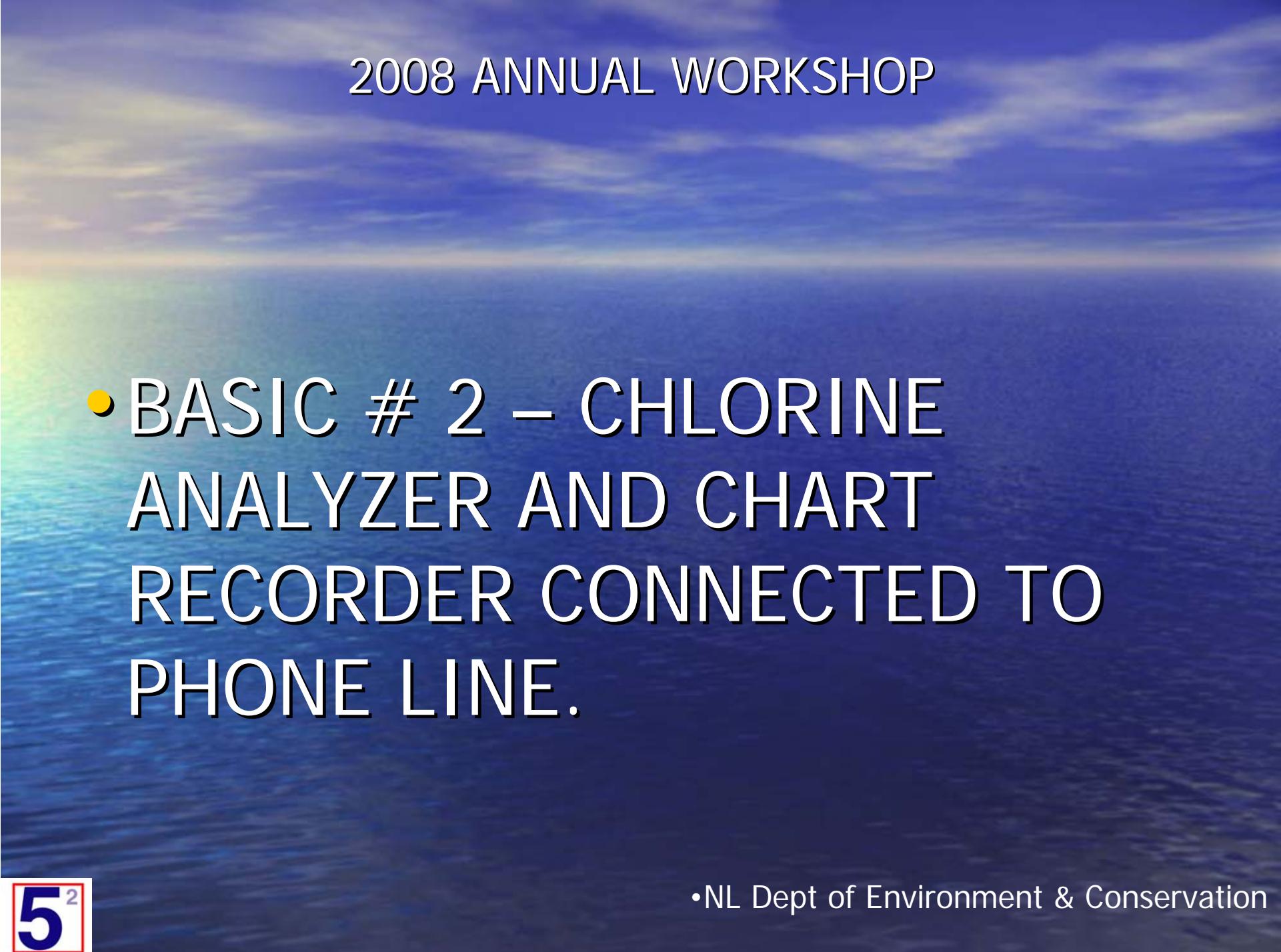
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- DO I WANT A: -
 - BASIC # 1 – CL2 ANALYZER RESIDUAL ALARMED TO A PHONE
 - EXAMPLE OF THIS WOULD BE.....

