

# **Storm Water Quality Task Force BMP Guide** **For Retail Gasoline Outlets**

## **Review and Comment**

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### **Introduction**

The California Regional Water Quality Control Boards, Los Angeles Region (LA Regional Board) and the San Diego Region (SD Regional Board) issued a technical document (RB technical report) on new development standards for Retail Gasoline Outlets (RGOs) in June 2001. The RB technical report provided justification that RGOs should be subject to numerical design criteria for treatment control Best Management Practices (BMPs). On August 6, 2001, the Western States Petroleum Association (WSPA), a trade group for the petroleum industry in Western U.S., released a technical document that challenges the recommendations and the conclusions of the RB technical report. Among other claims, WSPA asserts that the California Storm Water Quality Task Force BMP Guide (Guide), a default collection of soft source control BMPs (Task Force BMPs) are sufficient and treatment control BMPs are not necessary at new and redeveloped RGOs.

The Storm Water Quality Task Force (Task Force) is primarily comprised of municipalities, private organizations and individuals responsible for and/or interested in the implementation of municipal separate storm sewer system (MS4) programs in California. Its Executive Committee is comprised of 17 members, including 11 municipal representatives, 2 industrial representatives, and 4 at-large members. The Executive Committee approves work products generated by the work groups, sets Task Force priorities, identifies issues of concern, appoints committees and work groups, updates the State Water Resources Control Board (State Board) on key issues, and establishes the agendas for bi-monthly meetings. Some Regional Board and State Board staff attend the Task Force meetings.

The following constitutes LA Regional Board staff review and comment on the Task Force BMPs and Guide.

## Review of the Task Force BMPs and the Guide

The Task Force BMPs, mostly a collection of source control BMPs, are a “default” set of BMPs recommended for implementation at RGOs in 1997. The Task Force BMPs listed in the Guide carry over BMPs suggested by the USEPA in 1992 in a guidance document.<sup>1</sup>

The Guide recommends that BMPs be included in the construction and design of new and substantially remodeled RGO facilities. These Task Force BMPs are:

(i) Fueling area design and construction - Portland cement concrete with a 2% to 4% slope around fuel dispensing areas to prevent ponding, and minimum separation by a grade break to prevent run-on of storm water; fuel dispensing area is defined as extending 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus 1 foot, whichever is less. The paving around the fuel dispensing area may exceed the minimum dimensions of the "fuel dispensing area" stated above. In addition, the fuel dispensing area must be covered, and the cover's minimum dimensions must be equal to or greater than the area within the grade break or the fuel dispensing area, as defined above. The cover must not drain onto the fuel dispensing area.

(ii) Fuel-dispensing areas maintenance - routinely swept for removal of litter and debris, and use of rags and absorbents for leaks and spills. It is also suggested that wash down of fueling areas should never be performed (but avoids the use of word: “prohibited”) unless the wash water is collected and disposed of properly.<sup>2</sup>

(iii) Employee training - training in management of waste materials, labeling drains and flow patterns at the facility (seldom observed in practice), inspection and cleans up of storm drain inlets and catch basins within the facility's boundaries (also not performed routinely).

(iv) Fuel dispenser signage - posting signs close to the fuel dispenser that warn vehicle owners/operators against “topping off” of vehicle fuel tanks and installation of automatic shutoff fuel dispensing nozzles.<sup>3</sup>

(v) Outdoor waste receptacle and air/water supply area design and maintenance - clean-up of leaks and drips, grading the site in such a way to prevent run-on of storm water, segregation of flow, and the installation of a roof cover or a low containment berm.

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<sup>1</sup> *Storm Water Management for Industrial Activities – Developing Pollution Prevention Plans and Best Management Practices*, EPA 832-R-92-006, pg. 3-2 to 3-4

<sup>2</sup> One might infer from this statement that the quality of the wash water cleaning the fueling areas is not appropriate for disposal, due to contamination from spills, stains and deposits from vehicular traffic. That raises the question of whether the practice of sweeping for removal of debris or the use of rags and absorbents for leaks and spills, at RGOs is adequate in itself. Numerous studies have shown that there is pollutant build-up and entrapment in the base pavement that can not be removed even after multiple episodes of pressure washing.

