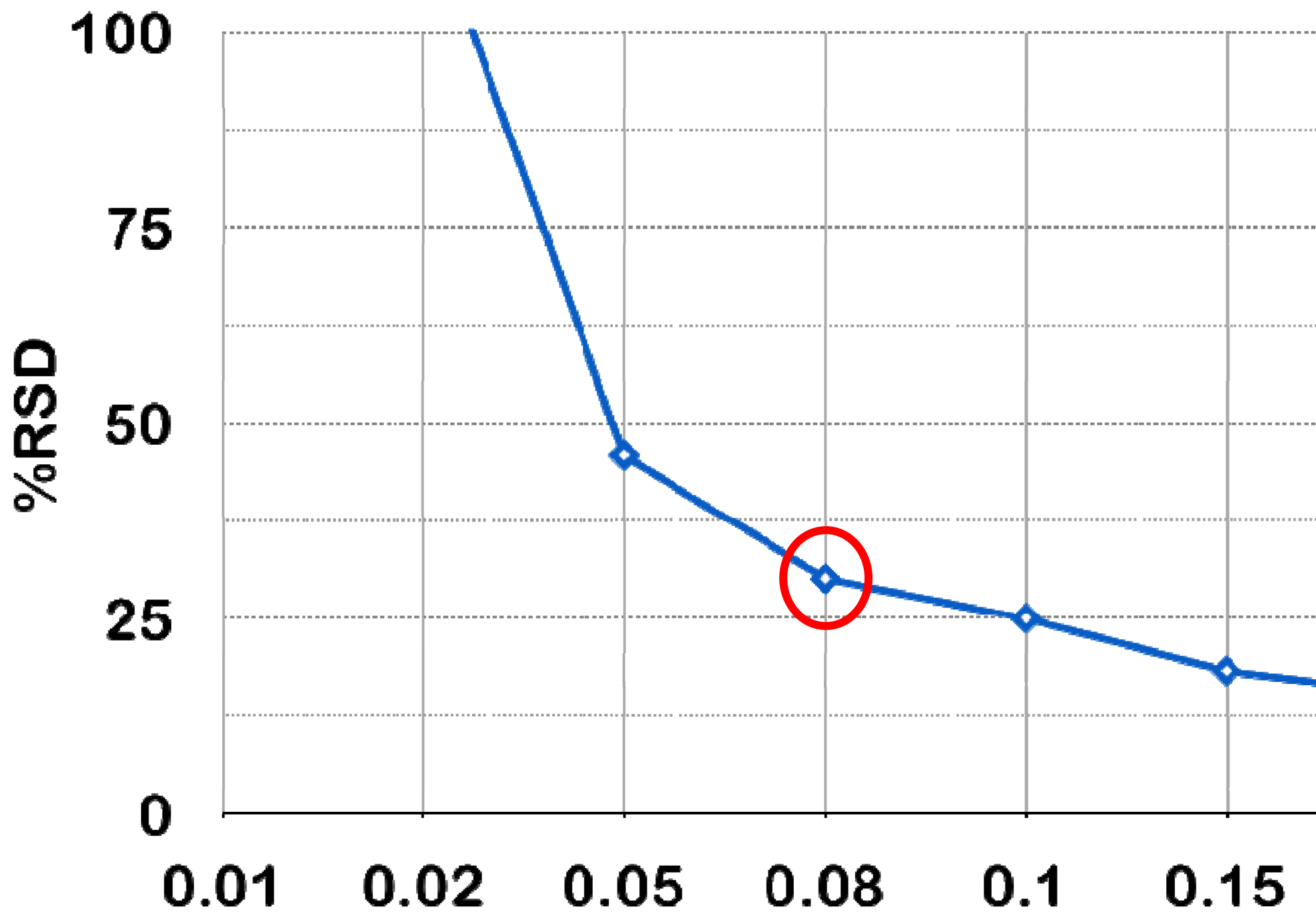


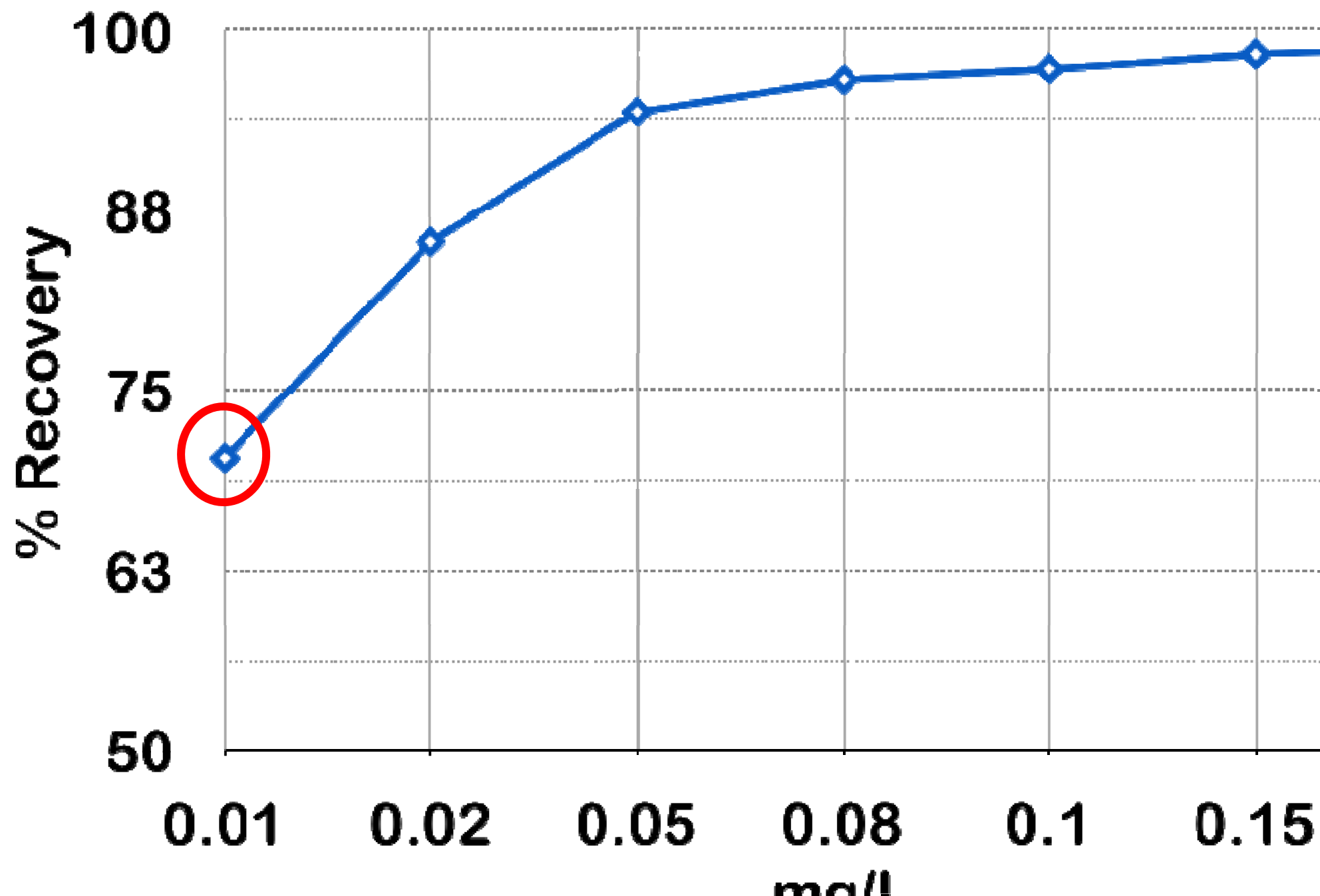
# **An overview of approved methods and candidate method capabilities**

