



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602

AMERICAN RESCUE PLAN ACT (ARPA) FY321

SCOPE OF WORK WATER SALINITY REDUCTION PROJECT – PHASE II

This project involves the design, supply, permitting, installation and commissioning of a new desalination system on **Aunuu Island** and Reverse Osmosis systems for wells in **Aua, Pago Pago, Fagaitua, Aoa and Alao**. The project will improve the water quality and system pressure for Aunuu Island and the Eastside of Tutuila Island as well as assure protection of drinking water from contaminant intrusion and remain in compliance with EPA drinking water standards and requirements.



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602

Table of Contents

Section 1: Background.....	3
1.1 Aunuu Island Problem Statement	3
1.2 Eastside of Tutuila Island Problem Statement	5
Aua High Salinity Wells 97 and 99	5
Pago Pago High Salinity Well 163	5
Fagaitua High Salinity Well 164.....	5
Aoa High Salinity Wells 151 and 152	5
Alao High Salinity Well 161.....	6
Section 2: General	6
Section 3: Project Locations	7
Section 4: Inspection of Work Site	8
Section 5: Technical Task/Scope	9
Section 6: Project Budget Breakdown	9
Section 7: Key Personnel	10
Section 8: Key Contractors	11
Section 9: Key Partners/Agencies to coordinate with.....	11
Section 10: Administration	11



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602

Section 1: Background

1.1 Aunuu Island Problem Statement

The island of Aunu'u for many years has had issues with its drinking water supply due to high salinity content and natural organic matter from the island's available freshwater source. The water supply in Aunu'u is sourced from an infiltration gallery underground which skims freshwater that sits above a brackish lens, see Photos 1 and 2. When there is excess natural organic matter from the source water, it forms Trihalomethanes (THMs) contamination when the chlorine used for disinfection is mixed with the source water. Drilling new wells in Aunu'u Island is not an ideal option at the moment due to mobilization access and very limited groundwater resources. Rainfall harvesting is an option during the wet season but during the dry season, the island will need a different and more reliable water supply.



Photo 1: Well system set up on Aunu'u Island.



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602



Photo 2: Inside the infiltration gallery on Aunu'u Island.

The remote island of Aunu'u is separated from Tutuila Island by Deep Ocean with strong currents and can only be accessed by boats that are able to dock in the small Aunu'u port dock. The construction of a desalination plant in Aunu'u Island will enable consistent drinking water supply and good quality drinking water to the 500 residents on island, as well as fire demand storage. The design, permitting, supply and delivery of the desalination facility materials and components as well as installation and commissioning will be advertised for technical proposals and bid submissions. The mobilization and construction of this facility will be carried out by ASPA in-house construction division.



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602

1.2 Eastside of Tutuila Island Problem Statement

Customers on the eastern side of Tutuila have been constantly complaining about the “salty” taste of the water and are frustrated by this long standing issue. The issue stems from high chloride wells supplying this system. This project includes the installation of Reverse Osmosis systems at the east side wells to provide low saline water to the community. Since this will take some time complete, this project will include a short term and long term solution to the problem in case the Well Exploration program does not pan out. The RO Units will be installed at Aua, Pago Pago, Fagaitua, Aoa and Alao details of the project sites and required RO systems are outlined below.

Aua High Salinity Wells 97 and 99

Chlorides are measured monthly on this well and it averages over 2000 ppm (required RO system must be able to filter up to 4000ppm) and increases higher during low rainfall season. Average flow of well 97 is 150 and 99 is 120. Both wells run 24/7 due to low pressure in the system. ASPA has already procured the containerized system for this area and this project will include the installation, connection and commissioning of this RO system.

Pago Pago High Salinity Well 163

Well 163 produces an average of 150 gpm. This well is high in chlorides with over 1000 ppm during low rainfall season (required RO system must be able to filter up to 4000ppm). A new RO Unit with a small raw water storage tank will be installed at this well to reduce this to below 100 ppm.

Fagaitua High Salinity Well 164

This well helps supply water to the east side and provides water to the Fagaitua high elevation families and Fagaitua High School 24/7. The average salinity at this well is over 2000 ppm (required RO system must be able to filter up to 4000ppm). The average flow at Well 164 is 32 gpm. High salinity is a major issue for this area and installing a new RO System with a small raw water storage tank will help reduce the chlorides to below 100 ppm.

Aoa High Salinity Wells 151 and 152

Chlorides are measured monthly on this well and it averages over 500 ppm (required RO system must be able to filter up to 4000ppm) and increases higher during low rainfall season. Average flow of well 151 is 35 and 152 is 30. Both wells run 24/7 due to low pressure in the system. ASPA has already procured the containerized system for this area



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB
Pago Pago, American Samoa 96799
Telephone: (684) 699-1234/ 248-1236
Email: info@aspower.com
Website: www.aspower.com
Facsimile: (684) 699-4602

and this project will include the installation, connection and commissioning of this RO system.

