AMERICAN SAMOA POWER AUTHORITY

FAGAIMA WELL FIELD FILTRATION SYSTEM PROJECT

ENVIRONMENTAL ASSESSMENT

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Prepared by:

American Samoa Power Authority
Environmental Services Division

For:

U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105

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APPENDIX A

1.0 BACKGROUND

1.1 INTRODUCTION

The U.S. Environmental Protection Agency plans to award a grant to the American Samoa Power Authority (ASPA) funding the design and installation of the Fagaima Well Field Filtration System (WFFS) infrastructure on the Island of Tutuila.

The purpose of this Environmental Assessment (EA) is to comply with NEPA documentation requirements for the proposed federal action under consideration, which consists of the installation of a new filtration system for the filtering of the Fagaima GUDI Wells to allow for the lifting of the long standing Boil Water Notice (BWN) in the Central Water System. This EA was prepared using the Council of Environmental Quality (CEQ) regulations 40 CFR Parts 1500-1508 as guidance. The EA documents the environmental consequences in the U.S. of the proposed federal action.

1.2 PROJECT LOCATION AND AREA OF CONCERN

American Samoa is an unincorporated and unorganized territory of the United States. It is the United States only territory south of the equator, situated about 2,600 mi southwest of Hawaii and 2,000 miles northeast of New Zealand. It comprises an area of only 75 square miles with a population of less than 60,000 people. ASPA water distribution system consists of nearly 300 miles of piping, ranging in diameter from less than 1 to 24 inches. The proposed project is located on Tutuila island in the heavily populated Tafuna plains. The Fagaima Well Field was originally commissioned in the early 1970's to supply water to the community and the Tuna Canneries located about 10 miles east of the well field.

The Fagaima Wells were determined by EPA to be Groundwater Under Direct Influence of Surface Water (GUDI) in late 2009. A Boil Water Notice was issued to meet EPA's requirements while ASPA worked on options to replace or treat these GUDI wells. The Fagaima Well Field is ASPA's most productive well field producing an average of 2.5 MGD (22% of ASPA's total water production). This is also a critical well field as it supplies over 90% of the water that is used by the Tuna Canneries. ASPA originally pursued the option of drilling new wells and reducing the high Non-Revenue Water (NRW) to below 30% in order to permanently replace and abandon the Fagaima Well Field. Unfortunately, that option has not produced satisfactory results since it started in 2012 due to poor water yields in other areas and the challenge of reducing NRW without replacing a significant amount of aging and deteriorated leaking infrastructure.

The area of concern for this EA is defined as the areas in American Samoa within or adjacent to the proposed project that could be affected by the implementation of the proposed project.

1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of this project is to provide a filtration system to filter the Fagaima GUDI wells to meet EPA requirements in order to lift the long standing BWN in the Central Water System. The BWN was issued in 2010 and it is one of the longest standing BWN in the USA. A feasibility

study was conducted in 2012 comparing alternatives for lifting the BWN and the most feasible option was to drill new wells and reduce NRW to below 33%. ASPA has since spent over $5M on drilling new wells and aggressively pursued its leak detection and repair program. However, these efforts have not been successful due to aging and deteriorated leaking water lines which requires large-scale replacement instead of repair and insufficient water yield from other aquifers to replace the Fagaima Wells.

ASPA's original plan was to lift the BWN from the entire system by the end of 2019. In order to meet this target, ASPA is opting now to pursue the second most feasible option of treating the GUDI wells in the Fagaima Well Field. The proposed filtration system includes the following infrastructures:

1. New waterline to replace the aging and deteriorated leaking AC pipes in the system
2. New booster pumps to provide the required pressure through the filters
3. New water storage tank to store water after filtration and chlorination
4. New booster pumps to provide adequate pressure from the tank to the distribution system
5. New building to house the pumps, filters, and control room
6. Fence around the property for system security and safety

