SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

The Contractor shall, as an independent contractor and not as an agent of the Government, perform non-personal services for operation and maintenance of the South Bay International Wastewater Treatment Plant (SBIWTP) and facilities located in San Diego, San Diego County, California, in accordance with the Description of Operation and Maintenance Services in Section C.3 herein.

C.1 The Contractor shall provide, all labor, material, management and other resources required to perform full service operation and maintenance (O&M) of the South Bay International Wastewater Treatment Plant (SBIWTP), and South Bay Land Outfall (SBLO) located in San Diego, San Diego County, California. Full service operation and maintenance is defined as complete facility operation and maintenance, including but not limited to providing day-to-day contract management, planning, supervision, administration, personnel; plant influent and effluent sampling and laboratory testing; equipment operation, maintenance, servicing, repair and replacement; system monitoring and operation; data recording and reporting; markups of plant as builts; management and reporting; quality control; capital improvements; vehicles and vehicle fleet management, operation, maintenance and repair; housekeeping; grounds maintenance; consumable supplies including chemicals, and other services related to the operation and maintenance of the SBIWTP.

C.2 GENERAL INFORMATION AND BACKGROUND

C.2.1 The SBIWTP is a twenty five (25) million gallon per day (MGD) wastewater treatment plant located at 2995 Clearwater Way, in San Diego, San Diego County, California, north of the International Boundary, and near the intersections of Monument and Dairy Mart Roads. Construction of the plant's advanced primary treatment phase was completed in September 1997, and construction of the secondary treatment phase was completed in January 2011. The plant is treating wastewater originating in Tijuana, Baja California, Mexico and the SBIWTP is operated under the authority of the United States Section, International Boundary and Water Commission (USIBWC). An average of twenty five million gallons per day (25 MGD) of effluent is being discharged through the South Bay Ocean Outfall (SBOO), and is subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit, Permit Number CA0108928, Order Number R9-2014-0009, As Amended (Refer to Section J, List of Attachments). A renewal application for the NPDES Permit Number CA0108928, Order Number R9-2014-0009, As Amended is currently under review by the California Regional Water Quality Control Board. It is anticipated that a new NPDES Permit will be issued during the Contract period that may have additional requirements outside the current scope as written in the current permit. If needed, a modification to the Contract will be prepared to address additional permitting requirements.

C.2.2 The advanced primary treatment process train consists of influent conveyance, preliminary treatment to include mechanical screening and aerated grit removal and dewatering, influent pumping and chemically enhanced primary sedimentation. The secondary treatment process train consist of activated sludge facilities, secondary sedimentation facilities, and waste activated sludge thickening facilities. Both advanced primary and secondary processes have the

capability of chlorination with sodium hypochlorite, and de-chlorination with sodium bi-sulfite. Solids processing consists of sludge and skimming pumping facilities, unstabilized sludge storage, sludge conditioning facilities, belt filter press dewatering and lime stabilization of solids. Stabilized sludge, screenings, and grit will be trucked to Mexico by a Mexican Contractor for dedicated landfill disposal. The Contractor shall be required to coordinate the collection and disposal of solids (sludge and grit from the primary and the secondary treatment process), and regulation and control of plant wastewater inflows with representatives of the Mexican Government as a requirement of daily operation of the facilities. The Contractor shall be required to have a minimum of one bilingual person (English and Spanish) on site at all times (24 hours per day, 7 days per week) for communication and coordination purposes with the Mexican operators. Sludge and grit disposal trucks will be operated by Mexican drivers, at no cost to USIBWC or the Contractor. Mexico is responsible for all maintenance and/or repair on these trucks.

C.2.3 The Contractor's operations and maintenance responsibilities shall include: Canyon Collection Systems (Smuggler's Gulch, Goat Canyon, Stewart's Drain, Silva Drain, and Canyon Del Sol), and Pumping and Conveyance Facilities; including canyon collector pumping stations (Goat Canyon and Hollister Street), which are equipped with emergency generators and odor control systems, and the SBLO from the SBIWTP up to and including the SBOO drop shaft sewage air valve assemblies. All of these facilities are included as part of this scope of work. The Ocean Outfall drop shaft, tunnel and riser are not part of this scope of work. The Contractor shall be solely responsible for clearing and properly disposing off-site of all debris, trash, material, etc., removed from the Canyon Collection Systems, and Pumping and Conveyance Facilities (Refer to Section J, List of Attachments for SBIWTP O&M History) during regular operations, maintenance and repair activities. Materials and debris accumulated during the cleaning and clearing operations of the Canyon Collection Systems, and Pumping and Conveyance Facilities shall not be returned to SBIWTP and facilities or to Mexico for disposal and shall be disposed off-site properly within seven (7) calendar days after the cleaning and clearing of each event.

C.2.4 The Contractor shall be required to operate and maintain valves that are used to send partial flow to the City of San Diego Point Loma Treatment Plant through an emergency connection pipeline. The operation and maintenance of these valves and monitoring of flow are part of this scope of work. No future flows through the subject pipeline are anticipated.

C.2.5 All plant process controls are in two Local Control Centers (LCC) located within the plant. The LCCs consist of a SCADA system installed with Inductive Automation Ignition Platform software that is primarily administered and/or monitored by Windows workstations and Windows Servers. Several Windows Human Machine Interface devices (HMIs)/touchscreens control the SCADA components to include controls, control panels, annunciators, indicators and Programmable Logic Controllers (PLC). The SCADA System is owned by the USIBWC and is configured and maintained to ensure compliance with the Federal Information Security Modernization Act of 2014 (FISMA). Network services are provided by Windows servers using an Active Directory environment that administers dual authentication access control to the SCADA. The SCADA System is used to manage, monitor and maintain wastewater treatment plant operations and includes data logging, storage of shared data files, operations data and historian and backup services. The SCADA System is "air gapped" from internet access and will have Continuous Diagnostics and Monitoring (CDM) capabilities implemented by the USIBWC.

Upon implementation of CDM services, the SCADA System will be continuously connected to the internet to facilitate these services, incident response, vulnerability management and IT hardware and software remediation services. These CDM services and control of physical, logical and remote access to the SCADA System will be provided and managed by the USIBWC. The USIBWC is only responsible for maintaining and replacing SCADA system components such as SCADA software, and Windows and CISCO network hardware components such as routers, firewalls, switches, workstations and connectivity infrastructure.

The Contractor is responsible for maintenance, replacement and configuration of all field instruments associated with the SCADA System. This refers to all field instruments, components and connectivity infrastructure not identified under the USIBWC responsibility in paragraph 2.5. This includes SCADA System sensors and actuators directly connected to plant equipment, Programmable Logic Controllers (PLC), ControlLogix controllers, Human Machine Interfaces (HMI), Remote Terminal Units (RTU) and their components and programming. The Contractor is responsible for the repair maintenance and upgrading of all communications infrastructure related to the communication capabilities of all field instruments to include all cabling, telephone or radio infrastructure. The Contractor shall not allow any field instruments to remain in production in the field beyond their established End of Life cycle or if identified to no longer be compatible with SCADA system components replaced by USIBWC maintenance requirements. Outdated or obsolete field hardware shall be replaced by the Contractor within 90 days of identification or submit a plan for replacement to the USIBWC in accordance with this contract.

A recent risk assessment and evaluation by a third-party contractor has identified existing field instruments, components and connectivity infrastructure in need of replacing due to end of life limitations, as part of this contract. The scope of work describing all necessary work and replacement of existing PLC's and other obsolete components is identified in Section C.5. The Contractor shall include a proposal to address this necessary work as part of the Contractor's proposal. It is anticipated the necessary replacement of components described in Section C.5 will require up to 14 months to complete.

To ensure proper maintenance by the Contractor of all SCADA system field instrumentation, within 120 days of date of award, the Contractor must complete the following:

1. Develop a complete and thorough database of all field component equipment currently deployed within the SBIWTP to include information that would inform the Contractor when replacement or End of Life replacement is required.
2. Identify maintenance activities for each field component defined in terms of daily, weekly, monthly or annual activities and include in monthly O&M reporting. Reporting should include notices of any repair of any immediate system faults, functional checks completed on each piece of equipment in the system to ensure it is operating as intended.
3. Each field hardware cabinet or chassis shall be added to a regular maintenance schedule and have the following maintenance completed annually:
    a. Test and measure the main operating parameters of every piece of equipment to include validating voltages, currents, frequencies, inputs, outputs, levels and

recording any noise or other safety concerns.

b. An up to date inventory of spare parts should be kept so stocks can be replenished when they get low.
c. All changes to field component configuration or programs should be fully documented and drawings updated within 60 days of changes.
d. Physical access checks of all cabinets/chassis and their quarterly cleaning, dusting and fumigation as needed.

The Contractor is responsible for establishing and maintaining an Admin network owned used by the Contractor to achieve contractual duties and manage the operations of the SBIWTP in accordance with this PWS. The Contractor is fully responsible for all data and maintenance management software and programs which control their day to day management and administrative activities. The Contractor will be responsible for managing, configuring, and maintaining their Admin network to allow for the required daily operations, reporting obligations and maintenance of the plant as described in this PWS. The network will require the capabilities of performing regular data backups and have redundant capabilities. To ensure the CyberSecurity of the Admin network, a Firewall, smart routers and switches, anti-virus software are required to be maintained as standard components of the network. Monthly vulnerability assessments to identify needed patching and remediation of admin network components (servers, workstations and networking hardware) are required to be maintained by the Contractor in order to create a secure environment for the Contractor to conduct its day to day operations and provide for recovery of data, operations and services if necessary. Admin network maintenance performed shall be reported as part of the monthly O&M reporting requirements. The Contractor will be responsible for providing the USIBWC with all Information Technology or CyberSecurity policies and directives currently in place by the Contractor to maintain the functionality, security and access control of the admin network for our review and approval. The Admin Network Cybersecurity program documentation shall include elements such as cybersecurity requirements, performance, scalability, regular hardware and software maintenance schedules, and continuity of operations plans to ensure the Contractor is able to recover operations and restore data to their network in case of failure or compromise. The Admin Network will in no way (logically or physically) be connected or share any IT hardware or software licenses with the USIBWC SCADA System.

C.2.6 SBIWTP average daily flows are expected to be a nominal 25 MGD (Refer to Section J, List of Attachments).