**William Lipps  
OI Analytical**

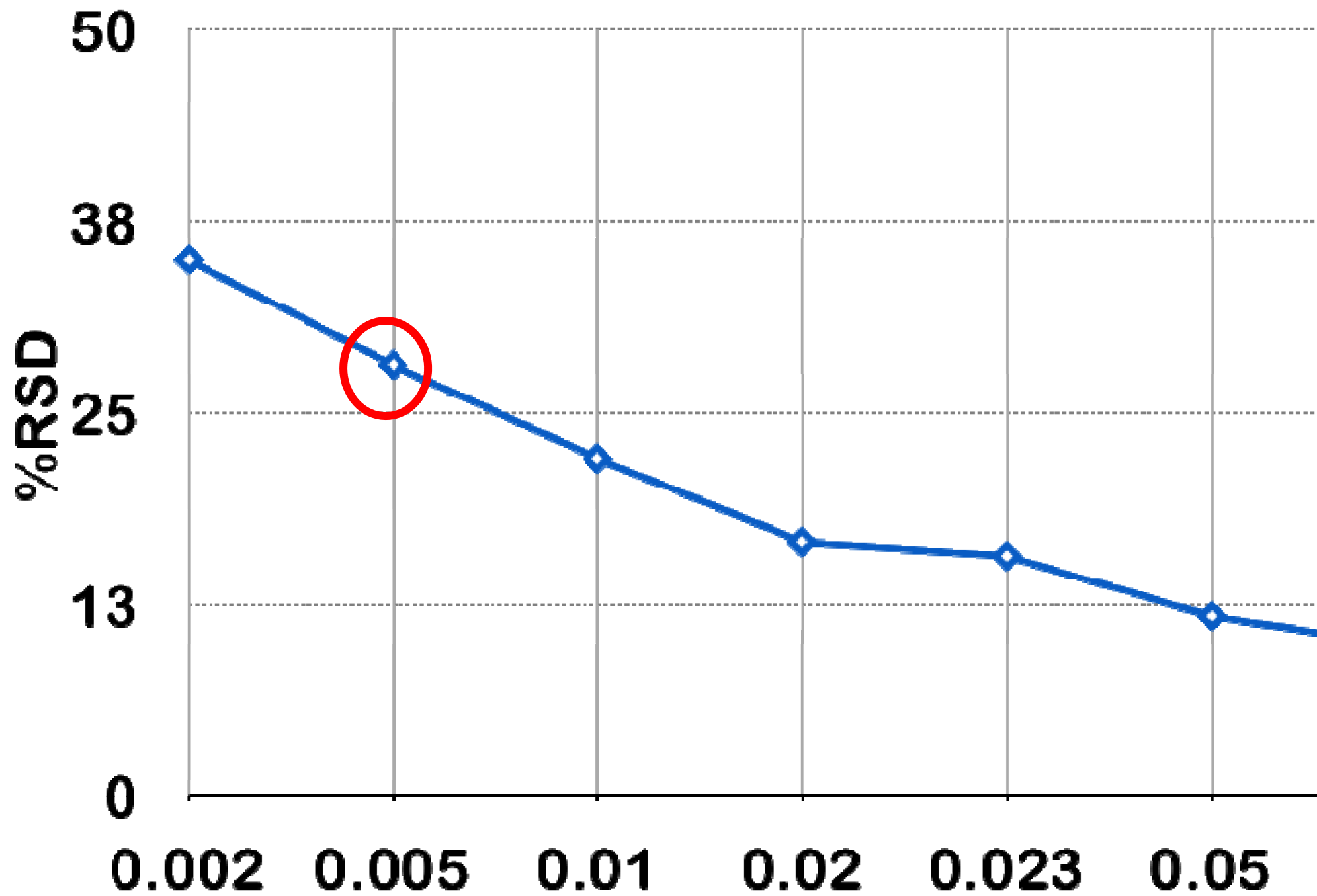
**Charles J. Patton  
U.S. Geological Survey  
National Water Quality Laboratory**

