

Guidance Document for Performance Measure Determination in accordance with the Proposed Amendments to Appendix B3 of Part IV of 40E-63, Florida Administrative Code

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Introduction

This document clarifies the procedures for performance measure determination for Sub-basins and permit basins. In particular, it provides examples in response to questions asked at the February 17, 2010, rule development workshop in Clewiston, FL.

The draft amendment to Part IV of 40E-63, F.A.C., expands the Proportional Share assessment from permit basins to District-determined Sub-basins, and provides for a determination of impracticability under which permittees can discharge above their proportional share of the load in accordance with site-specific limits. Accordingly, the procedures for determination of performance measures under these amendments have been revised in Appendix B3, specifically:

- Proportional Share calculation based upon C-139 Basin Target and Limit
- Sub-basin and Permit Basin observed load and unit area load (UAL) calculation
- Adjustment of observed loads and UALs resulting in Assigned UALs
- Evaluation for meeting or exceeding the Proportional Share
- Deferral or % Required Reduction determination

This document provides examples using hypothetical water year results for illustrative purposes only. They do not represent historical or anticipated load levels for the C-139 Basin or its Sub-basins.

C-139 Basin Annual Water Year Evaluation Steps

For each water year, the District shall perform the following steps and report the results:

Step 1: Evaluate C-139 Basin Performance

Step 2: Evaluate Primary Sub-basin Performance

Step 3: Compute Sub-basin Adjustment Factor

Step 4: Compute Secondary Sub-basin Assigned Loads

Step 5: Evaluate Secondary Sub-basin Performance

Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3

Step 6: Compute Tertiary Sub-basin Assigned Loads

Step 7: Evaluate Tertiary Sub-basin Performance

Step 8: Compute Permit Basin Assigned Loads

Step 9: Evaluate Permit Basin Performance

Step 10: Compute Percent Required TP Reductions

Steps two through ten will only be conducted when the District determines that the data are valid or sufficiently complete. If data are not, the evaluation of basin, sub-basin, or permit basin performance will not be completed at that level, and the preceding level data will be used (e.g., Primary Sub-basin data will be used if Secondary Sub-basin data are not available.)

C-139 Basin Level Results

If the District determines that the C-139 Basin is out of compliance with its load performance measure, in accordance with the Everglades Forever Act, remedial action is based on the landowners' proportional share of loading. The proportional share of loading for which landowners are evaluated depends on whether the determination was based on the Target and/or Limit results. The Proportional Share Unit Area Load is based on the total C-139 Basin acreage and is assumed to be distributed equally over the entire C-139 Basin.

The water year's annual and monthly rainfall values are used with equations provided in Appendix B2 to compute the annual Target and Limit values for the C-139 Basin.

- If the basin is out of compliance as a result of exceeding the Limit any one year (excluding suspension due to rainfall), the Proportional Share UAL is that year's Limit UAL. The TP load per unit area computed by the District as shown herein (Assigned UAL) for Sub-basins and Permit basins would be compared to this Proportional share UAL.
- If the basin is out of compliance as a result of exceeding the Target three consecutive years (excluding suspension due to rainfall), the Proportional Share UAL is the average of the three Target UAL values calculated for the three water years. The three-year average Assigned UAL for Sub-basins and Permit basins would be compared to this Proportional share UAL.

The examples presented in this document, assume that the C-139 Basin is out of compliance based on a single year exceedance of the Limit. The basin level Limit UAL is compared to the single year Assigned UAL at the Sub-basin and Permit Basin levels as described herein.

Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3

The following example is based upon a Limit of 92 mtons, which is carried throughout this document.

