



# UNDERSTANDING MULTIPLE RESULT SETS

## Introduction

Laboratories will often rerun a particular test on a sample due to an error or because they need to dilute the sample. In most cases, the laboratory will report the correct final set of results. However for some projects, regulators require that the laboratory reports each individual run and the correct final results. The GIS\Key Database can store each individual run and the correct final results in multiple result sets.

## Definitions

**Individual Run** – a single pass of the sample through the laboratory testing equipment.

**Result Set** – a group of results for a single individual run or for the complete final results. In the GIS\Key database, the results from each individual run and the final reportable results are stored in a separate result set. The last character of the res\_type field corresponds to a particular result set (e.g., D12 indicates Result Set #2 of first sample duplicate).

**Reportable Result Set** – the correct final set of results. These results may come from different individual runs (see example below). In the GIS\Key database, the reportable result set is always recorded as Result Set #1 (i.e., as res\_type = P01 for primary results).

**Original Result Set** – the original run for a reportable set of results. For each reportable result set, the original result set field (res\_orig) stores the result set that those reportable results came from.

## Result Set Numbering Convention

In the GIS\Key database, the reportable result set is stored as Result Set #1. (e.g., res\_type = P01 for primary results). If the laboratory supplies you with only one result set, these must be entered as Result Set #1.

However, if the laboratory reports results from multiple runs, each individual run must be entered as a separate Result Set, starting at Result Set #2 (res\_type = P02 for primary results). Then the best result from all the runs is reported as Result Set #1, the reportable result set.

For each reportable result set, the res\_orig field stores the original result set (individual run) that that result came from.

## Reporting Result Sets

In the Chemistry Report Tool, the default is to only show the reportable result set. However, in the Tests – Result Sets tab, you can select the “All Result Sets” button to present all result sets in your work products.



# UNDERSTANDING MULTIPLE RESULT SETS

## Example

This example is for primary results. The laboratory had to rerun water sample MW-01 because ethylbenzene concentrations in the initial run exceeded the detection limits.

### Laboratory Results

Initial Run (Dilution = 1)	Next Run (Dilution = 100)	Reportable Results
Benzene <5 Toluene <5 Ethylbenzene > 1000* Xylenes <5	Benzene <500 Toluene <500 Ethylbenzene = 1500 Xylenes <500	Benzene <5 Toluene <5 Ethylbenzene = 1500 Xylenes <5

\* upper detection limit of laboratory equipment

### GIS\Key Database Result Sets

Initial Run Entered as Result Set 2	Next Run Entered as Result Set 3	Reportable Results Entered as Result Set 1
Benzene <5 Toluene <5 Ethylbenzene > 1000 Xylenes <5	Benzene <500 Toluene <500 Ethylbenzene = 1500 Xylenes <500	Benzene <5 (from RS 2) Toluene <5 (from RS 2) Ethylbenzene = 1500 (from RS 3) Xylenes <5 (from RS 2)

RS = Result Set

### As Entered Into the Database

	Site_Id	Res_Type	Constituent	Concentration	Res_Orig	Dilution
Initial Run	MW-01	P02	Benzene	<5		1
	MW-01	P02	Toluene	<5		1
	MW-01	P02	Ethylbenzene	1000+		1
	MW-01	P02	Xylenes	<5		1
Next Run	MW-01	P03	Benzene	<500		100
	MW-01	P03	Toluene	<500		100
	MW-01	P03	Ethylbenzene	1500		100
	MW-01	P03	Xylenes	<500		100
Reportable Results	MW-01	P01	Benzene	<5	P02	1
	MW-01	P01	Toluene	<5	P02	1
	MW-01	P01	Ethylbenzene	1500	P03	100
	MW-01	P01	Xylenes	<5	P02	1