

**STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**STAFF SUMMARY REPORT: Imtiaz-Ali Kalyan  
MEETING DATE: September 11, 2024**

**ITEM: 9**

**Municipal Regional Stormwater NPDES Permit – Trash Load Reduction Update –  
Informational Item**

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**DISCUSSION**

This item provides an update on the progress of Permittees covered by the Municipal Regional Stormwater NPDES Permit (Order No. [R2-2022-0018](#), as amended) (MRP) to reduce discharges of trash to receiving waters from municipal storm drain systems. The MRP, reissued by the Board on May 11, 2022, required Permittees to reduce trash discharges by 90 percent from 2009 levels by June 30, 2023, and requires 100 percent reduction by June 30, 2025. The reduction requirements apply to 74 of the 79 MRP Permittees, including municipalities in Alameda, Contra Costa, Santa Clara, and San Mateo counties, and the cities of Fairfield, Suisun City, and Vallejo in Solano County. The remaining five MRP Permittees are flood management districts that implement set trash control requirements.

Five Permittees are controlling direct discharges of trash to creeks and the Bay under an approved Direct Discharge Control Plan, and are allowed an additional six months, until December 31, 2025, to achieve the 100 percent reduction requirement. The MRP's East Contra Costa Permittees, including Antioch, Brentwood, and Oakley, which were brought under the MRP in 2015, have until December 30, 2025, to achieve the 100 percent reduction.

Due to trash control actions Permittees have implemented over the past 16 years (2009 to 2024), approximately 66,000 acres of previously moderate, high, and very high trash generating area has been converted to a low trash generation rate. The estimated trash loading rate in 2009, before trash control measures were implemented, was approximately 2,000,000 gallons per year. Due to trash control actions implemented thus far, the estimated trash loading rate in 2023 has decreased to approximately 500,000 gallons per year. The remaining uncontrolled area consists largely of moderate (approximately 45,000 acres) and some high (approximately 7,000 acres) trash generating area.

The remainder of this report:

- summarizes Permittee compliance with the 90 percent reduction requirement
- provides an overview of the trash control measures Permittees are implementing to control discharges of trash from their storm drain systems to receiving waters
- summarizes our observations from recent inspections of trash control measures
- summarizes potential challenges and opportunities for Permittees as they work towards achieving compliance with the 100 percent trash reduction requirement

### *Reported Trash Reduction Achieved*

Permittees reported on their compliance with the 90 percent trash load reduction benchmark in their 2022-23 annual reports, submitted on September 30, 2023. Appendix A summarizes each Permittee's reported trash reduction and how it was achieved; 49 out of the 74 Permittees reported 90 percent or greater trash load reductions as of June 30, 2023. The remaining 25 Permittees reported less than 90 percent trash reduction; 15 reported between 80 and 89 percent reduction, 9 reported 70-79 percent reduction, and one, Antioch, reported 56 percent reduction. The MRP required Permittees that did not achieve the 90 percent trash load reduction requirement to submit a report of non-compliance and an updated Trash Load Reduction Plan (Plan) by June 30, 2023, including a schedule of additional trash control actions sufficient to achieve the 90 percent reduction requirement within a reasonable timeframe, and the 100 percent reduction requirement by June 30, 2025.

Twenty Permittees submitted the required Plans within the timeline required by the MRP. The Plans describe existing and planned trash control implementation measures sufficient to achieve compliance with both the 90 percent benchmark and the 100 percent trash reduction requirement. Eighteen of those submitted Plans were acceptable; two needed additional information and the Permittees (Antioch and Vallejo) are revising them. The accepted Plans include the following:

- a map of remaining uncontrolled trash generation areas, existing trash generation areas that will be controlled via installation of full trash capture devices or other trash control measures, and the locations of planned full trash capture devices or other measures
- a description of those locations
- an approximate implementation timeframe and schedule of implementation

We issued Notices of Violation to the following five cities, who did not submit a Plan by the June 30, 2023, deadline: Livermore, Fremont, Richmond, Union City, and Suisun City. With the exception of Vallejo, Antioch, and Suisun City, all Permittees have now submitted an acceptable Plan. We are in communication with the cities of Vallejo, Antioch, and Suisun City and anticipate receiving an acceptable Plan from each of them soon.

