

REPORTING SUMMED CONCENTRATIONS WITH J AND/OR U FLAGS

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INTRODUCTION

In the standard list of DMMP Chemicals of Concern there are multiple chemicals that are sums of three or more individual components. These include: Total PAHs, Total LPAHs, Total HPAHs, Total Benzofluoranthenes, Total DDT, Total PCBs, and Total Chlordane.

PROBLEM STATEMENT

Previous guidance from the DMMP is clear on how to calculate and report sums when all the constituents are non-detect (U-flagged), however the guidance has not clearly indicated how to calculate and qualify sums with a combination of J-flagged, U-flagged and detected concentrations.

The DMMP User Manual states “For comparison to [DMMP guidelines], group summations are performed using all detected concentrations. Undetected results are not included in the sum. Estimated values between the method detection limit and the laboratory reporting limit (i.e. J-flagged values) are included in the summation at face value. If all constituents of a group are undetected, the group sum is reported as undetected, and the highest laboratory reporting limit of all the constituents is reported as the group sum.”

Recently issues have come up with projects not adding sums correctly and/or not flagging the summed values correctly.

PROPOSED CLARIFICATION

The DMMP User Manual will be altered as follows with the addition of the text in bold underline, “Estimated values between the method detection limit and the laboratory reporting limit (i.e. J-flagged values) are included in the summation at face value **and the sum is also J-flagged. Values that are J-flagged due to minor quality control deviations are also to be handled in this way.**”

For clarity and consistency, the DMMP agencies are providing example calculations of the correct way to calculate sums and flag the summed values for different combinations of detected, J-flagged and U-flagged results.

Handling sums that include non-detect (U-flagged) concentrations.

As per existing DMMP guidance, when all the constituents of a sum are non-detect, the sum is reported as non-detect at the highest reporting limit of the constituents (DMMP User Manual), as follows:

All constituents non-detect, sum is highest non-detect value

4,4' DDD	4.3	U
4,4' DDE	2.7	U
4,4' DDT	1.8	U
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	4.3	U

When a portion of the constituents of a sum are detected and the rest are non-detect (U-flagged), the sum is calculated by adding only the detected concentrations, as follows:

One non-detect and the remaining detected, non-detect is not included in sum

4,4' DDD	4.3	
4,4' DDE	2.7	
4,4' DDT	1.8	U
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	7	

Handling sums that include J-flagged concentrations

When all the constituents of a sum are J-flagged, the sum is also J-flagged, as follows:

All constituents J-flagged -> sum J-flagged

4,4' DDD	4.3	J
4,4' DDE	2.7	J
4,4' DDT	1.8	J
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	8.8	J

When a portion of the constituents of a sum are J-flagged and the rest are detected, the sum is also J-flagged regardless of the number of J-flagged concentrations. Both of the following cases are reported the same.

Any number of J-flagged values, rest detect, sum is J-flagged

4,4' DDD	4.3	
4,4' DDE	2.7	
4,4' DDT	1.8	J
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	8.8	J

or

4,4' DDD	4.3	
4,4' DDE	2.7	J
4,4' DDT	1.8	J
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	8.8	J

Handling sums that include a combination of detected, J-flagged and/or U-flagged concentrations

When a portion of the constituents of a sum are J-flagged and the rest are non-detect (U-flagged), the sum is calculated by adding only the J-flagged values and the sum is also J-flagged, as follows:

Two constituents J-flagged, one non-detect, sum is J-flagged, non-detect not included

4,4' DDD	4.3	J
4,4' DDE	2.7	J
4,4' DDT	1.8	U
nsum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	7	J

Similarly, when the constituents are a combination of J-flagged, U-flagged and detected concentrations, the sum is calculated by adding all the detected and J-flagged values and including the J-flag on the sum, as in the following cases:

One constituent J-flagged, one detect, and one non-detect, sum is J-flagged and non-detect not included

4,4' DDD	4.3	J
4,4' DDE	2.7	
4,4' DDT	1.8	U
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	7	J

or

4,4' DDD	4.3	U
4,4' DDE	2.7	
4,4' DDT	1.8	J
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT	4.5	J