



CSO — LONG TERM CONTROL PLAN

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REMEMBER

- CSO long-term control plans are site-specific
- There is no one size-fit-all solution
- Need to understand the situation, causes of overflow, and find out the most cost effective solution of causes
- No direct relationship of “GOOD” or “BAD” LTCP



LTCP REVIEW CHEAT SHEET



Permittee:	Permit Number:
Reviewer:	Date:
Documents Reviewed:	

LTCP Page #	Evaluation Criteria	Yes	No	N/A	Remarks
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System characterization: Compilation and analysis of existing data on CSS and receiving water(s)

Major Question: Has the permittee collected and presented existing information and data on the CSS and receiving waters in a format that is understandable and consistent with the CSO Control Policy and guidance?

General

1. Are the LTCP and all other pertinent reports and studies available to the reviewer?
2. Is the owner/operator of the CSS identified?
3. Is the owner/operator of the POTW identified?
4. Is there a general description of the CSS that includes the area (acres) and an estimate of the population served?

CSS

5. Is the location provided for the major interceptors and each CSO outfall (latitude/longitude or street address) and identified on a map?
6. Are the identified CSO outfalls consistent with the existing permit? Note: Listing will have to be rectified if not consistent.
7. Have the CSS area and its sewersheds been delineated?
8. Have land use and estimated impervious cover been provided for each sewershed?
9. Are the principal hydraulic control structures identified (interceptors; regulators; pump stations; storage and controls facilities; POTW)?
10. Is POTW capacity (primary and secondary; average and peak hydraulic) been specified?
11. Are dry weather sanitary flow (base) estimates or patterns presented?
12. Are wastewater flows to the CSS from neighboring or satellite communities identified and quantified, if present?
13. Are any existing flow metering or SCADA records described?
14. Are ^{4/21/2015} chronic problem areas or bottlenecks within the CSS

Receiving Water(s)

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| 16. | Are all of the CSO-impacted waters identified? | | | |
| 17. | Is the available information on stream flow or tidal conditions, water quality and sediment in the receiving water(s) summarized and presented? | | | |
| 18. | Are the pollutants of concern identified for each receiving water? | | | |
| 19. | Does the characterization provide information on the known effects of the CSOs on water quality during wet weather events? | | | |
| 20. | Are the current water quality standards and existing and designated uses of each receiving water identified? | | | |
| 21. | Is there information on whether the designated uses are currently being met or not? | | | |
| 22. | Are any known impairments attributable to CSOs identified for the receiving waters (303(d) list, 305(b) list, fish kills, beach closures, etc.)? | | | |
| 23. | If a TMDL has been or will be developed, does the permittee consider the TMDL in the LTCP? | | | |
| 24. | Is the presence or absence of sensitive areas adequately determined and presented? | | | |
| 25. | If present, have CSO outfalls located in sensitive | | | |

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Rainfall

27. Are long-term rainfall records and annual average conditions identified and evaluated?

28. Does the permittee demonstrate an adequate understanding of the rainfall conditions that cause CSO events at each outfall?

System Characterization: Collection system and receiving water monitoring

Major Question: Is the monitoring program sufficient to document the frequency and magnitude of CSO event-associated impacts, and to inform the evaluation and selection of CSO controls?

Collection System

29.

Are recent sufficient data available for an adequate range of storms to characterize the hydraulic response of the CSS, including frequency, volume and flow rate, and pollutant loads from CSOs at major or representative outfalls?

(Data should be from within the last five years and include at least two storms >1" to two storms ~0.3".)

30.

Does the LTCP present estimated concentrations of the pollutants discharged and reasonable justification (compiled through sampling, from literature values, or with values from other CSO studies)?

31.

Was rainfall data collected within the CSS during the flow monitoring periods?

32.

Does the flow monitoring data adequately portray the hydraulic response of the CSS to rainfall?

33.

Is the monitoring program able to evaluate the effectiveness of any controls measures implemented as part of the NMC?