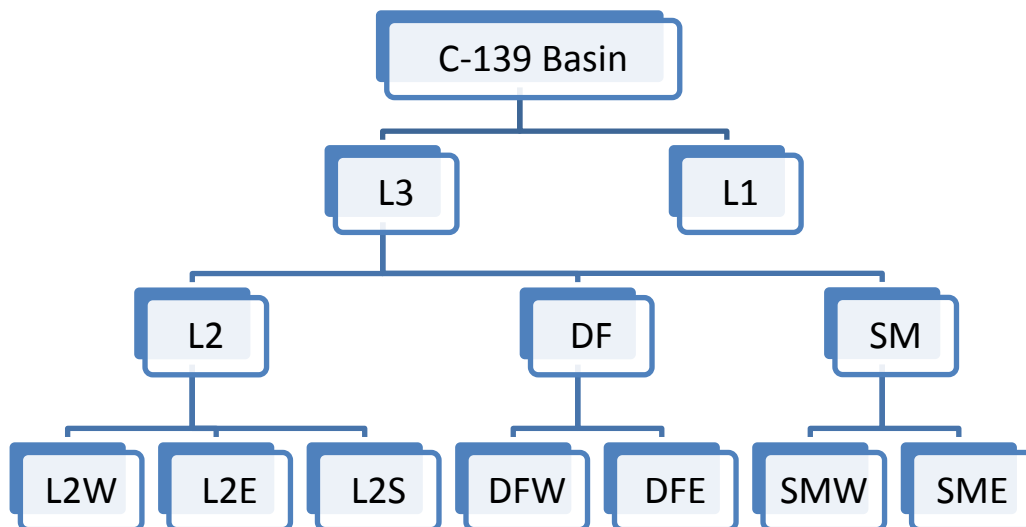
Example

If the C-139 Basin collective discharge for the water year is less than or equal to the Limit of 92 mtons, then the basin is in compliance. In this example the C-139 Basin discharge is greater than 92 mtons and the C-139 Basin is out of compliance with its load performance measure. Subsequent analysis is required to determine required action.

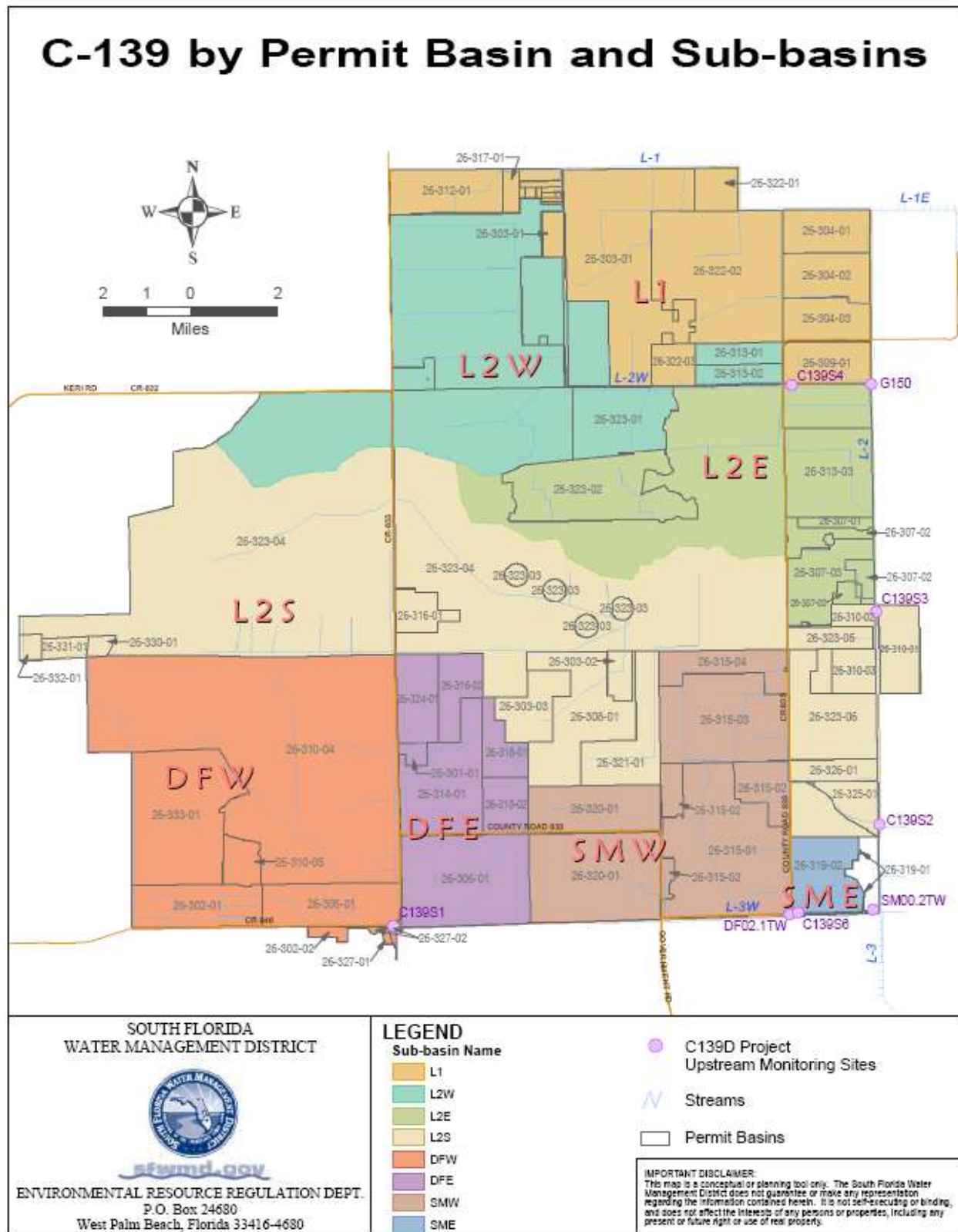
Step 1: Evaluate C-139 Basin Performance

