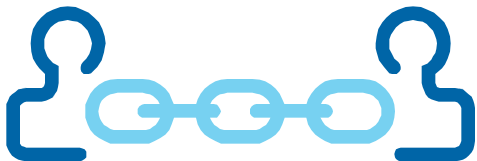


SAMPLE HISTORY FORMS

A Part of Quality Assurance

Introduction

- History forms provide a chain of information from the point of sample collection to laboratory reception and processing.
- Accurate history forms are an essential component of integrated sampling
- Both field operations and the laboratory contribute to the sample history form



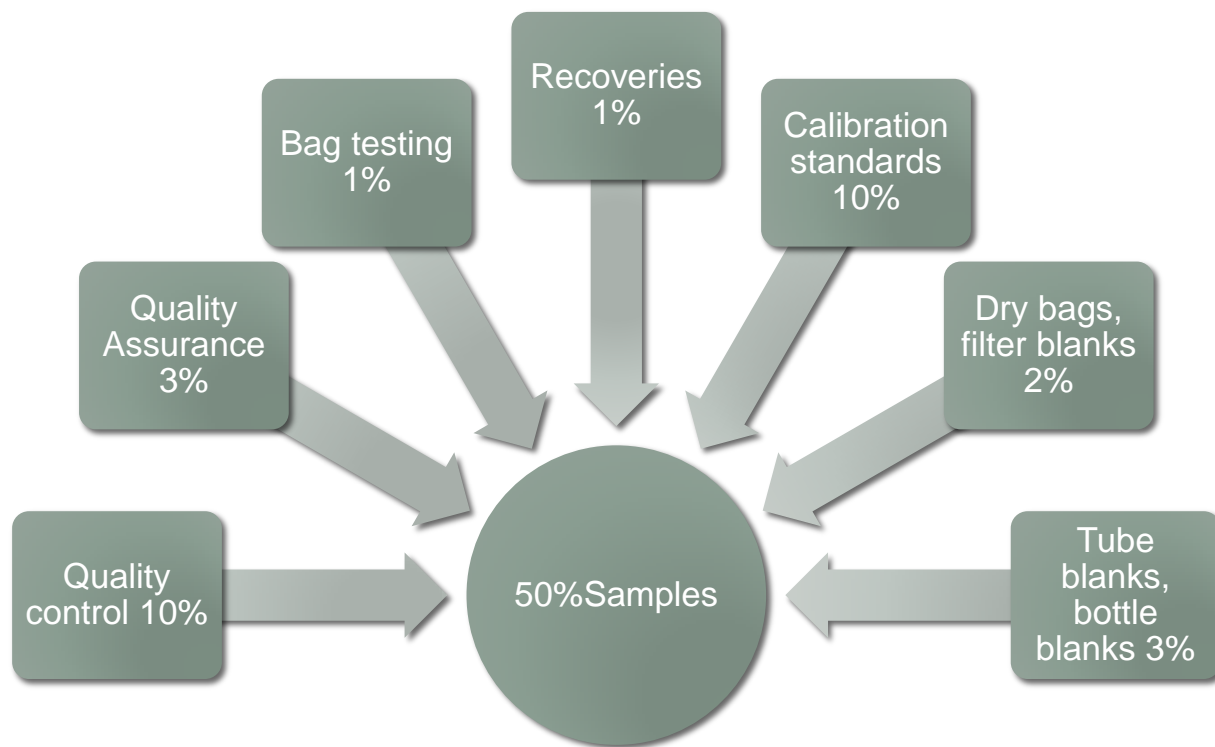
The Review – Why bother?

- Ongoing problems are resolved sooner
- Keeps everyone informed
- The inspectors at the 1995 Niagara Workshop requested a faster turnaround of information
- The history form review is intended to come from the Network Manager so that problems are received from a source of authority
- This is an expensive business. A conservative estimate of cost for each sample is \$500.00.

Getting a Good Sample is Priority

- Sample life starts in the field. Data Quality depends on getting a good sample.
- Errors generated in the field accumulate onto the data result
- Solving little problems can increase the level of care of the entire Network and reduce the number of bigger problems
- Operators will be more responsive if we show we care about our data product

Laboratory Quality Assurance



50% of all analyses are Quality Assurance or Quality Control samples and it all goes down the drain if the sample is compromised during collection

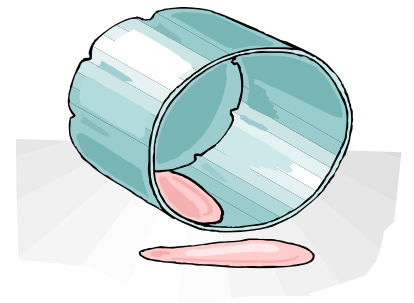
What are we reporting and Why?