Due to the trash control actions Permittees continue to implement within moderate, high, and very high trash generation areas, a significant amount of land area has been converted to a low trash generation rate. As a result, the estimated trash load (in gallons per year) from moderate, high, and very high land areas has decreased significantly. According to their submitted Plans, all Permittees intend to achieve the 90 percent trash reduction requirement by December 2024 and attain 100 percent trash reduction by June 2025 through the installation of small and large full trash capture devices, increased on-land visual trash assessments, and trash control implementation on private land drainage areas.

### *Trash Control Methods*

Permittees primarily use two methods to control trash. One is the installation and appropriate maintenance of full trash capture devices. The other is the implementation

of trash discharge prevention or cleanup actions equivalent to full trash capture. Collectively, full trash capture devices, which include small inlet-based devices or connector pipe screens and large hydrodynamic separator “vault” style devices, account for about 56 percent of the total area controlled by Permittees that achieve a low trash generation rate.

Device operation and maintenance is crucial to ensure their effectiveness. The MRP requires a minimum inspection and maintenance frequency of once or twice per year for moderate or high/very high trash generation rate areas, respectively. The MRP further requires Permittees to inspect and maintain full trash capture devices as frequently as needed to ensure they are functioning effectively. For example, trash and organic debris tend to clog the screens on small inlet-based devices, which can result in flooding and allow trash to bypass the device screens via an overflow. Typically, smaller devices require more frequent maintenance. Larger controls, such as hydrodynamic separators, can control trash from large areas and may have sufficient reservoir space to hold relatively larger amounts of trash, reducing the required maintenance frequency.

During FY 2023-24, we inspected full trash capture devices in 20 Permittee jurisdictions in Alameda, Contra Costa, San Mateo, and Santa Clara counties to determine whether the devices were being appropriately operated and maintained. Trash control devices that are more than half-full during an inspection or maintenance event must subsequently be maintained more frequently to minimize the potential that they will bypass trash in the future. If we observed that a full trash capture device was clogged and/or more than half-full of debris, we alerted municipal staff to increase the maintenance frequency for that device as required by the MRP.

Our inspections confirmed that small inlet-based devices or connector pipe screens, that have 5 mm screens with small trash reservoirs, require more frequent maintenance to prevent clogging. By contrast, the large hydrodynamic “vault” style devices we observed were generally in good working condition. However, we also noted that large devices that have substantial amounts of metal in an above-ground location, such as gross solids removal devices, can be subject to vandalism for scrap metal and should be installed in secure locations. Permittee staff have been responsive in addressing maintenance issues that we brought to their attention. We will continue to review the adequacy and frequency of inspections and maintenance measures by Permittees as part of our ongoing evaluations once we receive their forthcoming FY 2023-24 Annual Reports.

There are also trash discharge prevention or cleanup actions that may be equivalent to full trash capture if appropriately and adequately implemented and verified. These actions include source controls like plastic bag bans or charges for plastic bags and installing and maintaining trash receptacles. They also include measures to clean up trash before it discharges to the storm drain, such as street sweeping and regular litter and trash pick-up. The effect of these actions must be documented by conducting on-land visual trash assessments at a frequency sufficient to confirm full trash capture equivalence. Twelve Permittees claimed a relatively high trash load reduction (more than 60 percent) associated with control measures other than full trash capture systems and verified by on-land visual trash assessments. The results of on-land visual trash assessments conducted by Water Board staff in FY 2023-24 were generally in

agreement with what Permittees had reported in their annual report. We intend to continue conducting field inspections and verifying Permittees' on-land visual assessments as reported in their annual reports.

Source controls and measures to clean up trash before it discharges to a storm drain can be equivalent to full trash capture for some areas. However, in other areas, they partially reduce, but do not eliminate, trash that may potentially enter a storm drain. In such areas, full trash capture devices are necessary, but their maintenance frequency can be reduced because more trash is being captured before it gets into the storm drain.