C.2.7 Copies of the Operations and Maintenance Manuals for the International Wastewater Treatment Plant, Hollister Street Pumping Station, Goat Canyon Pumping Station, and the SBLO disposal pipeline are available for inspection. All prospective Offerors may contact Mr. Dawi Dakhil, USIBWC San Diego Field Office, at (619) 662-7600 to make arrangements to review the manuals.

C.2.8 The current Operations and Maintenance Service Contractor is Veolia Water West America Operating Services, Inc. Upon contract award to the incoming O&M Contractor, they shall be required to transition its work force into the ongoing operations and maintenance of the facilities such that there shall be no interruption of the plant's operation or unanticipated shut downs occurring due to the transition process. The O&M Contractor, whom the contract has been

awarded to, shall execute the thirty (30) calendar day transition period in accordance with their Phase-In Plan that is to be submitted as outlined in paragraph C.3.1.d. Upon completion of the transition period, the O&M Contractor, whom the contract has been awarded to, shall assume full operational and maintenance responsibilities.

C.3 DESCRIPTION OF OPERATION AND MAINTENANCE SERVICES

C.3.1 TASK 1 – ADMINISTRATIVE AND REGULATORY REQUIREMENTS

a. Workplan

(1) The Contractor shall provide in a detailed narrative format, a workplan consisting of all tasks and schedules necessary for the operation of the SBIWTP and auxiliary facilities and for performing the required operation and maintenance service. The workplan shall be based on the O&M Manuals and shall become the basis for a Facility Management Plan for the plant. The workplan will specifically include operation and maintenance tasks, to include development of required maintenance and operation, laboratory management, recruitment and staffing plans, as well as other plans and programs described below. The workplan will be implemented by the Contractor after approval by the Contracting Officer. As a minimum, the work plan shall consist of phases one and two as follows:

Phase One

- Staffing and Recruitment Plan
    - Organizational Chart
    - Position Descriptions/Salaries/Benefits
    - Staff Development/Certification/Training Plan
    - Staffing Work Schedules
    - Phase-In Plan
    - Safety Plan
- Hazardous Materials Management and Communications Plan
- Emergency Preparedness Program and Response Plan
- Standard and Emergency Standard Operating Procedures (SOPs)
- Operations, Maintenance, Repair, and Replacement Budget Plan for each contract year
- Quality Control Plan.

Phase Two

- Information Management Systems SCADA (IBWC Owned) & Admin Network (Contractor Owned)
    - Plant Log, Record keeping, and Data Management Program
    - Markups of Plant as-builts
    - Maintenance of SCADA IT system components plan
    - Disaster Recovery and Continuity of Operations Plan for Admin Network
    - Admin Network System Security Plan
- Maintenance Management, Repair, Replacement Program
- Fleet Management, Repair and Replacement Plan
- Laboratory Management Plan

- Process Sampling & Reporting Program
- Process Monitoring/Optimization Program
- Sludge Management and Reporting Plan
- Facility Odor and Air Emission Control Plan
- Regulatory Agency Coordination Program
- Visitors/Tours/Requests for Information Plan
- Storm Water Management Plan
- Spill Management Plan

(2) Each task in the list above shall include a narrative description, estimate of time for implementation, and suggested schedule. Contractor shall clearly define in the workplan all tasks and task schedules for operations and maintenance of the SBIWTP.

(3) Five (5) copies and one electronic copy of the Phase One workplan shall be delivered to the Contracting Officer's Representative (COR) within fourteen (14) calendar days of the date of award. The COR will provide comments to the Contractor within seven (7) calendar days of receipt of Phase One of the workplan. The Contractor shall incorporate COR review comments into the workplan and shall submit five copies (5) and one electronic copy of the final Phase One workplan to the COR within seven (7) calendar days of receipt of COR review comments. If the due date falls on a weekend or holiday, the workplan shall be due on the first workday thereafter. Electronic copies shall be provided in Microsoft Word/Excel or Adobe Acrobat .pdf files.

Five (5) copies and one electronic copy of the Phase Two workplan shall be delivered to the COR within ninety (90) calendar days of the date of award. The COR will provide comments to the Contractor within thirty (30) calendar days of receipt of Phase Two workplan. The Contractor shall incorporate COR review comments into the workplan and shall submit five copies (5) and one electronic copy of the final Phase Two workplan to the COR in within thirty (30) calendar days of receipt of COR review comments. If the due date falls on a weekend or holiday, the workplan shall be due on the first workday thereafter. Electronic copies shall be provided in Microsoft Word/Excel or Adobe Acrobat .pdf files.

(4) The final workplan shall become a guideline for all Contractor work to be performed under Task 2. The Contractor shall update the final workplan at least quarterly or as needed to reflect operational changes and maintain the current version on-site at the SBIWTP facility available for inspection. Electronic copies shall be provided in Microsoft Word/Excel or Adobe Acrobat .pdf files.

b. Risk Assessment and Internal Controls

The Contractor shall conduct a risk assessment to identify major risks at the SBIWTP and implement controls to address those risks, per OMB Circular No. A-123. The risk assessment must identify, prioritize, measure, and assess risks related to the operation of the SBIWTP. Information regarding identified weaknesses, risk management strategies, and corrective actions should be included in the risk assessment. Internal control standards must be established, maintained, and monitored to address the risks. In addition, the Contractor shall implement internal controls to

measure operating performance against established goals, such as system downtime, preventive maintenance hours, or backlogs.

Three (3) copies and one electronic copy of the Risk Assessment shall be delivered to the COR no later than one hundred twenty (120) calendar days after the date of award. The COR will provide comments to the Contractor within thirty (30) calendar days of receipt of the initial Risk Assessment. The Contractor shall incorporate COR review comments and finalize the Risk Assessment within thirty (30) calendar days of receipt of COR review comments. Three hard copies (3) and one electronic copy shall be provided in Microsoft Word/Excel or Adobe Acrobat pdf files. The Contractor shall update the Risk Assessment annually and submit the annual updates no later than March 1st of each year. The annual update shall include a report on any new risks, the results of ongoing monitoring, and corrective actions to address risks.

c. Pollution Prevention

Under the 1972 Clean Water Enforcement and Pollution Prevention Act, Section 402(p), facilities which discharge storm water associated with industrial activities, either directly to surface waters or indirectly through municipal storm sewers, are required to obtain an NPDES permit. The California State Water Board has elected to issue a statewide general permit (Industrial Activities Storm Water General Permit) that will apply to all discharges requiring a permit except construction activities. The permit requires dischargers to:

(1) Eliminate non-storm water discharges (including illicit connections) to storm water systems;
(2) Develop and implement a storm water pollution prevention plan; and
(3) Perform monitoring of discharges to storm water systems.

The Contractor shall be responsible for complying with the requirements of the California State Water Resources Control Board (SWRCB) Industrial Activities Storm Water General Permit as amended on April 1, 2014 (General permit) and/or the latest revision for storm water that may pass through or over the SBIWTP, but not the auxiliary facilities like canyon collection system. The Contractor shall be responsible for developing and implementing a Storm Water Pollution Prevention Plan (SWPPP) for the SBIWTP, but not the auxiliary facilities, in the format approved by the SWRCB. The Contractor shall perform an annual review and update the SWPPP as required in the General permit. The Contractor shall perform monitoring and reporting of discharges to the Tijuana River watershed as required in the General permit.

d. Operations Transition

As noted in paragraph C.2.8, the Contractor shall be required to coordinate with and integrate their personnel with the incumbent Operations and Maintenance Service Contractor. The Contractor shall execute an effective Phase-In Plan to address all requirements with minimal disruption to incumbent contractor operations. The Contractor shall assume full responsibility for Operations and Maintenance of all SBIWTP facilities by the end of a thirty (30) day transition period**.** The Contractor shall provide and submit for approval a Phase-In Plan for the thirty (30) calendar day transition period in accordance with Section L, Subsection L.04, Proposal Composition Requirements and Instructions, Factor 6: Phase-In Plan, and Section C, Subsection

C.3.1.a(l), Workplan. Three (3) final copies and one electronic copy of the Phase-In Plan shall be provided to the COR. Electronic copies shall be provided in Microsoft Word/Excel or Adobe Acrobat .pdf files.

C.3.2 TASK 2 - OPERATION AND MAINTENANCE OF THE SBIWTP

a. Provide Management and Operations Personnel:

(1) The Contractor shall implement the plant's operations staffing plan, recruitment schedule and training, and the development of the safety programs as outlined in the workplan. The Contractor shall submit the qualifications of all management and supervisory operations personnel in the staffing and recruitment plan for review and approval by USIBWC prior to implementation of the plan and prior to filling any management and supervisory positions. The Contractor shall provide qualified employees, including management, technical, laboratory and administrative personnel, who meet applicable local, state, and federal certification requirements to operate the plant. The Contractor shall provide supplemental management, technical and administrative personnel to augment plant personnel. All Contractor personnel shall be required to obtain access authorization from the USIBWC Security Officer or the Contracting Officer prior to entering the SBIWTP and facilities.

(2) The Contractor shall provide the following key personnel with the targeted qualifications outlined below. The plant staffing shall be implemented prior to the transition period.

a1. Plant Superintendent

Experience

A minimum of five (5) years combined experience in the management and operations of activated sludge with aeration tanks facilities with a minimum of three (3) years of experience as an on-site Grade V Plant Superintendent for activated sludge with aeration tanks facility of equal or greater size and complexity.

Qualifications

Bachelor's degree in a discipline related to the job duties or a combination of education and experience which would be expected to provide equivalent skills, and possession of a valid Grade V WWTP Operator Certification from the California State Water Resources Control Board (SWRCB) that has been in effect a minimum of five (5) years at the time the proposal is submitted in response to this requirement.

a2. Operations Supervisor

Experience

A minimum of five (5) years combined experience in the management and operations of

activated sludge with aeration tanks facilities, with a minimum of three (3) years of experience as an on-site Grade V Operations Supervisor for activated sludge with aeration tanks facility of equal or greater size and complexity.

Qualifications

Possession of a valid Grade V WWTP Operator Certification from the California SWRCB that has been in effect a minimum of five (5) years at the time the proposal is submitted in response to this requirement.

a3. Maintenance Supervisor

Experience

A minimum of five (5) years of experience in the maintenance and operations of activated sludge with aeration tanks equipment systems with a minimum of three (3) years of experience as an on-site Maintenance Supervisor for activated sludge with aeration tanks equipment systems.