There are four kinds of problems:

- 1. Problems that Result in Loss or Invalidation of Data

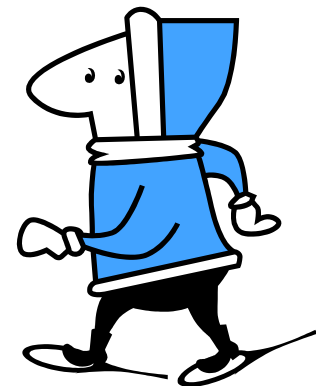
Precipitation

- Leaking samples
- Severe contamination
- Failure to collect sample (snow storm, road conditions)
- Sampler not working (bulk collection)



- 2. Procedural Errors:

- Double seals too close to fold
- Missing seals
- Large volume sample in one partition (may result in sample loss)
- Incomplete seals (may result in sample loss if severe)
- Snow samples partitioned or split before thawing (impact is variable)



• 3. Documentation Problems

- Missed observations that may impact interpretation of data- site conditions, power interruptions, type of precipitation
- Failure to complete all areas of the form.
- Comments not dated or initialled.
- Comments are put on the wrong history form
- Failure to code procedural changes, maintenance and sampler changes make it harder to track problems and figure out when they started.
- **Deposition is calculated using the SRG value. If it's missing the sample is non productive**



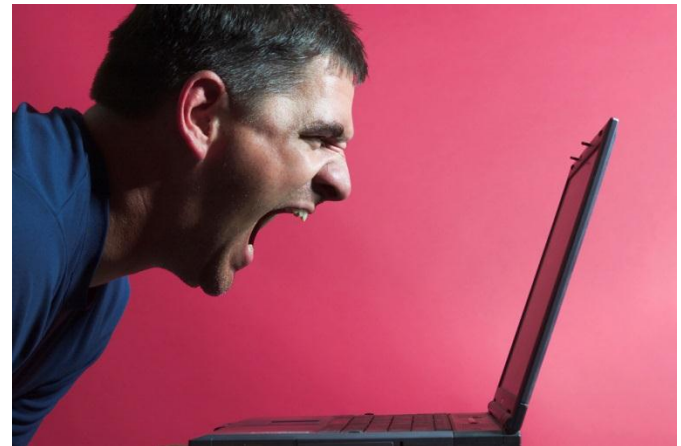
- 4. Contract Violations

- Not making daily site visits (excluding extreme weather conditions)
- Only processing precipitation samples when it rains or snows (event sampling)
- Intentionally recording incorrect information on the SHF (Not going to the site on time) is a serious issue and puts in doubt all information from that site operator.



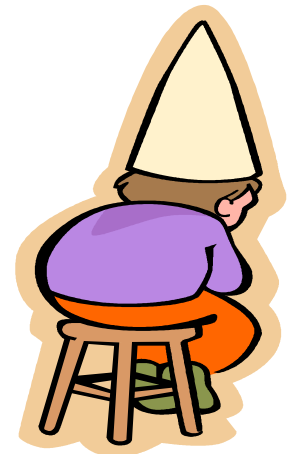
What do I do Now?

- Situations that require action or intervention
 - Chronic procedural errors
 - Contract Violations
 - System down, sampler not working (bulk samples are routinely invalidated in the data set)
 - Requests for supplies



What you should do

- The lab should notify Field Operations directly. Use the OSTicket system or CAPMoN hotline (647-222-1649) if no one available.
- Field Operations should notify the inspector usually the sooner the better
- The objective is to initiate corrective action not to assign blame
- Provide facts and evidence
- Focus on the problem and not on the person

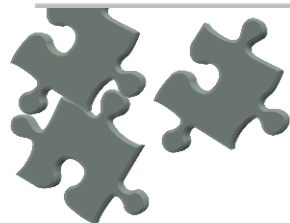


Why is the Review always so Negative?

