



Maumee Watershed Total Phosphorus NPDES General Permit

Permit Development Concepts

April 17, 2023

Ohio EPA, Division of Surface Water

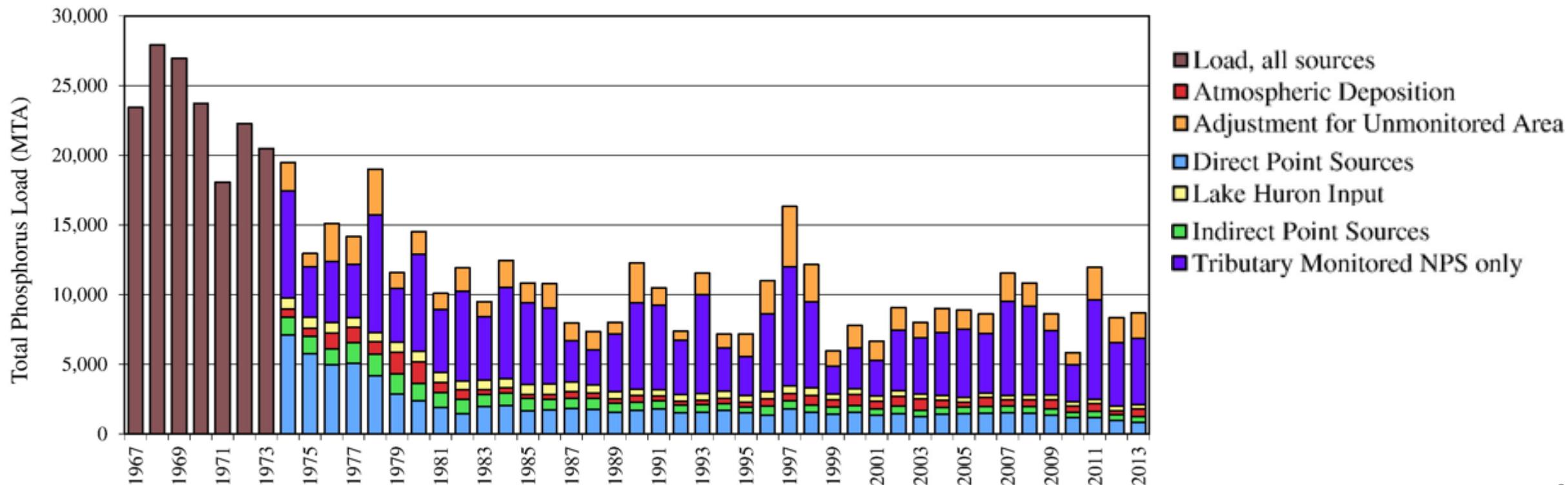
Outline



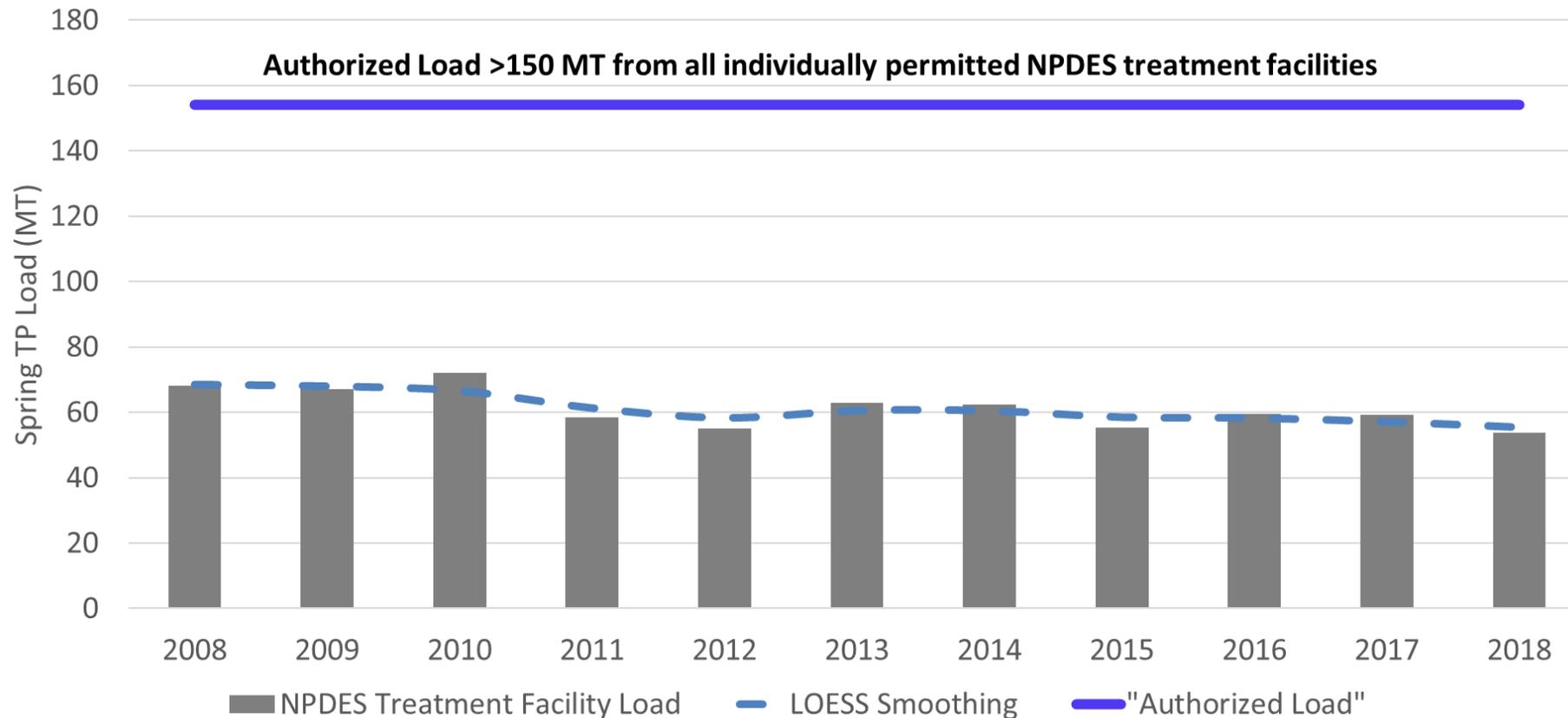
- Lake Erie/Maumee PS history
- Maumee TMDL
- General Permit
- General Permit Load Limit
- General Permit Compliance
- Facilities not covered by the GP
- Open discussion