H<sub>3</sub>

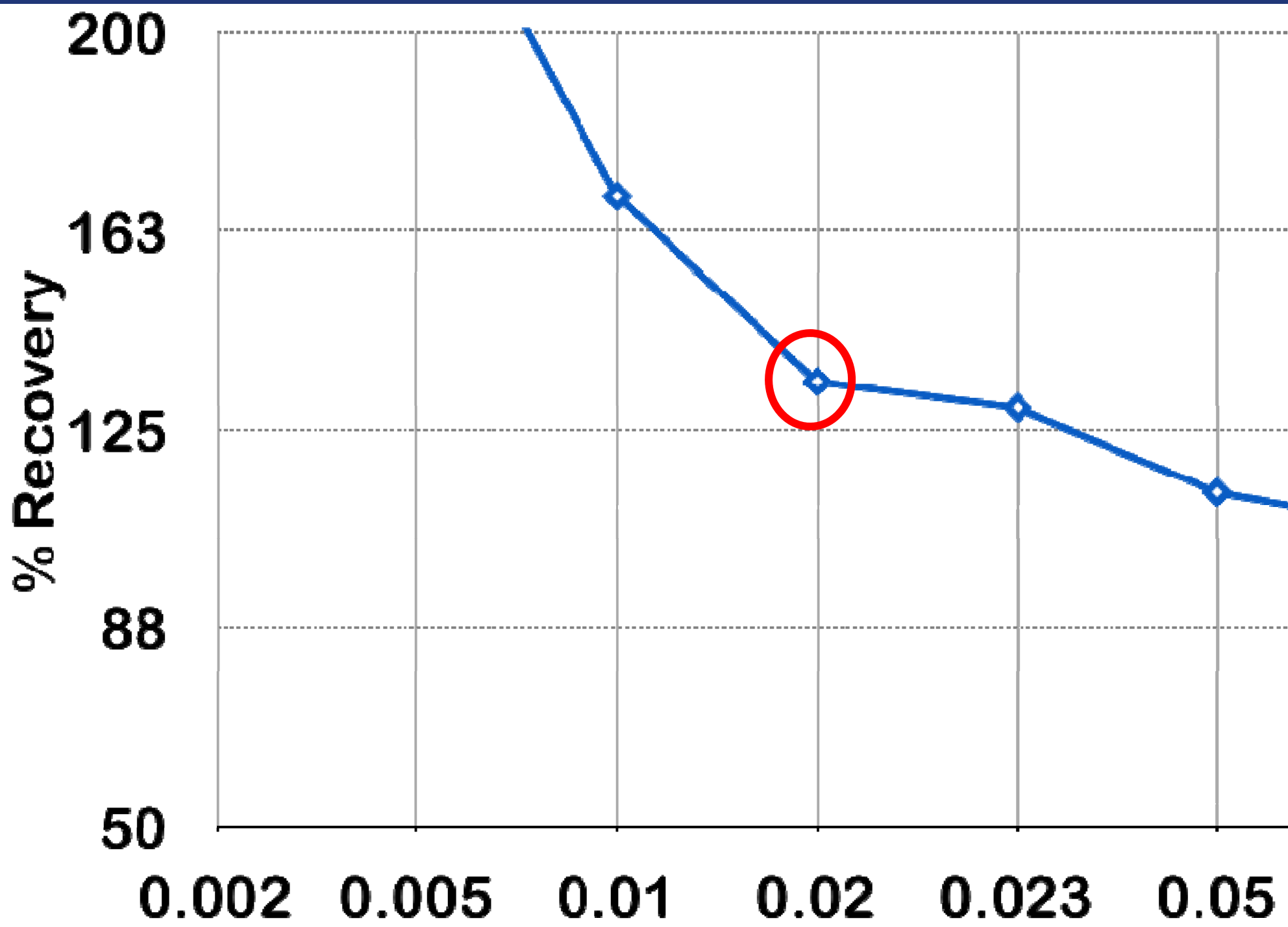




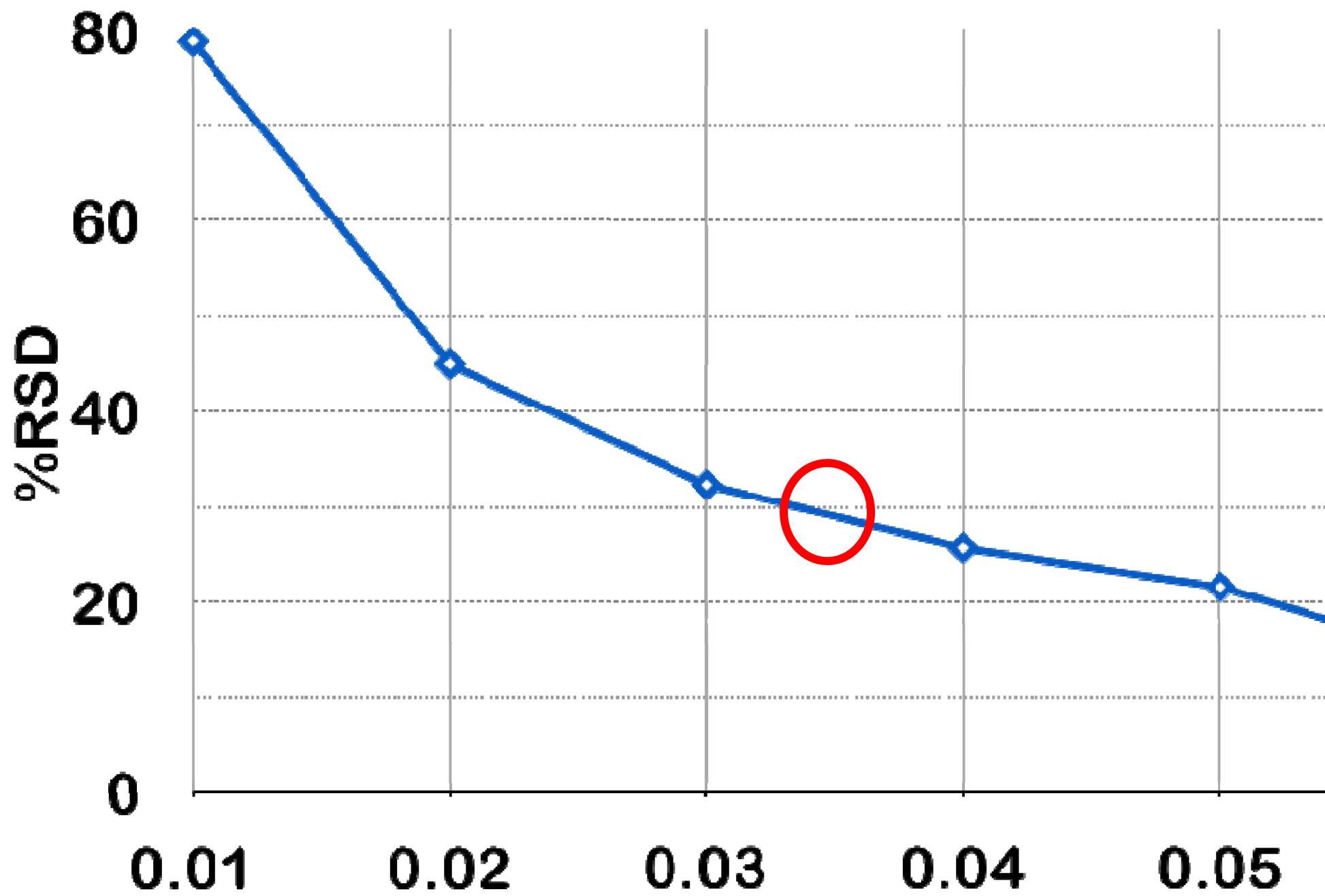