Alao High Salinity Well 161

Chlorides are measured monthly on this well and it averages over 2000 ppm (required RO system must be able to filter up to 4000ppm) and increases higher during low rainfall season. Average flow of this well is 30 gallons per minute (gpm). This well runs 24/7 due to low pressure in the system. There is also a surface water intake currently being monitored by ASPA for a possibility to connect to the existing system and run it through RO process, this assessment is ongoing.

The Alao well is the only well supplying the east side of the island from Amouli to Onenoa along with the little flow coming from Pago. This well causes major issues for the customers it serves. Constant complaints from customers in the area of ‘salty water’ is a daily occurrence and has been ongoing for decades. A RO Unit with a small raw water storage tank will be installed at this well to reduce chlorides to below 100 ppm.

This project will provide for the reduction of high saline water supplying the eastern villages of Tutuila Island. Although, RO is very expensive, the solution to this problem is long overdue. These RO units will be deployed until the well exploration program is successful in finding good water for the east side.

Section 2: General

- A. The American Samoa Power Authority will issue two **Request for Proposals (RFP)** as outlined below:
 1. ***Professional A&E Services for the ‘Design, Supply, Permitting, Installation and Commissioning of Aunuu Desalination System.’***
 2. ***Supply, Delivery & Commissioning of Reverse Osmosis Systems***
- B. The supply will include the desalination system, RO systems, all the necessary appurtenances such as but will not necessarily be limited to gate valves, ARVs, blow-off valves, PRVs, fire hydrants, flow meters, flow control valves and any other necessary appurtenance to ensure proper system operation.
- C. The design for all systems shall be in accordance with Ten States Standards, Wastewater Pollution Control Federation, USEPA, or other comparable standards.



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602

- D. The selected A&E firm or Suppliers for the systems will develop and provide detailed designs, specifications, drawings, installation and construction consultation, training and commissioning, maintenance and operations plans for the purpose of construction and operating the desalination plant.
- E. All proposals must be responsible and responsive to all requirements of the RFP and will be evaluated by a Source Evaluation Board approved by ASPA's Executive Director.

Section 3: Project Locations

The well locations where Reverse Osmosis systems will be installed are shown in Figure 3 below. The proposed location for the Aunu'u Desalination Facility is within the Aunu'u Elementary School area. ASPA will secure easement consent for the project area (or any other project area secured under easement consent) and ASHPO concurrence and any other required permitting for this project.

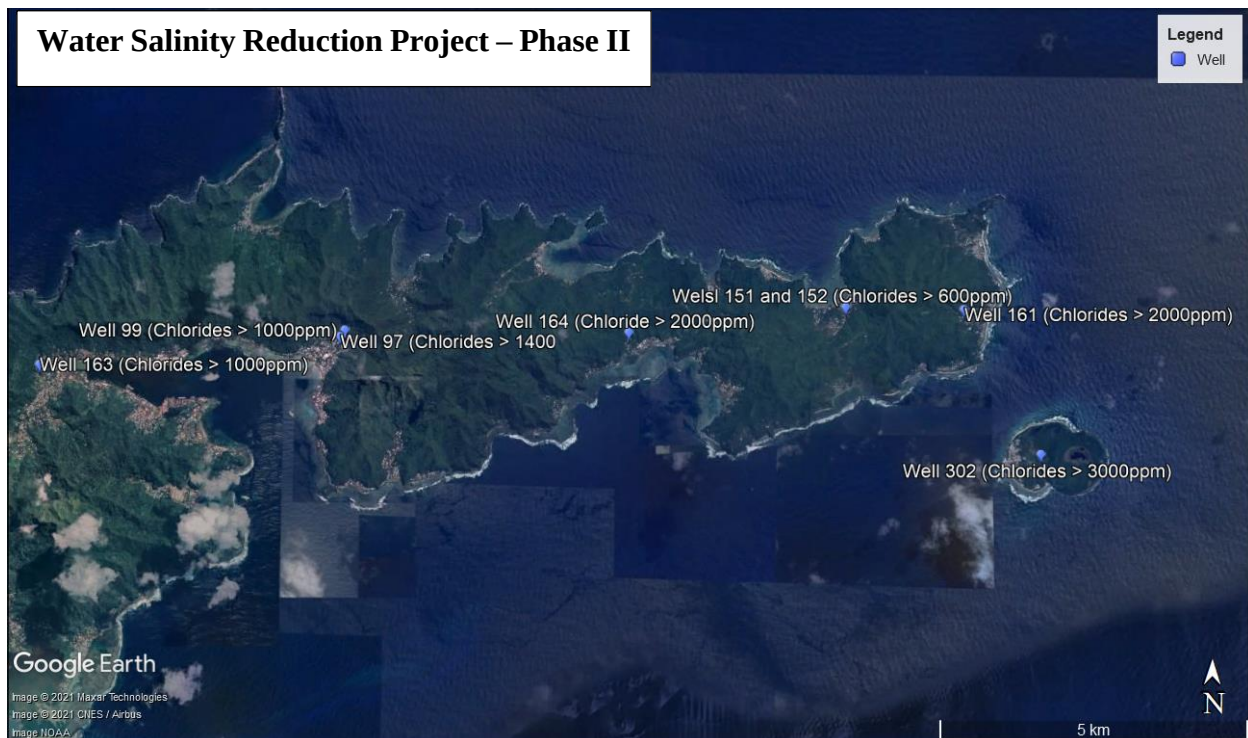


Fig.3: Locations of wells needing Reverse Osmosis Systems.