Lake Erie History

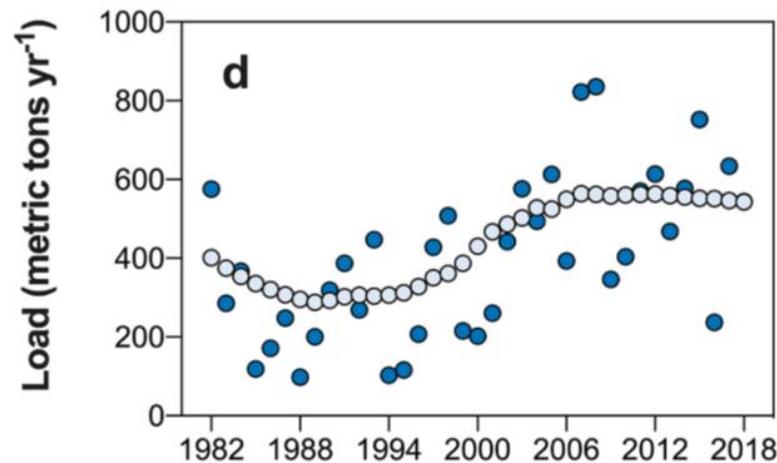
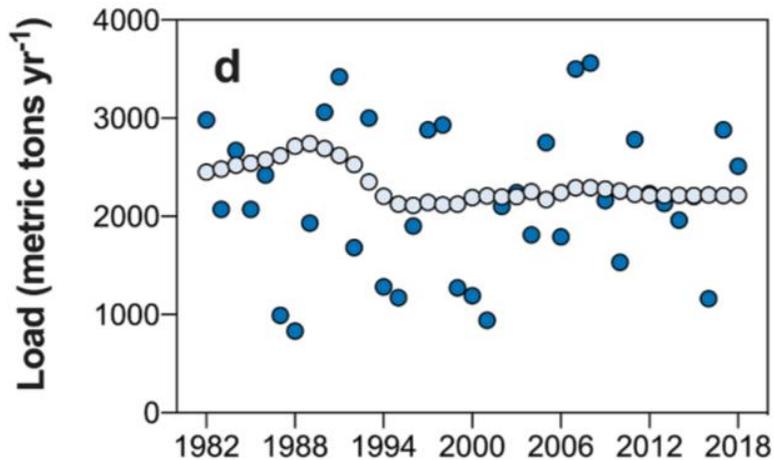
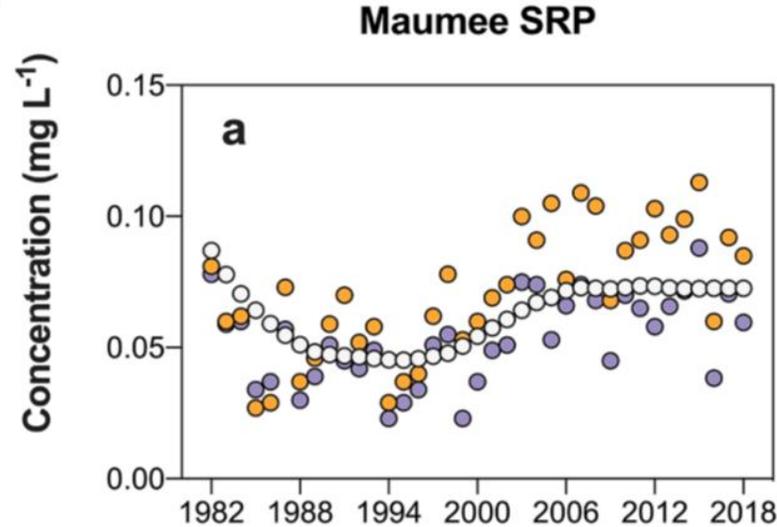
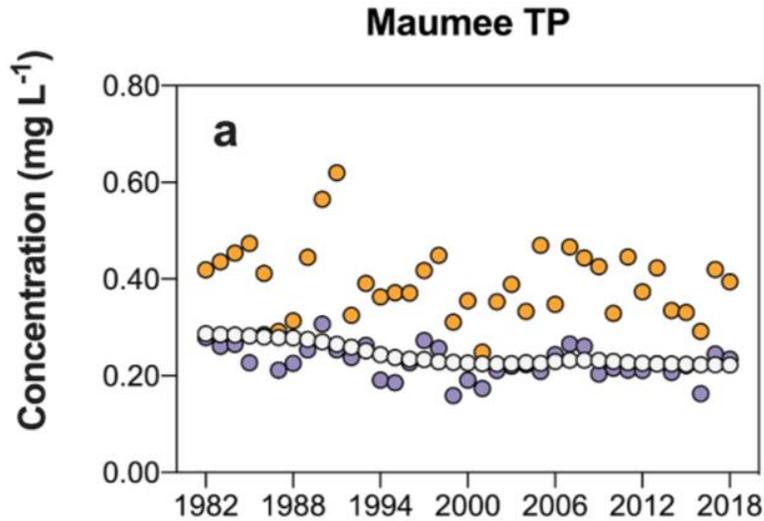
- 1970s – Lake Erie “dead”, point sources to blame
- In 1980s all major POTWs implemented technology to comply with basin-wide 1.0 mg/L monthly limit



