

SAFE CLEAN WATER PROGRAM SCIENTIFIC STUDY PROPOSAL QUESTIONNAIRE

1. Proposal identification information and summary of the project goals.

Title: **Regional Pathogen Reduction Strategy**

Proposing Organization: **Gateway Water Management Authority**

Your summary of the Project Goals and Objectives:

The reviewers agreed that the overarching goal of this project is to develop targeted, science-informed management strategies for remediating the specific sources of human fecal pollution in L.A. County watersheds that pose the greatest human health risks. Specifically, the study will leverage recent scientific advances in fecal pollution tracking and fecal risk assessment to: (1) determine the sources of fecal pollution that pose the greatest human health risks during both dry and wet weather, (2) identify beaches and other recreational water bodies where these risks are greatest, and (3) identify management interventions that could effectively combat fecal pollution in the highest-risk areas.

2. Are the objectives clearly stated? What portion of the objectives need more clarification?

The reviewers disagreed on whether the project's objectives are clearly stated. Two reviewers concluded the objectives are clearly stated, with one of these reviewers adding that the proposal requires "no further clarification," while the other reviewer caveated their positive assessment by noting that they would have liked to see clarification about how permittees are to be supported. The third reviewer concluded that the first two project objectives are clear, while the third is not because the proposal does not make clear whether the management solutions that will be evaluated are stormwater control measures vs. other management actions.

3. How do the project goals directly support a nexus to increasing stormwater or urban runoff capture and/or reducing stormwater or urban runoff pollution?

All three reviewers agreed that the project supports the SCWP's goals of reducing stormwater or urban runoff pollution. They all characterized the project's goal of collecting specific, detailed fecal pollution data sets for this region as essential in helping managers effectively reduce risks to public health.

4. What is (are) the overarching technical approach element(s) of the proposed project as you understand them (not necessarily the same as the elements described in the proposal)?

The reviewers agreed that the study's technical elements will consist of: (1) collecting water samples from beaches, rivers, creeks and channels, (2) using both legacy fecal pollution detection methods and next-generation molecular methods to measure fecal indicators, fecal genetic markers, viruses and other pathogens, (3) estimating human health risks at beaches and other recreational water bodies and (4) developing a management tool and management solutions for addressing the highest-risk human fecal contamination sources.

5. Has the proposal provided sufficient information to describe the technical approach for each element? If not, what information is missing?

The reviewers all agreed that insufficient information is provided describing the proposal's technical approach, with each reviewer citing numerous examples of missing information. One reviewer cited a lack of clarity about sample collection and analysis methods, how the modeling work will be conducted to estimate health risks, and how the project will identify which sources represent the biggest risks to public health and which source control measures are most effective. A second reviewer cited much of the same missing information as the first reviewer, and also cited a lack of clarity about whether the project has established relationships with necessary stakeholders, whether a cost-benefit analysis will be done for each identified management solution, and how the management insights generated by the project will help managers comply with regulatory requirements for bacteria. The third reviewer also cited much of the same missing information as the other two reviewers, and expressed particular concern about the lack of detail about the sampling protocols, including how targeted the sampling effort will be.

6. Is the technical approach sound? If not, what do you recommend should be done to improve the technical approach of the proposed project?

All three reviewers expressed concerns about the technical soundness of the proposal, although they differed in their level of concern. One reviewer characterized the proposal as overall having a "logical progression," but lamented the fact that more detail was not provided to evaluate the proposal's technical soundness. The other two reviewers were more critical. One reviewer noted that "at minimum" additional information should have been provided on sampling methods, and expressed concern that the project does not intend to collect samples from each site at the same time, which will limit the study's ability to compare health risks at different locations. The second of the latter two reviewers said that the technical approach is sound for the sections with sufficient detail, but expressed particular concerns with the planned sampling approach, including: (1) whether flow rates associated with different sampling sites will be measured – a key measurement for understanding how much of a health risk a highly polluted source might represent to its downstream environment – and (2) whether modeling will be used to help determine specifically where to sample.