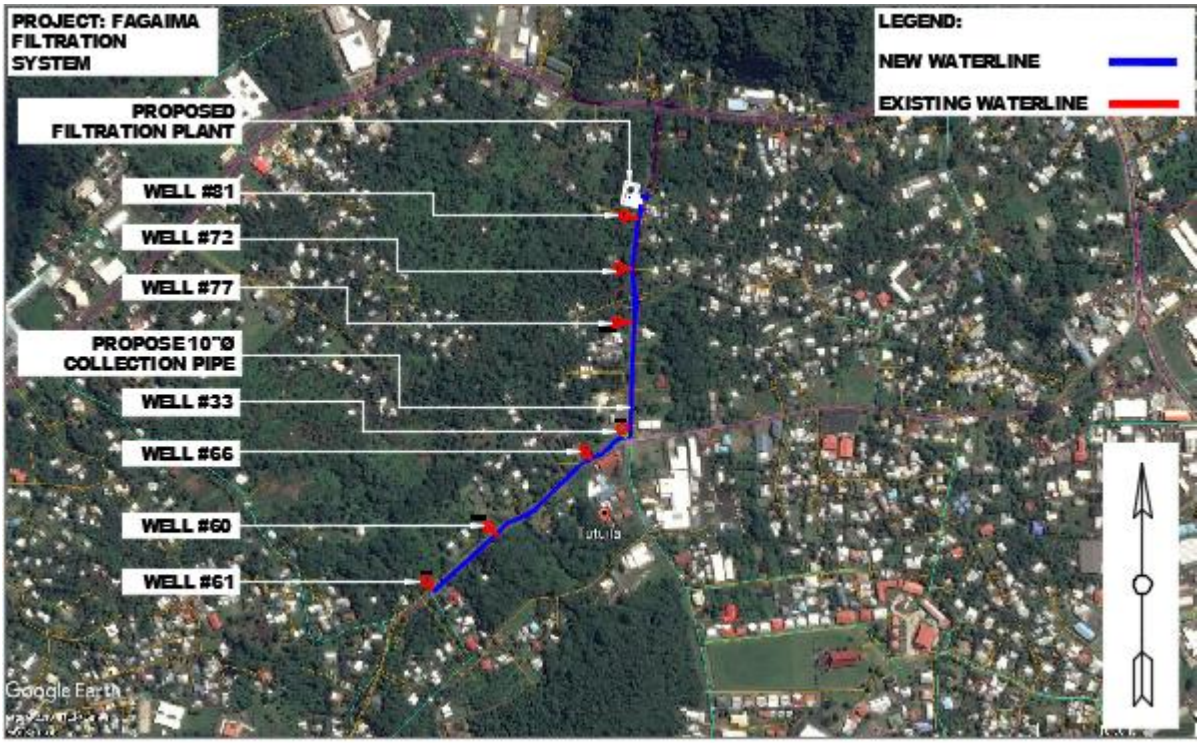

Figure 1: Fagaima Well Field Filtration System Aerial View

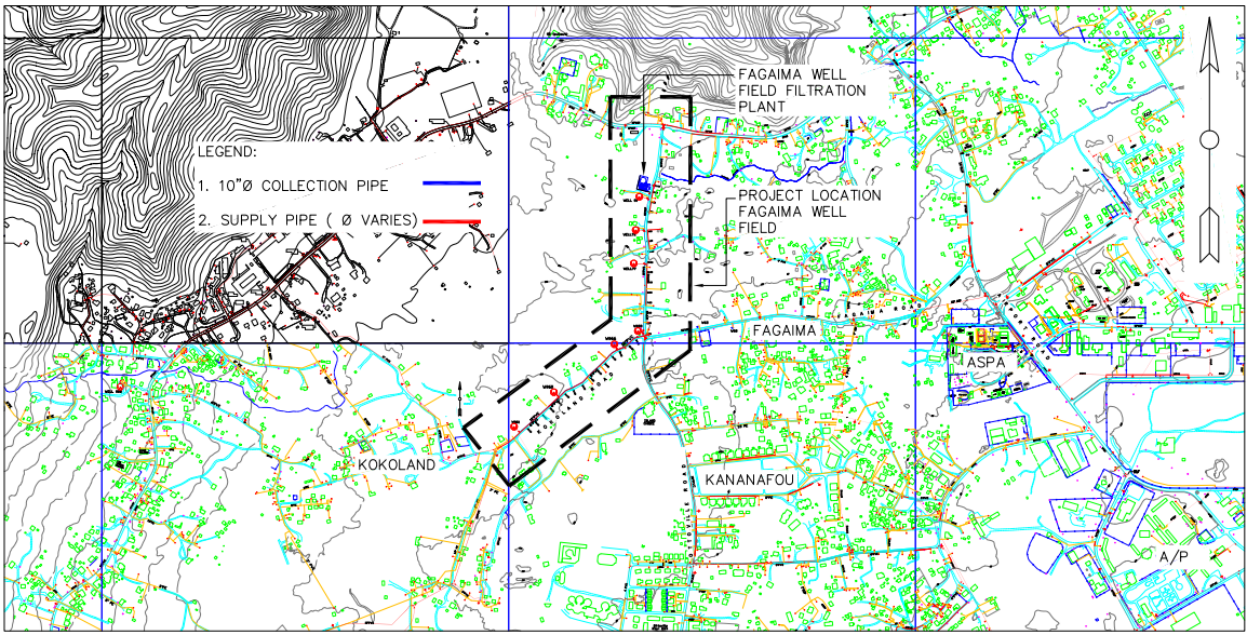

Figure 2: Fagaima Well Field Filtration System Location Plan

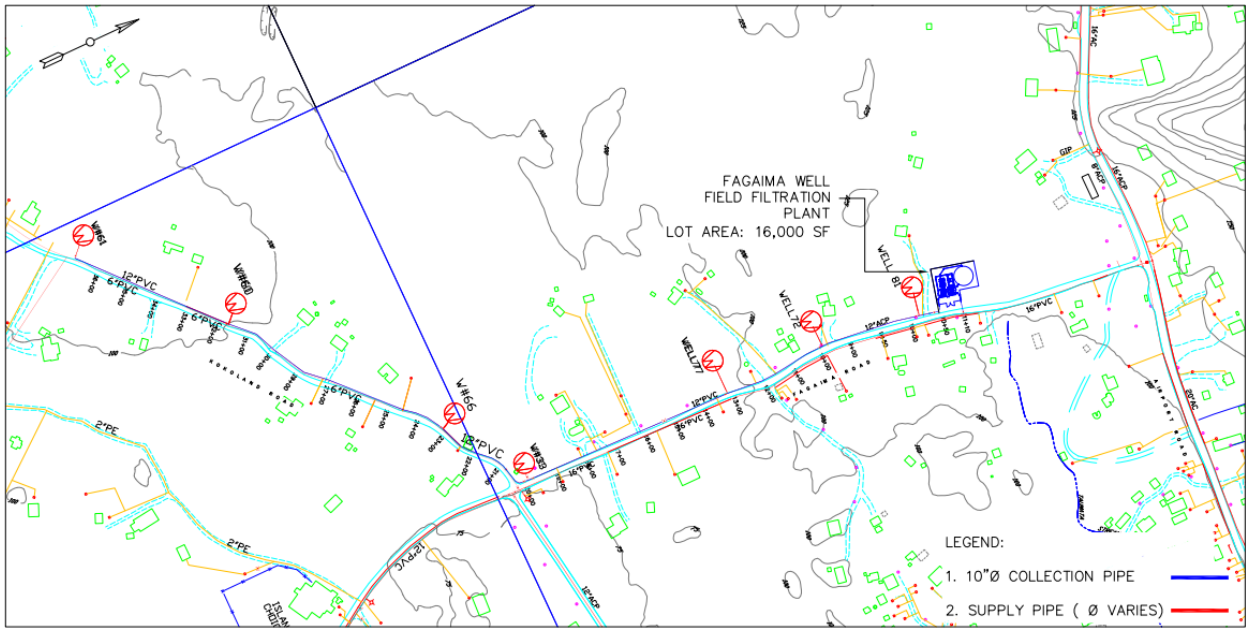

Figure 3: Fagaima Well Field Filtration System Site Development Plan

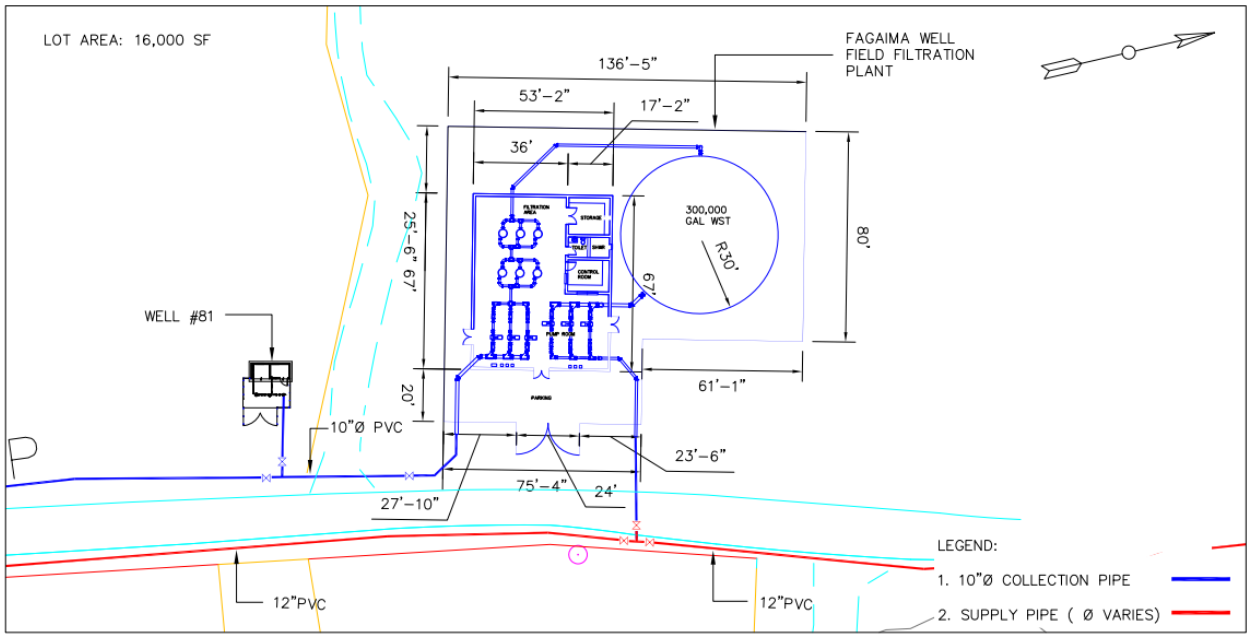

Figure 4: Fagaima Well Field Filtration System Layout

Figures 1 through 4 shows the layout of the proposed plan. The existing AC pipes were installed in the early 1960s and the gaskets have deteriorated causing leaks at most pipe joints. These AC pipes will be replaced as part of this project. The proposed project will provide clean potable water to the community of American Samoa by removing the long standing BWN that currently affects 35% of the population.

1.4 SCOPE OF EA

The EA focuses on the proposed Fagaima Well Field Filtration System Project and the potential direct, indirect (secondary), and cumulative environmental impacts that may arise from the implementation of the Proposed Action, the no action, or any other action alternative considered.

In preparing an EA, ASPA examines various federal crosscutting laws and Executive Orders (EOs). These laws and EOs are described below:

National Natural Landmarks - The Secretary of the Interior is authorized to designate areas as National Natural Landmarks for listing on the National Registry of Natural Landmarks pursuant to the Historic Act of 1935, 16 U.S. Code (USC) 461 *et seq*. In conducting the environmental review of the Proposed Action, ASPA is required to consider the existence and location of natural landmarks, using information provided by the National Park Service (NPS) pursuant to 36 CFR 62.6(d). *No natural landmarks listed on the National Registry of Natural Landmarks were identified within the Project Area.*

Cultural Resources Data - The *Archeological and Historic Preservation Act* (AHPA) of 1974, 16 USC 469 *et seq*. provides for the preservation of cultural resources data if an ASPA activity