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Receiving Water(s)

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| 34. | Does the monitoring program take into account the type (i.e., free flowing, tidal) and physical characteristics of the receiving water? | | | | |
| 35. | Is there information on the impact of CSO pollutant loadings on the receiving waters for the water quality parameters of concern? (Typically bacteria, BOD, and TSS) | | | | |
| 36. | Is the monitoring sufficient to document pre-control baseline conditions, in order to allow the permittee to demonstrate the long-term benefits of CSO controls? | | | | |
| 37. | Does the monitoring program include adequate spatial and temporal coverage during wet weather conditions to support an evaluation of the impacts associated with CSOs? | | | | |
| 38. | Is the monitoring sufficient to show whether other sources of pollutants, such as storm water and upstream sources, will preclude the attainment of water quality standards even if CSOs are eliminated? | | | | |
| 39. | Does the monitoring consider the appropriate range of possible CSO impacts on receiving waters? (Typically bacteria and floatables; sometimes dissolved oxygen, metals, or nutrients.) | | | | |

System characterization: Collection system and receiving water modeling

Major Question: Has the permittee developed, calibrated, and verified a model of the collection system and/or receiving water, as appropriate, that is able to support the evaluation and selection of CSO controls given the complexity of the CSS?

Collection System

40. Has some type of model (e.g. spreadsheet, SWMM, HydroWorks, etc.) been developed to assess the response of the CSS to different rainfall conditions with respect to CSO volume, frequency and peak overflow rate?
41. Does the selected CSS model framework adequately address the engineering and regulatory needs of the LTCP?
42. Is the level of detail of the CSS model consistent with and representative of the complexity of the CSS?
43. Are sufficient flow and effluent concentration data available to calibrate the model? (8 - 10 storms covering a range of annual storm sizes)
44. Is the model credible? That is, has the model been documented, calibrated and verified to demonstrate that it generally represents observed behavior (in terms of

Receiving Water(s)

45.

Has some type of model been developed to assess the response of receiving waters to external CSO loads?

46.

Is the level of detail of the water quality model(s) relatively consistent with and representative of the complexity of the receiving waters?

47.

Is the model credible? That is, has the model been documented, calibrated and verified to demonstrate that it generally represents the major processes affecting water quality for the pollutants of concern?

48.

Did model results show compliance of water quality standards or demonstrate that water quality standards cannot be met regardless of the level of CSO control implemented?

Development and evaluation of CSO control alternatives

Major Question: Has the permittee evaluated a sufficient number of CSO control alternatives to select a cost-effective CSO control plan to meet water quality standards and protect designated uses?

Long-term Control Plan Approach

49.

Has the permittee organized the evaluation of controls in a technical framework and approach that is understandable and consistent with the CSO Control Policy and EPA guidance?

50.

Has the permittee identified whether the presumption approach, the demonstration approach or some combination of the two is being used?

Development of CSO Control Alternatives

51. Has the permittee considered an appropriate range of control technology within the general categories of source controls, collection system controls, storage technologies and treatment technologies?

52. Has the permittee evaluated a full range of potential controls with respect to meeting water quality standards and protecting designated uses? (A full range should include zero overflow events per year, and averages of 1 to 3, 4 to 7, and 8 to 12 overflow events per year)

53. Does the LTCP describe the process by which the CSO control and alternatives combinations were developed?

54. Does the LTCP describe the approach used to screen and narrow the list of CSO control technologies, and list the screening criteria?

55. Does the LTCP explain the reasons for selecting certain CSO controls?

56. Have the NMC been integrated into the permittee's description of the selected CSO controls?

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| 57. Has the permittee considered maximization of treatment at the existing POTW for wet weather flows, and expansion of primary and secondary treatment capacity? | | | | |
| 58. Has a cost/performance (knee of the curve) analysis been developed for the control alternatives considered? | | | | |
| 59. If sensitive areas are present and impacted, has the permittee given the control of CSO discharges to sensitive areas a high priority? | | | | |
| 60. If sensitive areas are present and impacted, will the selected CSO controls eliminate all CSO impacts on sensitive areas? | | | | |
| 61. If not, do the data support the permittee's apparent conclusion that elimination is not physically possible or economically achievable? | | | | |
| 62. If CSO discharges to sensitive areas remain, will these CSOs receive treatment? | | | | |
| 63. Will the selected CSO controls provide the treatment of floatables and settleable solids equivalent to that achieved by primary clarification? | | | | |
| 64. Does the LTCP demonstrate whether or not disinfection of effluent will be necessary based on applicable water quality standards? | | | | |

Water Quality Standards

65. Is sufficient information provided to show that CSO discharges remaining after implementation of the planned control program will not cause or contribute to the non-attainment of water quality standards or existing?