7. How achievable are the study's stated technical objectives, especially within the proposed timeframe and budget?

The reviewers disagreed on how achievable the study would be within the planned timeframe and budget. Two reviewers expressed concern, with both reviewers using the word "ambitious" to describe the project's timeline; one of these reviewers explained that the timeframe for completing the modeling work and developing risk models might be inadequate. The third reviewer complimented the proposal for presenting a "logical progression," but lamented the fact that numerous important details are missing from the proposal. Regarding budget, one of the reviewers characterized the project's budget as "reasonable," a second reviewer said they were not qualified to comment on the budget, and the third reviewer did not explicitly weigh in on budget.

8. What are the greatest technical risks that you foresee the proposing agency facing when implementing the project?

All three reviewers agreed that the project faces technical risks. One reviewer expressed concern about whether the sampling could be completed because of the challenges associated with measuring the specific constituents that are planned to be measured, and consequently whether the modeling work could be completed. This reviewer also expressed concerns about the study being able to achieve its goal of estimating site-specific health risks because of its reliance on “disparate,” geographically expansive data sets. A second reviewer questioned whether multiple laboratories would be asked to analyze samples, noting that this factor could challenge the study’s ability to reach rigorous conclusions. The third reviewer said the study’s success will be shaped by how study sites are selected, whether updated sampling methods are used, and whether flow rates at the sampling sites are measured – which is critical to put into context the relative health risk that a site represents.

9. Please describe the linkages between the project’s technical objectives and the types of decisions that stormwater managers will make based on the project’s outcome(s)? Will the technical achievements provide stormwater managers useful linkages that extend beyond this study?

All three reviewers agreed that the project has the potential to produce results useful to stormwater managers, but varied in the degree of confidence they put behind this assessment. One reviewer commended the study’s “excellent regional coverage” across the L.A. region, but caveated this assessment by stressing that the study’s managerial relevance will depend on whether it is conducted in a technically rigorous manner. The other two reviewers offered fully positive assessments of the study’s managerial relevance, expressing confidence that the modeling tools and engagement channels developed during the study will be widely applicable after the study, including to other regions.

10. Please provide any additional technical perspectives you would like to share.

Two of the reviewers shared additional technical perspectives. One reviewer noted their biggest concern is the “overly optimistic” sample collection effort being planned, which could impede the study’s ability to collect necessary data for estimating health risks associated with each study site. The second reviewer noted that it will be important for the study to use risk modeling approaches that have been developed specifically for use in the L.A. region.

11. Please answer each of the following questions by selecting one of the following five answer choices: *Excellent, Very good, Adequate, Inadequate or Not applicable because of insufficient information.* Please add an explanation to accompany your answer choice (or refer to the question number above for appropriate context and rationale):

- a. How well do the proposal objectives address the County’s goals of increasing stormwater or urban runoff capture and/or reducing stormwater or urban runoff pollution?

The reviewers generally agreed that the proposal’s objectives will be adequate for addressing SCWP goals, with two reviewers giving a “very good” rating and the third giving an “excellent” rating. Only one reviewer caveated this assessment by reiterating their concerns about the achievability of achieving the study’s goals.

- b. How well do you think the technical approaches will achieve the study objectives and stated outcomes?

The reviewers did not agree about the achievability of the study's objectives and desired outcomes. One reviewer gave a rating of "not applicable because insufficient information" and reiterated their concerns about the proposal's omission of key information. A second reviewer gave an "adequate" rating, and echoed the first reviewer's concerns about missing information. The third reviewer rated the technical approach to the sampling and modeling work "very good," and the development and transition of management solutions for combatting major sources of fecal pollution "not applicable because of insufficient information."

- c. Technical experience and qualifications of the study team?

The reviewers did not agree in their assessment of the study team's experience and qualifications. Two reviewers gave a rating of "not applicable because of insufficient information," with one of these reviewers expressing "particular concern" at the lack of details about the study team's qualifications because of the difficulty associated with measuring the constituents will be measured. The third reviewer gave a "very good" rating, noting that while the study team's qualifications are omitted, the team appears competent because the team cited (1) relevant studies in the proposal and (2) a plan for engaging with appropriate experts and stakeholders.