may cause irreparable loss or destruction of significant scientific, prehistoric, or archeological data. In accordance with the AHPA, the responsible official or the Secretary of the Interior is authorized to undertake data recovery and preservation activities.

Cultural Resources - The *National Historic Preservation Act* (NHPA), as amended, 16 U.S.C. 470, directs federal agencies to integrate historic preservation into all activities which either directly or indirectly involve land use decisions. The NHPA is administered by the National Park Service (NPS), the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers (SHPOs), the American Samoa Historic Preservation Office (ASPHO) and each federal agency. Implementing regulations include 36 CFR Part 800: *Regulations of the Advisory Council on Historic Preservation Governing the NHPA Section 106 Review Process*. Section 106 of the NHPA requires federal agencies to take into consideration the impact that an action may have on historic properties which are included on, or are eligible for inclusion on, the National Register of Historic Places (NRHP). The Section 106 review process is usually carried out as part of a formal consultation with the ASHPO, the ACHP, and other parties that have knowledge of, or a particular interest in, historic resources in the area of the undertaking. *Impacts to Cultural Resources are considered in Section 3.3.*

Wetlands Protection - EO 11990, "Protection of Wetlands" of 1977, requires federal agencies conducting certain activities to avoid, to the extent possible, adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands, if a practicable alternative exists. Discharge of dredge or fill material into wetlands and other waters of the U.S. are also regulated under Section 404 of the Clean Water Act. *No wetlands in the U.S. will be filled or otherwise impacted by the Proposed Action.*

Floodplain Management - EO 11988, "Floodplain Management" of 1977, requires federal agencies to evaluate the potential effects of actions they may take in a floodplain to avoid, to the extent possible, any adverse effects associated with the direct and indirect development of a floodplain. *None of the aspects of the Proposed Action occurs within a FEMA designated floodplain.*