Qualifications

Possession of a valid Grade III WWTP Operator Certification from the California SWRCB, or a valid Plant Maintenance Certification from the California Water Environment Association (CWEA) that is in effect at the time the proposal is submitted in response to this requirement.

a4. SCADA Systems Analyst

Experience

A minimum of five (5) years of experience in the maintenance and management of SCADA systems and components to include repair, installation and modification of all PLC, ControlLogix Controllers, HMI, Telemetry, RCU and Communication hardware and Software. Testing, troubleshooting and patching of system component software or firmware, responding to and documenting IT Security incidents. Experience working with Windows server and PC operating systems, Active Directory, advanced network administration, client/server functions and characteristics. Performing system administration duties including setting up new users, modifying user/group profiles, applying access controls in a role-based environment and monitoring and tuning server and system resources. Proficiency in client/server software packages, relational databases and back-up and contingency operations for 24/7/365 uptime applications. Ability to install cards, drives, tapes, memory peripheral equipment and software into stand-alone or network connected PCs and network components. Evaluate, install, test and implement new servers, server operating systems and application software packages in a virtual environment.

Qualifications

Bachelor's degree in information systems, computer science or related field. Knowledge

of a variety of computer platforms, networks, software applications relating to SCADA systems, advanced methods and techniques used in the installation testing, troubleshooting and maintenance of PLCs, servers, PCs and related equipment. Methods and techniques of SCADA systems database management and administration, advanced techniques used in maintaining information systems security, user support and IT System operational documentation.

a5. Shift Supervisor

Experience

A minimum of five (5) years of experience in the maintenance and operations of activated sludge with aeration tanks facilities with a minimum of three (3) years of experience as an on-site Grade IV shift Supervisor for activated sludge with aeration tanks facilities of equal or greater size and complexity.

Qualifications

Possession of a valid Grade IV WWTP Operator Certification from the California SWRCB that has been in effect a minimum of three (3) years at the time the proposal is submitted in response to this requirement.

(3) The key personnel specified in this contract are considered to be essential to work performance. At least 30 calendar days prior to removing, replacing, or diverting any of the specified individuals (or as soon as possible, if an individual must be replaced, for example, as a result of terminating employment with the Contractor), the Contractor shall notify the Contracting Officer and shall submit comprehensive justification for the diversion or replacement request (including proposed substitutions for key personnel) to permit evaluation by the Government of the impact on performance under this contract. The Contractor shall not divert or otherwise replace any key personnel without the written consent of the Contracting Officer**.** The Contracting Officer's decision in regards to replacement of Key Personnel shall be final.

(4) The Contractor shall provide a full time Plant Superintendent to manage the Contractor’s activities under this contract, and who shall be the Contractor’s primary on-site agent in all matters pertaining to this contract. Normal working hours for the Plant Superintendent, Operations Supervisor, Maintenance Supervisor, and Administrative Support shall be 7:00 A.M. to 4:00 P.M., Monday through Friday including Federal Holidays. Absences by the Plant Superintendent, Operations Supervisor, Maintenance Supervisor, and Administrative Support during the hours of 7:00 A.M. to 4:00 P.M., Monday through Friday in excess of one workday, shall be documented as to duration and reason for absence, and said documentation shall be provided to the COR within three (3) business days prior to or after the absence. The Plant Superintendent shall designate an Acting Plant Superintendent with the same skills and qualifications who is responsible in his/her absence, and who shall maintain the Plant Superintendent’s working schedule during such absence.

(5) The Contractor shall maintain on-site staffing and procedures necessary to maintain communications with the Government and general public. During the hours from 7:00 A.M. to

4:00 P.M., Monday through Friday, incoming telephone calls shall be answered promptly and courteously by employees trained in the proper use of telephone and voice mail systems. At other times, the phone system shall be utilized to ensure that emergency calls to the plant can be received and acknowledged by on-site personnel in a courteous, professional, and timely manner.

(6) The Contractor shall provide and implement a Staffing and Recruitment Plan to the Contracting Officer for approval as per Phase One, in Section C.3., which shall describe how the Contractor plans to staff and maintain qualified operations and maintenance personnel at the facility. The Contractor shall determine the appropriate level of staffing for full time operations (twenty-four (24) hours per day, seven (7) days per week), maintenance, and repair of the facilities. The Contractor shall maintain staffing levels as per the Staffing and Recruitment Plan approved per Phase One in Section C.3. The working hours for each Contractor personnel shall not exceed ten (10) hours per day. If the Contractor reduces staffing levels from the levels of the preceding twelve (12) month average staffing level, and such reduced staffing level is below that necessary to ensure Contractor performance under the terms of the Contract, the Contractor, upon written notice from the Contracting Officer, shall employ additional staff or take necessary steps for work to be completed. If within thirty (30) calendar days of notification the Contractor has failed to provide additional staff or perform necessary work, the Contracting Officer may seek for the work to be done by a third party. The cost of said work shall be the responsibility of the Contractor and shall be deducted from each monthly payment of the contract amount.

(7) The Contractor shall provide an Organizational Chart which indicates proposed staffing for the operation and maintenance of the SBIWTP. The Organizational Chart shall be provided to the Contracting Officer for approval as per Phase One, in Section C.3. Whenever organizational changes are made, the Contractor shall revise the Organizational Chart no later than five (5) business days subsequent to the change and provide the revised chart to the COR with the update of the quarterly workplan. The chart shall contain at a minimum: the position title, total number of full-time personnel on-site, chain of command including the relationship between the company headquarters and the on-site organization indicating any headquarters support (e.g., engineering, design, accounting, legal, labor relations), and types and skill level of personnel in each position (e.g., journeyman, apprentice, etc.).

(8) Position Descriptions: The Contractor shall keep at the site a current position description for each position indicated on the Contractor's Organizational Chart. As a minimum, position descriptions shall indicate the title, duties, responsibility and function assignments, and the minimum qualifications required to fill the position. These position descriptions shall be made available upon request to the Contracting Officer.

(9) The Contractor shall provide and implement a Staff Development/Certification/Training Plan which shall describe how the Contractor plans to perform personnel training, operator certification/re-certification, safety, staff supervision, and technical topics. The Staff Development/Certification/Training Plan shall be provided to the Contracting Officer for approval as per Phase One in Section C.3. Specialized training as noted in this paragraph and prescribed by the Contractor shall be provided. Such specialized training may include but is not limited to: hazardous material spill response, defensive driving, first aid, CPR, general safety, hazardous communication, lock-out-tag-out, confined space entry,

respiratory protection, hearing conservation, and specialized personnel training courses (e.g., manufacturer and supplier technical training).

(10) Salaries and Benefits: The Contractor shall be responsible for complying with all Department of Labor requirements and labor wage determinations (Refer to Section J, List of Attachments).

(11) Employee Competency, Conduct, and Integrity: The Contractor shall establish and maintain satisfactory standards of employee competency, conduct and integrity, and shall take such disciplinary action with respect to its employees as may be necessary. The Contracting Officer may require, in writing, that the Contractor remove from the work place any employee the Contracting Officer deems incompetent, careless, a conflict of interest or otherwise objectionable. The Contracting Officer's decision relating to these matters is final. If an employee is removed for any of the above appropriate reasons, replacement shall be at the Contractor's expense and not chargeable to the Government.

b. Operations Management

(1) The Contractor shall operate the plant in accordance with the operation schedule submitted and approved in the Operations Work Plan. The Contractor shall be required to operate the plant and auxiliary facilities and maintain staffing twenty-four (24) hours per day, seven (7) days per week at the SBIWTP with minimum of two (2) on-site operators (shift supervisor and one operator) at all times including Federal Holidays. The Contractor shall be required to coordinate the collection and disposal of solids (sludge and grit), and regulation and control of plant wastewater inflows with representatives of the Mexican Government as a requirement of daily operation of the facilities. The plant shall be operated in coordination with Mexican Pumping Station No. 1 and 1A operators in a manner to maintain an average daily inflow of twenty five (25) million gallons per day, and to minimize the potential of excess flow within the Tijuana sewer conveyance system.

(2) The SBIWTP is treating approximately twenty-five million gallons per day (25 MGD) of raw wastewater originating in Tijuana, Baja California, Mexico. The treated effluent is then being discharged through the SBOO. The treated effluent is subject to the requirements of the NPDES Permit, Permit Number CA0108928, Order Number R9-2014-0009, As Amended (Refer to Section J, List of Attachments). The Contractor shall be responsible for complying with all governmental agencies having jurisdiction permits and requirements. The Contractor shall be responsible for meeting the design and performance criteria identified in the Operations and Maintenance Manuals. The Contractor shall also be responsible for providing the necessary sampling and testing program, as per Monitoring and Reporting Program Requirements in the NPDES Permit, Permit Number CA0108928, Order Number R9-2014-0009, As Amended, to assure the Government that the design and performance criteria are being met. Contractor shall be responsible for implementing all aspects of the Prevention/Response Plan.

(3) The Contractor shall implement process and equipment inspection schedules for plant and auxiliary facilities operation, and implement and maintain operator round sheets, daily logs, and diaries necessary for satisfactory documentation of equipment operation and

maintenance. All data shall be made available for review. The contractor shall inform the COR of any major off-line equipment within 24 hours of discovery of the off-line equipment.

(4) The Contractor shall develop and provide Standard Operating Procedures (SOP) for the unit processes defined in the manuals. SOPs shall include start-up, routine operation, and shutdown procedures for unit process systems. The Contractor may develop SOPs using the O&M Manual and SOPs developed by the previous Operations Contractor as a guide. SOPs shall be reviewed by the Contractor, updated as needed using the O&M Manuals, and made available upon request to the Contracting Officer and COR.

(5) The Contractor shall implement a data management system to maintain complete operational records. The Contractor shall include provisions for networked word processing, spreadsheet and database functions. All documents, recordings, photos/videos, or any other information pertaining to laboratory data, operation records, operations history, maintenance or operations procedures, including technical reports, memoranda and any other such information, that is gathered by the Contractor in the performance of O&M duties under the terms of the contract, whether written or stored electronically, shall remain the sole property of the Government. The data management system implemented under this task shall have expansion capability for any future changes to and/or flow capacity increases at the SBIWTP. The Contractor's data management system must be capable of loading all Government data currently existing within the incumbent contractor's data management system. The Contractor is responsible for maintaining the data management system and must implement a maintenance plan for the data management system.