<sup>3</sup> Although the signs are a very good educational BMP, both the heavy automobile traffic at RGOs and accidental spills invariably contribute to pollutant build-up.

The language in the Guide is overly broad, voluntary, non-specific, and vague from a regulatory perspective. It is not known if the BMPs are mandatory throughout the petroleum retailing industry and are routinely implemented.<sup>4</sup>

No evidence has been provided to date to demonstrate that the sole implementation of source controls BMPs is sufficient to achieve the goal of reducing the discharge of pollutants in storm water from RGOs. Rather, more recent data shows that the opposite is true. Source control BMPs while essential to pollution reduction efforts, and presumptively cost effective, do not obviate the need for treatment control BMPs to remove pollutants of concern in storm water from RGOs. Essentially, these BMPs are the pre-treatment step in the treatment train to reduce the discharge of storm water pollutants.

The Guide has not been updated, although much research on the effectiveness of treatment control BMPs has been done and well documented in the literature since 1997. Some of these studies have determined that the implementation of source control BMPs alone is not sufficient to adequately address storm water pollution<sup>5</sup>. There is a tremendous body of evidence and numerous studies have been conducted in recent years since the Guide was first issued.

### Summary of Research to Date

The US General Accounting Office (GAO) Report to Congress<sup>6</sup> mentions the relationship between automobile traffic (such as at RGOs) and sources of pollutants in storm water runoff, including toxic pollutants such as heavy metals and petroleum hydrocarbons. The GAO Report discusses (i) the evidentiary direct correlation between vehicular traffic and Polycyclic Aromatic Hydrocarbon (PAH) concentrations in lake-bottom sediment and, (ii) the occurrence of toxicity from heavy metal concentrations in receiving waters in urban and suburban communities in the U.S. Both PAH and heavy metal concentrations have increased with the increase of vehicular traffic in these areas.

Studies analyzing the effectiveness of source control BMPs reveal that there is scant evidence to demonstrate that source control BMPs are by themselves adequate to prevent pollutants from entering storm water discharges. The effectiveness of most storm water treatment control practices is dependent on their ability to remove pollutant particles from the water, or possibly from intermediate accumulating locations and not through source reduction.<sup>7</sup> To the contrary, some of the more recent studies show that some source control BMPs (such as sweeping) are ineffective in removing pollutants.<sup>8</sup> Other studies, performed at RGOs specifically demonstrate that some potent treatment control BMPs (mobile high pressure water cleaning) are still not effective in removing

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<sup>4</sup> The tentative LA County MS4 permit (October 11, 2001) includes requirements for municipalities to inspect RGOs to verify implementation of BMPs in the Guide. p 35A and 35 B.

<sup>5</sup> *Comparison of Critical Source Results Before and After BMP Implementation* – Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report [Table 4-15, 4-16], July 31, 2000

<sup>6</sup> *Water Quality Better Data and Evaluation of Urban Runoff Programs Needed to Assess Effectiveness (June 2001)* US General Accounting Office

<sup>7</sup> *Innovative Urban Wet-Weather Flow Management Systems*. Field, Richard, James P. Heaney and Robert Pitt. (2000). Technomic Publishing Co., Inc. Lancaster.