Important Farmlands - ASG Policy to Protect Environmentally Significant Agricultural Lands requires ASPA to consider the protection of the nation's significant/important agricultural lands from irreversible conversion to uses that result in their loss as an environmental or essential food production resource. Moreover, the Farmland Protection Policy Act (FPPA), 7 USC 4201 *et seq*., and the U.S. Department of Agriculture's (USDA) implementing procedures require federal agencies to evaluate the adverse effects of their actions on prime and unique farmland, including farmland of statewide and local importance. *The project does not involve conversion of, or otherwise affect, prime, unique, or important farmland.*

Coastal Zone Management Act - The Coastal Zone Management Act (CZMA), 16 USC 1451 *et seq.*, requires that federal agencies in coastal areas be consistent with approved State Coastal Zone Management Programs, to the maximum extent possible. If an ASPA action may affect a coastal zone area, the responsible official is required to assess the impact of the action on the coastal zone. *Since the entire island territory is considered a coastal zone, impacts to the coastal zone are discussed throughout this environmental assessment.*

Coastal Barrier Resources Act - The Coastal Barrier Resources Act (CBRA), 16 USC 3501 *et seq*., generally prohibits new federal expenditures and financial assistance for development within the Coastal Barrier Resources System (CBRS) and therefore protects ecologically sensitive U.S. coastal barriers. *This project does not affect any coastal barriers.*

Wild and Scenic Rivers - The Wild and Scenic Rivers Act (WSRA), 16 USC 271 *et seq*., establishes requirements applicable to water resource projects affecting wild, scenic, or recreational rivers within the National Wild and Scenic Rivers System, as well as rivers designated on the National Rivers Inventory. *No designated wild and scenic rivers occur within the Project Area.*

Fish and Wildlife Protection - The Fish and Wildlife Coordination Act (FWCA), 16 USC 661 *et seq*., requires federal agencies involved in actions that will result in the control or structural modification of any natural stream or body of water for any purpose, to take action to protect the fish and wildlife resources that may be affected by the action. *No U.S. streams or water bodies will be modified by this project.*

Endangered Species Protection - The Endangered Species Act (ESA), 16 USC 1536 *et seq*., prohibits agencies from jeopardizing threatened or endangered species or adversely modifying habitats essential to their survival. *Impacts on endangered species are considered in Section 3.2.3.*

Wilderness Protection - The Wilderness Act (WA), 16 USC 1131 *et seq*., establishes a system of National Wilderness Areas. The WA establishes a policy for protecting this system by generally prohibiting motorized equipment, structures, installations, roads, commercial enterprises, aircraft landings, and mechanical transport. *No wilderness areas occur within the Project Area.*

Air Quality - The Clean Air Act (CAA) requires federal actions to conform to any state implementation plan approved or promulgated under Section 110 of the Act. Under the Federal Rule on General Conformity, 40 CFR Part 93, a conformity determination is required only when emissions occur in a non-attainment area. *Impacts to air quality from the Alternatives are discussed in Section 3.1.1.*

Environmental Justice - EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and the accompanying presidential memorandum, advise federal agencies to identify and address, whenever feasible, disproportionately high and adverse human health or environmental effects on minority communities and/or low-income communities. *Environmental justice considerations are discussed in Section 3.9.*

2.0 DESCRIPTION OF ALTERNATIVES (INCLUDING THE PROPOSED ACTION)

2.1 Alternative A – No Action

No improvements would be made to the existing GUDI Wells under Alternative A. In the No Action Alternative, the current situation will continue as the project will not be engineered nor constructed. The BWN will remain in place and the community will continue to boil their water or spend money on buying expensive imported bottled water. This would also mean that ASPA will not meet its target of lifting the BWN from the entire system by December 2019.

2.2 Alternative B – Manifolding all Wells to One Filtration System [Preferred Alternative]

Alternative B would consist of manifolding all wells into one filtration system that will be placed at the location shown in Figure 1. The proposed Micron Filtration System is a low maintenance system that meets EPA requirements for treating GUDI wells.

Initially the water from the wells would pass through the first set of booster pumps that provide the required pressure to send the water through the micron filters. The water then goes to the pre-filters (20 to 50 micron size) before passing through the main filters (5 to 20 micron size).

The Harmsco Hurricane filters are placed into a filter housing canister and locked in place with a swing bolt lid. Pressure gauge's before and after filter housing indicates when filter maintenance is needed by low pressure caused by sediment build up. The filters can then be removed by unbolting the lid and sliding them up and out of the housings. Any filter 5 micron and up can be washed with a hose and reused. Filters can withstand multiple washings depending on water quality. This washing of the filters can be done with a regular garden hose under normal pressure with an adjustable sprayer. The filter housings also collect larger sediments in the base of the housings and can be purged via the drain whole in the bottom. The reject water will be routed to the existing sewer system.

For the main filter, which will be less than 5 micron, replacement every time will be necessary once pressure gauge indicates significant pressure drop. By using properly sized pre-filter and main filters in line, filter maintenance will be minimized.

The filtered water will then be treated with sodium hypochlorite before going into the storage tank. The storage tank is needed to allow the well pumps to rest and prevent over pumping of the wells. A set of booster pumps installed after the water storage tank will provide the required minimum pressure and flow to supply the distribution system.

This alternative would address the filtration required to lift the BWN from the system. The estimated service life for this filtration system would be at least 30 years with regular maintenance.

2.3 Alternative C – Installing Smaller Filtration Systems at each Well Site (7 Total)

Alternative C would employ smaller micron filters at each well site. This would require the construction of seven separate filtration systems with its own housing unit and booster pumps. This alternative is a reasonable alternative but will require separate construction sites and requires dealing with different land owners as these seven wells are in separate locations owned

by different land owners. The foot print for the structures would be smaller but would still require additional land than the existing easement ASPA currently has with the well site setup. Additional space will be needed for a storage tank and booster pumps similar in size as in Alternative B.