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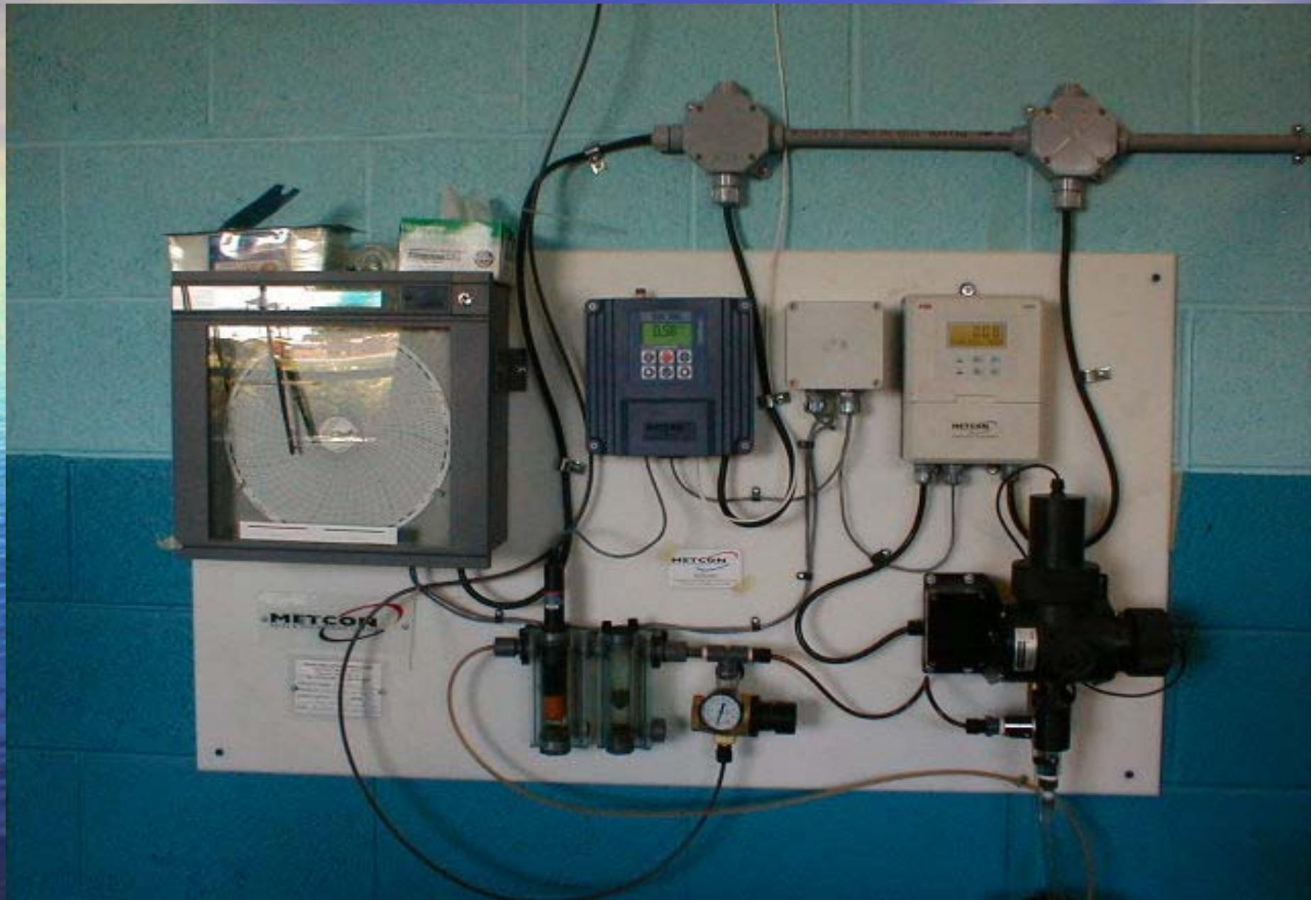


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- BASIC # 2 – CHLORINE ANALYZER AND CHART RECORDER CONNECTED TO PHONE LINE.

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- BASIC # 3 – CHLORINE ANALYZER CONNECTED TO A DATA LOGGER/DIALER (NEED TO HARD WIRE TO DIALER)

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DATA LOGGING & ALARM
NOTIFICATION