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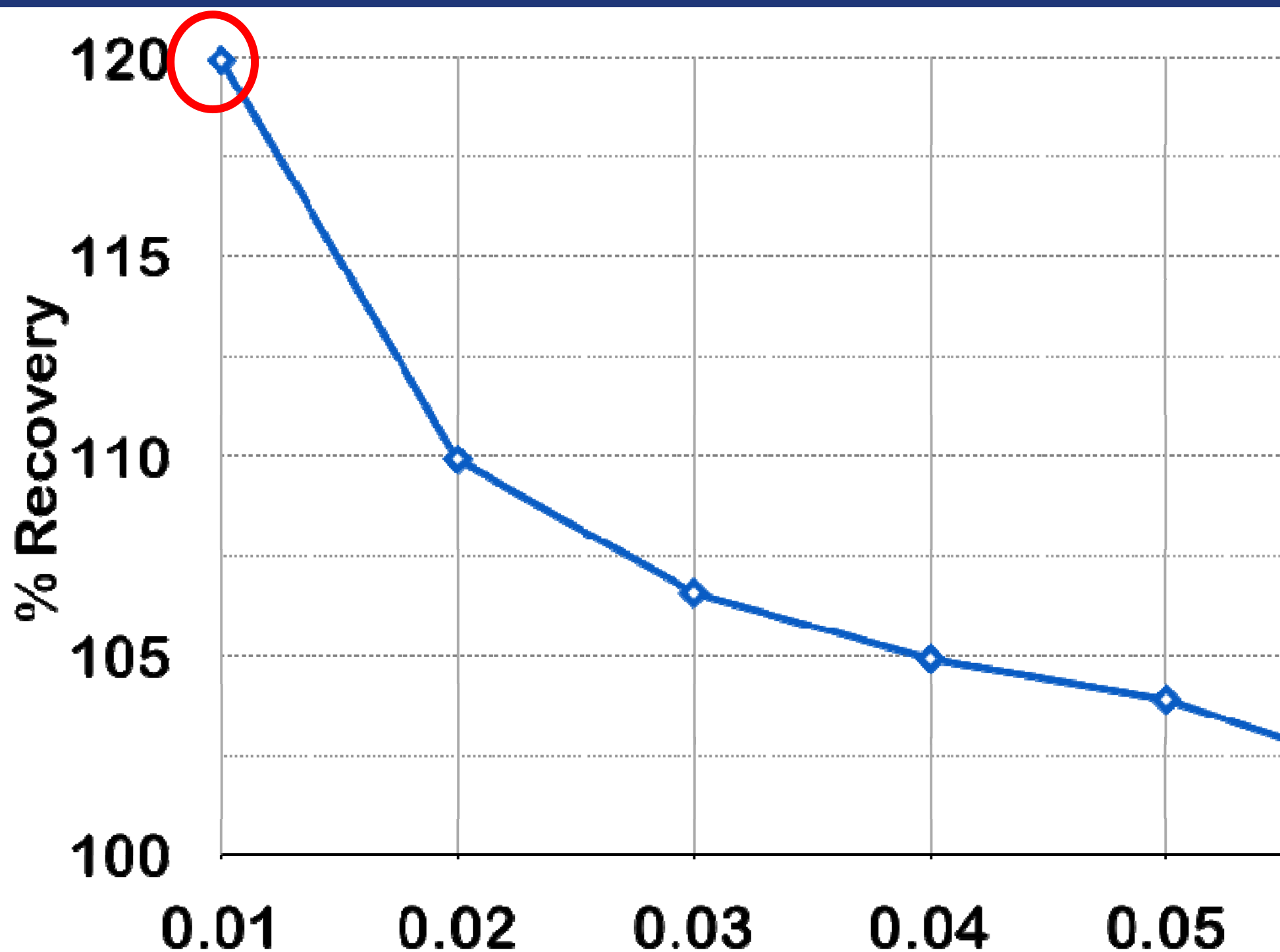