This alternative would address the filtration required to lift the BWN from the system. The estimated service life for this filtration system would be at least 30 years with regular maintenance similar to Alternative B.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 PHYSICAL ENVIRONMENT

3.1.1 Air Resources

Affected Environment

The area of concern for the proposed action lies within a residential area. The proposed site is not classified as "non-attainment" area for any criteria pollutants. Site conditions do not hinder the dispersal of air emissions.

Environmental Consequences

Environmental Consequences here and in the following subsections will consider direct and indirect (secondary) impacts for the area of concern.

Under the No Action Alternative, construction and operational activities that result in particulate matter, hydrocarbons, nitrogen oxides, and sulfur dioxide emissions would not occur because the proposed improvements to the drinking water system would not be implemented.

Construction and operation improvements associated with Alternatives B, and C have the potential for short and medium-term impacts to air resources in the area of concern. During construction, fugitive emissions would be produced on-site by earthmoving equipment and by vehicular traffic traveling throughout the construction site. But use of appropriate construction methods would keep the generation of dust and fine particulate matter to a minimum. The quantity of these emissions would also vary and be dependent on the types and level of activities occurring and the weather conditions.

Construction equipment and other vehicles on the site during construction and operation for all but the No Action Alternative would produce vehicular emissions. These mobile source emissions would include small amounts of hydrocarbons, carbon monoxide, and nitrous oxides. A low density of emissions coupled with atmospheric dispersion would significantly decrease the impact of vehicular emissions offsite.

3.1.2 Water Resources

3.1.2.1 Surface Water

Affected Environment

There is a small ephemeral drainage system that runs about 250 ft north of the proposed project location. Due to the volcanic rock geology found in this area, precipitation and runoff quickly infiltrates through the upper soil layer and eventually recharges the underlying groundwater aquifer.

Environmental Consequences

Due to the lack of potentially affected surface water bodies in the area of concern, there will be no impact to surface water quality or quantity due to implementation of any of the alternatives.

3.1.2.2 Groundwater

Affected Environment

The area of concern overlays the Fagaima Lens Aquifer (FLA) which was designated as a sole source aquifer in 1978 by the U.S. EPA. Groundwater supplies about 99 percent of the drinking water for ASPA's approximately 60,000 residents. There is one microfiltration system operating in the upper Pago Pago area supplying the remaining 1 percent of the water to the system.

The freshwater lens floats on salt water and is separated from the salt water by a transition zone of brackish water. Transition zone thickness depends on the extent of mixing between fresh water and salt water and is generally dozens of feet thick in Tutuila. Mixing in the transition zone results from tidal and pumping fluctuations superimposed on the gravity-driven flow of fresh water toward the shore. Under conditions of steady recharge and no pumping, the lens would have a fixed size. Typically, however, rainfall is episodic and seasonal, and lens volume fluctuates naturally with time. Groundwater discharges continuously throughout the year, and the lens shrinks during dry periods when recharge diminishes or ceases, and expands when recharge increases.

Environmental Consequences

With the implementation of the No Action Alternative the potential for contamination of the FLA groundwater would continue. Completion of Alternatives B or C would likely improve the long-term water quality of the FLA, by reducing the risk of contamination due to near-surface leakage and remove pathogens from the drinking water system. .

3.1.3 SOILS AND LAND USE

Affected Environment

Land use in the vicinity of the area of concern is primarily residential along Highway Route 1.

Environmental Consequences

Under the No Action Alternative adverse impacts to soil from leaking pipes and poor water quality from GUDI wells will continue, and may increase in the future with the possibility of more failing systems. The new filtration system will have reject water that will be drained to a new draining field or connected to the sewer system having minimal effect to the surrounding soil.

Alternatives B and C would require excavations for new facility and replacement of existing waterlines through open trench excavation. However, excavations would occur mainly within urban and rural areas along existing roadways, right-of-way, or in areas that have previously been used for agricultural production where these resources have already been disturbed. Soils obtained from construction activities (trenching, grading activities, cut and fill) would be utilized to fill up the trenches. Any adverse effects to land use would be temporary and of minor significance. Soils from excavation of the Filtration Facility (~16,000 sf) will be reused for landscaping where necessary while unsuitable material will be hauled away to the ASPA landfill.

3.2 BIOLOGICAL ENVIRONMENT

The biological environment includes the biotic or living components of the ecosystem present within the project area. Biotic components include vegetation; special aquatic sites such as wetlands; wildlife; and threatened, endangered or other special status species. The affected environment and environmental consequences for each of these components are described below.

3.2.1 Vegetation and Wetlands

Affected Environment

Plant communities of Tutuila, from the mountaintops down to the ocean, are largely tropical rainforest. The area of concern is in the Fagaima area of the Tafuna plains which are dominated by small agricultural crops and urban built up or cultivated vegetation types. Vegetation in this area is primarily thick secondary scrub and urban vegetation (i.e., lawns and ornamental trees and shrubs) inland. The high elevation of the plateau prevents the root zone from reaching the freshwater lens.

Environmental Consequences

Vegetation communities would not be impacted with the implementation of the No Action Alternative because the construction activities associated with the proposed project would not occur. Direct/indirect long-term impacts would not occur on vegetation with the implementation of the No Action Alternative.

The primary direct effect of Alternatives B and C would have an impact on local vegetation due to the more extensive nature of open trenching and land clearing required. This will necessitate the removal of vegetation for the construction of the new filtration facility. It would most likely

necessitate some amount of vegetation removal to gain direct access to the existing alignment for removal and replacement. Any vegetation removed for trenching of new pipelines would be inside an already disturbed area that is part of the government right-of-way. Vegetation removed for the construction of the 16,000 square foot plant are mostly taros, bananas, and coconuts from the family plantation currently planted on this land. Furthermore, the Department of Marine and Wildlife conducted a site survey and found no threatened or endangered plant species in the area. However, they will still be contacted prior to construction proceeding. In this way, consent can be obtained and mitigations can be proactively applied due to the disturbances caused by trenching and construction activities if required.