66. If water quality standards cannot be met because of CSO discharges that remain after implementation of the planned control program, has the permittee shown one of the following preclude the attainment of use as determined through the use attainability analysis (UAA) (40 CFR 131.10(j)) to justify a water quality standards review:

67. * additional controls would cause "substantial and widespread economic and social impact";
* naturally occurring pollutant concentrations exist;
* low flow conditions exist;
* human-caused conditions exist and cannot be remedied or removal would cause more damage than to leave in place;
* hydrological modifications exist and water body restoration or operation of the modification is not possible;
* natural physical conditions, unrelated to water quality exist.

Watershed Considerations

70.

Is the LTCP monitoring being coordinated with other municipal efforts, or ongoing or planned state programs, within the same watershed?

71.

Has LTCP development been coordinated with watershed or TMDL efforts?

Financial Capability

72.

Has an adequate assessment of the financial resources available for the implementation of CSO controls been completed? (Financial indicators may include total annual wastewater and CSO control cost per household; unemployment rate; median household income; property tax revenue collection rate)

Public participation

Major Question: Does the LTCP document the process used to inform the public about the alternatives for CSO control and engage them in the decision process?

General

73.

Did the public participation process actively involve rate payers, industrial users of the CSS, persons near impacted waters, and persons who use the impacted waters?

74.

Does LTCP include a record of the public participation events, including the number of people attending and a record or summary of participant comments?

75.

Does the LTCP document decisions or changes made in response to public comments?

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Selection of controls and implementation

Major Question: Does the LTCP document a reasonable process for evaluating a range of controls and selecting a suite of CSO controls sufficient to meet water quality standards and designated and existing uses?

Interaction with the NMC

76.

Does the LTCP document benefits derived from implementation of the NMC?

Selection and Development of Recommended Plan

77.

Does the LTCP adequately document the controls selected for implementation, including detailed descriptions, preliminary engineering analysis, and cost estimates?

78.

Can the selected alternative reasonably be considered sufficient to provide for the attainment of applicable water quality standards and the protection of existing and designated uses?

Financing Plan

79.

Does the LTCP recommend a financing approach demonstrating how the permittee will finance the alternative selected; identifying a specific capital and annual cost funding approach?

80.

Did the permittee evaluate funding through increased sewer user fees and rate structures for residential, commercial and industrial users?

81.

Did the permittee evaluate grant and loan availability and other sources of financing?

Implementation Schedule

82.

Are the implementation phases of the LTCP consistent with permittee's available resources and the priorities for eliminating the CSO-induced impairment?

83.

If sensitive areas are present and impacted by CSOs, has the permittee given the control of CSO discharges to sensitive areas a high priority?

Operational Plan

84.

Does the LTCP document how the current operational plan for the CSS will be developed/ revised to include the operational and maintenance needs of the controls selected for implementation?

Post-construction Compliance Monitoring

85.

Does the LTCP describe how and when post-construction monitoring will be conducted and how the results will be reported?

86.

Does the post-construction compliance monitoring program include adequate spatial and temporal coverage during wet weather conditions to assess the effectiveness of CSO controls and improvement from pre-control baseline conditions associated with LTCP implementation?

LTCP – EVALUATION



Quality of data addressing criterion:

Comments

- High - Full, detailed analysis, sources cited
- Medium - Some analysis or adequate sources cited
- Low - Weak or little analysis, no evident sources
- Not addressed - Criteria not met

Draft LTCP consistent with the CSO Control Policy and the requirements of the appropriate S Permit, order or decree?*

1	The LTCP includes characterization, monitoring, and modeling activities as the basis for selection and design of effective CSO controls.	LTCP Checklist 1-48
2	A public participation process that actively involves the affected public in the decision-making to select CSO controls.	LTCP Checklist 73-75
3	Consideration of sensitive areas as the highest priority for controlling overflows.	LTCP Checklist 24-25 and 59-62
4	Evaluation of alternatives that will enable the permittee, in consultation with the NPDES permitting authority, WQS authority, and the public, to select CSO controls that will meet CWA requirements.	LTCP Checklist 49-56
5	Cost/performance considerations to demonstrate the relationship among a comprehensive set of reasonable control alternatives.	LTCP Checklist 58
6	Operational plan revisions to include agreed-upon long-term CSO controls.	LTCP Checklist 84
7	Maximization of treatment at the existing POTW treatment plant for wet weather flows.	LTCP Checklist 57
8	An implementation schedule for CSO controls.	LTCP Checklist 82
9	A post-construction compliance monitoring program adequate to verify compliance with water quality-based CWA requirements and ascertain the effectiveness of CSO controls	LTCP Checklist 85-86

What will the effect of the LTCP be on water quality?