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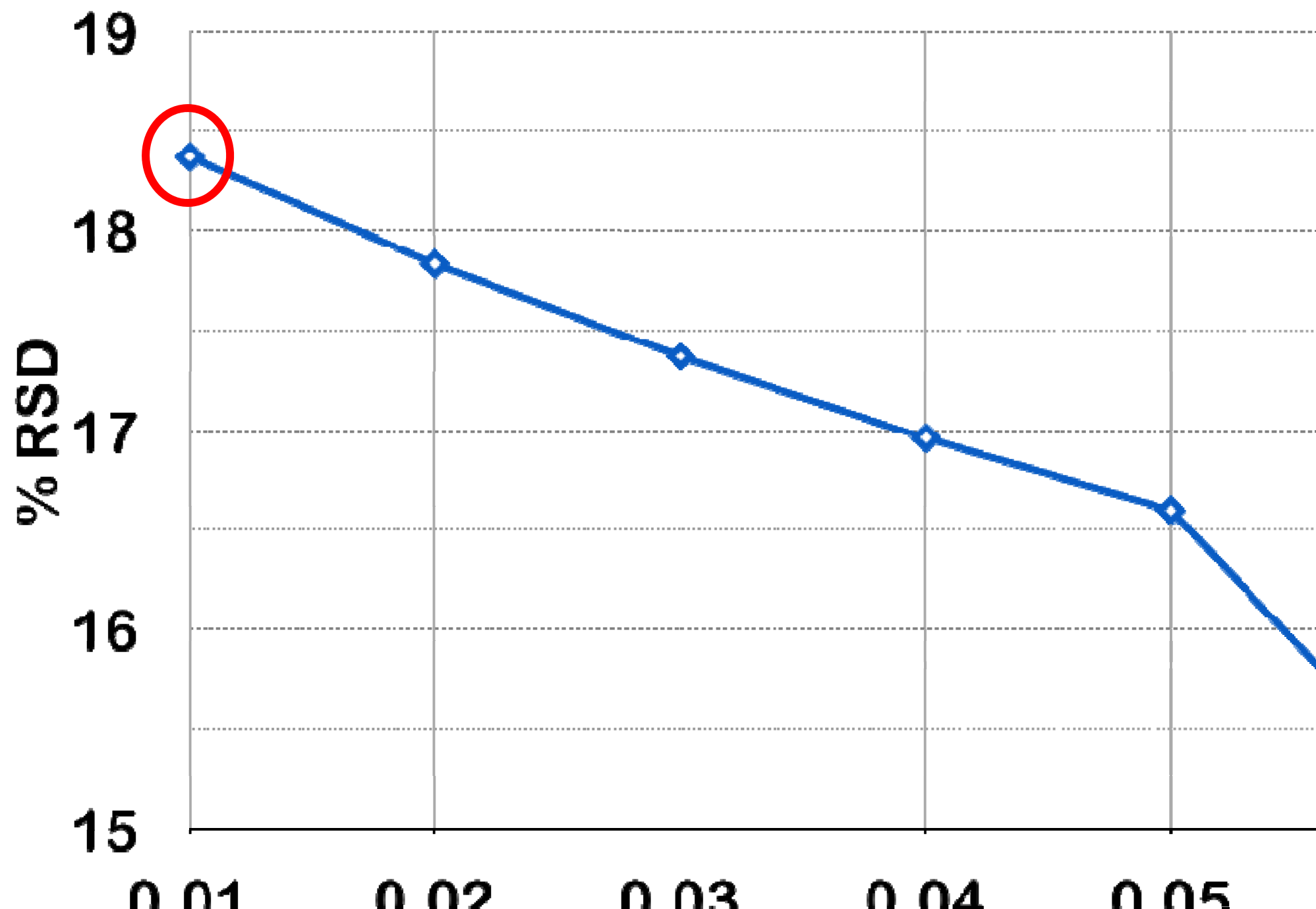