3.2.2 WILDLIFE

Affected Environment

Species believed to exist within the area of concern include many species of insects and spiders, geckos, local bird species, the land snails (including the introduced Giant African Snail), and toads and frogs.

Environmental Consequences

Under the No Action Alternative, wildlife communities in the area of concern would not be directly or indirectly affected in the short term because construction would not occur.

Alternatives B and C will have no impact to the endangered species since they are not found in this area. Disturbances, noise, dust, and any potential vegetation removal will have some adverse effect on local species that live or forage in the vicinity. The Department of Marine and Wildlife (DMWR) will be contacted prior to construction proceeding. ASPA will work closely with DMWR on mitigations required due to the disturbances caused by trenching and construction activities in this area.

DMWR recommended the following measures on a proactive basis to reduce and mitigate any impact to wildlife:

1. Assuming that a staging area for vehicles and project supplies/materials will be needed, the contractor must inform DMWR for consent for any vegetation removal;
2. Dust control measures must be employed during the activity. It is the contractor's responsibility to monitor the effectiveness of the dust control apparatus;
3. Heavy machinery used during the activity must be closely monitored for any fuel or hazardous chemical leakage:
4. Absorbent pads must be readily available at the project site at all times;
5. Silt curtains must be employed in areas where stormwater drains occur;
6. In the presence of protected species, activity must be stopped until the species leaves the area of its own volition; and
7. It is the contractor's responsibility to notify DMWR for any amendments made on the scope of work.

3.2.3 Threatened and Endangered Species

Affected Environment

There are five protected animals in the territory of American Samoa under the Endangered Species Act: two birds, two tropical snails and the only insect-eating bat in Polynesia. The two birds proposed for protection include the friendly ground dove and the *mao*. The *mao* is a large, vocal, nectar-eating bird that lives in mature, high-elevation forests. The high-quality, protected habitat in the National Park of American Samoa may play an important role in recovery of the *mao* if this spectacular bird can be reintroduced from dwindling populations in other parts of the territory. The friendly ground dove also faces destruction of its tropical forest habitat and, like many ground-nesting birds, egg predation by non-native rats.

The Pacific sheath-tailed bat once numbered as many as 11,000 in American Samoa, but a 2008 survey found none. The two snails proposed for protection are both threatened by the non-native, predatory rosy wolf snail, introduced to Tutuila Island in 1977. Snails like these are typically very slow growing, live about five years and produce only a few young per year (fewer than 20) — a very low reproductive rate — which makes them particularly vulnerable to introduced predators.

Environmental Consequences

Under the No Action Alternative endangered and threatened species, species of concern, and sensitive species would not be directly affected in the project area because construction associated with the proposed action would not occur. Direct/indirect long-term impacts would not occur to threatened and endangered species and their habitats with the implementation of the No Action Alternative.

For Alternatives B and C, endangered species, threatened species, species of concern, sensitive species, were not found in this area or near the vicinity of this project (see Appendix A). However, to mitigate any potential impacts the following measures were recommended on a proactive basis:

1. Assuming that a staging area for vehicles and project supplies/materials will be needed, the contractor must inform DMWR for consent for any vegetation removal;
2. Dust control measures must be employed during the activity. It is the contractor's responsibility to monitor the effectiveness of the dust control apparatus;
3. Heavy machinery used during the activity must be closely monitored for any fuel or hazardous chemical leakage:
4. Absorbent pads must be readily available at the project site at all times;
5. Silt curtains must be employed in areas where stormwater drains occur;
6. In the presence of protected species, activity must be stopped until the species leaves the area of its own volition; and
7. It is the contractor's responsibility to notify DMWR for any amendments made on the scope of work

3.3 CULTURAL RESOURCES

Affected Environment

Cultural resources are any prehistoric or historic district, site, or building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. They include archaeological resources (both prehistoric and historic), historic architectural resources, and traditional cultural resources. Only significant cultural resources (as defined in 36 CFR 60.4) are considered for potential adverse impacts from an action. Significant archaeological and architectural resources are either eligible for listing, or listed on, the National Registry of Historic Places (NRHP). Significant traditional cultural resources are identified by Indian tribes or other groups, and may also be eligible for the NRHP.

No cultural sites registered with the National Registry of Historic Places exist within the area of concern.

Environmental Consequences

No construction activities that have the potential to disturb surface/subsurface cultural resources, would occur with the implementation of the No Action Alternative. As a result, cultural resources would not be affected with the selection of the No Action Alternative.

Under all of the action alternatives, proposed construction areas would be located within the existing right-of-ways and already disturbed areas.

All construction will be limited to previously disturbed areas. In accordance with Section 106 of the National Historic and Preservation Act of 1966, as amended through 2000, if previously unidentified cultural resources are discovered during construction, the contractor will stop work immediately at that location and take all reasonable steps to secure the preservation of those features and the ASPA in-house archeologist will be notified. Consultations between ASPA and ASHPO are ongoing and any recommendations will be implemented during this project. ASPA's in-house archeologist will, in turn, notify the American Samoa Historic Preservation Office (ASHPO), when needed, to evaluate the significance of the resource.

3.4 HAZARDOUS AND SOLID WASTE

Affected Environment

Hazardous materials include medical and industrial wastes, pesticides, herbicides, radioactive materials, combustible fuels, and biohazardous material (i.e., biological material capable of causing disease in humans). Improper use, storage, transport, or disposal of these materials may result in harm to humans, surface or ground water degradation, air pollution, fire, or explosion. The only hazardous material that will be encountered during this project would be the Asbestos Cement water pipes. These water pipes will be abandoned in place once the new PVC waterlines are in service. There are no other hazardous materials identified within the project area of concern, other than what is limited to hazardous materials common to household use such as

fuels and cleaning products, and pesticides which are also regularly used for agricultural purposes in the project vicinity and adjacent agricultural operations.

There are no solid waste sites located near the proposed project.

Environmental Consequences

Construction activities that have the potential to disturb surface/subsurface soils and the potential occurrence of hazardous materials would not occur with the implementation of the No Action Alternative. As a result, any hazardous materials that may be present would not be affected with the selection of the No Action Alternative.