Point Source Load Performance

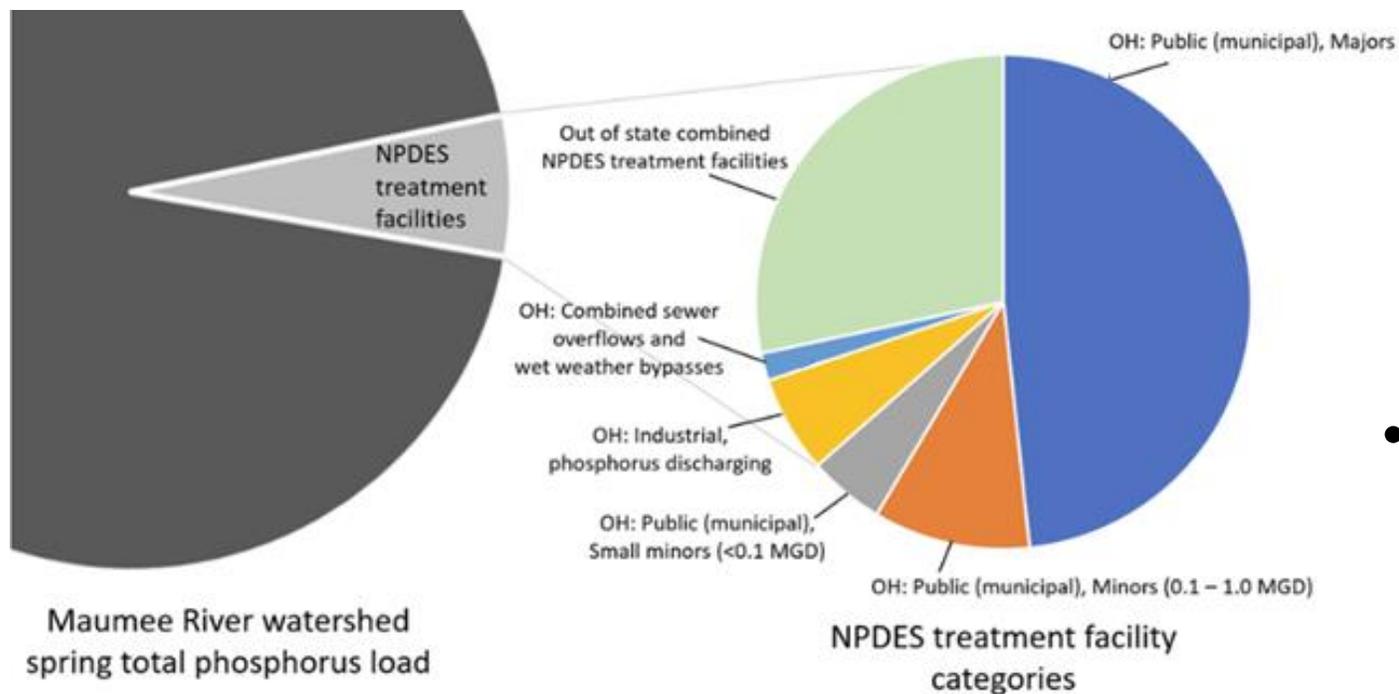


Re-Eutrophication



- HABs became more prevalent
- Major POTW loading remained stable

Maumee Watershed TMDL



- Point sources = 6-7% of total TP load from Maumee Watershed
- TMDL: 40% reduction from the 90th percentile condition

Individual Wasteload Allocations (WLA_i)



≥ 10 MGD	1 - 10 MGD		0.5 – 1 MGD	Industrial
Toledo Bay View WWTP	Perrysburg WWTP	Defiance WWTP	Hicksville WWTP	PCS Nitrogen Ohio
Lucas County WRF	Wapakoneta WWTP	Van Wert WWTP	Swanton WRRF	Lima Refinery
Lima WWTP	Bryan WWTP	Delphos WWTP	New Bremen WWTP	Campbell Soup Supply Co.
Findlay WPCF	Ottawa WWTP	St Marys WWTP	Columbus Grove WWTP	Cooper Farms Van Wert
ADF x 0.37 mg/L	Archbold WWTP	Napoleon WWTP	Cridersville WWTP	G.A. Wintzer and Son Co.
	Shawnee No. 2 WWTP	Ada WWTP	Delta WWTP	IronUnits LLC (HBI)
	Leipsic WWTP	Bluffton WWTP	Elida WWTP	McDowell/BG WTP
	American-Bath WWTP	Wauseon WWTP	Paulding WWTP	Delta WTP
	Montpelier WWTP	American No. 2 WWTP		Napoleon WTP

ADF x 0.73 mg/L

ADF x 0.44 mg/L

WLA_i =
Site-specific

39 individual permittees represent 85% of Ohio's treatment facility wasteload

Maumee Watershed TMDL



- Already made considerable investments, achieved significant reductions.
- Many facilities have optimized operations, performing better than currently required
- Represent a small portion of Maumee total load
- Other sources offer better opportunities for cost-efficiency
- Vast majority of TMDL reduction sought from NPS
- For PS reductions, Ohio EPA proposing a flexible implementation strategy

NPDES General Permit



40 CFR 122.28(a) – The Director may issue a general permit in accordance with the following:

<i>Geographic Area</i>	Ohio's portion of the Maumee River Watershed
<i>Sources with: the same type of waste</i>	Significant dischargers of total phosphorus
<i>Other requirements</i>	clearly identify applicable conditions (TBD)
<i>Water quality-based limits</i>	subject to WQBELs imposed pursuant to 40 CFR 122.44

Group TP Load Limit

40 CFR 122.44(d)(vii)(B)

- When developing WQBELs, the permitting authority shall ensure that:
 - Effluent limits... are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7*
- Using TMDL WLA_i s, propose a single Total Load limit

Sum of WLA_i s of covered facilities
+
Allowance for Future Growth



Group TP Load Limit



- Limit based on covered facilities, may change year-to-year
 - Permit would contain definition of limit, rather than absolute value
- Permit also would contain WLA_is
 - WLA_is would be basis for calculation of group limit value
 - WLA_is would serve as individual limits
- General permit is an “overlay” permit
 - Facilities required to maintain their individual permit
- Limits would apply to loads discharged March-July
 - Consistent with TMDL seasonality assumptions



Group TP Load Limit

Group Limit

Sum of WLA_i s

+

Allowance for Future Growth
(1.4 MT)

≥ 10 MGD	1 - 10 MGD		0.5 – 1 MGD	Industrial
Toledo Bay View WWTP	Perrysburg WWTP	Defiance WWTP	Hicksville WWTP	PCS Nitrogen Ohio
Lucas County WRF	Wapakoneta WWTP	Van Wert WWTP	Swanton WRRF	Lima Refinery
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ADF x 0.44 mg/L