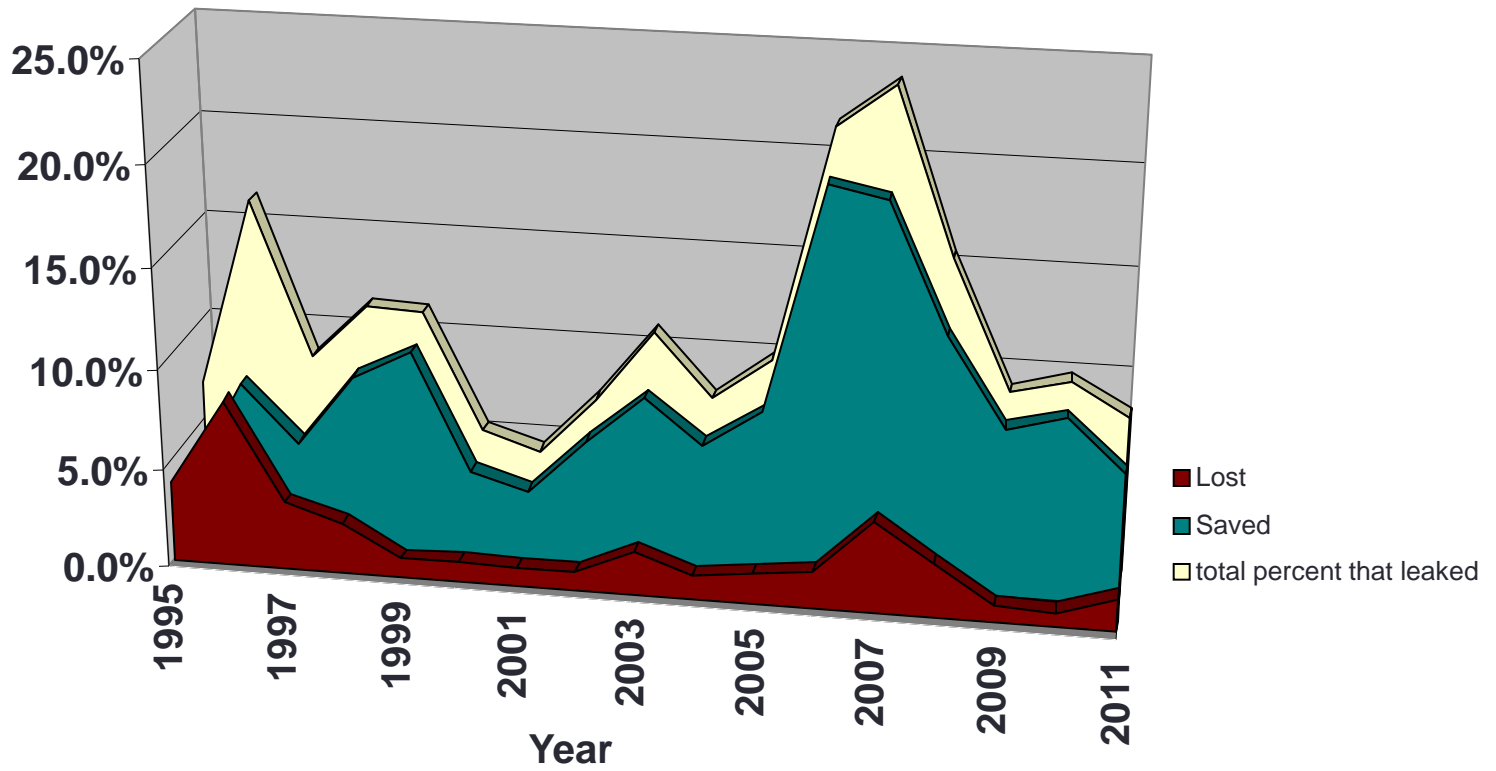
- The overall performance of all contributors to the Network is extraordinarily good.
- The review is intended to expedite corrective actions only
- We recognize there is a need for positive feedback to the inspectors and operators. A newsletter or some other method of communication is needed.

Does it Work?