The AC pipes will be abandoned in place after the decommissioning from water system is completed. The entire AC pipeline in this area will be disconnected completely from the system and left in place. If AC pipe cutting or handling is required, ASPA will follow the proper OSHA Procedures for doing this. Hazardous materials would not be necessary during project construction and hazardous waste would not be generated from the preferred alternative. In general, no impacts of hazardous materials nor generation of hazardous waste would likely occur due to construction of any of the action alternatives.

3.5 ENERGY AND NATURAL RESOURCES

Affected Environment

ASPA provides power to the entire community including its own water and wastewater facilities. The power supply is very reliable and ASPA is planning on installing underground power from its Tafuna Power Plant to the Fagaima Well Field for resiliency during natural disasters.

Environmental Consequences

Alternative A would have no effect on existing energy or natural resource usage as it would only maintain the existing consumption trends. Alternatives B and C would consume more energy and resources overall, however it would still mostly use diesel powered excavation techniques which would have no effect on local energy resources beyond diesel consumption. All of the Alternatives are not expected to impose significant impacts on energy supplies or natural resources.

3.6 NOISE

Affected Environment

Noise is one of the major concerns associated with construction-related activities. Noise is commonly classified as 1) general audible noise in the range heard by humans 2) special noise such as sonic booms or artillery blasts that have a sound pressure of shock component, and 3) noise-induced vibration (e.g., from sonic booms and artillery blasts) which may involve noise levels that can cause physical movement and damage to natural and man-made structures.

Audible noise produced within the urban zone during the construction activities would result in some localized short-term impacts at waterlines along the right-of-way (mainly near the Highway and some residential areas). Normal urban noise levels range from approximately 55-80 decibels. Noise during construction would be expected to range from 65-95 decibels.

Daily average-day-night noise level is the primary measure used for describing noise effects on communities. The daily-average day-night noise level during construction would only be slightly less than the loudest noise during the day since the loudest noise event controls the 24-hour average (Wyle 1992). Although temporary community annoyance may occur, construction would be finished in a short time period and the community would not be significantly affected by construction related noise. Existing background noise levels are affected by the following sources: wind, traffic, occasional construction activities, and other common noises of a small community.

Environmental Consequences

None of the alternatives is expected to impose significant long-term noise impacts on the project area. Noise from the booster pumps will be dampened within the sound control facility. Background noise levels may be elevated during construction activities associated with Alternatives B and C. Construction noises tend to be short in duration and concentrated around the immediate work area. Construction related noise will be mitigated through the use of standard procedures such as specific, weekday hours of operation and the use of mufflers on construction equipment.

3.7 PUBLIC HEALTH AND SAFETY

Affected Environment

Bacterial and parasitic infections associated with untreated GUDI water are a current health concern in American Samoa. Hence the issuance of the Boil Water Notice so the public can be protected in the meantime while ASPA works on a permanent solution to lift the BWN. GUDI water has the potential to support a variety of microscopic and submicroscopic organisms that can cause infectious disease.

Environmental Consequences

The health risk for waterborne disease in the area of concern would continue at current levels or could increase with implementation of the No Action Alternative. In the long-term, waterborne disease outbreaks could increase in the area of concern because of the expected increase in population and the deterioration of the water distribution system. Implementation of the No-Action Alternative could result in a potential long-term negative indirect impact to public health in the area of concern.

Implementation of Alternatives B and C would likely decrease the health risk in the area of concern resulting in short-term and long-term positive impacts to public health. Untreated water

supports a variety of organisms that can cause infectious diseases. Potentially contaminated groundwater resulting from the water leakage would be alleviated with the implementation of these alternatives. The interactive populations would also be less likely to be victimized by waterborne communicable diseases resulting from exposure to contaminated groundwater used as potable water. Short and long-term negative impacts would not occur to the public health in the area of concern with the implementation of the preferred action or any of the other action alternatives.

3.8 POPULATION AND ECONOMICS

Affected Environment

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Human population is affected by regional birth and death rates as well as net in- or out-migration. American Samoa is a small isolated island territory, positioned in a location of strategic.. Population change depends on three components: fertility, mortality and net migration.

The Tuna Canneries and the American Samoa Government are the main drivers of the American Samoa economy, followed by the private sector businesses.

Environmental Consequences

With the implementation of the No Action Alternative, the number of jobs and the total workforce in the area would remain about the same. Therefore, no impact on local employment in the area of concern would occur with selection of the No Action Alternative.

Demand for housing and vacancy rate would not be expected to change in the short-term with the implementation of the No Action Alternative.

Under the implementation of Alternatives B and C, the number of temporary jobs that the project would generate is relatively low, and it is unlikely that a significant number of workers would relocate to the region as a result of the project. Therefore, it is not expected that there would be short-term direct/indirect socio-economic impact in the region with the implementation of any of the alternatives. The Fagaima Well Field Filtration System project may make the area a more desirable place to live, which could result in a slight increase in population, but this amount would likely be less than significant.

Demand for housing is not expected to change significantly because of the implementation of the preferred action alternative due to the relatively small number of jobs created over approximately one year, and the housing vacancy rate should not be materially affected. Long and short-term direct/indirect impacts on housing in the region, are not expected to be significant.

3.9 ENVIRONMENTAL JUSTICE

Affected Environment

A baseline environmental justice (EJ) screening process was used to identify minority or low-income communities within the area of concern. Preliminary screening for potential EJ issues is based on two general statistics. First, the screening process is used to ascertain whether the minority population percentage in the affected area is either greater than 50 percent or meaningfully greater than the minority population percentage in the general population (EPA 1997b). The concept of race as used by the Census Bureau reflects self-identification and self-classification by people according to the race with which they most closely identify (U.S. Census Bureau 2010). Second, low-income populations are identified using either Department of Health and Human Services (HHS) poverty guidelines or the Department of Housing and Urban Development (HUD) statutory definition of very low-income for the purposes of housing benefits (EPA 1997b). The percentage of impoverished people in the affected area is compared with the percentage of people living below the poverty limit in the general population to determine if a significant difference exists. Minority and impoverished population totals and percentages estimated from 2010 U.S. Census data are presented in Table 12 (U.S. Census Bureau 2010).