(6) The Contractor shall implement a plant and auxiliary facilities monitoring program to meet the Monitoring and Reporting Program Requirements in the NPDES Permit, Permit Number CA0108928, Order Number R9-2014-0009, As Amended, for process control, optimization, and regulatory reporting.

(7) The Contractor shall maintain minimum staffing levels and provide all labor, equipment, and materials necessary for operating, maintaining, cleaning, and repairing all SBIWTP facilities. Minimum staffing levels is defined as the necessary staffing levels required for efficient operations and maintenance of the SBIWTP to ensure Contractor performance under the terms and conditions of the contract. The Contractor shall provide and maintain staffing levels as per the Staffing and Recruitment Plan approved per Phase One in Section C.3. During the dry weather months of April through October, the Canyon Collector structures (Smuggler's Gulch, Goat Canyon, Stewart's Drain, Silva Drain, and Canyon Del Sol) shall be fully cleaned of debris as necessary each day such that all dry weather sewage flows are captured at all times. During the wet weather months of November through March, the Canyon Collector structures shall be fully cleaned of all debris and put back into service within forty-eight (48) hours of the end of each rainfall event. In addition, the sand/grit interceptors at the Canyon Collectors shall be cleaned as necessary to ensure proper operation. The conveyance pipelines for the Canyon Collectors shall be kept free of obstructions at all times and shall be cleaned or flushed as necessary to ensure proper operation. The Contractor shall be solely responsible for the proper off-site disposal of the debris (trash, garbage, sand, rocks, miscellaneous materials, etc.) removed from the Canyon Collectors Systems within seven (7) calendar days of each cleaning event for each canyon,

including hauling costs, permit and disposal fees. The estimated quantity of materials to be removed and disposed of from the Canyon Collector structures (Smuggler's Gulch, Goat Canyon, Stewart's Drain, Silva Drain, and Canyon Del Sol) is approximately 2,000 cubic yards annually. The Contractor may elect to use Government furnished equipment for cleaning, if available. The Contractor shall provide State of California certified heavy equipment operator(s) qualified with experience to operate and maintain Government-furnished equipment. Heavy Equipment operators shall have at least five (5) years of proven experience in similar work operating similar equipment. The following Government owned equipment is currently available at the San Diego Project Office.

Equipment	**Tag Number**
Caterpillar 963B Track Loader	80038
Caterpillar 430 Backhoe Loader	80174
John Deere 6400 Tractor	80042
Kalyn Seibert Gooseneck Trailer	S-841T
Sterling LT9513 Truck Tractor	S-842
Bobcat 763H Skid Steer Loader	80039
Clark CDP-100 11 Ton Forklift	80041
Vac-Con 7000 Combination Vacuum	S-056
Freightliner 10 CY 6x4 Dump Truck	S-770
Freightliner 10 CY 6x4 Dump Truck	R21630
Club Car Tourall Golf Cart	80032
Club Car Tourall Golf Cart	80146
Luftness Riding Lawn Mower	80321

The Contractor shall be solely responsible for providing all fuel and maintenance. The Contractor shall provide for the payment of all costs for the fuel and maintenance of the Government owned equipment utilized by the Contractor.

(8) In accordance with the Monitoring and Reporting Program Requirements in NPDES Permit, Permit Number CA0108928, Order Number R9-2014-0009, As Amended, the Contractor shall conduct inspections of each of the Canyon Collectors (Goat Canyon, Smuggler's Gulch, Canyon del Sol, Silva Drain, and Stewart's Drain), and canyon collector pumping stations (Goat Canyon and Hollister Street) a minimum of once per day. Additional inspections of the Canyon Collector system shall be conducted to address issues or concerns, such as the potential blockage of the intake screens. The Contractor shall also conduct inspections of each of the canyon collectors during the periods of each rain event, a minimum of once per day during the actual event, such that the events are documented (If the rain event occurs after the initial inspection is performed, a minimum of one more inspection shall be performed and documented to monitor the effects of the rain event). The Contractor's inspections shall be documented on form IBWC 99 and shall include photographic documentation (Refer to Section J, List of Attachments), and be provided to the COR by COB, Wednesday of each week for the preceding week's inspections. Reports and photographic documentation shall also be uploaded by the Contractor to a network secured drive accessible by the COR. All information requested per form IBWC 99 and rain gauge readings (based on Goat Canyon Pump Station rain gauge) shall be completed for each inspection

and each location. The Contractor shall be responsible for performing all tasks in response to a transboundary flow as required by the Prevention/Response Plan.

(9) The Contractor shall report all spill events (flows that escape from plant or facilities after initial capture) and/or transboundary wastewater flows (flows that bypass the facilities)in accordance with NPDES Permit, Permit Number CA0108928, Order Number R9-2014-0009, As Amended. The Contractor is not responsible for flow event type B referenced within the permit.

The Government shall be responsible for coordination with Mexico, conducting bi-national meetings, and providing information to and from Mexico required by Order No. R9-2014-0009, As Amended, NPDES No. CA0108928 except as specified in paragraphs C.3.2.g.14 and 15.

(10) The Contractor shall also be responsible for the operations of the SBLO and disposal pipeline system, up to and including the Ocean Outfall drop shaft sewage air valve assemblies.

(11) The Contractor shall be responsible for the operations and maintenance of the valves that are used to send partial flow to the City of San Diego Point Loma Treatment Plant through an emergency connection pipeline.

c. Equipment and Supplies (Refer to Section J, List of Attachments)

(1) The Government will provide to the incoming Contractor, office space and telephone communication equipment that is currently existing. The Contractor shall provide all office, safety and lab equipment that is needed. The Contractor is responsible for ensuring that adequate office, safety, and laboratory equipment are provided in the operation and maintenance of the plant. All land, building improvements, and permanent equipment, which are in place at the time of contract commencement, is the property of the Government. In addition, all equipment, parts, materials, computer hardware and software purchased by the Contractor and paid for by the Government, or software modified by the Contractor's personnel during the performance of this contract and paid for by the Government, shall become the property of the Government. Leased or rented equipment shall remain the property of the Contractor at the conclusion of the Contract.

(2) The Contractor shall conduct a complete physical inventory of real property and capitalized/personal property to be maintained pursuant to the contract and submit inventory results to the COR not later than ninety (90) calendar days after receipt of the contract award. The inventory shall be taken by the Contractor, with the COR present. The Contractor shall use a computerized database software program to set up and maintain the inventory. The inventory should contain essential information, including:

- Capital asset description.
- Location.
- Physical dimensions (if needed).
- "As-built" documents, or a link to where these are stored.
- Warranties, or a link to where these are stored.
- Condition rating.
- Maintenance history and replacement costs (if available).

- Operating cost information (if needed).
- Usage statistics.
- Date placed in service.
- Original value.
- Original useful life.
- Impairments.

The Contractor shall take inventory annually prior to the end of the Government fiscal year (September 30th), and submit inventory results to the COR not later than September 30th. The Contractor's inventory shall include all real property and capitalized/personal property with a value of $500.00 or greater. The Contractor will also be required to inventory certain capitalized/personal property items with a value of less than $500.00, as directed by the COR. Real property and capitalized/personal property purchased under this contract and maintained by the Contractor shall become the property of the Government and maintained in the computerized inventory.

(3) Payment of Utilities: The Government will pay all utility bills, to include: gas, water, telephone, electrical, etc.

(4) The Contractor is responsible for ensuring that an adequate Contractor owned vehicle fleet is provided for the operation and maintenance of the plant and canyon collector structures. In addition, the Contractor shall implement a fleet management, replacement and maintenance plan. Fleet Management is defined as all tasks associated with vehicle management, maintenance, repair and replacement, including purchasing, distribution and utilization of fuels, lubricants, and solvents associated with fleet management and repair.

(5) Chemicals: The Contractor shall be solely responsible for providing all chemicals and for payment of all chemical costs incurred in wastewater treatment operations, beginning from the first day of operation. Chemicals are defined as all treatment process chemicals necessary for chemically enhanced primary sedimentation, sludge conditioning and dewatering, and odor control. No chlorination and de-chlorination is required for the SBIWTP effluent. Offerors shall bid this solicitation based on the chemical dosages identified in Attachment J which represent average values for chemical dosages.

The Contractor shall submit in the monthly report (Section C. 3.2.g.8) the current unit cost and total quantities used monthly for each chemical.

(6) Fuel: The Contractor shall be solely responsible for providing all fuel and for payment of all fuel costs associated with the operation and maintenance of all the facilities and equipment in the scope of this contract (including gasoline, oils, diesel, lubricants, solvents, etc., required for generator(s) testing and operation, and any equipment purchased, maintained, or rented for Contractor use).

(7) The Contractor shall supply and be solely responsible for payment of all labor, materials and supplies for operation and maintenance of the plant, including buildings and grounds maintenance supplies, duplicating and photocopy supplies, first aid and safety supplies, process

lab supplies, clothing and uniforms, maintenance supplies, and other consumable materials and supplies.

(8) The Contractor shall provide and be solely responsible for payment of all equipment, including office and lab equipment, safety equipment, tools, maintenance equipment, mechanical equipment, and manually operated equipment, for continued operation of all facilities.

(9) The Contractor shall conduct an annual infrastructure condition assessment to assess the condition of all SBIWTP infrastructure, facilities, equipment, and components. The Contractor shall submit a condition assessment report to include the asset description, asset identification, asset location, condition rating, and scoring methodology.

The Contractor shall provide a Five Year Capital Plan to project, over a five-year period, major repairs, refurbishments, replacements, and upgrades of infrastructure, facilities, equipment, and components that are required to ensure the continued functionality of the SBIWTP.

The condition assessment and Five Year Capital Plan will allow the Government to properly program for major repairs, refurbishments, replacements, and upgrades in future years that are not covered under the O&M Contract. The Contractor's initial assessment and Five Year Capital Plan shall be submitted to the COR not later than one hundred twenty (120) calendar days after the contract award. Thereafter, the Contractor shall submit annual assessments, to include the Five Year Capital Plan, not later than March 1st of each year. Three hard copies shall be provided, and one electronic submission shall be provided in Microsoft Word/Excel and Adobe Acrobat pdf files.

