

APPENDIX A

COMPREHENSIVE PROTOCOL FOR PERFORMANCE EVALUATION OF PROPRIETARY STORMWATER CONTROL PRODUCTS

A manufacturer who wishes to have its technology considered for placement on the “Acceptable” list must submit a report that contains performance data from studies following the requirements outlined in this protocol. A technology may be “Conditionally Acceptable” if it is demonstrated to provide effective performance but does not meet all of the Comprehensive Protocol requirements, as described below.

While it is preferred that the field studies be conducted in the Sacramento region, this is not a requirement.

NUMBER AND TYPES OF SITES EVALUATED

- Studies are to be conducted at a minimum of two sites
- Land uses: more than one of the following - retail commercial, non-retail commercial, medium density residential, high density or multi-density residential.

SAMPLING REQUIREMENTS

- Number of storms per site: 10 (may occur in two consecutive years)
- Storm depth: from 0.15 to 1.50 inches
- Runoff duration: from 2 to 24 hours
- Average storm intensity: 0.05 to 0.25 inches/hour
- Type of samples: flow-weight composite samples, except where grab sampling is required by protocol. With data collected prior to July 1, 1999, time-paced samples are satisfactory for consideration for placement of the product on the “Conditionally Acceptable” list,
- Sampling procedure: To the extent possible, sampling is to occur through the entire period of runoff. Sampling is to occur for a period that represents at least 60% of the volume of each storm with an overall average of all storms of at least 75%. A minimum of ten aliquots must be taken during each sampled storm.
- Analytes: Influent and effluent TSS, pH, total recoverable zinc, copper, cadmium, oil/grease, TPH and, TP and TKN. If the device is also intended to remove dissolved constituents, the analytes shall include the dissolved species of the targeted constituents. Chemical samples are to be preserved following analytical procedures specified by *USEPA*. protocols and are to be analyzed using *USEPA* protocols. Analytical analysis is to be done by a certified laboratory. To be considered for placement on the “Conditionally Acceptable” list, only TSS data need to be submitted.
- At the end of the test period, the sediment shall be removed, quantified, and analyzed. The sediment will be evaluated for the following: moisture content, particle size distribution, organic content, oil/grease, and zinc. To analyze particle size distribution, both the wet and

dry sieve test procedures will be used, following ASTM. These data are not necessary for placement on the “Conditionally Acceptable” list.

DOCUMENTATION PROTOCOL

1. A description of the test site including total acreage, total impervious acreage, a description of landscaping if relevant, the acreage draining to the device if it differs from total acreage. Include a description of the drainage system. (Not required for “Conditionally Acceptable” list).
2. A description of the treatment device including the design peak capacity. (Not required for “Conditionally Acceptable” list).
3. Complete drainage calculations showing the calculations to size the treatment device for the test site.
4. All raw data including laboratory reports. All data is to be reported including rejected data with an explanation for the rejection.
5. Statement from the analytical laboratory certifying the specified analytical procedures were followed in the analysis of the samples and that the appropriate preservation methods were followed.
6. Calculation of efficiency of each storm by comparing the influent and effluent concentrations of each storm. (Not required for “Conditionally Acceptable” list).
7. Calculation of the efficiency for all storms by comparing the total aggregate inflow loading of all storms to the total aggregate outflow loading for all storms.
8. Present a plot of influent concentration versus efficiency for TSS for each storm sampled. All data is to be plotted including rejected data with an explanation for the rejection. (Not required for “Conditionally Acceptable” list).
9. Start and end times of the precipitation period. (Not required for “Conditionally Acceptable” list).
10. Start and end times of the runoff period of each sampled storm. (Not required for “Conditionally Acceptable” list).
11. Start and end times of the sampling period of each sampled storm. (Not required for “Conditionally Acceptable” list).
12. Total rainfall depth. (Not required for “Conditionally Acceptable” list).
13. Rainfall depth during the sampling period. (Not required for “Conditionally Acceptable” list).
14. Total runoff volume
15. Runoff volume that occurred during the sampling period

16. Statement of certification signed by an officer of the manufacturer of the product that the protocol was followed.