ADF x 0.73 mg/L

$WLA_i =$
Site-specific

***64.1 MT**



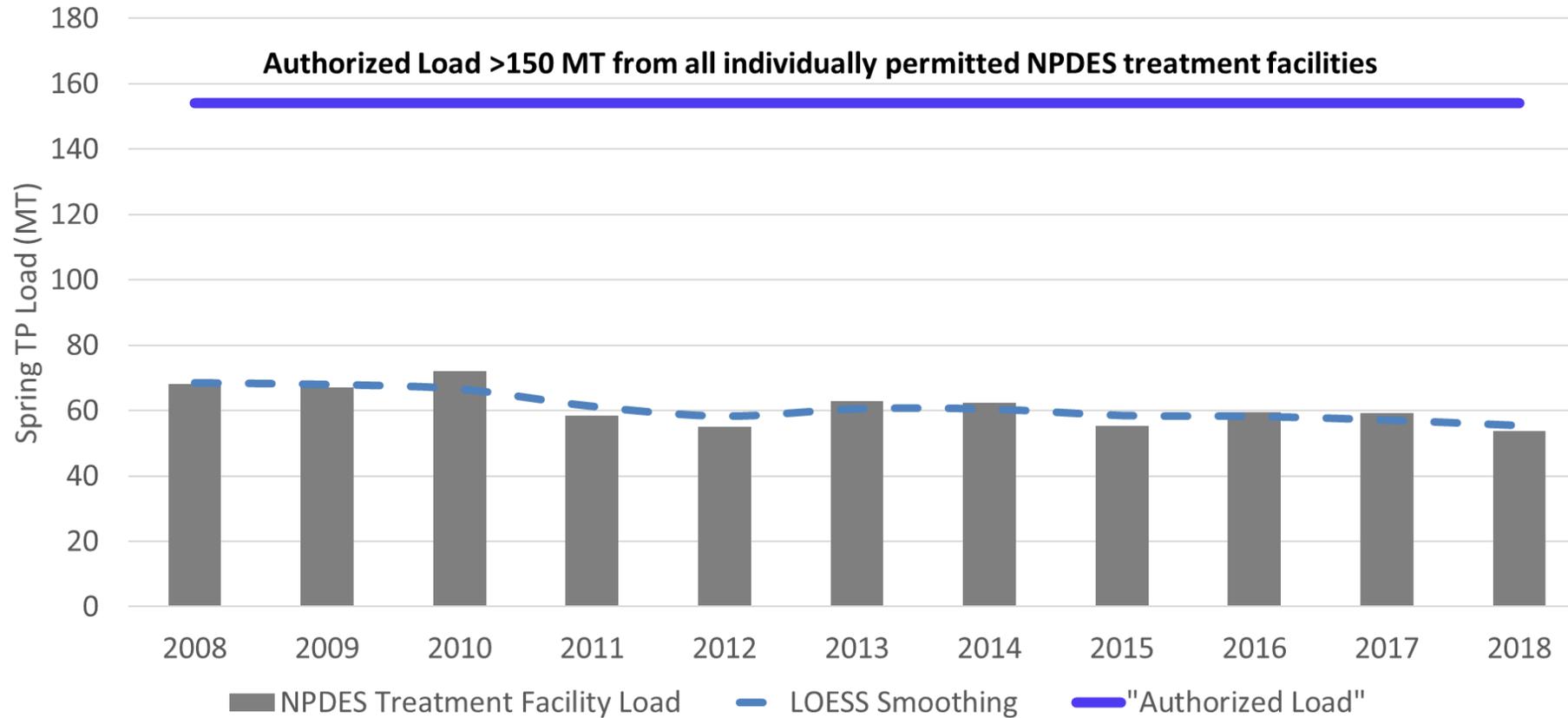
Total Seasonal Load

Sum of loads from
individual facilities

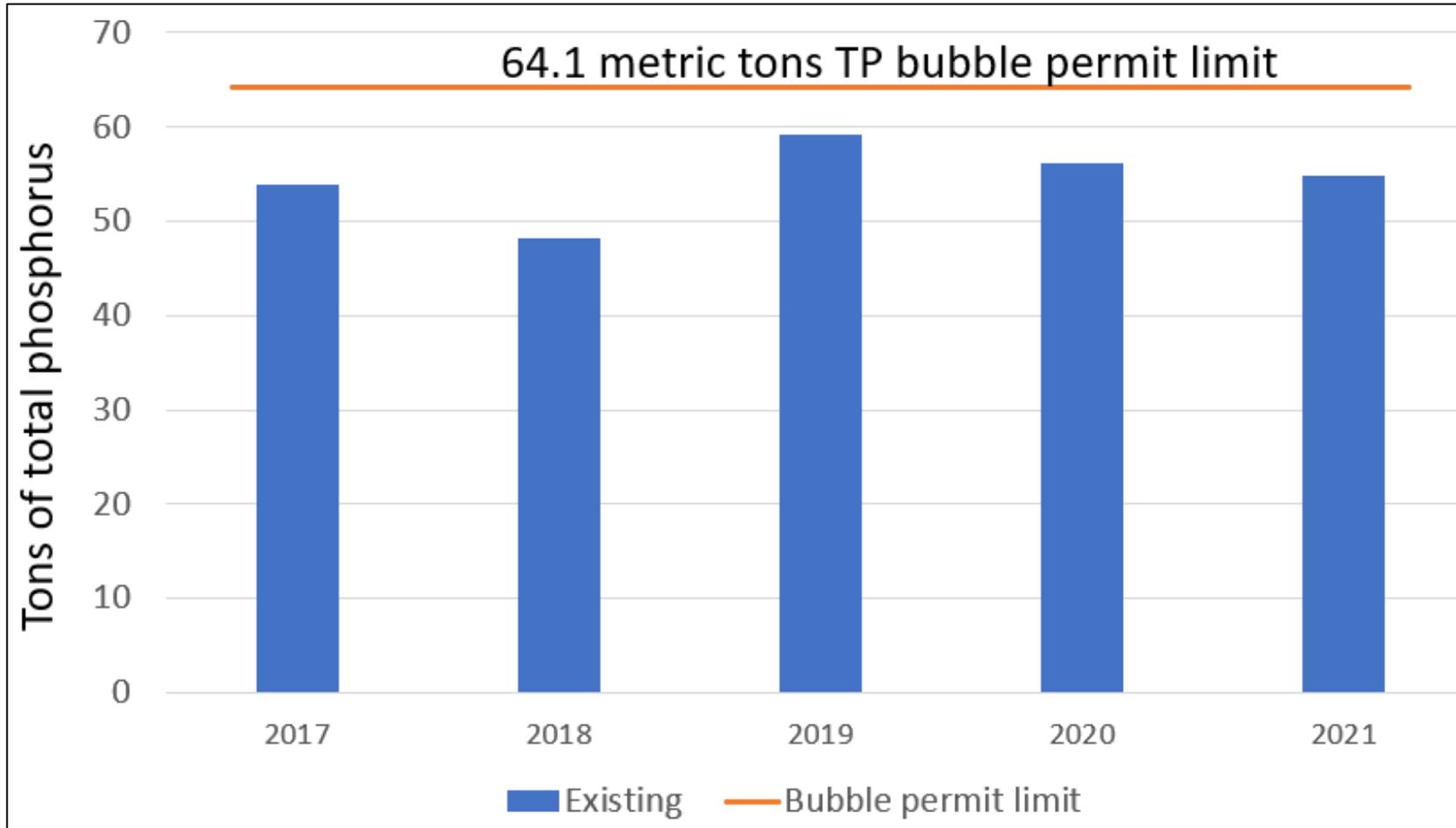
$$\sum \left(\frac{\text{Median TP concentration}}{\text{Total flow volume}} \right)$$