### *Challenges and Opportunities.*

While most Permittees (49 of 74) met the 90 percent reduction requirement, a few (8 Permittees) relied on credits from creek and shoreline cleanup and/or direct discharge control offsets, which will not be applicable for the 100 percent reduction requirement. Also, a number of Permittees have yet to implement actions to control trash discharges from private land drainage areas to their storm drain systems. In addition, the full trash capture equivalency of bioretention cells needs further consideration, and we will continue to focus on ensuring the adequacy of trash capture device operation and maintenance. Meanwhile, current, planned, and future trash control cooperative projects with Caltrans provide cost-sharing opportunities. These challenges and improvement opportunities are discussed in more detail below.

Source Control Credits – Source controls can have trash generation and load reduction benefits by reducing the amount of trash that is generated. They are typically implemented through ordinances banning or taxing certain waste items, such as plastic bags, straws, or polystyrene foam foodware. These ubiquitous trash items have been documented to be a significant percentage of the trash collected in full trash capture devices. Permittees that have implemented source control measures have documented a decrease in such items within their trash management areas.

Under the previous permit, Permittees were allowed up to a 10 percent load reduction credit as an incentive to establish source control measures. Because Permittees are now obtaining the benefits of those source controls by seeing reduced trash loads, the MRP no longer gives a separate credit for existing source control measures. The MRP continues to incentivize new source controls, giving Permittees the option for up to 10 percent credit until June 30, 2025, if they effectively implement new source controls, similar to the plastic bag and polystyrene food ware ban. However, source controls only partially reduce trash loads, and the credits will no longer be available after June 30, 2025, when the 100 percent reduction requirement must be met. Permittees will have to implement additional trash controls in areas where the source controls alone are insufficient.

Direct Discharge Control Program – Some Permittees are faced with the challenge that large amounts of trash are discharged directly to receiving waters from illegal dumping and homeless encampments. These trash discharges are separate from and in addition to discharges from Permittee storm drain systems. Recognizing this impact to receiving waters and to incentivize control of these significant discharges of trash, the MRP allows Permittees implementing an accepted Direct Discharge Control Plan an offset of

up to 15 percent, depending on the amount of trash controlled, and an additional six months to achieve the 100 percent reduction requirement. Direct Discharge Control Plans are being implemented by five Permittees: San Pablo, Contra Costa County, Oakland, Fremont, and San Jose. As with source control credits, this offset sunsets with the requirement to achieve the 100 percent trash load reduction from storm drain systems.

In addition to Direct Discharge Control Plans, recognizing the particular challenge and water quality threat posed by discharges associated with unsheltered homelessness, the MRP also includes Provision C.17, which sets requirements for all Permittees to identify and implement appropriate best management practices to address these discharges. Provision C.17 is intended to encourage regional coordination between cities, Caltrans, sanitary sewer agencies, flood control districts, and other agencies (e.g., railroads, non-governmental organizations), and collective effort to identify and implement effective practices to address MS4 discharges associated with unsheltered homelessness that impact water quality. These include:

- managing encampments in place
- providing housing and supportive services
- providing access to emergency shelters
- providing social services and sanitation services
- providing programs for proper disposal of RV sanitary sewage and establishment of designated RV “safe parking” areas or formalized encampments with appropriate services
- providing mobile pump-out services
- establishing and updating sidewalk/street/plaza cleaning standards for the cleanup and appropriate disposal of human waste
- establishing trash and waste cleanup or pickup programs within a Permittee’s jurisdiction

Private Land Drainage Areas – Some private land areas, including, but not limited to, commercial parking lots, industrial facilities, and multi-family residential sites, have storm drain inlets on their private lands that connect to a municipal storm drain. To address trash discharges from these drainage areas, the MRP requires Permittees to either ensure appropriate full trash capture devices are installed and operating within the on-site stormwater conveyance system or downstream of the private land drainage area or that the private land areas are managed by control actions equivalent to full trash capture and verified through visual assessments.