Major repairs, refurbishment, replacements, and upgrades considered outside of the scope of the O&M Contract are defined as non-routine, one-time major repairs, refurbishments, replacements, and upgrades of each item of real property infrastructure/facilities components or pieces of capitalized/personal property, in which a single major repair, refurbishment, or upgrade is $100,000 or more. The Contractor shall be responsible for the first $100,000.00 for each item for such work. All required non-routine, one-time repairs, refurbishments, replacements, or upgrades under $100,000 is considered within the scope of the O&M Contract.

The Contractor shall not be used to perform any work outside of the scope of the O&M contract scope of work unless a modification is issued for this work (Modifications). The Government reserves the right to contract work outside of the scope of the O&M Contract to the O&M Contractor under modification hereto or a separate contract, or execute such work through a mechanism other than the O&M Contractor.

(10) The Contractor shall prepare a Deferred Maintenance and Repairs Report for all SBIWTP infrastructure, facilities, equipment, and components. Deferred maintenance is defined as routine maintenance and repairs, one-time repairs, refurbishments, replacements, or upgrades under $100,000 that were not performed when they should have been, or were scheduled to be and which were put off or delayed for a future period. The Deferred Maintenance and Repairs Report shall be submitted annually no later than September 15th of each year. Three hard copies shall be provided, and one electronic submission shall be provided in Microsoft Word/Excel and Adobe

Acrobat pdf files.

d. Maintenance Management (Refer to Section J, List of Attachments)

(1) The Contractor shall implement a maintenance plan for all capital assets, including the international wastewater treatment plant, plant equipment, plant components, plant operational buildings, administrative buildings, facility maintenance (to include but not limited to HVAC system, lighting, power distribution, potable water, sewer system, fire system, etc.), heavy machinery and equipment, grounds maintenance, housekeeping, furnishing of spare parts and materials. The plan should include preventive and predictive maintenance for each asset or main component.

- Preventive Maintenance: scheduling and tracking of routine maintenance activities intended to maximize equipment life and optimize performance. Activities should at a minimum meet the design and performance criteria identified in the operations and maintenance manuals. In addition, labor and material costs per asset/main component should be tracked, as well as equipment warranty information.
- Predictive Maintenance: relies on conducting maintenance based on trends within asset data such as vibration analysis, oil analysis, and thermal imaging. The purpose of predictive maintenance is to monitor equipment wear with the intent to predict expected remaining life.

The Contractor shall maintain and repair all equipment, machinery, instrumentation, structures and plant furnishings to a fully operational condition in accordance with industry standards, manufacturer's recommendations, or design specifications. The Contractor shall identify all maintainable assets, regularly screen the assets for errors, and update them accordingly. In addition, the Contractor shall conduct preventive maintenance audits to ensure required maintenance is properly scheduled and completed. Maintenance and operation activities shall protect the Government's warranties on new or existing equipment. Warranties should be tracked in order to provide for the filing of claims when appropriate.

a) The Contractor shall provide the Government with a full accounting of all maintenance expenditures to include labor hours and cost by asset or main component. The Contractor shall keep detailed, accurate, and complete records, and shall provide a Monthly Summary of Maintenance Expenditures in Microsoft Word/Excel and Adobe Acrobat, supported by a copy of all applicable invoices, by cost account. The monthly Summary of Maintenance Expenditures is due within ten (10) calendar days after the end of the month. If the due date falls on a weekend or holiday, the Monthly Summary shall be due on the first workday thereafter.

b) The annual cost for maintenance materials, supplies, equipment repair and replacement shall be exclusive of personnel salaries, administrative and overhead costs, and profit. In addition, maintenance items such as, but not limited to, the following shall not be charged against the annual maintenance fund: chemicals, fuels, lubricants, oils, diesel, and solvent; purchase of vehicles and costs associated with maintenance and repair of vehicles; office supplies, to include duplicating and photocopy supplies; postage; trash, janitorial, or landscaping services; and consumable maintenance items such as light bulbs, batteries, first aid and safety supplies,

cleaning supplies, landscaping materials and supplies, air filters, and hygienic supplies. The Contractor shall be solely responsible for annual costs of such items associated with the complete operation and maintenance of the facilities.

(2) The Contractor shall be responsible for all maintenance and repairs/replacements of all equipment required for plant unit process operations, including Stewart's Drain, Canyon del Sol, Silva Drain, Smuggler's Gulch and Goat Canyon Collection Pumping and Conveyance Facilities, gravity and force main influent lines, junction structures, manholes, and tank drain systems.

(3) The Contractor shall be responsible for all maintenance and repairs of the South Bay Land Outfall (SBLO) up to and including the South Bay Ocean Outfall (SBOO) drop shaft sewage air valve assemblies, and also replacement of the valve assemblies if necessary.

(4) The Contractor shall be responsible for all maintenance and repairs to the valves that are used to send partial flow to the City of San Diego Point Loma Treatment Plant through an emergency connection pipeline.

(5) The Contractor shall be responsible for all maintenance and repairs of the vehicles and equipment utilized by the Contractor, including Government owned equipment utilized by the Contractor.

(6) All Contractor furnished equipment or parts shall be guaranteed by the Contractor for a period of one (1) year from date of installation against defects in material or workmanship. If system failure is attributable to Contractor installed parts, the Contractor shall make necessary repairs, or restore the system to working status within a reasonable time so as to minimize downtime.

(7) The Contractor shall implement a proven computerized maintenance management system as approved in the submitted operations plan. The Contractor will use this management system to track and control all maintenance activities, issue work orders, track equipment status, usage and maintenance history, and for inventory of spare parts.

(8) Computer software programs for preventive maintenance, maintenance and equipment history management and inventory control shall comply with industry standards and be commercially available. The software shall not be Contractor developed and/or proprietary programs.

(9) Grounds Maintenance: Landscaping, fencing, signs, site drainage, walkways, building paint, and similar structural and non-structural features shall be kept up both functionally and aesthetically. In addition, the Contractor shall maintain trees and shrubs by regular pruning and control of weeds. On a quarterly basis, the Contractor shall utilize an approved herbicide to eliminate weeds in asphalt pavement and concrete walkways. Cracks and/or damage in asphalt pavement shall be sealed with an approved asphalt emulsion, and/or repaired as needed or at least on an annual basis.

(10) The Contractor shall be responsible for all maintenance and repairs of plant operational buildings and administrative buildings used by the Contractor.

e. Laboratory Management

(1) The Contractor shall implement a Laboratory Management Plan to include selection and procurement of outside lab analytical services. The Contractor shall provide analytical laboratory testing services to ensure regulatory requirements monitoring. The Contractor shall coordinate with the laboratory concerning all data needs and results. The Contractor shall provide influent and effluent sampling and analysis in accordance with NPDES Permit, Permit Number CA0108928, Order Number R9-2014-0009, As Amended, and the Monitoring and Reporting Program Requirements in the NPDES Permit, Permit Number CA0108928, Order Number R9-2014-0009, As Amended. The Contractor shall perform all laboratory analyses and sampling in accordance with U.S. EPA approved methodologies and California EPA regulations. All laboratories shall be certified by the appropriate governmental agencies for conducting such tests.

(2) The Contractor shall follow the NPDES Permit requirements for sampling schedule, analyses, reporting frequency, etc. The Contractor shall delineate all sampling points, establish sampling protocols, schedule, analyses, and reporting method for in plant use.

(3) The Contractor shall implement lab Quality Assurance (QA) and Quality Control (QC) programs for both plant and contract laboratory. Contracted laboratory services are defined as all outside sampling and laboratory analytical testing services.

f. Regulatory Agency Coordination

The Contractor shall maintain compliance at all times with applicable regulatory agencies having jurisdiction over activities at the SBIWTP. These shall include, but not be limited to:

(1) California Regional Water Quality Control Board Orders applicable to the SBIWTP.

(2) San Diego Air Pollution Control District permits for operation of equipment within the SBIWTP.

(3) California Division of Industrial Safety requirements for the SBIWTP.

(4) California Office of Wastewater Operator Certification requirements for personnel and staff operating the SBIWTP.

(5) California Emergency Response Commission requirements for hazardous chemicals used at the SBIWTP.

(6) Compliance with this section is contingent upon plant influent wastewater being free from abnormal concentrations of toxic substances which cannot be removed in the SBIWTP using existing processes. The Contractor shall be responsible for the payment of fines and or civil penalties levied against the Government and/or the Contractor by any regulatory agency having jurisdiction, as a result of failure to comply with the terms and conditions of any duly authorized

permit, court order, administrative order, law, statute, ordinance, the Contractor failure of the effluent to meet secondary wastewater standards, and for reasons resulting from the Contractor's negligence during the period of the contract.

(7) The Contractor shall commence with the implementation of the existing Toxicity Reduction Evaluation (TRE) Work Plan immediately upon receiving the contract award from the Contracting Officer. The Government reserves the right to have the O&M Contractor perform Toxicity Reduction Evaluations and Toxicity Identification Evaluations. Toxicity Reduction Evaluations and Toxicity Identification Evaluations are considered outside of the scope of the O&M Contract and would be executed under a separate contract action, if required, in accordance with Section VI.C.2.e.iii of Order No. R9-2014, NPDES No. CA0108928. The Government shall be responsible for coordination with Mexico, conducting bi-national meetings and providing information to and from Mexico required by the TRE work plan.