*Assumes all 39 facilities are GP-covered

Point Source Load Performance



Group Limit Performance



- Load gap is gone
- Pressure to improve
- Range:
48.0 to 59.1 MT

*Assumes all facilities are covered

Group Limit Violations



- If group load met group limit, all permittees are in compliance
- If group load exceeded group limit, individual limits become effective:
 - Permittees that met WLA_i are in compliance
 - Permittees that exceeded WLA_i are in violation



Group Limit Violations

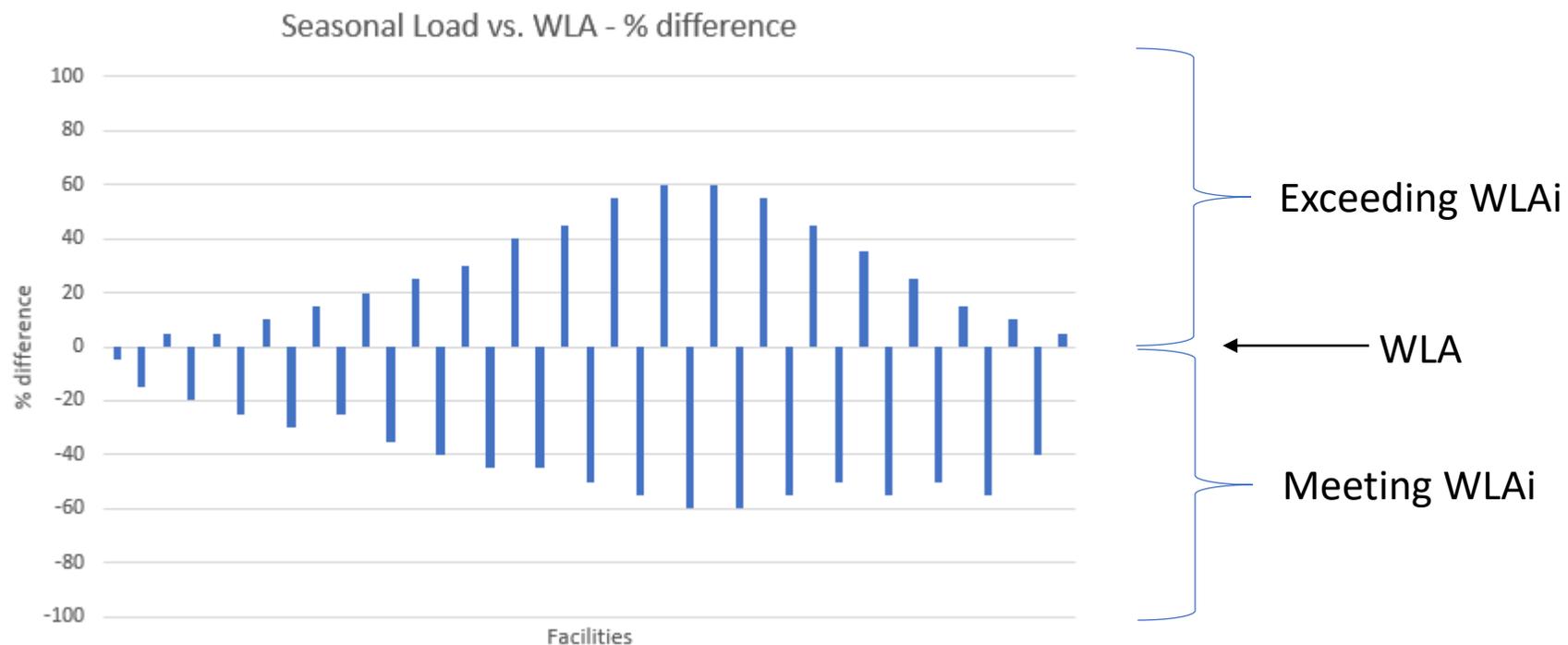


1. Group limit compliance via selective termination of GP coverage for facilities in violation of individual limits
2. Loads from facilities remaining under GP coverage will be compliant with group limit
3. Working on simple, transparent procedure for excluding one or more facilities