YEAR	Lost	Lost (%)	Saved	Saved (%)	Total Samples >500grams	Total Leaked (%)
1995	47	4.0%	33	2.8%	1161	6.9%
1996	93	8.3%	90	8.0%	1120	16.3%
1997	37	3.4%	57	5.2%	1098	8.6%
1998	28	2.5%	97	8.8%	1103	11.3%
1999	11	0.9%	123	10.3%	1198	11.2%
2000	12	1.0%	54	4.4%	1234	5.3%
2001	9	0.9%	37	3.6%	1028	4.5%
2002	12	1.0%	78	6.4%	1227	7.3%
2003	28	2.2%	110	8.7%	1264	10.9%
2004	16	1.2%	87	6.6%	1320	7.8%
2005	19	1.5%	105	8.4%	1248	9.9%
2006	27	1.9%	284	19.7%	1443	21.6%
2007	58	4.5%	244	19.1%	1276	23.7%
2008	43	2.7%	201	12.8%	1574	15.5%
2009	10	0.8%	131	8.4%	1556	9.1%
2010	10	0.7%	130	9.1%	1424	9.8%
2011	26	1.6%	104	6.6%	1581	8.2%

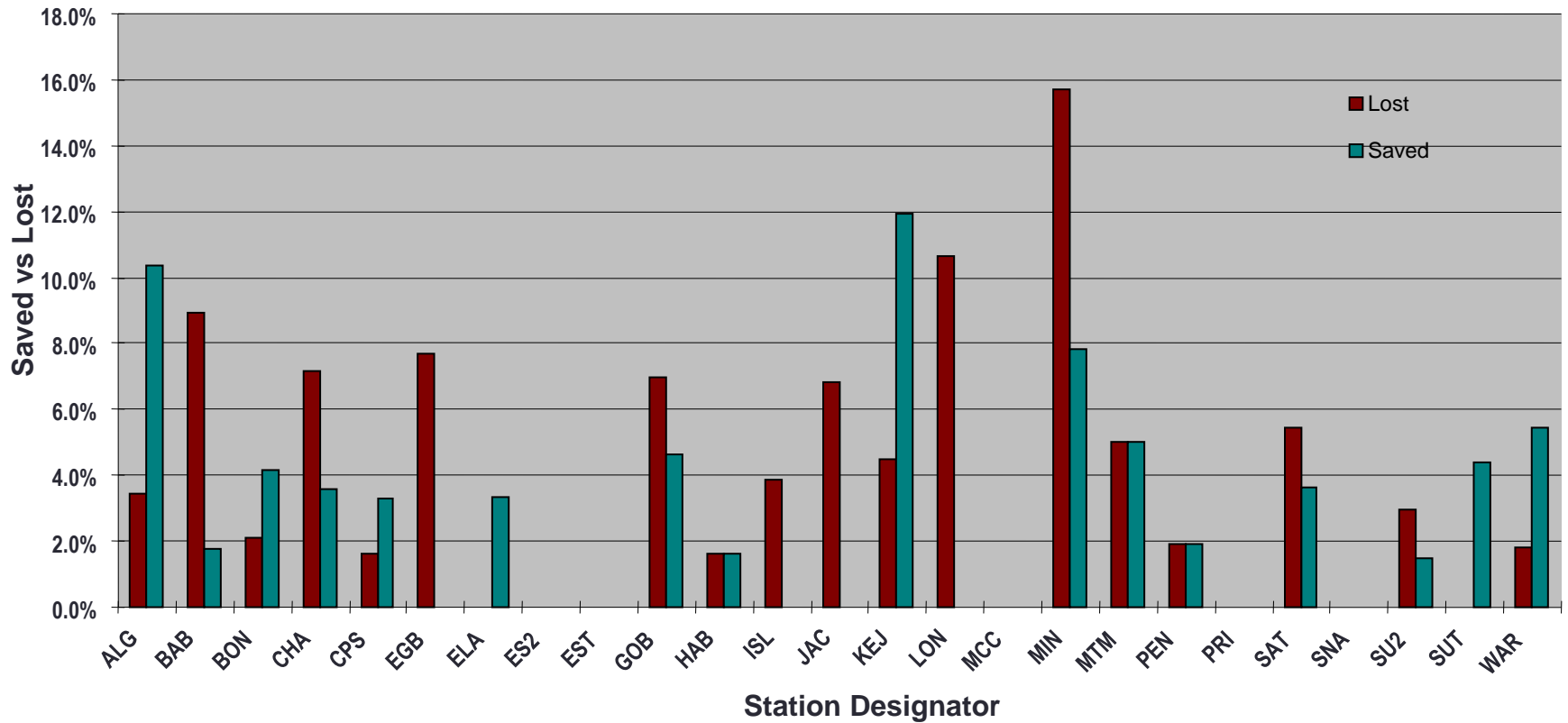


Lost vs Saved Samples over 500grams



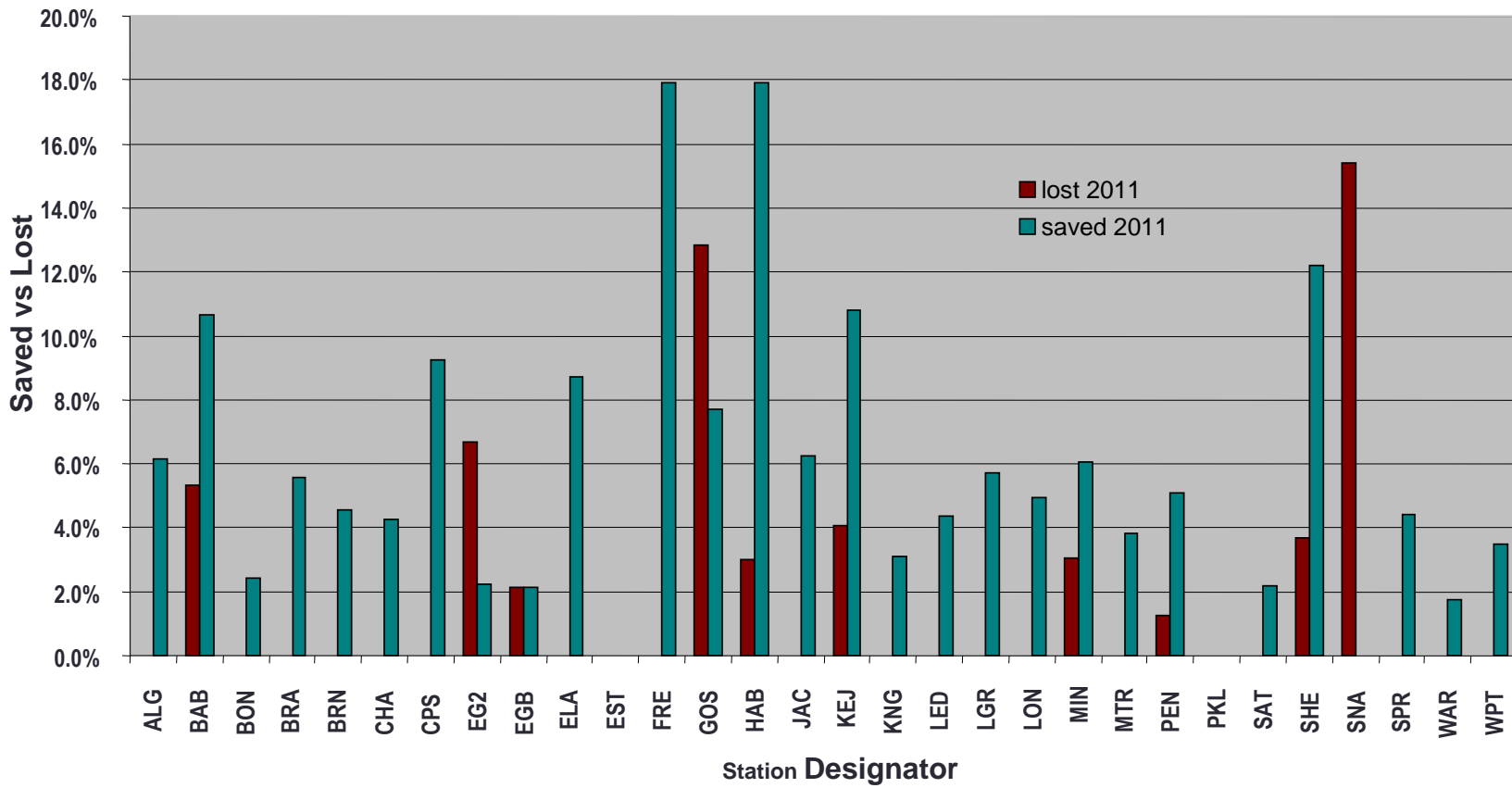
Leaker Data 1995 (pre-SHF reviews)

1995 Saved vs Lost samples over 500 grams



2011 Leaker Data

2011 Saved vs Lost Samples over 500 grams



Summary

- The history form reviews are intended to document and expedite corrective action
- The quality of the CAPMoN Data Set starts in the field
- Communication works. Overall performance is good