SAFE CLEAN WATER PROGRAM SCIENTIFIC STUDY PROPOSAL QUESTIONNAIRE

1. Proposal identification information and summary of the project goals.

Title: **Targeted Human Waste Source Reduction Strategy to Address Bacteria-Related Compliance Objectives for the Los Cerritos Channel**

Proposing Organization: **City of Lakewood**

Your summary of the Project Goals and Objectives:

The reviewers agreed that the overarching goal of this project is to develop a comprehensively management strategy for reducing fecal contamination in the Los Cerritos Channel watershed by tracking major sources of fecal contamination to their upstream sources and then developing targeted solutions for reducing these sources.

2. Are the objectives clearly stated? What portion of the objectives need more clarification?

The reviewers agreed that the project's objectives are clearly stated. One reviewer was unequivocal in this assessment, while the other two reviewers caveated their assessment. One of the latter two reviewers said that although the study intends to use the management insights gleaned from the study to inform similar fecal source identification and control efforts, the proposal does not make clear how this will be done. The other reviewer questioned whether the study intends to rely on the already-developed fecal contamination management plan for the Upper Los Angeles River vs. developing a tailored, Los Cerritos-specific plan in consultation with stakeholders and scientific experts.

3. How do the project goals directly support a nexus to increasing stormwater or urban runoff capture and/or reducing stormwater or urban runoff pollution?

All three reviewers agreed that the project supports the SCWP's goals of reducing stormwater or urban runoff pollution. They all characterized the project's goal of reducing fecal pollution as essential in helping managers effectively reduce risks to public health. One commended the project's goal to identify cost-effective management interventions for reducing fecal pollution, while another said the project could be transferrable to other areas.

4. What is (are) the overarching technical approach element(s) of the proposed project as you understand them (not necessarily the same as the elements described in the proposal)?

The reviewers agreed that the study's technical elements will consist of: (1) pulling together and analyzing existing fecal contamination data, (2) using the historical data to inform where to target fecal source identification work, (3) identifying fecal contamination sources that represent the biggest risk to public health, (4) developing informed projects to reduce fecal contamination loading for high-priority sites, and (5) tracking the effectiveness of these targeted management interventions via monitoring.

5. Has the proposal provided sufficient information to describe the technical approach for each element? If not, what information is missing?

The reviewers all agreed that the proposal generally provides sufficient information describing the study's technical approach, but all three reviewers caveated this assessment by listing information that they would have liked to see in the proposal. One reviewer said they would have preferred to see more a detailed breakdown of how the sampling work will be conducted. A second reviewer said they wanted more specific information on how and when the study team will engage with project partners. The third reviewer said they would have preferred more information for every task, although they acknowledged that much of this information will not become clear until after the study gets underway.

6. Is the technical approach sound? If not, what do you recommend should be done to improve the technical approach of the proposed project?

Only one of the reviewers explicitly answered the question of the proposal's technical soundness; this reviewer's answer was "yes with caveats." While the other two reviewers did not explicitly answer this question, all three reviewers identified multiple areas where the proposal's technical approach could be improved. The reviewer who said the proposal overall is technically sound recommended that more samples should be collected because of how variable storm events can be, and also recommended that monitoring should be conducted during both wet and dry weather following implementation of management source-control actions. A second reviewer said the proposal should have included more information on how stakeholder feedback will be obtained, how prioritization decisions will be made, and how fecal contamination will be quantified in the laboratory. The third reviewer characterized the technical approach in the proposal as a "good starting point," but expressed concerns about the study's reliance on an already-developed fecal contamination management plan for the Upper Los Angeles River area (i.e., instead of developing a site-specific plan), the lack of specificity in describing the sampling techniques, the narrow set of laboratory analysis methods the study is planning to use to quantify fecal contamination, whether flow rates and catchment size for each source will be measured (which is key to determining how much of an overall risk a specific source presents), and whether modeling will be used to help inform how the study arrives at management recommendations for fecal source control actions.