Table 12. Minority and Impoverished Population Totals and Percentages for Tualauta County and the Territory of American Samoa, 2010

	Tualauta County	American Samoa
Total Population	20,858 (100%)	55,519 (100%)
Native Samoan or other Pacific Islander	19,144 (91.8%)	51,403 (92.6%)
Asian	740 (3.5%)	1,994 (3.6%)
White	301 (1.4%)	493 (0.9%)
Black	7 (0%)	13 (0%)
Two or more ethnic origins or races	603 (2.9%)	1,479 (2.7%)
Percentage with Income below poverty level *	**11,840 (56.8%)**	**31,809 (57.3%)**

SOURCE: 2010 U.S. Census Data

As indicated in Table 12, more than half of the population affected by this project live below the poverty line. The Tualauta County population comprise about the same percentage of impoverished population as the territory of American Samoa. Table 12 shows that 56.8% of the Tualauta County population lives below the poverty level, compared with 57.3% on the entire Territory of American Samoa.

Environmental Consequences

All the action alternatives would positively benefit minorities and low-income persons due to the enhancement of the efficiency and reliability of the existing water system.

3.10 CUMULATIVE EFFECTS

Cumulative impacts result when an incremental impact associated with an action is considered additively with impact of past, present, and reasonably foreseeable actions, regardless of what agency or person undertakes such other actions (40 CFR 1508.7).

Cumulative impacts may result from individually *minor* but collectively *significant* actions that occur within the same temporal and spatial context.

There are several distinct, but related, projects occurring in the Tualauta area potentially near parts of the Fagaima Filtration Project, in both time and space. These include the replacement of the old leaking water distribution system, the drilling and connection of new water wells, rehabilitation of the existing waste water treatment plant, and other associated construction activities. The overall effects of the combined construction work to areas in the Tualauta will likely cause some minor disturbances to local species and various environmental resources.

Designs for some of these projects have not yet been completed, so it is difficult to estimate the actual impacts they will have in totality with the Filtration project.

However, none of the contemplated construction activities are anticipated to have a significant impact on the area of concern evaluated for this project. All the contemplated construction activities' impacts are individually minor, with relatively limited local effects that should not rise to a significant burden or impact upon local environments or resources. Their cumulative effects should also be minor as they do not interact in any substantial way and would likely not occur in the same temporal or spatial vicinity for the majority of the project scope.

Therefore, the additional impacts from the other construction activities are not anticipated to have a significant cumulative effect.

3.11 CONCLUSION

The National Environmental Policy Act (NEPA) guidance suggests that the evaluation of an action alternative should include consideration of means to reduce, or mitigate, adverse environmental impacts. Mitigation measures are identified to ensure that an action does not create any significant adverse effects.

Potential negative or adverse effects associated with the implementation of the action alternatives will be minimized through the implementation of appropriate practices and technologies. Construction activities will be conducted in a manner sensitive to potential environmental impacts. Generation of dust and PM_{10} emissions will be minimized using appropriate and accepted methods. Construction traffic will be minimal, and controlled access to the construction site would reduce the potential for adverse effects to transportation resources. Construction activities will be limited to normal weekday working hours to minimize the potential effects to local residents associated with construction noise.

The following positive effects will be realized by implementing the preferred action Alternative B:

- Removal of the Boil Water Notice from the water system affecting 36% of the population;
- Elimination of water leakage and reduction of the high Non-Revenue Water in the water system by 5%;
- Provide better water service and pressure to the community.

Therefore, this EA, prepared by ASPA in compliance with the NEPA, after considering a wide range of regulatory, environmental (both natural and human) and socio-economic factors, has determined that no significant impacts to the environment will result from the implementation of the preferred project alternative.

APPENDIX A

DMWR Review of Fagaima Well Field Filtration System Project

DEPARTMENT OF MARINE & WILDLIFE RESOURCES

AMERICAN SAMOA GOVERNMENT
P.O. BOX 3730
PAGO PAGO, AMERICAN SAMOA 96799

PHONE: (684) 633-4456
FAX: (684) 633-5944

LOLO .MATALASI. MOLIGA
Governor

LEMANU .PELETI. MAUGA
Lt. Governor

Henry S. Sesepasara
Director

Selaina Tuimavave
Deputy Director

June 27, 2018

TO: William E. Spitzenberg, P.E., American Samoa Power Authority

FROM: Adam Miles, Acting Director, Department of Marine and Wildlife Resources

RE: DMWR Review of Fagaima Well Field Filtration System Project

DMWR was asked to review plans for the ASPA Fagaima Well Field Filtration System Project in regards to the Endangered Species Act. The Territory of American Samoa has 5 terrestrial species listed as Endangered under the Endangered Species Act. Two of the species (Ma'o and Friendly ground Dove) are not present on Tutuila Island where the project is planned. One species, the Pacific sheath-tailed bat, has not been detected in American Samoa since 1998, and the location of this project does not have suitable cave habitat for the bat. The two listed land snails (*Eua zebrina*, Tutuila Tree Snail, and *Ostodes strigatus*) are present on the island of Tutuila, but mainly use native forest with an intact canopy as habitat.

Adam Miles, Chief Wildlife Biologist, visited the site in June 2018 and concluded that the project will likely have no impact on terrestrial ESA species or their habitat since it is a previously disturbed plantation site with little native vegetation. This area also is known to contain invasive predatory snails which likely have reduced or eliminated ESA snail species as well as other native snail species in the past. The disturbed habitat does not appear to be suitable for ESA snail species.

We suggest that the project is very unlikely to have negative impacts on the populations or habitat of terrestrial ESA listed species found in American Samoa.

Thank you,

Adam Miles

Adam Miles, Acting DMWR Director