1	Understanding of receiving waters	LTCP Checklist 16-23
2	Receiving water monitoring	LTCP Checklist 34-39
3	Receiving water modeling	LTCP Checklist 45-48
4	Development of a cost-effective CSO control plan to meet WQS and protect designated uses.	LTCP Checklist 49-72, 78
5	Evaluation of specific CSO control alternatives for attainment of WQS	LTCP Checklist 59-69

Does the LTCP
 evaluate a full
 range of options
 and determine
 if the CSO
 discharges that
 remain following
 the implementation
 of the LTCP will
 meet WQS or will
 it preclude
 attainment of
 WQS?

	1	The monitoring program includes adequate spatial and temporal coverage during wet weather conditions to support an evaluation of the impacts associated with CSOs.	LTCP Checklist 38
	2	The model results demonstrate that water quality standards cannot be met regardless of the level of CSO control implemented.	LTCP Checklist 48
	3 4/21/2015	A cost/performance (knee of the curve) analysis has been developed for the control alternatives considered.	CSO LONG-TERM CONTROL PLAN REVIEW 28 LTCP Checklist 58

MAJOR QUESTIONS?

1. Are you satisfied that the analysis that the permittee presents are adequate to support the evaluation and selection of CSO controls given the complexity of the CSS and conditions within the receiving water?
2. Has the permittee evaluated a sufficient number and combinations of CSO controls alternatives to select a cost-effective CSO control plan to meet WQS and protect designated uses?
3. Has the permittee selected the presumption approach or the demonstration approach for evaluating the CSO controls?
4. If sensitive areas are present and impacted, has the permittee given the elimination or control of CSO discharges to sensitive areas a high priority?
5. Has the permittee considered maximization of treatment at the existing POTW for wet weather flows?
6. Has the permittee considered an appropriate range of control alternatives across the general categories of source controls, collection system controls, storage technologies, treatment technologies, and green infrastructure?
7. Has the permittee evaluated a range of controls sufficient for a cost/performance comparison in the LTCP, and has a cost/performance curve been developed for controls selected for implementation?

MAJOR QUESTIONS CONT.?

8. Has the permittee provided sufficient information to show that the CSO discharges remaining after the implementation of the planned control program will not preclude the attainment of WQS or existing uses of the receiving water, or contribute to impairment?
9. If the LTCP projects that even after implementation of selected controls WQS will not be attained, has the permittee provided sufficient evidence to support a WQS review?
10. Is the LTCP monitoring being coordinated with other municipal efforts, or ongoing or planned state programs, within the same watershed?
11. Has an adequate assessment of the financial resources available for the implementation of the CSO controls been completed?
12. Does the LTCP document the process that was used to involve and inform the public about the alternatives for CSO control?
13. Does the LTCP describe benefits derived from implementation of the NMC?

MAJOR QUESTIONS CONT.?

14. Does the final LTCP document control alternatives that address control priorities, and provide for compliance with WQS?
15. Does the LTCP recommend a financing approach that demonstrate how the permittee will finance the controls selected for implementation?
16. Is the implementation schedule consistent with permittee's available resources and the nature of the CSO-included impairment?
17. Does the LTCP discuss how the operational plan for CSS will be developed or revised to include operational and maintenance requirements of the controls selected for implementation?
18. Does LTCP describe how and when post-construction monitoring will be conducted and how and when the results will be reported?

QUESTIONS ????????



THINK ABOUT!!!!

Q1. Did you provide sufficient information to show that the CSO discharges remaining after the implementation of the planned control program will not preclude the attainment of WQS or designated/existing uses of the receiving water, or contribute to impairment?

Q2. Did you consider an appropriate range of control alternatives across the general categories of source controls, collection system controls, storage technologies, treatment technologies, and green infrastructure?

Q3. Did you consider each element of LTCP effectively?

QUESTIONS ???????