# Nitrate-Nitrite 66012 (RSD)



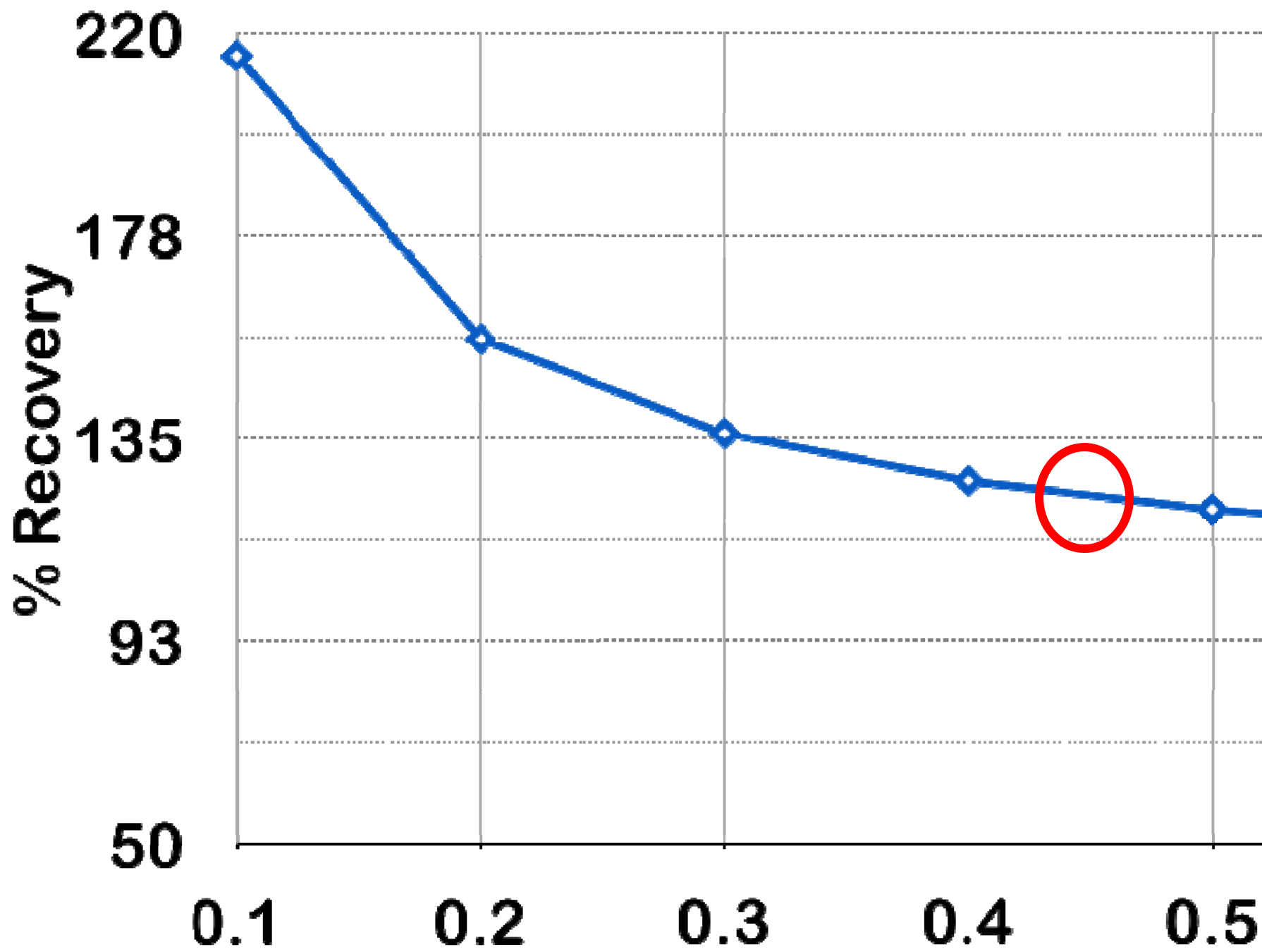
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H<sub>3</sub>