(8) The Contractor shall be solely responsible for payment of all annual permit fees and any annual increases for such fees for regulatory compliance with any agency having jurisdiction over the operation of the SBIWTP activities. (Refer to Section J, List of Attachments).

g. Reporting Requirements

(1) The Contractor shall prepare and provide all reports with the exception of the Ocean Outfall Monitoring Reports and Flow Type B events, in accordance with the Monitoring and Reporting Program Order No. R9-2014-0009, As Amended, NPDES No. CA0108928. Prior to preparation of the required reports, the Contractor shall interpret all test results in consultation with the COR. The Contractor shall submit the Self –Monitoring Report (SMR) in accordance with Attachment E, Section VIII.B of Order No. R9-2014, NPDES No. CA0108928. In accordance with Order No. R9-2014-0009, As Amended, NPDES No. CA0108928, Section V.C.2, the Contractor shall report all monitoring results on discharge monitoring report (DMR) form or forms provided or specified by the San Diego Water Board. The Contractor shall provide test results on DMR forms to be submitted to the State Water Resources Control Board, Division of Water Quality, Discharge Monitoring Report Processing Center, P.O. Box 100, Sacramento, California 95812-1000 on EPA approved forms in accordance with Attachment E, Section VIII.C. As per Section VI.C.5.d.xi (Order No.R9-2014-0009, As Amended, NPDES No. CA0108928), Reporting Requirements for Sludge and all additional Biosolids testing required herein shall be reported in the Biosolids Annual Report.

(2) All reports submitted by the Contractor shall include the test results, the limits/standards provided in the NPDES Permit (Order No. R9-2014-0009, As Amended), and the units of the test results and limits shall match those given in the Permit (i.e. if the permit specifies the limits in mg/l, the results shall be reported in mg/l not ug/l). The Contractor shall report to the COR all instances of permit non-compliance (influent, effluent, and sludge) not reported under Standard Provision Attachment D, Sections V.E, V.G, and V.H, of Order No. R9-2014-0009, As Amended at the time the monitoring reports are submitted; both within the body of the reports, and also separately listed in summary form within a report transmittal document as part of the interpretation of results required by this Contract in paragraph C.3.2.g.(1) above. The Contractor shall provide explanations for each permit exceedance identified, if known, within the summary

transmittal document.

(3) Spill and Transboundary Wastewater Flow Event: The Contractor shall report spills and transboundary wastewater flows, as previously described, in accordance with Section VI.C.2.d of the NPDES Permit No. CA018928, Order No. R9-2014-0009, As Amended. The Contractor shall report to COR within two (2) hours Category 1 flow event specified in Section VI.C.2.d.i.a) of the NPDES Permit No. CA018928, Order No. R9-2014-0009, As Amended. The Contactor shall also notify by telephone the County of San Diego Health Department and the City of Imperial Beach within two (2) hours of discovery of Category 1 flow event.

(4) Twenty-four hour reporting: Reference Sections VI.C.2.d.i. and Attachment D, Section V.E in NPDES Permit No. CA018928, Order No. R9-2014-0009, As Amended. The Contractor shall report Category 2, 3, 4, 5, 6 events, any noncompliance that may endanger health or the environment, any unanticipated bypass that exceeds any effluent limitation, and any upset that exceeds any effluent limitation specified in Order No.R9-2014-0009, As Amended, NPDES No. CA0108928 to the COR within twenty four (24) hours.

(5) The Contractor shall commence with the implementation of the existing Prevention/Response Plan immediately upon receiving the contract award from the Contracting Officer. Per SectionVI.C.2.a.iii.a), the Contractor shall conduct regular review and assessment of the Prevention/Response Plan to identify improvements and modify it as necessary to reduce, eliminate, and prevent the recurrence of spills and/or transboundary wastewater flows. The Contractor shall keep the Prevention/Response Plan in an up- to-date condition and shall amend the Prevention/Response Plan whenever there is a change (e.g., in the design, construction, operation, or maintenance of the Facilities) which materially affects the potential for spill events or which materially affects the response required for each event. The Contractor shall include any modifications as an amendment to the Prevention/Response Plan submittal in CIWQS within 30 calendar days of making the amendment. The Government shall be responsible for coordination with Mexico, conducting bi-national meetings, and providing information to and from Mexico required by the Prevention/Response plan.

(6) The Contractor shall submit to the Government two (2) copies of the draft Monthly NPDES monitoring Report by 12:00 noon on the 15th calendar day of each month. If the due date falls on a weekend or holiday, the report shall be due on the first workday thereafter. The COR shall provide comments to the Contractor within five (5) business days after receipt of the draft report. The Contractor shall incorporate all comments and submit the final report in three (3) hard copies, and one electronic version to the COR by close of business on the 5th business day after receipt of the Government comments. All influent exceedances and/oreffluent violations and operational issues caused by influent constituents shall be noted in the cover letter of the Monthly NPDES report. The Contractor shall upload all Discharge Monitoring Report (DMR) data to the Self-Monitoring Report (SMR) facility in CIWQS and shall report and note all influent exceedances and effluent violation in CIWQS.

(7) The Contractor shall provide all information in the State of California, State Water Resources Control Board, Annual Report for Storm Water Discharges Associated with Industrial Activities (State Water Resources Control Board, Water Quality Order No. 2014-0057-DWQ,

NPDES General Permit No. CAS000001, Refer to Section J, List of Attachments). The Contractor shall submit three (3) copies to the USIBWC by June 10th of each year. The Contractor shall perform all sampling, testing, and analysis as required in the attached report. In addition, the Contractor shall perform and record all visual assessments and conduct the applicable annual comprehensive site compliance evaluation as detailed in the report.

(8) The Contractor shall provide a Monthly Operations and Maintenance Report to include influent and effluent wastewater quality and quantity, quality and quantity of sludge produced, removal efficiencies obtained, chemicals stored and dosages used in processes, repairs and maintenance tasks performed (including equipment off-line), status of any pending modifications (if any), maintenance activities scheduled, and a detailed summary of monthly maintenance expenditures by cost account to include labor hours and costs by asset or main component. The Contractor shall submit a complete detailed work schedule for the following month for all Contractor staff at the SBIWTP. The Contractor shall inform the Contracting Officer of any deviation of the monthly submitted staff work schedule within twenty-four (24) hours. The Contractor shall keep detailed, accurate, and complete records, and shall provide a Monthly Summary of Maintenance Expenditures, supported by a copy of all applicable invoices, by cost account to include labor hours and costs by asset or main component. The Monthly Operations and Maintenance Report (three (3) hard copies and electronic files in both Microsoft Word/Excel and Adobe Acrobat) shall be provided to the COR by the 10th calendar day of the month following the reporting month. If the due date falls on a weekend or holiday, the report shall be due on the first workday thereafter.

(9) All reports (NPDES, monthly, annual, financial, etc.) shall include an Executive Summary of results. In this section, the Contractor shall address and discuss in general any problems identified. The Executive Summary shall also include a Conclusion and Recommendation section.

(10) The Contractor shall annually submit a Five Year Capital Plan for all infrastructure, facilities, equipment, and components. The plan shall include buildings and grounds, machinery and mechanical, electrical equipment, and systems. The Five Year Capital Plan (three (3) hard copies and electronic files in both Microsoft Word/Excel and Adobe Acrobat) shall be provided by March 1st of each year, beginning the first Contract year. The purpose of this plan is to discuss and agree on capital program priorities which should be aligned with risk management strategies and the risk assessment. Capital expenditures are defined, for the purpose of this Contract, as non-routine expenditures for the purchase of new equipment, major repairs to existing equipment, or facility items, usually pre-planned, which significantly extend service life, and which are determined to be capital expenditures in accordance with generally accepted accounting principles.

(11) The Contractor shall annually submit a Deferred Maintenance and Repairs Report for all infrastructure, facilities, equipment, and components. The Deferred Maintenance and Repairs Report (three (3) hard copies and electronic files in both Microsoft Word/Excel and Adobe Acrobat) shall be provided by September 15th of each year beginning the first Contract year. Deferred maintenance and repairs are defined, for the purpose of this Contract, as routine maintenance and repairs, one-time repairs, refurbishments, replacements, or upgrades under $100,000 that were not performed when they should have been, or were scheduled to be and which

were put off or delayed for a future period.

(12) The Contractor shall annually submit the Risk Assessment and report on the effectiveness of internal controls to address those risks. The Contractor shall update the Risk Assessment (three (3) hard copies and electronic files in both Microsoft Word/Excel and Adobe Acrobat) and submit the annual updates no later than March 1st of each year. The annual update shall include a report on any new risks, the results of ongoing monitoring, and corrective actions to address risks.

(13) The Contractor shall provide markups/red-lines to the Plant as-builts within thirty (30) calendar days of completion of modification for each modification to the Plant. The markups/redlines shall include, as minimum, the date of the modification, contractor, and cost. The modifications shall be provided in an AutoCAD file along with an Adobe Acrobat file. Plant modifications requiring the approval by a Professional Engineer shall abide by the requirements established by the California Board for Professional Engineers, Land Surveyors, and Geologists.

(14) The Contractor shall provide quarterly presentations and one page summaries for transboundary flows not diverted by canyon collectors and for influent exceedances/operational effects of influent constituents per Order No. R9-2014-0009, As Amended, NPDES No. CA0108928, in Spanish (three (3) hard copies and one electronic copy) and English (three (3) hard copies and one electronic copy) in accordance with the following schedule:

Quarterly Presentation Period	Presentations Due to the USIBWC
January 1 through March 31	May 1
April 1 through June 30	August 1
July 1 through September 30	November 1
October 1 through December 31	February 1

If no transboundary flows and influent exceedances/operational problems occurred during any given quarter, the Contractor is not required to prepare a technical presentation for that quarter.

(15) The Contractor shall attend two bi-national meetings per year and shall present results/summaries of transboundary flows, spill prevention, and influent violations/operational effects of influent constituents. The Contractor shall prepare a meeting agenda in English and Spanish and provide up to fifty (50) hard copies and two electronic copies (in Microsoft Word and Adobe Acrobat) with input from invited stakeholders. The Contractor shall prepare a meeting summary in English and Spanish and provide up to fifty (50) hard copies and two electronic (in Microsoft Word and Adobe Acrobat) copies after the meeting and distribute hard copies to all invited stakeholders. The Contractor shall provide simultaneous translation services for the bi-national meetings.

The Contractor may be required to make additional presentations at USIBWC Citizens Forum meetings or to stakeholders to explain how the SBIWTP operation interfaces with proposed sanitation projects in the area that are being considered by the EPA. The timing of the proposed EPA projects is uncertain at this point. The request for additional presentations will be coordinated with the USIBWC COR.

(16) The Contractor shall retain records of all SBIWTP monitoring information, including all maintenance records and all original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by this Contract. Records shall be maintained for a minimum of five (5) years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation or when requested by the Contracting Officer. The Contractor shall provide all records for the SBIWTP, analyses, etc. to the Contracting Officer when the Contract is terminated. Records shall be provided in a hard copy and electronic copy (Latest Microsoft Word/Excel format).