7. How achievable are the study's stated technical objectives, especially within the proposed timeframe and budget?

The reviewers disagreed on how achievable the study would be within the planned timeframe and budget. Two reviewers were unequivocal in their assessment that the project could be completed on time and on budget. The third reviewer said they could not determine the project's achievability because of insufficient information.

8. What are the greatest technical risks that you foresee the proposing agency facing when implementing the project?

All three reviewers agreed that the project faces technical risks. One reviewer said the biggest technical risk will be determining specific sources of fecal pollution, as sources such as malfunctioning wastewater infrastructure and illegal dumping are difficult to distinguish from one another. A second reviewer said the study's sampling design could cause sources and fecal contamination events to go undetected, and also questioned how the study will prioritize sites,

whether deprioritized sites will be revisited, and how transferrable the study will be to other settings. The third reviewer reiterated concerns about the study's reliance on an already-developed fecal contamination management plan for the Upper Los Angeles River area, the lack of specificity in describing the sampling techniques, the narrow set of laboratory analysis methods the study is planning to use to quantify fecal contamination, whether the flow rates and catchment size of the sources will be measured (which is key to understanding how much of a risk a specific source presents), and whether modeling will be used to help inform how the study arrives at management recommendations for fecal source control actions.

9. Please describe the linkages between the project's technical objectives and the types of decisions that stormwater managers will make based on the project's outcome(s)? Will the technical achievements provide stormwater managers useful linkages that extend beyond this study?

All three reviewers agreed that the project has the potential to produce results useful to stormwater managers for the Los Cerritos Channel watershed, commending the study for not just for doing the work necessary to recommend management actions to combat fecal contamination, but also following through afterward to assess the effectiveness of these actions. However, the three reviewers disagreed on how useful the results would be beyond this watershed. One reviewer was unequivocal that the study would be useful, even if the management actions taken during the study to reduce fecal contamination loading are ultimately unsuccessful. The other two reviewers were less optimistic, saying that the study's transferability will depend on the details of how the study is conducted and how successful the project is in identifying effective management actions.

10. Please provide any additional technical perspectives you would like to share.

Only one of the reviewers shared additional technical perspectives. This reviewer lamented the lack of a concise summary for the project's numerous technical appendices, the lack of clarity about if and how the study intends to use any of the "additional measurement techniques" cited in the proposal, and the study's silence on how it intends to overcome the fact that the relationship between the HF183 human fecal contamination DNA marker and health risk is not understood. They also suggested that the project do a cost-benefit analysis of the management actions that the study recommends to combat fecal contamination loading,

11. Please answer each of the following questions by selecting one of the following five answer choices: *Excellent, Very good, Adequate, Inadequate or Not applicable because of insufficient information.* Please add an explanation to accompany your answer choice (or refer to the question number above for appropriate context and rationale):

- a. How well do the proposal objectives address the County's goals of increasing stormwater or urban runoff capture and/or reducing stormwater or urban runoff pollution?

All three reviewers agreed that the proposal's objectives will be adequate for addressing SCWP goals, with one reviewer giving a "very good" rating and the other

two giving an “excellent” rating. None of the reviewers caveated their assessments with any concerns or critiques.

- b. How well do you think the technical approaches will achieve the study objectives and stated outcomes?

The reviewers did not agree about the achievability of the study’s objectives and desired outcomes. Two reviewers gave an “excellent” and “very good” rating, respectively, and did not caveat their assessment by expressing any concerns or critiques. The third reviewer gave an “adequate” rating and reiterated concerns about the technically challenging task of trying to distinguish among specific sources of human fecal contamination.

- c. Technical experience and qualifications of the study team?

The reviewers did not agree in their assessment of the study team’s experience and qualifications. One reviewer gave a rating of “not applicable because of insufficient information” and did not elaborate further. The other two reviewers gave a rating of “very good” and “excellent,” respectively, and expressed confidence that the study team has the qualifications and relevant experience to complete the study.