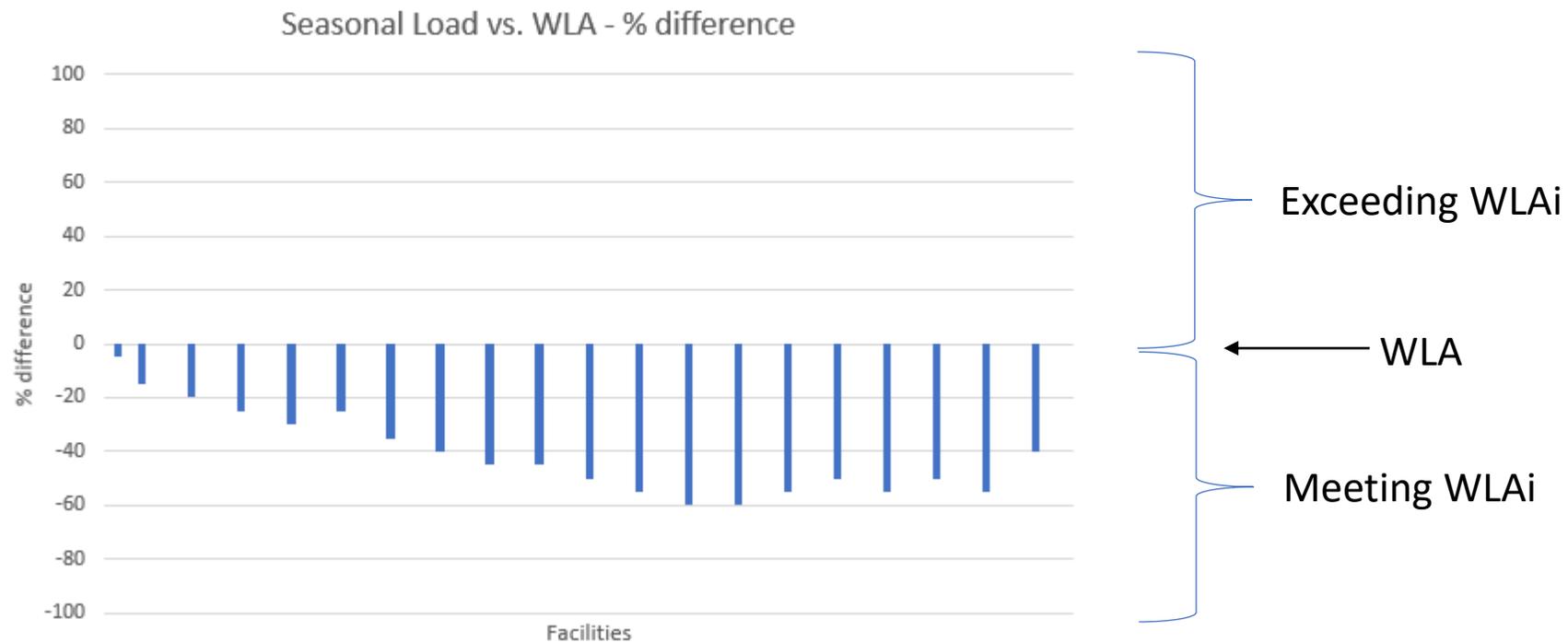
Termination Procedure

1. Terminate facilities in violation of individual limit



Termination Procedure

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20 Facilities Terminated

Termination Procedure

2. Terminate groups of facilities above a given threshold

Example: 20% for majors, 50% for minors



Termination Procedure

2. Terminate groups of facilities above a given threshold

Example: 20% for majors, 50% for minors



9 Facilities Terminated

Termination Procedure

3. Terminate individuals one-by-one

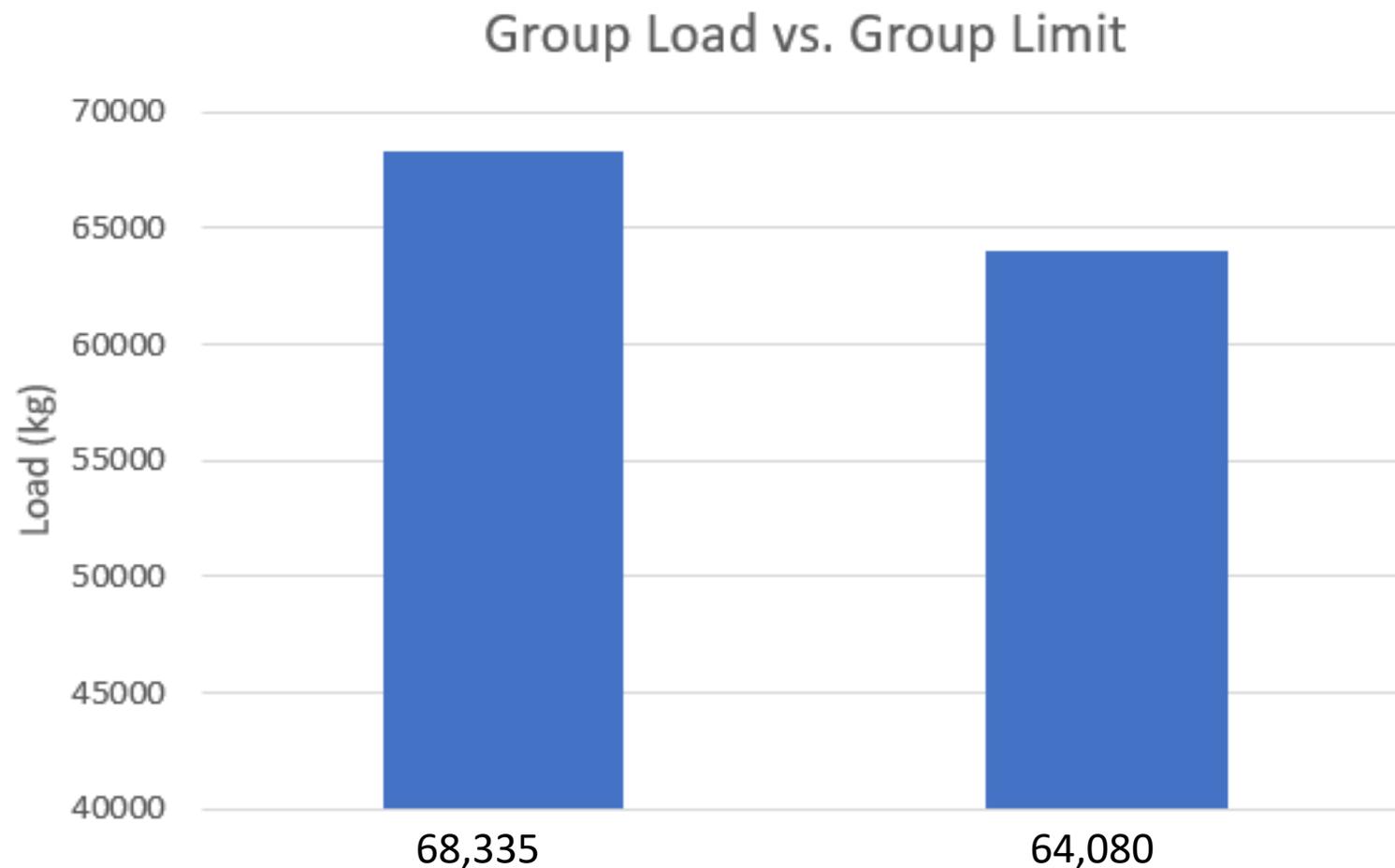
Violations	Facility	Mass Diff (kg)
2	Facility #1	3101
	Facility #2	1409
	Facility #3	1341
	Facility #4	916
	Facility #5	820
	Facility #6	481
	Facility #7	457
	Facility #8	412
	Facility #9	382
	Facility #10	381
	Facility #11	305
	Facility #12	214
	Facility #13	12
1	Facility #14	920
	Facility #15	45
	Facility #16	7
	Facility #17	2
	Facility #18	-99
	Facility #19	-144
	Facility #20	-208

1. Group by number of violations
2. Rank by mass difference (load minus WLA)
3. Terminate facility at top
4. Recalculate group load & group load limit
5. Repeat?

