



AMERICAN SAMOA POWER AUTHORITY

SCOPE OF WORK

FOGAGOGO UV BYPASS SYSTEM STUDY

I. INTRODUCTION

The American Samoa Power Authority (ASPA) owns and operates two wastewater treatment plants (WWTP) and the associated collection system infrastructure on the island of Tutuila. The collection system assets include over 57 miles of sewer mains, 1,500 manholes and twenty (20) lift stations. Additionally, each WWTP includes head-works bar screens, pumps, clarifiers, a UV disinfection reactor and an ocean diffuser. The construction of Tutuila's collection systems began as early as the 1960's and has degraded over the years resulting in deteriorated pipelines and manholes. The two WWTPs, Utulei and Fogagogo, were built in the 1970's. The Utulei WWTP serves the eastern-central portion of the island with a 6.0 MGD capacity and the Fogagogo WWTP serves the western-central portion of the island with a 6.0 MGD capacity. The islands of Ta'u, Ofu and Olosega, as well as many outlying villages on Tutuila, utilize cesspools and onsite septic systems for wastewater handling.

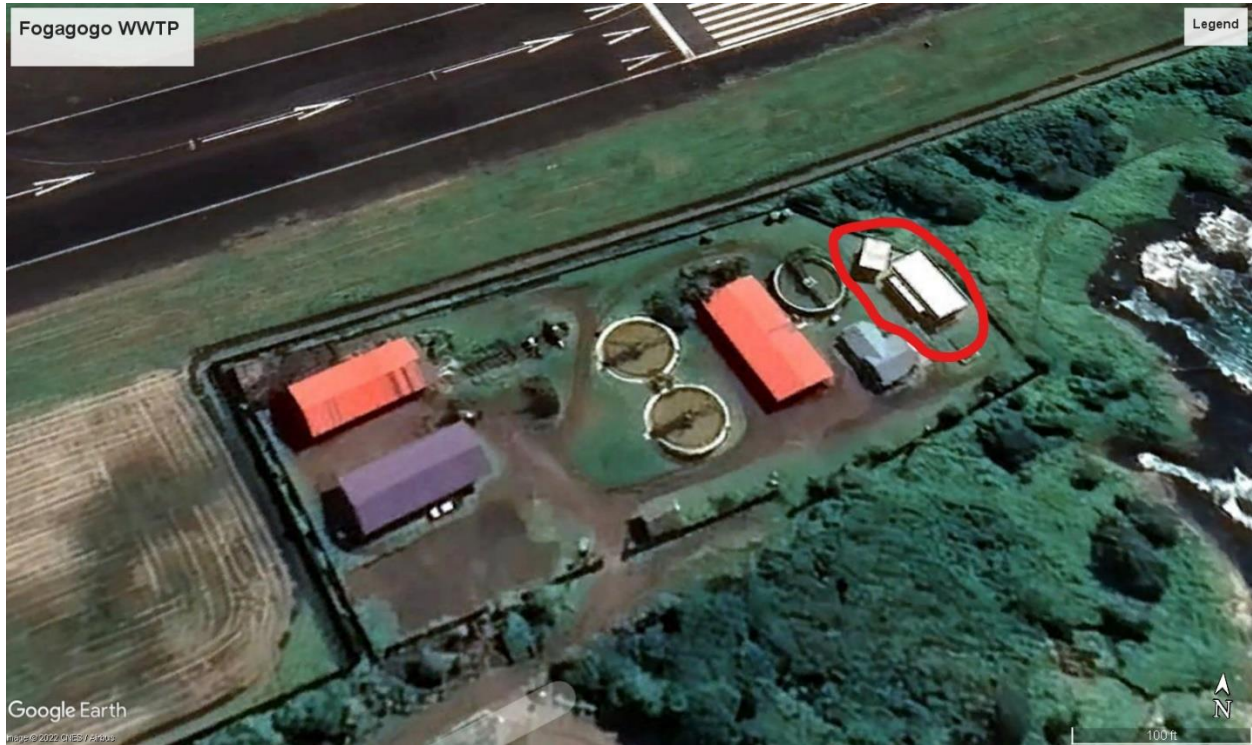
II. PROJECT BACKGROUND

This project will consider the study of a UV Bypass System to allow for the cleaning on the current UV System. The current option we have now for the cleaning of the UV System when it due for cleaning and maintenance is to discharge the primary effluent into the outfall and from there into the ocean. To avoid such action ASPA decided to look at the option of a bypass system that can work during this time of cleaning.

The project will focus on the study and provide direction to ASPA for a proper and efficient UV By-Pass System that will work for current system and consider future growth as well

III. PROJECT LOCATION

The project is located at the Fogagogo Wastewater Treatment Plant where the UV System is currently located. The map below define the location of the new by-pass proposal.



