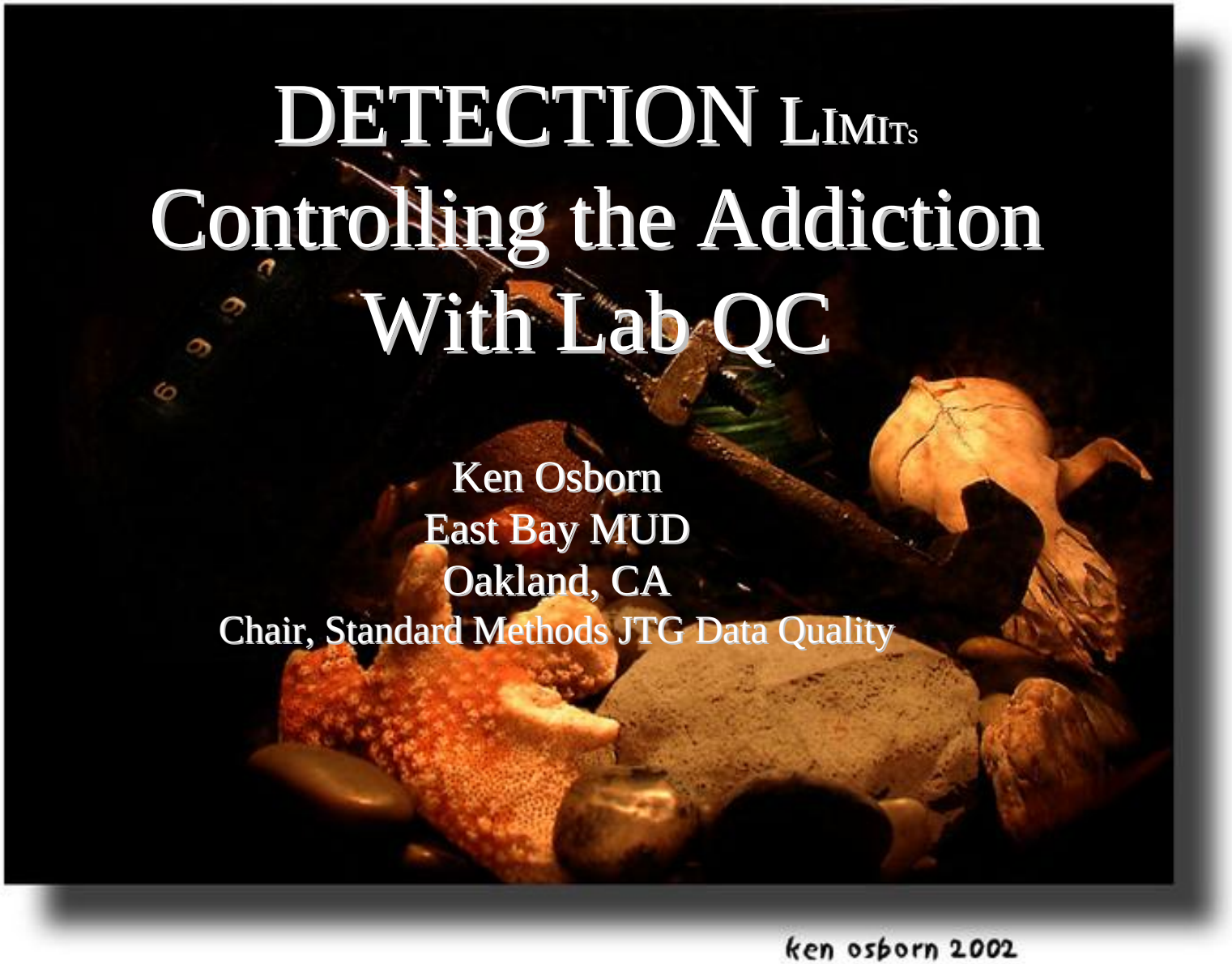
DETECTION LIMITs
Controlling the Addiction
With Lab QC
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What we do

- Quality Control (QC) sample 2 - 5 times MDL routinely analyzed with each batch of samples. No special scheduling required.
- Results entered into LIMS
- Long-term method accuracy evaluated using control limits

How we use it

- On-going real-time measure of accuracy
- On-going verification of non-detects
- Long-term measure of detection capability
- Daily LIMS QC reports generated
- Reported to data user

Why do it?

- Value to data user and laboratory
- Provides immediate feedback
- Includes all analytical sources of error
- Results in better detection limits
  - Large data set reduces uncertainty
  - Monitors trace level capabilities over time

An Example:
EPA 610 QC Based DLs

COUNT (N)	ANALYTE	RECOVERY (%)	FNQS (ug/L)	FNQS-DL (ug/L)
16	ACENAPHTHENE	76	0.064	0.05
16	ACENAPHTHYLENE	75	0.062	0.03
12	BENZO(A)ANTHRACENE	76	0.057	0.01
27	BENZO(B)FLUORANTHENE	90	0.090	0.03
18	BENZO(GHI)PERYLENE	82	0.067	0.03
21	BENZO(K)FLUORANTHENE	87	0.075	0.02
25	CHRYSENE	90	0.085	0.02
18	DIBENZO(A,H)ANTHRACENE	78	0.068	0.02
27	FLUORANTHENE	89	0.089	0.03
27	FLUORENE	82	0.082	0.03

FNQS = False Negative Quality Sample

A Derivation

- **Recovery = 100*FNQS/True**
- **FNQS = (True/100)*Recovery**
- **S(FNQS) = (True/100)*S(Recovery)**
- **Lc = t*S(FNQS)**
- **Lc= t*(True/100)*S(Recovery)**
- **True = 100*Ave(FNQS)/Ave(Recovery)**

Lc = t*S(Rec)*Ave(FNQS)/Ave(Rec)