C-139 Basin Observed Load	=	108 mtons – <i>out of compliance</i>
C-139 Basin Limit Load	=	92 mtons
	=	202,200 lbs
C-139 Basin Acres	=	168,450 acres
Proportional Share UAL	=	1.20 lbs/acre
(Limit UAL in this case)		

Calculations will be made annually to estimate the load attributable to each Sub-basin and Permit Basin within the C-139 Basin. When the C-139 Basin is deemed out of compliance, these computed loads shall be used to determine where additional water quality improvement activities are required. Permit Basin loads will be used to determine required action, but only if the Primary, Secondary, and Tertiary Sub-Basins are determined to exceed the Proportional Share UAL. The following figure and map designating the sub-basins are contained herein, but are subject to change based upon the District obtaining improved information or revised drainage patterns within the basin. Sub-basin maps shall be published annually as part of the District's annual reporting.



Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3



Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3

Primary Sub-basins

Primary Sub-basin loads are measured at the C-139 Basin discharge structures and the G-150 structure dividing the L1 and L2 canals. The loads of the Primary Sub-basins will always match the C-139 Basin total load, so no adjustment is made to Primary Sub-basin loads or Observed UAL values.

Example

Step 2: Evaluate Primary Sub-basin Performance

Primary Sub-basin	Observed Load (mtons)	Area (acres)	Observed UAL (lbs/acre)	Proportional Share UAL (lbs/acre) ¹	Meets or Exceeds Proportional Share UAL
L1	10	23,165	0.95	1.20	Meets
L3	98	145,285	1.49	1.20	Exceeds

¹ Proportional Share UAL = 1.20 lbs/acre from Step 1

Secondary Sub-basins

Currently, the L1 Primary Sub-basin has no Secondary or Tertiary Sub-basins. If the L1 did not meet the Proportional Share UAL, then the next evaluation step would be for Permit Basins. The L3 Primary Sub-basin includes three Secondary Sub-basins: L2, DF, and SM. These Sub-basins are monitored at three stations upstream of the STA5 inflow structures.

Adjustment shall be made to all calculated loads upstream of the stations C139S2, DF02.1TW and SM00.2TW if load data for all three are available. The Sub-basin Load Adjustment Factor will account for differences that can be expected between the sum of these station loads and the load at the STA inflow stations. Although it is anticipated that the adjustment would typically be downward, it is possible for the adjustment to be upward. If the District determines that accurate water year load cannot be calculated for any one of the three Secondary monitoring stations, then the total load cannot be related to the C-139 Basin load to the STA and south to the L3 Borrow Canal. In such a case, the Observed Loads shall be evaluated without adjustment. Primary Sub-basin Observed UAL values would be applied to the Secondary Sub-basin(s) without successful load monitoring.

Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3

Example

Step 3: Compute Sub-basin Adjustment Factor

Monitoring station load upstream of STA5 & L3 south:

$$C139S2 + DF02.1TW + SM00.2TW = 98 \text{ mtons}$$

Monitoring station load into STA5 & L3 south:

$$G342A + G342B + G342C + G342D + G406 + G508 = 128 \text{ mtons}$$

$$\text{Adjustment Factor} = \frac{\text{Total Load at Secondary Structures upstream of STA5 \& L3}}{\text{Total Load at Primary Structures to STA5 \& L3}}$$

$$\text{Adjustment Factor} = \frac{98 \text{ mtons}}{128 \text{ mtons}}$$

$$\text{Adjustment Factor} = 0.77$$

Step 4: Compute Secondary Sub-basin Assigned Loads

Secondary Sub-basin	Observed Load (mtons)	Adjustment Factor	Assigned Load (mtons)	Assigned Load (lbs)
L2	50	0.77	38.5	84,793
DF	43	0.77	33.4	73,531
SM	35	0.77	26.9	59,355