IV. PROJECT OBJECTIVES AND GOALS

The primary objective and goal of this UV By-Pass System Study shall be as follows:

1. Evaluate the most cost effective and efficient UV By-Pass System that will work in our current setup, considering all aspect of re-engineering.
2. Evaluate ways and means to prevent primary effluent discharge direct into the outfall then into the ocean when UV System is offline due to maintenance.
3. Evaluate and provide a cost to implement the project, capital investment cost and to operate and maintain the UV by-pass system, O/M cost.
4. Evaluate what is available in the market and study that we can use to enhance our bypass system.
5. Evaluate our current UV System for possible improvements to reduce frequency of cleaning and downtime.

V. **SCOPE OF WORK (SOW)**

- A. As part of the SOW, the goal and objective of this study is to provide the direction and pre-design information that ASPA requires for the implementation of the by-pass system for Tafuna WWTP's UV System and to eliminate direct discharge of primary effluent into the outfall then into the ocean during maintenance of the UV System. This has to be clear and sets the platform on what type of by-pass system will work and fit or will not work or fit into our current setup with valid supportive reasoning. The SOW and goal of the study also includes following:
1. Evaluate existing UV System and carry out a study for the UV By-Pass System that will work in our current setup the following shall be considered: 1) types that are least complex in nature, 2) ones that are simplest to operate and maintain and 3) will be most affordable and energy efficient to operate and maintain.
 2. Based on the existing WWTP's primary influent and effluent quality data, the study shall provide a detailed investigation into the by-pass system that will adequately treat and disinfect Tafuna WWTP primary effluent when the UV System are under maintenance and eliminate discharging of primary effluent into the outfall and then into the ocean.
 3. The by-pass system shall also consider relevant treatment standard to be met that conforms to USEPA discharge standard and any other local or federal rules and regulations that may apply. Selected firm shall plan up to two meetings with local ASEPA and federal USEPA officials to discuss local/federal rules, regulations, any concerns and to answer any questions related to the study.
 4. The report shall explore and determine which by-pass system facility/method is best and most advantageous, with detailed pre-design features clearly explained and described for the study areas when all the needs analysis are collated, analyzed and sorted accordingly.
 5. The report shall provide a detailed analysis and description on the type of by-pass systems that will work in our favor that considers our location in terms of what is available on island and what must be procured from off island.
 6. The study shall furnish a detailed investigation of by-pass system in terms of operation and maintenance needs, number of new operators required and their skill levels. The study shall state the type of certifications needed and how many certified operators it will take to run the new facilities. The study shall look into problems and their solutions associated with maintaining the by-pass system facilities and standards.
 7. The study shall provide a recommendation to ASPA on the best option to implement considering other aspects of the study such as water quality impacts, bio-solids/landfill

impacts, other non-water quality environmental impacts and social impacts along with a detailed cost analysis.

8. The study shall propose alternatives that are more environmentally and socially friendly so that adverse impacts can be reduced (easier to mitigate), to minimize negative impacts and maximize positive impacts.
 9. As part of the study, the bidder shall also explore the possibility of using Peracetic Acid with UV System as a form of bypass system.
- B. This study shall also include analyzing advantages and disadvantages of the facility selected compared to other types of facilities available today. Also, the SOW includes the following tasks:
1. The report shall determine the viability and sustainability of By-Pass System in American Samoa at the Tafuna WWTP's while analyzing their pre-design estimated loading in accordance to the average and peak flows and solids handling requirements.
 2. As seen on the map, the Tafuna WWTP currently has more space available for treatment expansion. Also, there is a good possibility that adjacent land (approximately 0.5 acres) if needed can be brought in as part of an expanded Tafuna WWTP.
 3. Since space is limited or available for WWTP expansion in Tafuna WWTP, the report shall examine treatment methods that have a smaller footprint.
 4. The study shall look into the impacts of the implementation of the by-pass system recommended alternatives including: 1) water quality impacts, 2) non-water quality environmental impacts, 3) social impacts, 4) physical site impacts, 5) sediment and solids handling impacts, 6) staffing, operation and maintenance impacts and 7) the capital, O&M and rate payer cost impacts and 8) the construction timeline.
 5. Analysis of cost impacts shall include capital costs, annual O&M costs, annual O&M costs per 1000 gallons treated WW, the major upgrade cost after 20 years and total life cycle cost.
 6. This report shall prepare pre-design conceptual drawings/schematics for the layout of the by-pass system, interconnection, all structures, pipes, mechanical, electrical, etc. These pre-design conceptual drawings/designs shall be detailed enough to provide enough information for adequate planning purposes and accurate cost analysis.
 7. All by-pass system alternatives and engineering related projects mentioned in the report and their cost estimates shall be approved by the selected firm's Engineer of Record (EOR) including an analysis for cost effectiveness. The pre-design engineer's cost estimates shall be prepared in accordance to applicable industry standards such as RS Means Estimating Manuals and Guidelines. Appropriate indexes that account for inflation and other factors

that are pertinent to American Samoa including special logistical constraints are to be included.