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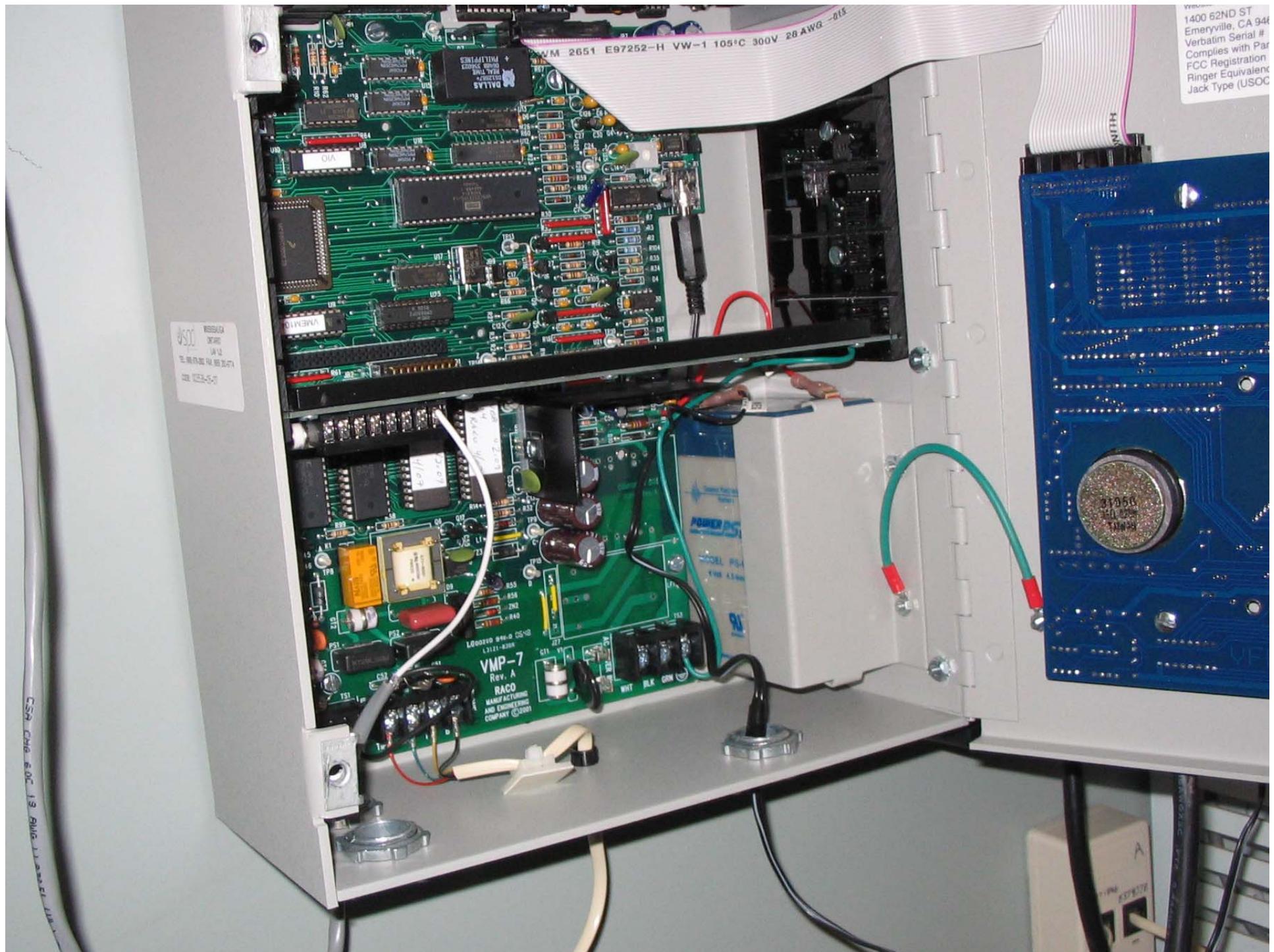
- THIS EQUIPMENT STORES CHLORINE RESIDUAL ELECTRONICALLY WHICH CAN BE RETRIEVED AT ANY TIME (SOME DIRECTLY OVER PHONE)
- IT HAS PHONE/PAGER ALARM FEATURE.

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- ANOTHER VERSION OF THIS ALSO ALLOWS YOU TO ADD OTHER ALARMS SUCH AS “ILLEGAL” ENTRY ALARMS

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- ADVANCED ANALYZER MEASURES pH & ADJUSTS CHLORINE RESIDUAL ACCORDINGLY.
- STORES INFORMATION ON CONTINUOUS BASIS, CAN CONNECT TO SCADA SYSTEM.

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- MORE SOPHISTICATED ONES CAN MAKE WEB CONNECTIONS
- HAVE CAPABILITY OF EMAIL FEATURE

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- THE ABOVE 2 REQUIRE A HIGH SPEED CONNECTION
- JUST REMEMBER THE HIGHER YOU MOVE UP IN TECHNOLOGY THE MORE YOU MAYBE RELYING ON 3RD. PARTIES TO ASSIST IN MAINTENANCE.

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- AND THE HIGHER THE COST OF BOTH THE EQUIPMENT & MAINTENANCE COMPONENT.
- YOU DON'T WANT THE CHICAGO PROBLEM.

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- ONCE YOU HAVE DECIDED ON TYPE THEN YOU HAVE TO DECIDE ON MAKE.
- THINGS TO DO:
 - ASK FELLOW OPERATORS IN OTHER PLANTS.
 - ENSURE THAT IT WILL READ FREE CHLORINE RESIDUAL

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- DO YOU WANT TO
STANDARDIZE WITH AREA
MUNICIPALITY – ENABLES YOU
TO SHARE PARTS.

- HAVE YOU A SCADA
SYSTEM

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- HAS THE PROBE A MEMBRANE & CAN IT BE CLEANED & IF ELECTROLITE IS USED CAN IT BE EASILY REPLACED BY OPERATOR.

- PROBES THAT HAVE A GEL ELECTROLITE IN MEMBRANE CAP CANNOT BE REPLACED EFFECTIVELY

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- ARE SPARE PARTS
READILY AVAILABLE

- QUICK RELIABLE SERVICE
24 HRS/D 365 DAYS

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- ACKNOWLEDGEMENTS
- JOHN MICHALOFSKY, SCADA, IT SPECIALIST
- ANDREW NIBLOCK, SUPERVISOR, WINDSOR LAKE WTP, ST. JOHN'S, NL.

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QUESTIONS???