Termination Procedure

3. Terminate individuals one-by-one

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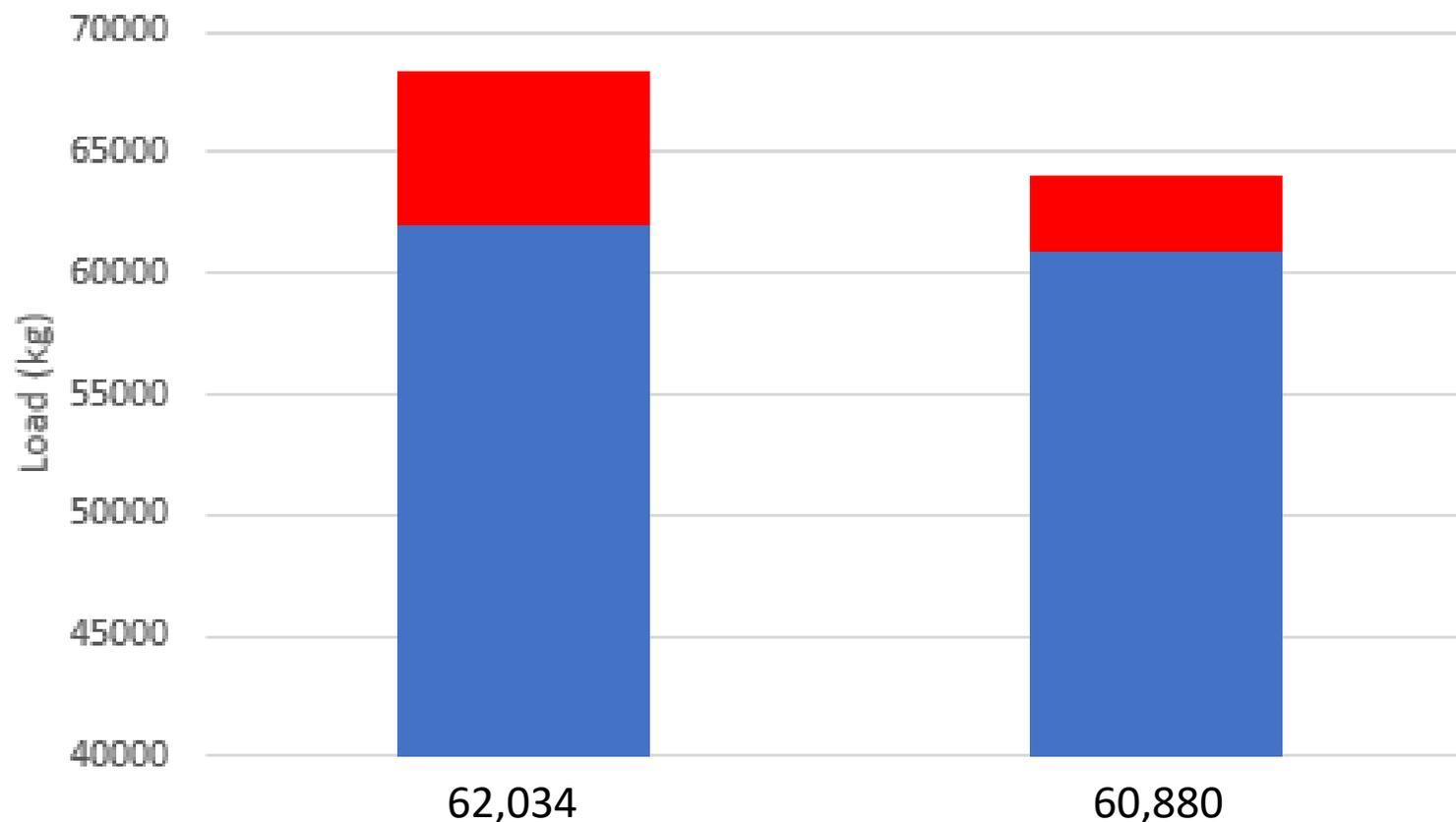