Step 5: Evaluate Secondary Sub-basin Performance

Secondary Sub-basin	Assigned Load (lbs)	Area (acres)	Assigned UAL (lbs/acre)	Proportional Share UAL ¹ (lbs/acre)	Meets or Exceeds Proportional Share UAL
L2	84,793	88,673	0.96	1.20	Meets
DF	73,531	36,764	2.00	1.20	Exceeds
SM	59,355	19,288	3.08	1.20	Exceeds

¹ Proportional Share UAL = 1.20 lbs/acre from Step 1

In this hypothetical example, the L2 is the only Secondary Sub-basin to meet the Proportional Share UAL of 1.20 lbs/acre. Both DF and SM Sub-basins exceed the Proportional Share UAL and further evaluation is required to make determinations for permittees within these areas.

Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3

Tertiary Sub-basins

The load and UAL shall be calculated annually for all Tertiary Sub-basins, even for those that have already been determined to meet performance measures based upon the previous steps. Therefore, all seven Tertiary Sub-basins were assigned hypothetical loads for this example to demonstrate potential future cases. All Sub-basin loads computed from monitoring data are first adjusted by the Sub-basin Load Adjustment Factor computed from their Secondary Sub-basin analysis, in this example case, 0.77.

Example

Step 6: Compute Tertiary Sub-basin Assigned Loads

Tertiary Sub-basin	Observed Load (mtons)	Adjustment Factor	Assigned Load (mtons)	Assigned Load (lbs)
L2W	15.5	0.77	11.9	26,286
L2E	9.5	0.77	7.3	16,111
L2S	25.0	0.77	19.2	42,397
DFW	18.3	0.77	14.1	31,134
DFE	25.0	0.77	19.2	42,397
SMW	30.0	0.77	23.1	50,876
SME	5.0	0.77	3.8	8,479

Step 7: Evaluate Tertiary Sub-basin Performance

Tertiary Sub-basin	Assigned Load (lbs)	Area (acres)	Assigned UAL (lbs/acre)	Proportional Share UAL ¹ (lbs/acre)	Meets or Exceeds Proportional Share UAL
L2W	26,286	19,530	1.35	1.20	Secondary meets
L2E	16,111	20,715	0.78	1.20	Secondary meets
L2S	42,397	48,429	0.88	1.20	Secondary meets
DFW	31,134	25,945	1.20	1.20	Exceeds
DFE	42,397	10,819	3.92	1.20	Exceeds
SMW	50,876	17,525	2.90	1.20	Exceeds
SME	8,479	1,763	4.81	1.20	Exceeds

¹ Proportional Share UAL = 1.20 lbs/acre from Step 1

Even though the L2W Assigned UAL is greater than the Proportional Share UAL, no additional action would be required due to Secondary Sub-basin results. The L2W Sub-basin results may be used in future years for a 3-year Target exceedance.

Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3

Permit Basins

Permit Basin discharge monitoring results shall be used to calculate Assigned loads and UALs for the Permit Basins they represent. Permit Basins without discharge monitoring will be evaluated based upon the Assigned UAL for the Sub-basin. In the case that one or more Permit Basins within a Sub-basin are issued a determination of impracticability, the remaining area's UAL shall be adjusted to exclude those Permit Basins with impracticability-required discharge monitoring unless the resulting UAL is greater than the Sub-basin UAL. In such a case the Permit Basins without discharge monitoring will receive an Assigned UAL equal to the lesser of the following two computation methods:

1. the Assigned UAL for the smallest Sub-basin level to which the Permit Basin discharges (as computed by Step 7, 5, or 2), or
2. the resulting UAL of the smallest Sub-basin level Assigned load less the sum of Assigned loads from impracticability-required Permit Basin discharge monitoring within the Sub-basin.

An Assigned UAL will be computed each water year for each Permit Basin, regardless of the results of previous steps. The Sub-basin Load Adjustment Factor will match that applied at the Secondary and Tertiary level, in this example case, 0.77.