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<b>Parameter</b>	<b>real MDL (mg/L</b>	<b>"EPA meth MDL (mg</b>
<b>Ammonia as N</b>	<b>0.08</b>	<b>0.01</b>
<b>Nitrate-nitrite as N</b>	<b>0.03</b>	<b>0.01</b>
<b>Orthophosphate as P</b>	<b>0.023</b>	<b>0.01</b>
<b>Total Phosphorus</b>	<b>0.023</b>	<b>0.01</b>
<b>Total Kjeldahl-Nitrogen</b>	<b>0.4</b>	<b>0.01</b>

# How to think for something new



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H<sub>3</sub>

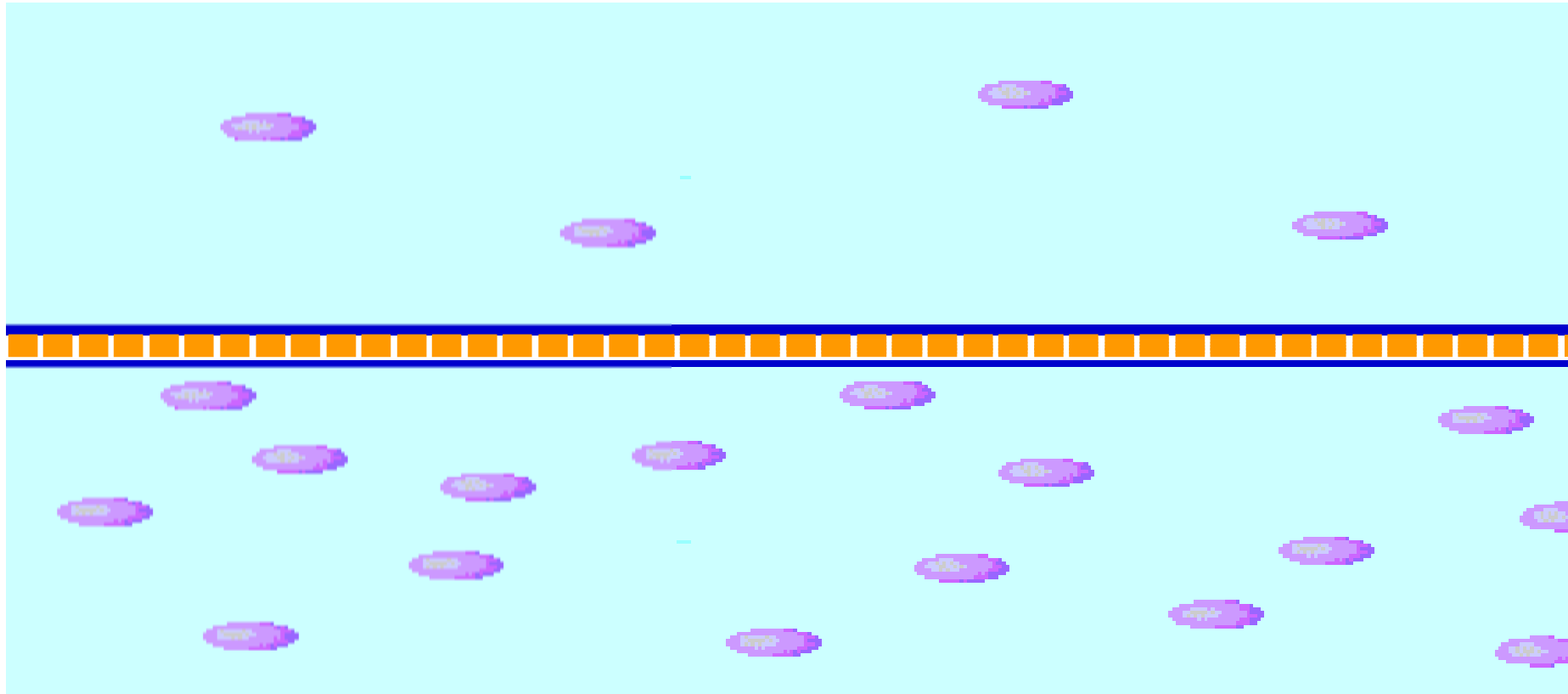