<sup>8</sup> *Characteristics of Parking Lot Runoff Produced by Simulated Rainfall*. L. L. Tiefenthaler et. al (2001). Southern California Coastal Water Research Project; *Effectiveness of Street Sweeping for Storm water Pollution Control*, Technical Report 99/8, T.A. Walker and T.H.F. Wong (1999), CRC for Catchment Hydrology, Victoria, Australia.

pollutants due to the high pollutant deposition rates, heavy pollutant buildup and entrapment in the base pavement and also that soft source control BMPs are not likely to have a significant impact on the sources of pollution.<sup>9</sup> Furthermore, studies performed in the Los Angeles region at automotive service facilities and monitoring data collected through those studies show no improvement in storm water discharge quality after the implementation of source control BMPs, similar to those suggested by the Task Force.<sup>4</sup> Other studies indicate that while the data to recommend outright acceptance of a number of treatment control BMPs at this time may be limited, some of these treatment control BMPs are conditionally acceptable.<sup>10,11,12</sup>

## Conclusion

The Guide is a basic document that has become obsolete. BMPs in the Guide are not substantive. They cannot be considered as being adequate to ensure that storm water discharges from RGOs meet the standard of Maximum Extent Practicable (MEP standard) under CWA § 402(p) and do not cause or contribute to the exceedance of water quality standards in receiving waters under CWA § 301. Rather, the Guide is a “default” list of source control BMPs identified as pollution prevention measures by the Task Force to be implemented as a first step. The Task Force, unlike WSPA, has never claimed that the Task Force BMPs constitute the MEP standard for MS4 permittees for controlling the discharge of pollutants from RGOs to the MS4. The Task Force BMPs and Guide were a recommendation of a minimal “default” set of source control BMPs agreed to by a representative workgroup in 1997, nothing more. WSPA’s absolute reliance on the Guide appears misplaced, considering that nearly a decade ago, USEPA identified the need to implement treatment control BMPs at RGOs to address and control storm water pollution.<sup>13</sup>

In light of numerous recent studies, which demonstrate the need for aggressive treatment control BMPs at RGOs in addition to pollution prevention measures, the Guide is obsolete. The source control BMPs in the Guide are insufficient to control the sources of pollutants in storm water discharges at RGOs, where such discharges cause or contribute to an exceedance of water quality standards for toxic constituents such as heavy metals and petroleum hydrocarbons.

Regional Board staff stands behind the conclusions of the previously released *Technical Report – Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts – June 2001*. The justification in the RB technical report is valid and is supported by numerous studies and monitoring data. The recommendations in

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<sup>9</sup> *Action Plan Demonstration Project (APDP) - Demonstration of Gasoline Fueling Station Best Management Practices, County of Sacramento, (1994)*, Submitted to US EPA Region IX, San Francisco Estuary Project.

<sup>10</sup> *Investigation of Structural Control Measures for New Development (1999)* Larry Walker Associates, Inc. Prepared for Sacramento Storm water Management Program

<sup>11</sup> *National Conference on Retrofit Opportunities for Water Resource Protection in Urban Environments Proceedings* Chicago, IL February 9-12, 1998, EPA/625/R-99/002 pag. 252

<sup>12</sup> *Multi-Chamber Treatment Train Developed for Storm water Hot Spots – Article 111: Technical Note from Watershed Protection Techniques 2(3): 11-13*

<sup>13</sup> *Urban Runoff Pollution Prevention and Control Planning (Handbook)* EPA/625/R-93/004. Pag. 111: “Certain commercial and industrial sites can be responsible for disproportionate contributions of some pollutants (e.g., grit, oils, grease, and toxic materials) to the drainage system. Typical sources of potential concern include gasoline stations, railroad yards, freight loading areas, and parking lots. In specific cases where significant pollutant loadings to the system are contributed by well-defined locations of limited area, pretreatment of the runoff from these areas could be a practical and effective control measure. Pretreatment measures can be required as part of a community’s regulations. Examples of pretreatment measures include oil/water separators for gasoline stations, or the use of modified catch basin designs to enhance the retention of oil and grease or solids

the document are sound, balanced, and responsive to areas of concern raised by the State Board in the SUSMP decision.

The overarching objective of new development and redevelopment requirements for RGOs is to protect an important natural resource: the quality of waters of the State. Implementation of the source control BMPs in the Guide alone will not and cannot achieve that objective. The implementation of treatment control BMPs adequately designed for water quality volume and water quality flow for pollutants of concern in storm water discharges from new and redeveloped RGOs is necessary.