Example

Step 8: Compute Permit Basin Assigned Loads

Permit Basin	Observed Load (mtons)	Adjustment Factor	Computed Load (mtons)	Computed Load (lbs)
DFE-0	Not Monitored	0.77	NA	NA
DFE-1	14.0	0.77	10.78	23,766
DFE-2	2.0	0.77	1.54	3,395

Step 9: Evaluate Permit Basin Performance

Impracticability determination exists for DFE-2 and site specific Limit UAL (in this case defining the Proportional Share UAL) of 1.5 lbs/acre.

Permit Basin	Computed Load (lbs)	Area (acres)	Assigned UAL (lbs/acre)	Proportional Share UAL ¹ (lbs/acre)	Meets or Exceeds Proportional Share UAL
Permit basins without Discharge Monitoring					
DFE-0	NA	5,409	3.92 (Sub-basin)	1.20	Exceeds
Permit Basins with Discharge Monitoring					
DFE-1	23,766	2,705	8.79	1.20	Exceeds
DFE-2	3,395	2,705	1.26	1.50	Meets

¹ Proportional Share UAL = 1.20 lbs/acre from Step 1

Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3

Step 9 shall be repeated for each Tertiary Sub-basin and the L1 Primary Sub-basin. If the District determines that accurate water year load cannot be calculated for a Tertiary Sub-basin, then the procedures within Step 9 shall be applied to the Secondary Sub-basin to which it discharges to compute Assigned UALs for all Permit Basins.

Hypothetical Permit Basins and data were created for each Sub-Basin below to show potential cases for performance results and corresponding required TP reductions. Sub-basin names ending in the number 0 represent the collective Permit Basins without discharge monitoring.

Example

Step 10: Compute Percent Required TP Reductions

Sub-basin or Permit Basin	Assigned UAL (lbs/acre)	Proportional Share UAL ¹ (lbs/acre)	Meets or Exceeds Proportional Share UAL	Required TP Reduction (%)
L1	0.95	1.20	Meets	NA
L1-0	0.00	1.20	Primary Meets	NA
L1-1	1.50	1.20	Primary Meets	NA
L1-2	1.30	1.20	Primary Meets	NA
L2W	1.35	1.20	Secondary Meets	NA
L2W-0	1.35	1.20	Secondary Meets	NA
L2E	0.78	1.20	Secondary Meets	NA
L2E-0	0.78	1.20	Secondary Meets	NA
L2S	0.88	1.20	Secondary Meets	NA
L2S-0	0.88	1.20	Secondary Meets	NA
L2S-1	0.60	1.20	Secondary Meets	NA
DFW	1.20	1.20	Meets	NA
DFW-0	1.31	1.20	Tertiary Meets	NA
DFW-1	1.20	1.20	Tertiary Meets	NA
DFE	3.92	1.20	Exceeds	67%
DFE-0	3.92	1.20	Exceeds	47%
DFE-1	8.79	1.20	Exceeds	85%
DFE-2	1.26	1.50 ²	Meets	NA
SMW	2.90	1.20	Exceeds	55%
SMW-0	2.90	1.20	Exceeds	55%
SME	4.81	1.20	Exceeds	73%
SME-0	4.81	1.20	Exceeds	73%

¹ Proportional Share UAL = 1.20 lbs/acre from Step 1

² DFE-2 site specific Proportional Share UAL = 1.50 lbs/acre from Step 9

Example Calculations for C-139 Basin, Sub-basins and Permit Basins
In accordance with Draft Rule 40E-63, Appendix B3

Permit Basin Example Cases

Many potential cases for Permit Basin results were considered in establishing the specific language of the Rule. The following examples are based upon three hypothetical Permit Basins (A, B & C) within a Sub-basin which has an Assigned UAL of 1.50 lb/ac and is over the Proportional Share UAL of 1.20 lb/ac. The following “cases” are presented to help clarify questions regarding the intent of the Rule’s language describing future evaluation of Permit basin Unit Area Loads and, if necessary, load reduction requirements.