(17) Theft, Damage, and Vandalism Reporting: The Contractor shall take reasonable and prudent precautions to safeguard Government property. The Contractor shall report damage, theft, and vandalism of Government-owned equipment in the possession of the Contractor to the COR within one (1) hour after discovery. If the discovery is made on a weekend, the Contractor shall notify the COR by telephone and follow-up with a written report the following workday. The Contractor shall notify the local law enforcement authorities of any theft, damage, or vandalism to Government property. The following information shall be included in the report: date and approximate time of incident, location and description of property involved, general circumstances describing the theft and/or vandalism, estimated monetary loss to the Government, and any follow-up actions. The Contractor is not responsible for repair costs as a result of theft and vandalism that is not caused by the Contractor's negligence and that is outside the control of the Contractor's responsibilities.

(18) Hard copy deliverables shall be in three ring binders, 12 font size, and graphs in color. Electronic copies shall be provided in latest Microsoft Word/Excel and Adobe Acrobat formats.

h. Outside Services

Contractor shall provide for and be solely responsible for payment of all cleaning services, trash collection, equipment, rentals, service agreements for equipment, repair services, maintenance services, temporary or part time help, dedicated site security, legal fees, registrations, dues, postage and freight charges, subscriptions, advertising, printing and binding, photographic services, vehicles and equipment, and other professional services.

C.4 SAFETY & SECURITY PROGRAM

The Contractor shall provide and implement a comprehensive safety program regarding the Contractor's capability to ensure the safety of personnel, equipment and the public. The safety program shall comply with the requirements of the CAL-OSHA General Industry and Construction Safety Orders and Federal OSHA Standards for General Industry (Part 1910) and Construction (Part 1926). A safety plan shall be provided to the Contracting Officer for approval as per Phase One in Section C.3. The safety plan shall incorporate the requirements of the SBIWTP O&M Manual and federal and state regulations regarding the storage and disposal of hazardous waste. As a minimum, the safety program shall address the following: safety training requirements, safety responsibilities, safety inspections, accident investigation and reporting, emergency response

plans, minimum wearing apparel, personal protective equipment, respiratory protection, hazardous communications, fire protection, general mobile equipment to include forklifts and earthmoving equipment, Occupational Immunizations, electrical safety related practices for working on energized equipment, lockout tag out procedures, permit required confined space procedures, bloodborne pathogens, job hazard analysis, safety meetings, material handling, welding operations (hot work permits), hazardous material storage and disposal, and recommended site visitor safety guidelines. The safety plan shall be updated as necessary to reflect the Contractor's current operations or as requested by the Contracting Officer. When violations of safety and health requirements contained in either CAL-OSHA or federal OSHA safety standards are called to the Contractor's attention by the Contracting Officer or COR, the Contractor shall immediately correct the conditions found. Such notice to the Contractor will be given either orally (with written confirmation to follow) or in writing by the Contracting Officer or COR. If the Contractor fails to comply with the requirements or to explain extenuating circumstances that may prevent compliance, the Contracting Officer may issue an order to stop all or any part of the work covered under this Contract. When satisfactory corrective action is taken, an order to resume work will be issued by the Contracting Officer. The Contracting Officer may stop work at any time if a condition of imminent danger exists. The Contractor shall not be entitled to any extension of time, nor to any claim for damage or additional compensation by reason of either the requirements of the safety standards or the stop work order. Failure of the Government to order discontinuance of any or all of the Contractor's operations shall not relieve the Contractor of responsibility for the safety of personnel and property. The Contractor’s safety program may be reviewed by the COR or a safety representative of the COR.

C.4.1 Safety Records

The Contractor shall maintain an accurate record of, and shall report immediately (orally but no longer than 8 hours) to the COR all cases of death, occupational diseases, or traumatic injury to Contractor’s personnel or to the public. The Contractor shall use the Contractor’s Report of Recordable Injury/Illness Form, to report all lost time accidents to the COR within one (1) business day of occurrence. The Contractor shall use the Report of Accident/Incident Report to report all accidents and incidents to the COR. A written report shall be submitted to the COR within one (l) business day after occurrence of the death, disease, or injury. In the case of occupational diseases, time begins after the Contractor has written documentation that disease has occurred. The Contractor shall be in compliance with CAL-OSHA recordkeeping standards and have the 301, 300, and 300A readily available, current plus five (5) past calendar years.

C.4.2 Working Conditions

The Contractor shall maintain working conditions which are sanitary and not dangerous or hazardous to the health and safety of personnel accessing the area in accordance with CAL-OSHA General Industry Standards and Construction Safety Orders and applicable Federal OSHA standards. The Contractor at a minimum must conduct daily safety walk throughs, quarterly fire inspection and semi-annual safety and health inspection of the facility. The Contractor’s workplace shall comply with the Federal requirement to provide a drug-free workplace.

C.4.3 Employee Qualification Requirements

The Contractor shall not knowingly employ or continue to employee persons who are physically or mentally incapable of performing the duties of their position efficiently and without hazard to themselves or others. This is not intended to preclude hiring employees who are physically or mentally handicapped but are able to satisfactorily perform their work assignments.

C.4.4 Safety Training

The Contractor shall conduct required safety training for its employees. Minimum training is covered in CAL-OSHA regulations.

C.4.5 Safety Meetings

The Contractor shall conduct weekly safety meetings for field personnel and monthly meetings for others in accordance with their Safety Plan submitted in the Phase One. The Contractor shall document the meetings including the personnel in attendance, topic, date, discussion items, questions, concerns, and person conducting the meeting. The Contractor shall provide these documents to the COR at the end of each month. Tool box/tailgate meetings shall be held before each day during critical work or plant modification (specific project related).

C.4.6 Vehicle Operator's Permits

The Contractor shall not permit any employee to operate a vehicle, unless such employee possesses a valid state driver's license of the class required for the equipment to be operated.

C.4.7 Emergency Preparedness Program and Response Plan

The Contractor shall provide an emergency preparedness plan. The plan shall, at a minimum, address actions to be taken in the event of high winds, fires, earthquakes, extreme colds, floods, explosions, acts of terrorism, bomb threats, failure of critical transmission mains, and loss of power. The plan shall be submitted to the Contracting Officer for approval as per requirements in Phase One of Section C.3.

C.4.8 Hazardous Materials Management and Communications Plan

The Contractor shall provide a hazardous materials management and communications plan for the SBIWTP. The plan shall be submitted to the Contracting Officer as per requirements in Phase One of Section C.3.

C.4.9 Continuity of Operations Plan (COOP)

The Contractor shall provide a continuity of operations plan. The COOP shall describe relocation sites and procedures to be followed in the event that any portion of the Contractor's staff can't remain at the South Bay International Wastewater Treatment Plant due to plant accident, system failures, natural disaster, terrorist attack, etc. The Contractor shall provide this plan for

review and approval by the USIBWC as per requirements in Phase Two of Section C.3.

C.4.10 Security Risk Assessment Document

The Contractor shall provide a security risk assessment plan. The plan will address security needs and requirements for the SBIWTP. The Contractor shall provide this document for review and approval by the USIBWC as per requirements in Phase Two of Section C.3.

The plant and work areas are adjacent to the United States-Mexico border. Therefore, the possibility exists for random acts of violence or other law enforcement incidents. The Contractor shall take this into consideration when preparing their site security plan. In any event the staff of the US Department of Homeland Security (also known as US Customs and Border Protection (CBP)) alerts and directs any field crews to stop work for any security reasons in the area, the Contractor shall consider this as top priority and fully cooperate with the directions of DHS at all times until the security alert is cleared by the DHS.

C.4.11 Administrative Network Information Technology (IT) Security Plan

The Contractor shall provide this plan for review and approval by the USIBWC as per the requirements in Phase Two of Section C.3. The plan shall address measures and procedures used in providing for communications security, continuity and maintenance for the Admin network. The Contractor shall assess and validate System documentation, update baseline configuration documentation, and network diagrams.

C.4.12 SCADA System Maintenance

The Contactor shall provide a SCADA System Analyst to serve as an onsite administrator of the SCADA system, manage system access control, incident response, and maintain System documentation and reporting. The System Analyst will be responsible for responding to CDM alerts, incidents and maintaining System documentation requirements as directed by the USIBWC Information Management Division. The System Analyst will produce reports required to demonstrate the SCADA system current effective operations status, identify trends, and recognize issues that may cause issues within the System. The System Analyst shall be available to respond and troubleshoot alerts on-site or remotely through a secure remote access established and maintained by the USIBWC. The System Analyst shall troubleshoot incidents or issues to resolve SCADA system malfunctions or identify where a problem may be imminent.

The Contractor must maintain and follow the IT Security controls established and described in the USIBWC SCADA System Security Plan (SSP). (Refer to Section J, List of Attachments) The Contractor is responsible for assisting the Government in capturing, documenting and validating all IT Security controls described within the SSP as part of an annual assessment to maintain or establish an Authority to Operate (ATO) designation of the SCADA System in accordance with FISMA requirements. One fourth (1/4) of all IT Security controls identified within the SSP must be validated and documented by the Contractor's Systems Administrator every quarter as part of the USIBWC Ongoing Authorization process. The Contractor shall adhere to and follow all established IT Security controls established for the

SCADA system. In addition, the Contractor shall comply with requirements established by FISMA. The Contractor shall be responsible for maintaining and updating an established Sequence of Operation (SOO) manual that documents SCADA system configuration points and operational processes the SCADA System monitors and maintains. The SOO is provided in Section J, List of Attachments. An electronic version will also be provided through an agency provided SharePoint site where updates and versioning of the SOO can be tracked and maintained.

C.4.13 SCADA System IT Security Training

All contract employees with established access and roles within the SCADA system shall complete annual training on the control system and best practices for SCADA systems. The training will be developed and administered by the USIBWC.