While this requirement has been in effect since the first MRP in 2009, many Permittees are only now beginning to focus on private land drainage areas. Most of the 25 Permittees that failed to comply with the 90 percent reduction requirement indicated a need to attend to private land drainage area and intend to mandate property owners and/or managers to implement additional trash control measures and achieve low trash generation through a phased approach, including active business outreach, code enforcement, and ordinance revision. According to their updated Plans, Permittees anticipate achieving an additional 5 to 10 percent cumulative trash reduction once these private land drainage areas are appropriately controlled.

In addition, a number of Permittees relied on creek and shoreline cleanup credits and Direct Discharge Control Plan offsets to meet the 90 percent reduction requirement. Some of these Permittees have not attended to private land drainage areas and will need to do so to meet the 100 percent reduction requirement by June 30, 2025. This poses a significant challenge for Permittees with substantial private land drainage areas.

Bioretention Cells – Bioretention cells are an example of a multi-benefit treatment system that has the potential to control trash and are being implemented by Permittees to treat runoff as part of the MRP's Provision C.3 requirements. Bioretention cells use soil and plants to treat stormwater before it is infiltrated or discharged. A number of Permittees have included bioretention cells as one of their tools for trash control implementation. However, based on our inspections, the design and operation of these bioretention cells may need to be modified to ensure they are effective in controlling discharges of trash. The MRP requires that bioretention systems be appropriately screened, or otherwise configured, to meet the full trash capture control specification of 5 mm for storm flows up to the one-year, one-hour storm. We are working with Permittees to establish appropriate design and operation criteria under which a bioretention cell could function as a full trash capture device.

Operation and Maintenance – Ensuring appropriate and adequate operation and maintenance of full trash capture devices is crucial to ensure trash is appropriately controlled. As discussed earlier, small inlet-based devices or connector pipe screens require frequent inspection and maintenance to prevent clogging and trash bypass. Our inspections confirm that organic material (leaf debris) and persistent floatable litter items such as disposable food wrapping, shopping bags, and empty plastic beverage bottles, are easily mobilized with stormwater runoff and wind and tend to clog the 5 mm screen of small inlet-based devices, rendering them inoperable or only partially effective.

Caltrans Cooperative Projects – Caltrans is required to control trash from its right-of-way pursuant to its statewide NPDES stormwater permit and the cease and desist order issued by the Board. Caltrans' trash control actions include coordinated projects with Permittees that control trash from both Caltrans and Permittee jurisdictions through full trash control devices in the municipalities. This is often a more feasible and cost-effective means for Caltrans to meet its trash reduction requirements. While Caltrans pays for the construction of the full trash control devices in the municipalities, there are constraints on what Caltrans can pay for the planning and design of them and for ongoing operation and maintenance. Many Permittees have existing or planned cooperative projects with Caltrans, and we expect Caltrans to continue and expand coordination with Permittees to identify and implement future trash control cooperative projects. However, timing has become an issue; some planned projects and new projects cannot be completed by the deadline set by the MRP, June 30, 2025. Nevertheless, we are encouraging Caltrans and Permittees to pursue new projects, and we expect the Board will consider appropriate means to accommodate them.

### *Conclusion*

Permittees have made significant progress controlling discharges of trash from their storm drain systems to receiving waters. Furthermore, nearly all Permittees have a plan for getting to 100 percent trash reduction, or no adverse impacts to receiving water, by

June 30, 2025. There is still more work to be done, and we will provide a future update to the Board based on our ongoing evaluations of Permittees' actions and plans to comply with the June 30, 2025, 100 percent trash load reduction requirement. We will also update the Board on active or potential enforcement actions needed to resolve any Permittee non-compliance with the trash control requirements.

## Appendix A

### Permittee-Reported Trash Reduction as of June 30, 2023

Values are rounded percent reduction from 2009 levels. Permittees who achieved less than a 90 percent reduction are highlighted in yellow.