No Permit Basins monitor	Case 1
Some Permit Basins monitor	Cases 2a, 2b, 3a, 3b, 5a, 5b
All Permit Basins monitor	Cases 4a, 4b
Permit Basin load adjustment	Cases 3a, 4a, 4b
Impracticability	Cases 5a, 5b

Permit Basin Example Cases

Sub-basin hypothetical data used throughout the Permit Basin Cases:

Sub-basin Load (mton)	Sub-Basin Load Adj. ¹ Factor (%)	Sub-basin Adjusted Load (mton)	Sub-basin Assigned UAL (lb/ac)	Limit UAL (lb/ac)	%Reduction
88.4	0.77	68.0	1.50	1.20	20.0%

Permit Basin Areas	A	B	C
Acres	60,000	30,000	10,000
%	60%	30%	10%

Groundrules for assigning Permit Basin UAL and required reduction:

- ¹ Adjustment equal to the Sub-basin Load Adjustment Factor has been applied to all monitoring including Permit Basin loads
- Sub-basin monitoring results apply if no Permit Basin Discharge Monitoring Program data exists within Sub-basin
- Permit Basin monitored load is adjusted down if sum of Permit Basin loads exceed the Sub-basin monitored load
- Permit Basin monitored load can be adjusted up to match Sub-basin only if 100% of Sub-basin is monitored at the Permit basin level
- Load data from Permit Basins granted impracticability is subtracted from Sub-basin load data to compute load for remaining area
- Assigned UAL for non-monitored Permit Basins is lesser of Sub-basin Assigned UAL and result of removing Permit Basins with Impracticability
- Assigned UAL is zero if computation results in negative load; Permit Basin monitored annual load cannot be negative

Case 1: No Permit Basins have monitoring

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	N	No	40.8	1.50	1.50	1.20	20%	Required reduction based on Sub-basin adjusted load.
B	N	No	20.4	1.50	1.50	1.20	20%	Required reduction based on Sub-basin adjusted load.
C	N	No	6.8	1.50	1.50	1.20	20%	Required reduction based on Sub-basin adjusted load.
Total		0.0	68.0	1.50				
1.00 Permit Basin Load Adjustment Factor								

Result: All Permit Basins' required reduction is based upon Sub-basin data

General notes:

- All cases assume C-139 Basin out of compliance with Limit as tabulated below
- Calculations would apply similarly if out of compliance with Target, but data would represent 3-year averages
- Assigned UAL is computed annually, regardless of C-139 Basin compliance condition
- Limit UAL herein is equivalent to the Proportional Share UAL

Permit Basin Example Cases

Sub-basin hypothetical data used throughout the Permit Basin Cases:

Sub-basin Load (mton)	Sub-Basin Load Adj. ¹ Factor (%)	Sub-basin Adjusted Load (mton)	Sub-basin Assigned UAL (lb/ac)	Limit UAL (lb/ac)	%Reduction
88.4	0.77	68.0	1.50	1.20	20.0%

Permit Basin Areas	A	B	C
Acres	60,000	30,000	10,000
%	60%	30%	10%

Groundrules for assigning Permit Basin UAL and required reduction:

- ¹ Adjustment equal to the Sub-basin Load Adjustment Factor has been applied to all monitoring including Permit Basin loads
- Sub-basin monitoring results apply if no Permit Basin Discharge Monitoring Program data exists within Sub-basin
- Permit Basin monitored load is adjusted down if sum of Permit Basin loads exceed the Sub-basin monitored load
- Permit Basin monitored load can be adjusted up to match Sub-basin only if 100% of Sub-basin is monitored at the Permit basin level
- Load data from Permit Basins granted impracticability is subtracted from Sub-basin load data to compute load for remaining area
- Assigned UAL for non-monitored Permit Basins is lesser of Sub-basin Assigned UAL and result of removing Permit Basins with Impracticability
- Assigned UAL is zero if computation results in negative load; Permit Basin monitored annual load cannot be negative

Case 2a: Permit Basin monitoring (single) is less than Limit UAL

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	N	30	30.0	1.10	1.10	1.20	0%	Meets Performance Measure
B	N	No	20.4	1.50	1.50	1.20	20%	Required reduction based on Sub-basin Assigned UAL.
C	N	No	6.8	1.50	1.50	1.20	20%	Required reduction based on Sub-basin Assigned UAL.
Total		30.0	57.2	1.26				
1.00 Permit Basin Load Adjustment Factor								

Result: Deferral granted for Permit Basin with monitoring
Other Permit Basins follow Sub-basin results

Case 2b: Permit Basin monitoring (single) is greater than Limit UAL

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	N	45	45.0	1.65	1.65	1.20	27%	Required reduction based on monitored value.
B	N	No	20.4	1.50	1.50	1.20	20%	Required reduction based on Sub-basin Assigned UAL.
C	N	No	6.8	1.50	1.50	1.20	20%	Required reduction based on Sub-basin Assigned UAL.
Total		45.0	72.2	1.59				
1.00 Permit Basin Load Adjustment Factor								