8. The study shall carry out the detailed demand analysis for the sizing of the by-pass system, this should consider current flow and future flow (20 years from now) into the plants. This shall include existing capacity and any future capacity, average flow and peak flows that may affect plant performance.
9. The SOW also requires firm, in addition to the detailed study, to provide a 2 to 3 page Summary of the report. This Summary shall be easy to read by a lay person incorporating simple schematics. Reason for Summary is that most people will not take the time and effort to read a long report. Goal for this Summary is to have more ASPA staff even down to the operator level read it and understand the report recommendation and conclusion.
10. Selected firm shall state a lump sum fee for the entire work and services to complete this SOW and all incidentals to this project. Firm shall also provide hourly rates of personnel resources in the case ASPA requests to undertake additional work related to this assignment.
11. Each RFP Bid submission indicates familiarity with and acceptance of existing conditions in American Samoa, at ASPA, the ASPA WW Department, the WW collection system, the WW treatment facilities and the quantity and quality of the WWTP's effluent. ASPA will provide the selected firm with all the WWTP's effluent quantity and quality data. The 2024 WW Utility Pan and Leone/Vaitogi Feasibility Study which are near completion will also be available.
12. No claim for additional compensation will be allowed which is based upon a misunderstanding or lack of knowledge by the Offeror.
13. The selected firm shall meet and collaborate with ASPA to finalize the report format and minimum content as listed in this SOW. Offeror shall be in close communication with ASPA throughout the report preparation process. The Selected Firm is expected to evaluate the WW system and WWTP's remotely and also locally on-site so as to be close with Government Agencies that they may have interest on the study here in American Samoa.
14. At the beginning of the project, the selected firm shall submit a well thought out timeline/schedule of critical task completion milestones with summary descriptions approved by ASPA. Also, at the beginning of the project, the firm shall submit an Outline of the proposed report for ASPA approval and comments.
15. It shall be noted that selected firm/consultant who are not from American Samoa shall need to establish an office on the island for the duration of the study so it can be easier for them to access information and discuss any required information with relevant people,

government agencies, statutory organization and private organization who may have an interest on this project.

16. The report shall be submitted in logical increments similar to the following:

- i. Milestone schedule and timeline
- ii. Outline of report submittal
- iii. 30% submittal
- iv. 60% submittal
- v. Final draft submittal. Final report is complete once ASPA and USEPA approves of and signs Final submittal.
- vi. Each submittal will be succeeded by an ASPA and USEPA review with comments within 20 calendar days. These comments shall be addressed and incorporated into the next submittal if recommended. Also, an ASPA comment and selected firm response list shall be maintained and shared with ASPA.

17. Offeror shall provide two Post Study presentations/workshops of the final ASPA approved report.

- i. One presentation/workshop is for the ASPA Board, the Executive Director and upper management including lunch refreshments for up to 10 staff.
- ii. The second presentation/workshop shall be for the ASPA WW Department Operations staff, including lunch refreshments for up to 30 staff.
- iii. Each presentation/workshop shall last up to 3 hours, first half to provide a clear explanation of the report and its highlights and the second half to include a question and answer period. Presentation/workshop can be "in person" or by video conference including an agenda and hands on use of the report.
- iv. Presentations/workshops shall be conducted by the Firm's main contributors to the study as well as the professional licensed staff who approved the report. The goal is for the audience to thoroughly understand the report, the report's analysis of the ASPA WW System, WWTP's, recommended by-pass system facilities and associated implementation impacts and related topics.

18. Minimum Deliverables:

- i. The complete and ASPA approved Study.
- ii. A 2 to 3 page "easy on the eyes" type of Study "Summary" with schematics.
- iii. Planning, pre-design, engineered and EOR stamped documents related to the study such as value-engineering analysis, calculations, technical specifications and standards.
- iv. Milestone schedule and timeline to completion with summary descriptions.
- v. Post report presentation/workshop slides, summary and agenda.
- vi. Three (3) hard bound copies and electronic copies (i.e. AutoCAD, pdf, Excel spreadsheet, ArcGIS) of report, summary, maps, tables, figures and all deliverables.
- vii. Other items as necessary.