Permittee	Full Trash Capture Systems	Other Control Measures (verified by on-land Visual Assessment)	Source Control Actions	Optional Trash Offsets (creek and shoreline cleanup/ DDCP)	Total (Jurisdictional-wide) % Trash Load Reduction through FY 2022-23
<b>Alameda County</b>					
Alameda County (unincorp.)	73.6	0	0	0	74
Alameda	77	0	0	0	77
Albany	59	34	0	0	93
Berkeley	65	0	0	10	75
Dublin	90	0	0	0	90
Emeryville	57	40	0	0	97
Fremont	76	0	0	15	91
Hayward	98	0	0	0	98
Livermore	45	13	0	10	68
Newark	75	18	0	0	93
Oakland	12	57	0	25	93
Piedmont	31	66	3	0	100
Pleasanton	22	75	3	n/a	100
San Leandro	74	0	0	0	74
Union City	72	0	0	0	72

Permittee	Full Trash Capture Systems	Other Control Measures (verified by on-land Visual Assessment)	Source Control Actions	Optional Trash Offsets (creek and shoreline cleanup, direct discharge control plan)	Total (Jurisdictional-wide) % Trash Load Reduction through FY 2022-23
<b>Contra Costa County</b>					
Contra Costa County (unincorp.)	38	8.3	0	17	63
Antioch	46	0	0	10	56
Brentwood	0.	99	0	0	99
Clayton	99	0	0	0	99
Concord	91	0	0	0	91
Danville	27	68	0	0	95
El Cerrito	69	14	2	10	94
Hercules	94	0	0	0	94
Lafayette	51	39	0	0	91
Martinez	90	5	0	0	95
Moraga	92	0	0	0	92
Oakley	77	19	0	0	96
Orinda	2	91	0	0	94
Pinole	80	0	0	0	80
Pittsburg	31	42	0	10	83
Pleasant Hill	86	0	0	0	86
Richmond	69	0	0	0	69
San Pablo	69	0	0	25	94
San Ramon	n/a	n/a	n/a	n/a	100
Walnut Creek	25	65	0	0	90
<b>San Mateo County</b>					
San Mateo County	56	21	0	0	77

Atherton	0	99	0	0	99
<b>Permittee</b>	<b>Full Trash Capture Systems</b>	<b>Other Control Measures (verified by on-land Visual Assessment)</b>	<b>Source Control Actions</b>	<b>Optional Trash Offsets (creek and shoreline cleanup/ DDCP)</b>	<b>Total (Jurisdictional-wide) % Trash Load Reduction through FY 2022-23</b>
Belmont	67	25	0	4	96
Brisbane	88	5	0	0	93
Burlingame	80	12	0	0	92
Colma	87	4	0	0	91
Daly City	53	21	0	0	75
East Palo Alto	63	20	0	0	83
Foster City	79	16	0	0	95
Half Moon Bay	90	0	0	0	90
Hillsborough	n/a	n/a	n/a	n/a	100
Menlo Park	49	42	0	0	91
Millbrae	87	5	0	0	93
Pacifica	24	56	0	0	90
Portola Valley	0	100	0	0	100
Redwood City	58	20	0	3	81
San Bruno	86	9	0	4	99
San Carlos	72	3	0	0	75
San Mateo	41	40	0	0	81
South San Francisco	65	16	0	0	81
Woodside	n/a	n/a	n/a	n/a	100
<b>Santa Clara County</b>					
Santa Clara County	35	55	0	0	90
Campbell	65	24	0	0	89
Cupertino	43	48	0	5	94
Los Altos	91	0	0	0	91

Los Altos Hills	n/a	n/a	n/a	n/a	100
Los Gatos	42	43	0	0	85
<b>Permittee</b>	<b>Full Trash Capture Systems</b>	<b>Other Control Measures (verified by on-land Visual Assessment)</b>	<b>Source Control Actions</b>	<b>Optional Trash Offsets (creek and shoreline cleanup/ DDCP)</b>	<b>Total (jurisdiction-wide) % Trash Load Reduction through FY 2022-23</b>
Milpitas	78	16	0	0	94
Monte Sereno	n/a	n/a	n/a	n/a	100
Mountain View	29	57	0	0	86
Palo Alto	19	55	0	2	75
San Jose	54	17	0	15	96
Santa Clara (city)	67	15	0	10	91
Saratoga	24	71	0	0	95
Sunnyvale	43	48	0	0	91
<b>Solano County</b>					
Fairfield	96	0	0	0	96
Suisun	80	0	0	0	80
Vallejo & VFWD	48	29	0	3	80