Result: Required Reduction for Permit Basin with monitoring based on individual data
Other Permit Basins follow Sub-basin results

Permit Basin Example Cases

Sub-basin hypothetical data used throughout the Permit Basin Cases:

Sub-basin Load (mton)	Sub-Basin Load Adj. ¹ Factor (%)	Sub-basin Adjusted Load (mton)	Sub-basin Assigned UAL (lb/ac)	Limit UAL (lb/ac)	%Reduction
88.4	0.77	68.0	1.50	1.20	20.0%

Permit Basin Areas	A	B	C
Acres	60,000	30,000	10,000
%	60%	30%	10%

Groundrules for assigning Permit Basin UAL and required reduction:

- ¹ Adjustment equal to the Sub-basin Load Adjustment Factor has been applied to all monitoring including Permit Basin loads
- Sub-basin monitoring results apply if no Permit Basin Discharge Monitoring Program data exists within Sub-basin
- Permit Basin monitored load is adjusted down if sum of Permit Basin loads exceed the Sub-basin monitored load
- Permit Basin monitored load can be adjusted up to match Sub-basin only if 100% of Sub-basin is monitored at the Permit basin level
- Load data from Permit Basins granted impracticability is subtracted from Sub-basin load data to compute load for remaining area
- Assigned UAL for non-monitored Permit Basins is lesser of Sub-basin Assigned UAL and result of removing Permit Basins with Impracticability
- Assigned UAL is zero if computation results in negative load; Permit Basin monitored annual load cannot be negative

Case 3a: Permit Basin monitoring (single) is greater than Sub-basin load

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	N	80	68.0	2.50	2.50	1.20	52%	Required reduction based on adjusted monitored value.
B	N	No	20.4	1.50	1.50	1.20	20%	Required reduction based on Sub-basin Assigned UAL.
C	N	No	6.8	1.50	1.50	1.20	20%	Required reduction based on Sub-basin Assigned UAL.
Total		80.0	95.3	2.10				
0.85 Permit Basin Load Adjustment Factor								

Result: Required Reduction for Permit Basin with monitoring based on individual data adjusted down

Other Permit Basins follow Sub-basin results

Permit Basin Load Adjustment Factor less than one due to Permit Basin load exceeding Sub-basin load

Case 3b: Permit Basin monitoring (multiple) is less than Sub-basin load

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	N	No	40.8	1.50	1.50	1.20	20%	Required reduction based on Sub-basin Assigned UAL.
B	N	13	13.0	0.96	0.96	1.20	0%	Meets Performance Measure
C	N	8	8.0	1.76	1.76	1.20	32%	Required reduction based on monitored value.
Total		21.0	61.8	1.36				
1.00 Permit Basin Load Adjustment Factor								

Result: Permit Basin without monitoring follows Sub-basin results

Deferral for one Permit Basin with monitoring based on individual data

Required Reduction for other Permit Basin with monitoring based on individual data

Permit Basin Example Cases

Sub-basin hypothetical data used throughout the Permit Basin Cases:

Sub-basin Load (mton)	Sub-Basin Load Adj. ¹ Factor (%)	Sub-basin Adjusted Load (mton)	Sub-basin Assigned UAL (lb/ac)	Limit UAL (lb/ac)	%Reduction
88.4	0.77	68.0	1.50	1.20	20.0%

Permit Basin Areas	A	B	C
Acres	60,000	30,000	10,000
%	60%	30%	10%

Groundrules for assigning Permit Basin UAL and required reduction:

- ¹ Adjustment equal to the Sub-basin Load Adjustment Factor has been applied to all monitoring including Permit Basin loads
- Sub-basin monitoring results apply if no Permit Basin Discharge Monitoring Program data exists within Sub-basin
- Permit Basin monitored load is adjusted down if sum of Permit Basin loads exceed the Sub-basin monitored load
- Permit Basin monitored load can be adjusted up to match Sub-basin only if 100% of Sub-basin is monitored at the Permit basin level
- Load data from Permit Basins granted impracticability is subtracted from Sub-basin load data to compute load for remaining area
- Assigned UAL for non-monitored Permit Basins is lesser of Sub-basin Assigned UAL and result of removing Permit Basins with Impracticability
- Assigned UAL is zero if computation results in negative load; Permit Basin monitored annual load cannot be negative