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602



Fig.4: Proposed Location for the Aunu'u Desalination Facility.

Section 4: Inspection of Work Site

1. The selected A&E firm and Supplier of the systems are expected to visit and thoroughly inspect the Project Site and become familiar with field conditions including accessibility and physical obstructions. For the desalination system and RO systems, the selected firm must include in their proposal the proposed route for intake and brine discharge for the systems.
2. Bid submission indicates familiarity with, and acceptance of, field conditions. No claim for additional compensation will be allowed which is based upon a



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602

misunderstanding or lack of knowledge, examination, inspection and/or testing of any of the above items by the Offeror.

Section 5: Technical Task/Scope

1. Unless otherwise specified in the RFP Scope of Work, ASPA will process DOC-PNRS Land Use Permit for this project.
2. Unless otherwise specified in the RFP Scope of Work, ASPA will secure ASHPO concurrence for the project; ASPA archaeologists will do monitoring during any excavation.
3. ASPA Right of Way (ROW) personnel will contact and consult the land owners to reassure license to enter (Easements) and use land for the project.
4. Unless otherwise specified in the RFP Scope of Work, ASPA ESD will secure a Permit to Construct from AS-EPA.
5. ASPA will prepare the RFPs for this project and advertise. Once the approval is granted, the ASPA Procurement will advertise the RFP.
6. ASPA ESD will require a Project Vehicle for inspections and provide Construction Management support for this project to monitor, inspect and ensure compliance with EPA regulations and permitting requirement for this project.
7. ASPA will complete final report when project is completed and submit to ARPA.

Section 6: Project Budget Breakdown

The following table outline the project budget allocation and costs projection for this project.

ITEMS	BUDGET
Admin	\$ 36,000.00
Archaeology	\$ 18,000.00
Surveying	\$ 18,000.00
Right of Way	\$ 9,000.00
Engineering Design/Planning	\$ 18,000.00



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602

Construction (Personnel)	\$ 90,000.00
Construction Management, Project Management and Inspection	\$ 36,000.00
Personnel Subtotal:	\$ 225,000.00
Fringe (18.2% of Personnel)	\$ 40,950.00
Contracts & Supplies and Materials	\$ 1,464,050.00
Equipment - Project Vehicle (see Section 5.6 of SOW)	\$ 60,000.00
Other Project Expenses	\$ 10,000.00
Total Project Cost	\$ 1,800,000.00

Section 7: Key Personnel

All listed Engineering, Project Management, and Inspection fees are to cover expenses for professional ASPA project management staff, engineers, surveyors, inspectors, and support technicians who will be required to manage construction of all facilities proposed under this project. Administrative cost is also identified to address the estimated expenses associated with the provision of office-based administrative support.

No	First/Last Name	Position Title	Division/Section
1	Fidel Aguila	Senior Engineer	ASPA Water Engineering
2	Katrina Mariner	Project Manager	ASPA Water Engineering
3	Hua-Hsien Wei	Project Manager	ASPA Water Engineering
4	Tofa Papali'i	Admin	ASPA Water Operations
5	Raynel Krishna	Construction Manager	ASPA Construction
6	Haman Tautua	ROW representative	ASPA Procurement
7	Pulemau Paopao	Surveyor	ASPA Survey
8	Lancelot Tei	Archeologist	ASPA Archaeology



AMERICAN SAMOA POWER AUTHORITY

P.O Box PPB

Pago Pago, American Samoa 96799

Telephone: (684) 699-1234/ 248-1236

Email: info@aspower.com

Website: www.aspower.com

Facsimile: (684) 699-4602

9	Other Employees	As Needed	ASPA
---	-----------------	-----------	------

These ASPA employees will be working on this project.

Section 8: Key Contractors

This project will go through a competitive RFP process to determine the contractor for construction works.

Section 9: Key Partners/Agencies to coordinate with.

AS-EPA and US-EPA are ASPA's key partners in this endeavor. ASPA will also work closely with the AS Department of Marine and Wildlife Resources, the Department of Commerce, the Historic Preservation Office and other government agencies and private interest groups that wish to participate.

Section 10: Administration

The procurement of materials will be the responsibility of the ASPA Procurement Manager. All purchases will be approved by the Project Engineer, the Executive Director and the ASPA Board of Directors as needed. Installation of the new Desalination system and RO Units will be overseen by Project Engineer/Manager. Administrative tasks will be overseen by ASPA's Grants Manager. Administrative tasks will include, but not limited to tracking financial expenditures, financial reporting and project status appraisal for ARPA.