## Waveguides

Ammonia with 2 m path  
and Berthelot reaction

- MDL = 0.07 ppb
- 40 X decrease

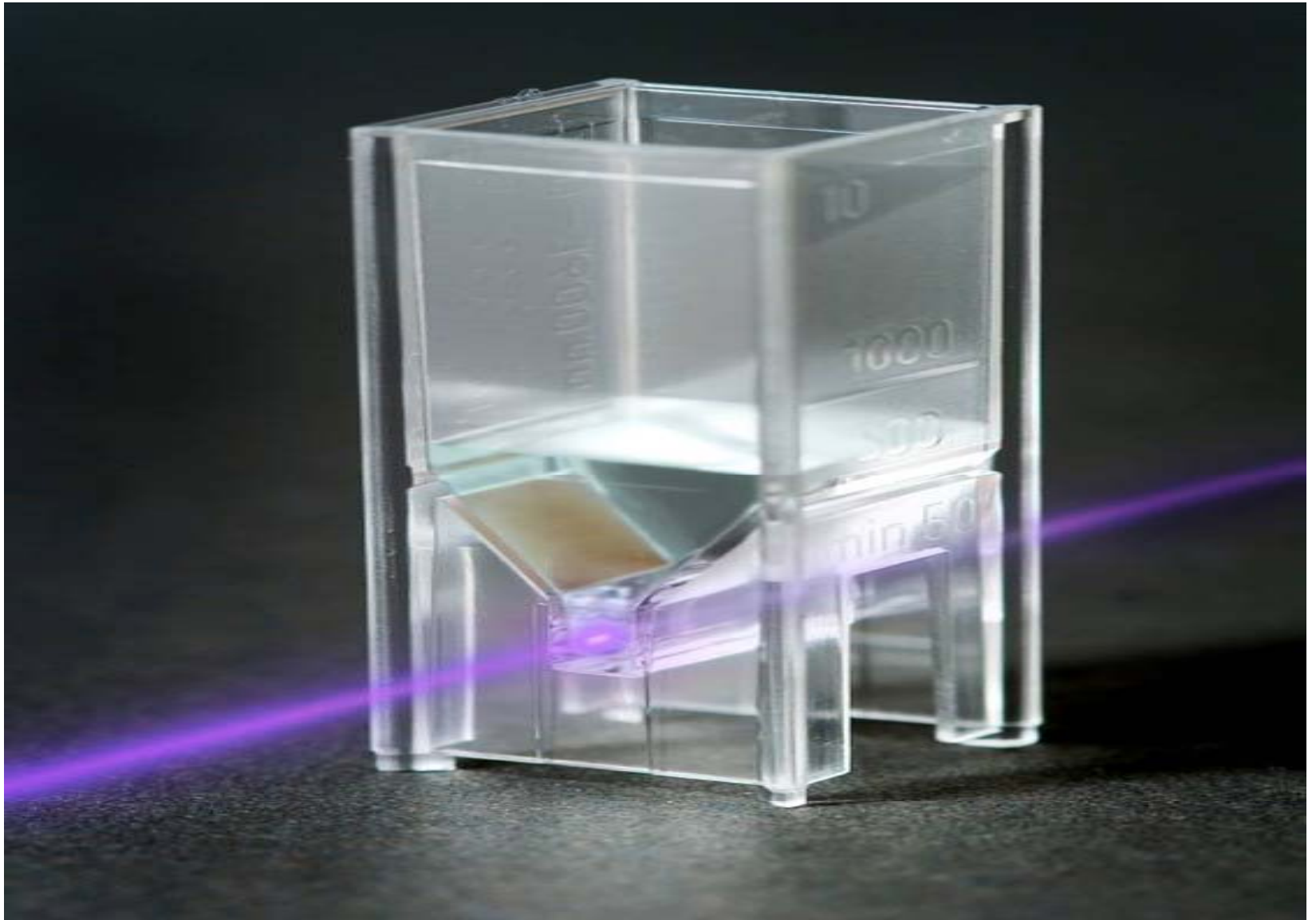


## Diffusion

**Conductivity for Ammonia**  
**Simple, accurate, small sample volumes**  
**MDL = 1 ppb**



**Fluorometric Ammonia  
LED Source  
MDL ~ 0.3 ppb**



**MDL = 3 x decrease for Nitrite**





H<sub>3</sub>



**100 X concentration  
factor**



Photo Credit: Peter Rejcek

# Contamination of: Reagents Sampling apparatus Water

H<sub>3</sub>

**William Lipps**  
**[www.oico.com](http://www.oico.com)**