Case 4a: Permit Basin monitoring (all) is greater than Sub-basin load

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	N	50	44.8	1.64	1.64	1.20	27%	Required reduction based on adjusted monitored value.
B	N	18	16.1	1.18	1.18	1.20	0%	Meets Performance Measure
C	N	8	7.2	1.58	1.58	1.20	24%	Required reduction based on adjusted monitored value.
Total		76.0	68.0	1.50				

0.90 Permit Basin Load Adjustment Factor

**Result: Required Reduction based on individual data adjusted down
Permit Basin Load Adjustment Factor less than one**

Case 4b: Permit Basin monitoring (all) is less than Sub-basin load

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	N	40	45.0	1.65	1.65	1.20	27%	Required reduction based on adjusted monitored value.
B	N	18	20.2	1.49	1.49	1.20	19%	Required reduction based on adjusted monitored value.
C	N	2.5	2.8	0.62	0.62	1.20	0%	Meets Performance Measure
Total		60.5	68.0	1.50				

1.12 Permit Basin Load Adjustment Factor

**Result: Required Reduction based on individual data adjusted up
Permit Basin Load Adjustment Factor greater than one**

Permit Basin Example Cases

Sub-basin hypothetical data used throughout the Permit Basin Cases:

Sub-basin Load (mton)	Sub-Basin Load Adj. ¹ Factor (%)	Sub-basin Adjusted Load (mton)	Sub-basin Assigned UAL (lb/ac)	Limit UAL (lb/ac)	%Reduction
88.4	0.77	68.0	1.50	1.20	20.0%

Permit Basin Areas	A	B	C
Acres	60,000	30,000	10,000
%	60%	30%	10%

Groundrules for assigning Permit Basin UAL and required reduction:

- ¹ Adjustment equal to the Sub-basin Load Adjustment Factor has been applied to all monitoring including Permit Basin loads
- Sub-basin monitoring results apply if no Permit Basin Discharge Monitoring Program data exists within Sub-basin
- Permit Basin monitored load is adjusted down if sum of Permit Basin loads exceed the Sub-basin monitored load
- Permit Basin monitored load can be adjusted up to match Sub-basin only if 100% of Sub-basin is monitored at the Permit basin level
- Load data from Permit Basins granted impracticability is subtracted from Sub-basin load data to compute load for remaining area
- Assigned UAL for non-monitored Permit Basins is lesser of Sub-basin Assigned UAL and result of removing Permit Basins with Impracticability
- Assigned UAL is zero if computation results in negative load; Permit Basin monitored annual load cannot be negative

Case 5a: Impracticability required Permit Basin monitoring (single) is greater than *site specific Limit UAL*

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	Y	45	45.0	1.65	1.65	1.50	9%	Required reduction based on monitored value and site specific Limit UAL.
B	N	No	17.3	1.27	1.27	1.20	5%	Required reduction is minimum of computed and Sub-basin reduction
C	N	No	5.8	1.27	1.27	1.20	5%	Required reduction is minimum of computed and Sub-basin reduction
Total		45.0	68.0	1.50				
1.00 Permit Basin Load Adjustment Factor								

Result: Required Reduction for Permit Basin with Impracticability monitoring based on individual data and *site specific Limit UAL*
Other Permit Basins use Sub-basin minus Impracticability monitored load (Reduces % required reduction)

Case 5b: Impracticability required Permit Basin monitoring (single) is greater than *site specific Limit UAL*

Name	Impract? (Y/N)	Adjusted ¹ Load (mton)	Computed Load (mton)	Computed UAL (lb/ac)	Assigned UAL (lb/ac)	Limit UAL (lb/ac)	Required Reduction %	Note
A	Y	40	40.0	1.47	1.47	1.50	0%	Meets Impracticability approved site specific Limit UAL
B	N	No	21.0	1.55	1.50	1.20	20%	Required reduction is minimum of computed and Sub-basin reduction
C	N	No	7.0	1.55	1.50	1.20	20%	Required reduction is minimum of computed and Sub-basin reduction
Total		40.0	68.0	1.50				
1.00 Permit Basin Load Adjustment Factor								

Result: Deferral for Permit Basin with Impracticability monitoring based on individual data and *site specific Limit UAL*
Other Permit Basins use Sub-basin results (subtracting Impracticability monitored load would increase UAL and % required reduction)