Quality Assurance - Quality Control
&
The Certified Laboratory

Presented by Don LaFara, Manager
Laboratory Certification Program
LCP/BSDW/NDEP/DCNR

Acknowledgements: J. K. Taylor Ph.D.
Quality Assurance of Chemical Measurements
Images: the World Wide Web

What is Quality Assurance (QA) ??

QA is comprised of administrative and procedural activities implemented in a quality system so that the quality requirements for a product, service or activity is fulfilled. *J.K. Taylor*

QA is an overall system of activities whose purpose is to control the quality of a product (data) so it meets the needs of the customer. It is a system of activities (checks and balances) whose purpose is to provide the assurance that it meets a defined standard of quality, with a stated level of confidence.

QA consists of two separate but related activities: Quality Control and Quality Assessment.

Both must be operational and coordinated *J.K. Taylor.*

What is Quality Control (QC) ? ?

Quality Control (QC) begins with sample collection and ends with the reporting of data. QC is achieved through control of analytical performance.

The quality of individual QC efforts can be variable depending on their training and professional pride.

Environmental Laboratory analyses is only an estimate. QA uses QC to know how close the estimate is to the actual amount of material that is present in the sample.

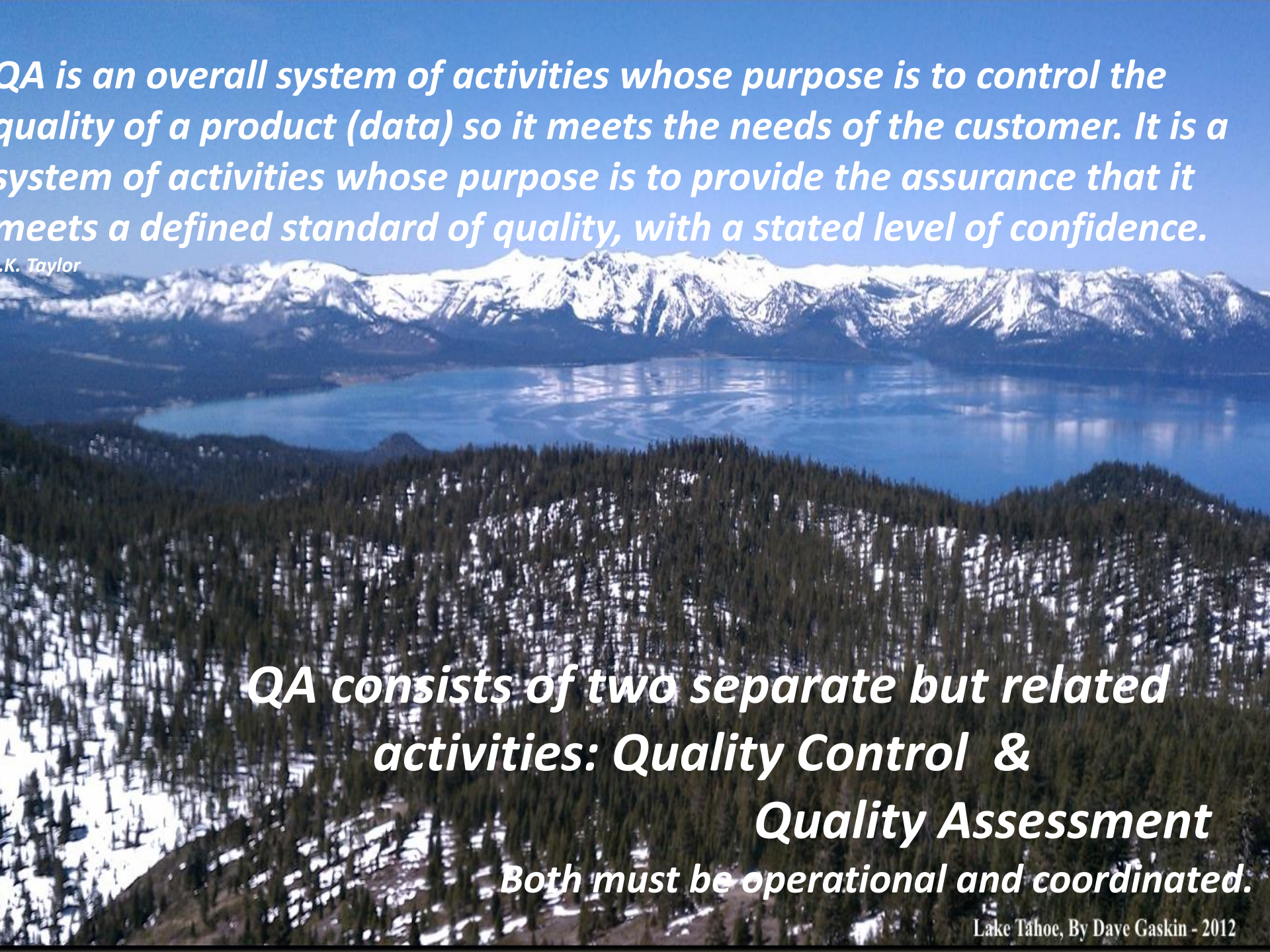
What is a Certified Laboratory ?

A Certified Laboratory is a laboratory that commits to a set of predetermined rules and practices that ensure that the data produced is of known and documented quality.

Certified laboratories generate data that is scientifically valid by following EPA approved methods that have been tested and proven to be accurate and precise.

QA is an overall system of activities whose purpose is to control the quality of a product (data) so it meets the needs of the customer. It is a system of activities whose purpose is to provide the assurance that it meets a defined standard of quality, with a stated level of confidence.

.K. Taylor



QA consists of two separate but related activities: Quality Control & Quality Assessment

Both must be operational and coordinated.