Termination Procedure

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Group Load vs. Group Limit

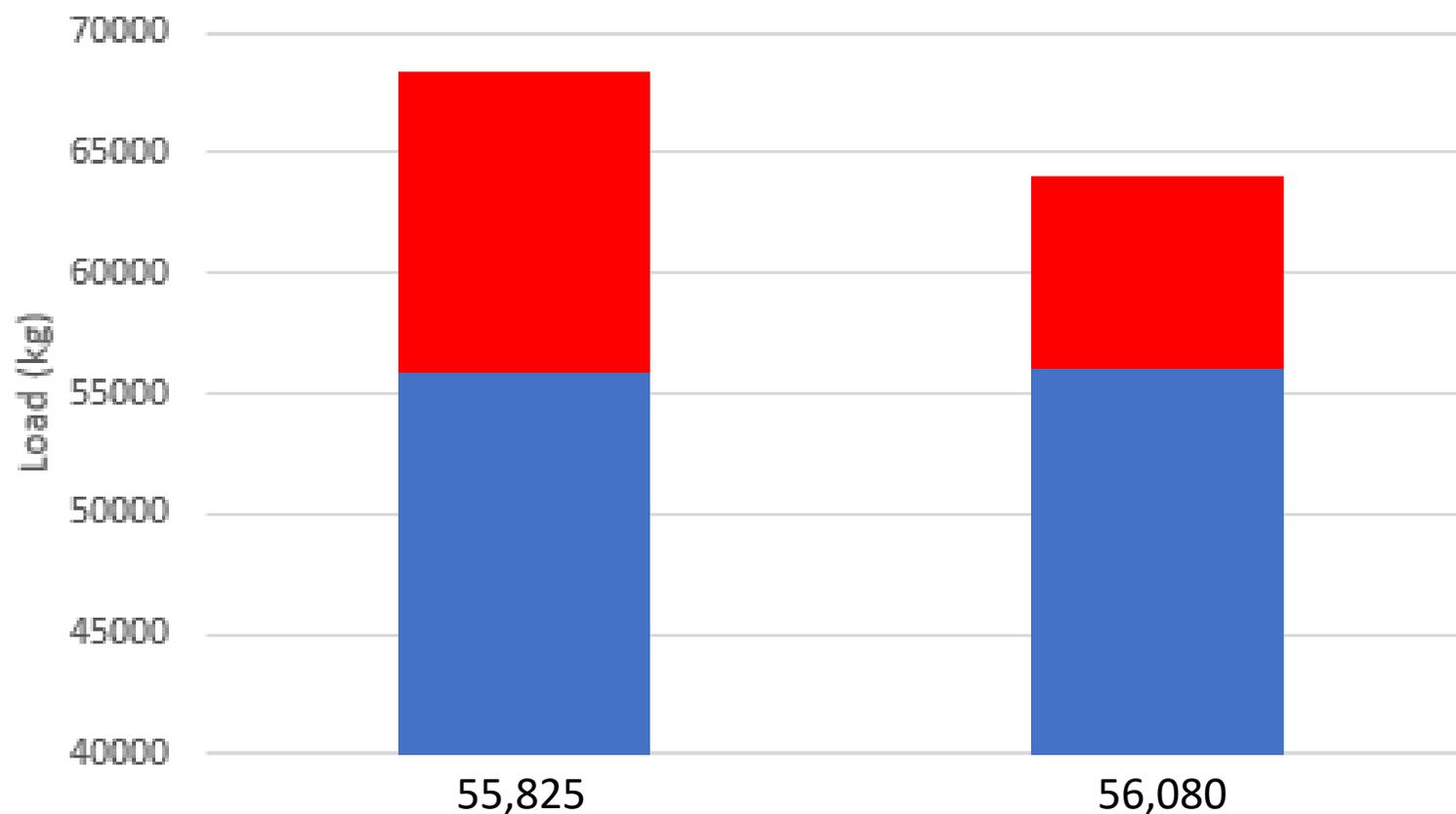


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Group Load vs. Group Limit



Termination Procedure



4. Other considerations

- Major vs. minor?
- Mass difference vs. % difference?
- More restrictive thresholds over time?
- Enforcement discretion?

This procedure is a compliance approach to dealing with violations, which only occur if the group exceeds the Cumulative Load Limit...

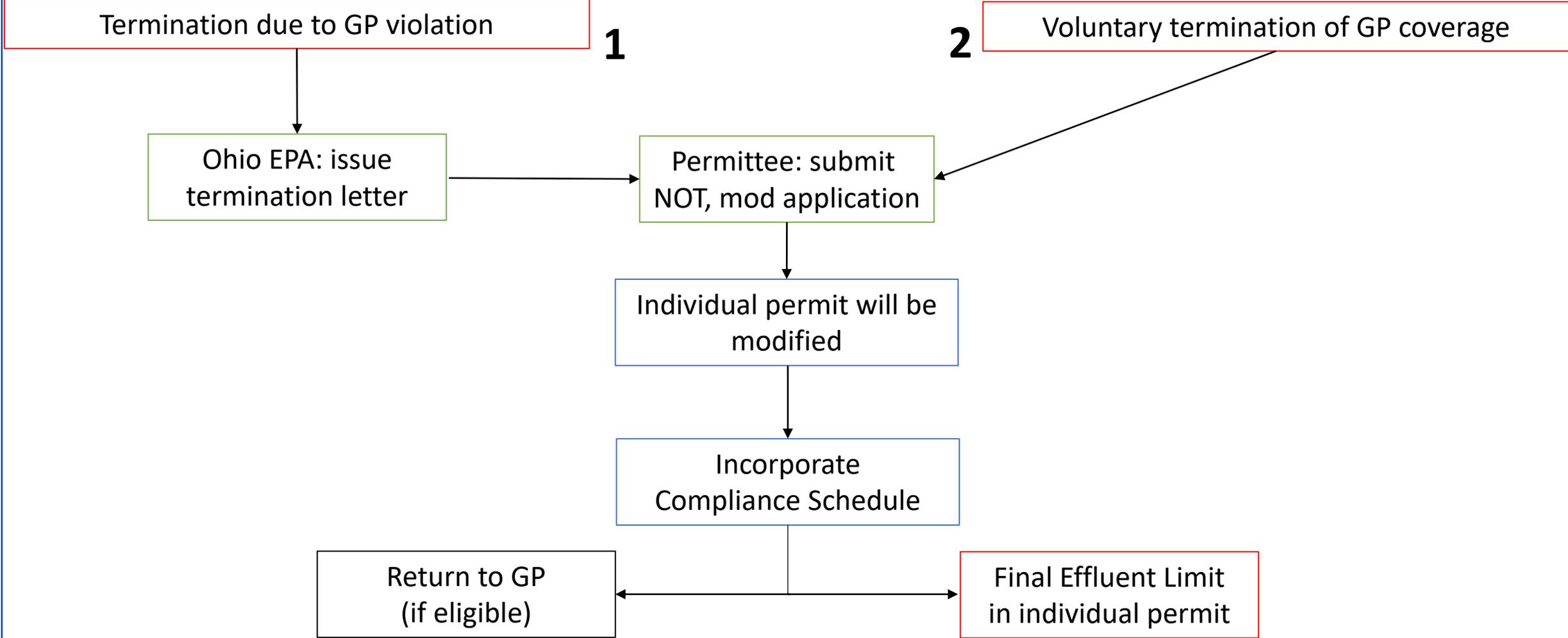
If the group meets the group limit, every permittee is in compliance and this procedure is not used!

Facilities *Not* Covered by GP



- Propose to automatically grant initial GP coverage to all 39 facilities without NOI, per 40 CFR 122.28(b)(2)(vi)
- Could terminate voluntarily or through compliance procedure
- For facilities not covered by GP, WLAi compliance would revert to individual permit

Facilities Not Covered by GP



Individual Permits

Active GP Coverage	Terminated GP Coverage
Narrative condition referencing GP for TMDL WLA	Limits based on individual WLA
OAC 3745-33-06(C) for applicable facilities*	Compliance schedule for GP return or effluent limits

All individual Permits
eDMR: TP concentration + flow rate
Phosphorus Optimization
Subject to TP limits based on local TMDLs*

*Non-compliance with TP limits in individual permit → automatically ineligible for GP