C.4.14 Security

a. To perform the work specified herein, Contractor personnel will require access to sensitive data, regular access to USIBWC-controlled facilities, and/or access to USIBWC information systems. The Government has determined the position sensitivity under this effort to be low, moderate, and high risk.

b. To gain access to the sensitive data, USIBWC-controlled facilities, and/or USIBWC information systems, the Contractor shall comply with Homeland Security Presidential Directive 12, Policy for a Common Identification Standard for Federal Employees and Contractors and with 5 CFR 731, Suitability.

c. The minimum Government investigation for a Low Risk position is a Tier 1, to include fingerprinting, which consists of searches of records covering specific areas of a person's background during the past five years. Those inquiries are sent to current and past employers, schools attended, references, and local law enforcement authorities. More restricted positions, above non-sensitive, require more extensive documentation and investigation.

d. Moderate Risk, Public Trust positions require a higher level of investigation than a Tier 1. The level of investigation is a Tier 2. This level of investigation will review credit reports and reach further back into the contract employee's history.

e. High Risk, Public Trust positions require an even higher level of investigation than a Tier 2. The level of investigation is a Tier 4. The level of investigation will cover the same elements as the MBI but will span further back into the Contractor's history.

f. The Contractor shall ensure that the employees whose names they submit have a reasonable chance for access approval. Delays associated with rejections and consequent reinvestigations may not be excusable.

g. Background investigations for Low Risk positions will be initiated and a favorable fingerprint and /or National Agency Check (NAC), as determined by the USIBWC Security Services Division, must be received prior to new contract personnel starting work or having access

to the SBIWTP.

h. Background investigations for Moderate and High Risk positions will be initiated and favorably adjudicated prior to new contract personnel starting work or having access to the SBIWTP. This may be waived under certain circumstances. This determination would be made on a case-by-case basis.

i. The facility superintendent will ensure that all new personnel selected to work at the SBIWTP contact the USIBWC Security Office to coordinate their background investigation. The facility superintendent must also ensure that the new contractor employee provides the necessary online background investigation information (e-QIP) and fingerprint card to the USIBWC Security Office within ten (10) calendar days of contacting the Security Office.

j. The facility superintendent will also make sure that no new personnel are permitted to physically begin work at the SBIWTP prior to the favorable adjudication of their background investigation and/or fingerprint/ check. Any personnel found to be physically working at the SBIWTP and has not received a favorable adjudication of their background investigation and/or fingerprint/NAC check shall be removed immediately upon notification from the USIBWC Security Services Division.

k. Upon favorable adjudication of a new contractor employee's background investigation and/or fingerprint check, the USIBWC Security Services Division will contact the facility superintendent to authorize access for the new contractor employee.

l. The Contractor will ensure that when bringing in a new Contractor employee, a request for background investigation is submitted in accordance with the SD.I.10031-M-2, *Background Investigation Procedures for SBIWTP Contractor Personnel Manual.*

m. Language similar to this Security section shall be included in any subcontracts which require subcontractor personnel to have access to an information system, access to sensitive data, regular or prolonged access to an USIBWC-controlled facility, or any combination of these three.

n. The Contractor shall ensure that any subcontractors or personnel who may be performing work at the SBIWTP for a temporary period of time are escorted at all times while on the property.

o. Typically, the Government investigates personnel at no cost to the Contractor, but the expense of multiple investigations for the same position is difficult to justify. Consequently, multiple investigations for the same position may, at the Contracting Officer's discretion, justify reduction(s) in the contract price of no more than the cost of the extra investigation(s).

p. Within seven (7) calendar days after final acceptance of the work specified herein, the Contractor shall return all identification badges to the Contracting Officer or their designee.

C.5 SCADA PLC / COMPONENT REPLACEMENT

The Contractor shall provide all required engineering, investigation, programming, system testing, commissioning, labor, equipment, materials and all other required work to furnish and install the following.

a. Project Background and Description

The SBIWTP wastewater treatment operations are controlled by an Industrial Control (ICS) or Supervisory Control and Data Acquisition (SCADA) System that is owned and maintained by the Information Management Division (IMD) of the United States International Boundary and Water Commission (USIBWC). The System is required to comply with the Federal Information Security Management Act (FISMA) and has recently been upgraded to achieve an Authority to Operate designation by the head of the agency. Recently upgraded SCADA IT components and software implemented to make System operations more secure, efficient and comply with FISMA are now interfacing with functional, yet out-dated and obsolete components in the field. These obsolete or outdated elements require replacement because they introduce a risk to the Systems functionality or operations. Much of the plant is using Programmable Logic Controllers (PLC-5) and associated I/O for the majority of their system. This hardware is no longer supported and spare parts are very difficult to come by and technical support is not available from the vendor. This leaves SBIWTP operations vulnerable to failure and must be mitigated as soon as possible.

The Contractor is required to provide a solution for SBIWTP to migrate existing PLC-5 and I/O modules to current ControlLogix technology for the entire facility. The scope of the project is to convert the existing PLC-5 processors and programs to ControlLogix and replace the chassis and I/O modules within ControlLogix chassis and I/O modules. This work will replace all existing PLC-5 components and its codebase and leverage new codebase and off the shelf modules. This will allow better code troubleshooting, fast code execution, availability of parts and allow the SBWITP to have its critical components be supported by manufacturers warranties. Development of this solution will include changes requested by Plant operations staff to improve process efficiency, control and production. The design and commission of new Human Machine Interface (HMI) Integrations where necessary to take advantage of the full capabilities of recently upgraded Ignition software, the newest version of Inductive Automation Ignition Platform that is now exclusively used to run SBIWTP SCADA system operations. The Contractor shall also provide a solution to implement smart field switches to incorporate a smart network with diagnostics capabilities where feasible.

Recent SCADA system risk assessments conducted by USIBWC contractors charged with maintaining and responding to emergency incidents related to the SCADA system, have identified all hardware specifications, infrastructure and field SCADA components requiring replacement as part of this scope (Refer to Section J, List of Attachments). The Contractor will provide all documentation, installation, programming and start-up commissioning services for the replacement of all identified components. Work associated with the installation and commissioning will be done on agreed upon dates with USIBWC’s IMD and Plant personnel.

b. Implementation

The overall plan of implementation shall be accomplished and integrated into the existing Ignition SCADA system software and in a manner that will minimize downtime and process disruptions. Considering the high risk of this upgrade, implementation would need to be phased out over several months. A phased approach would allow plant operations to only shut down PLC's one at a time in a controlled manner. To the extent possible, programming and configuration work of replacement components shall be completed prior to installation to assist in the smooth switchover of each component into the live environment. The project shall be completed in a multi-phased migration approach, minimizing the downtime impact to SBIWTP. Implementation phases should include but not be limited to:

(1) Prework and Configuration – This phase would involve migrating PLC-5 programming to the ControlLogix Code base. To the extent possible, this work should be accomplished off-site through a multi-phase quality assurance verification process that does not impact operations. The end result being improved troubleshooting response times, and leaner more efficient code. Examples of the required code conversion are as follows;

a. Replace aged PID loops with ControlLogix enhanced PID's
b. Replace existing non symbolic addressing new naming conventions.
c. Remove all unneeded messaging currently within existing components and create standardized alarms in the new controls
d. Create new hardware configuration in upgraded components and create all new scaling

(2) Procurement – This phase shall include hardware assembling and configuration of components in a manner that would allow for a more focused testing regimen for each section of the plant. Procurement should be scheduled to limit downtime requirements during the commissioning portion of the process and allow for the ability to turn off components one at a time if necessary.

(3) Hardware Installation – This phase consists of installing new hardware one station at a time, requiring removal of legacy equipment to provide adequate room for the new hardware. Each station shall have their own cut over plan to be followed during this installation phase. Each upgrade/installation will be required to be approved by plant operations and the USIBWC. Components being replaced will remain available during installation of new components in the event unforeseeable events require replacing or postponing work until appropriate to continue. Each station transitioned shall be monitored for two weeks to validate proper configuration and operation and apply any corrections required before proceeding to another station. Contractor will provide all technical assistance to ensure continued, proper operations of SIBWTP during these transitions.

(4) Human Machine Interface (HMI) Integration- All HMI's shall be updated to account for and seamlessly interact with upgraded components. This phase includes the work required to accomplish communication redirecting, database modifications, graphical changes and tag addressing to reflect new Control Logix code.

(5) Documentation and Training – The Contractor will provide new drawings and topology for all new I/O modules (in electronic format), components and associated wiring,

facilities and control system Ethernet/IP addressing installed as part of this upgrade. The Contractor will also provide training to Plant operations staff on the new architecture and best practices for the use and operations of all new components.

The Contractor shall provide commissioning services, to include inspection and verification of system installation and configuration, and complete start up and testing of entire system with functional testing and calibration. All work shall be done in accordance with the manufacturer recommendations and the best practices and methods. All applicable Federal, state, and local government safety rules and regulations shall be implemented by the Contractor. The Contractor shall provide all manufacturer warranties.

C.6 OPTIONAL OPERATION AND MAINTENANCE SERVICES

C.6.1 OPTION SANDBAGS AT CANYON COLLECTORS WEIR CRESTS

The Contractor shall provide all labor, equipment, materials, appurtenances, specialty items, services and all required work to deliver, install, and maintain sandbags on top of the weir crests at Stewarts Drain (73 LF), Silva Drain (20 LF), Canyon Del Sol (30 LF), Smugglers Gulch (93 LF), and Goat Canyon (75 LF) during the dry season (April through October). The sandbags shall be heavy duty, heavy weight 3.2 oz polypropylene material or equal. The Contractor shall prepare the site where the bags will be placed by removing all dirt, rocks, and debris. The Contractor shall install the sandbags in two adjacent rows and each row of sandbags shall be stacked 2 bags high. As the Contractor places the bags for the next layer and the second row, the seams shall be staggered. The Contractor shall complete one layer at a time and tamp down each bag into place and pack the bags together tightly. The Contractor is responsible for replacing any damaged sandbags. The Contractor shall properly dispose of used sandbags when no longer in use.

C.6.2 OPTION DAILY FLOW MEASUREMENTS AT CANYON COLLECTORS

The Contractor shall provide all labor, equipment, materials, specialty items, and services required to obtain, record, and report the measured daily flow rate at Stewarts Drain, Silva Drain, Canyon Del Sol, Smugglers Gulch, and Goat Canyon. The Contractor shall identify the instrumentation and method for performing the work that will be cost-efficient, practical, durable, and reliable. Units of flow rate shall be reported in both cubic feet per second (cfs) and cubic meters per second (cms) with 0.125 in./3mm accuracy.

End of PWS