Lake Tahoe, By Dave Gaskin - 2012

What is Quality Assessment ?

Quality Assessment: The overall system of activities whose purpose is to provide assurance that the Quality Control system is implemented effectively.

It involves continuous monitoring and evaluation of products produced (data) and the performance of the analyst and the analytical system. **J.K. Taylor**

WECK LA

Analytical Labo

sting Laboratory

Date Receiv

Date Report

6C22017-01 **1603548-001**

Sampled By: Client

Chlorinated Herbicides

Batch: W6C1414 Prepared: 03/23/16 08:42

	Result		MRL	Units	Dil	Analyz
	ND		0.60	ug/l	1	03/29/16 0
	98 %	Conc:*9.78*	*70-130*	%		

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atory

Project Number: 1603548

Project Manager: Logan Greenwood

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	Result	MDL	Units	Spike Level	Source Result	%REC	%REC Limits
				Prepared: 03/23/16 Analyzed: 03/28/16			
	ND	0.070	ug/l				
	ND	0.090	ug/l				
	ND	0.070	ug/l				
	ND	0.070	ug/l				
	ND	0.090	ug/l				
	ND	0.060	ug/l				
	ND	0.11	ug/l				

WECK LABORATORIES, INC.
Analytical Laboratory Service - Since 1964

Western Environmental Testing Laboratory
3230 Polaris Ave., Ste 4
Las Vegas NV, 89102

Date Received: 03/22/16 10:10
Date Reported: 04/01/16 15:29

6C22017-01 **1603548-001**

Sampled: 03/17/16 07:30 **Sampled By:** Client **Matrix:** Water

Chlorinated Herbicides

Method: EPA 515.3 Batch: W6C1414 Prepared: 03/23/16 08:42 Analyst: par

Sample: 1603548-001, Alias: North Well - NV0000038 Sampled: 03/17/16 @ 7:30a by Client

Chlorinated Herbicides Final Report

Method: **EPA 515.3** Batch ID: W6C1414 Prepared: 03/23/16 08:42 Analyst: par

Analyte	Result	MDL	MRL	Units	Dil	Date Analyzed	Qualifier
Picloram	0.18	0.050	0.60	ug/l	1	3/29/16 2:54p	J

Surrogate	Result	True Value	% Rec	Acceptance Range	Date Analyzed
2,4-DCAA	9.78	10.0	98%	70-130	3/29/16 2:54p

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ratory

Project Number: 1603548

Project Manager: Logan Greenwood

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RL and >MDL.

the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected

dry weight basis

l or duplicated.

ations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of co

it of Quantitation (LOQ) and Detection Limit for Reporting (DLR)

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Project Number: 1603548

Project Manager: Logan Greenwood

l Results

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	Result	MDL	Units	Spike Level	Source Result	%REC	%RE Limi
ued)							
	Source: 6C18085-01			Prepared: 03/23/16	Analyzed: 03/28/16		
	3.93	0.070	ug/l	4.00	ND	98	70-1
	4.07	0.090	ug/l	4.00	ND	102	70-1
	7.16	0.070	ug/l	8.00	ND	89	70-1
	15.3	0.070	ug/l	16.0	ND	96	70-1

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6C22017-01 **1603548-001**

Sampled: 03/17/16 07:30 **Sampled By:** Client **Matrix:** Water

Chlorinated Herbicides

Method: EPA 515.3 Batch: W6C1414 Prepared: 03/23/16 08:42 Analyst: par

Batch: W6C1414 - **EPA 515.3** **CCS @ 20 ug/L** **CCV032316-B-124**

Analyte	Result	Units	Limits +/- 10%	Recovery (90-110%)
2,4,5-T	18.6	ug/l	18-22 ug/L	93%
2,4,5-TP	19.1	ug/l		96%
2,4-D	21.3	ug/l		107%
2,4-DB	20.5	ug/l		103%
3,5-Dichlorobenzoic acid	17.5	ug/l	FAIL	88%
Acifluorfen	20.0	ug/l		100%
Bentazon	19.6	ug/l		98%
Dalapon	18.7	ug/l		94%
DCPA	20.2	ug/l		101%
Dicamba	19.7	ug/l		99%
Dichloroprop	18.9	ug/l		95%
Dinoseb	21.1	ug/l		106%
Pentachlorophenol	19.9	ug/l		99%
Picloram	20.3	ug/l		102%

Surrogate	*Result*	*True Value*	*%Rec*
2,4,-DCAA	10.1	10.0	101

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6C22017-01 **1603548-001**

Sampled: 03/17/16 07:30 **Sampled By:** Client **Matrix:** Water

Chlorinated Herbicides

Method: EPA 515.3 Batch: W6C1414 Prepared: 03/23/16 08:42 Analyst: par

Batch: W6C1414 - **EPA 515.3** **Blank** (W6C1414-BLK1) Prepared: 03/23/16 Analyzed: 03/28/16

Analyte	Result	MDL	Units
2,4,5-T	ND	0.070	ug/l
2,4,5-TP	ND	0.090	ug/l
2,4-D	ND	0.070	ug/l
2,4-DB	ND	0.070	ug/l
3,5-Dichlorobenzoic acid	ND	0.090	ug/l
Acifluorfen	ND	0.060	ug/l
Bentazon	ND	0.11	ug/l
Dalapon	ND	0.10	ug/l
DCPA	ND	0.070	ug/l
Dicamba	ND	0.12	ug/l
Dichloroprop	ND	0.080	ug/l
Dinoseb	ND	0.14	ug/l
Pentachlorophenol	ND	0.040	ug/l
Picloram	ND	0.050	ug/l

Surrogate	*Result*	*True Value*	*%Rec*
2,4,-DCAA	9.98	10.0	100


Questions?