City of Key West

Water Quality Monitoring Program

1.

Cover Letter and Executive Summary

Stantec Consulting Services Inc.
4798 New Broad Street, Suite 100
Orlando FL 32814-6436

Attention:
Lucas Torres-Bull, Procurement Manager
City Clerk
City of Key West
1300 White Street
Key West, Florida 33040

Reference: City of Key West Water Quality Monitoring Program
RFP# 25-004

April 15, 2025

Dear Lucas Torres-Bull,

We are pleased to submit this response to RFP#25-004 to develop a Water Quality Monitoring Program for the City of Key West (the City). Founded in 1954, Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues and future-proofing our communities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

The Stantec community unites approximately 32,000 employees working in over 450 locations across 6 continents. We have 18 offices in Florida with more than 150 environmental staff who provide a range of environmental services consistent with the scope of work. Many of our staff have been working in Florida for over 25, possessing detailed knowledge of the environmental issues, landscape, and local regulatory processes. With key field resources based in our Coral Gables office and additional support from our Orlando, Tampa, and Riverview offices, Stantec is well-positioned to mobilize resources as needed.

Our local strength, knowledge, and relationships whether in Florida or elsewhere, coupled with our world-class expertise, have allowed us to go anywhere to meet our clients' needs in more creative and personalized ways. With a long-term commitment to the people and places we serve, Stantec has the unique ability to connect to projects on a personal level and our staff work as trusted partners.

Our team's commitment to sustainability and innovation is evident in every project we undertake. And you'll discover that our approach is client-centric, characterized by active collaboration and transparent communication, which helps us consistently meet our clients' expectations. We have the necessary experience to perform the proposed work efficiently and effectively and can devote energy to support the project's success. Stantec, along with Enterococci, Eurofins in Marathon, our laboratory vendor for water quality sample analysis, are excited about the opportunity to collaborate with the City of Key West. The team understands the logistics of conducting sampling on and around coastal and tidal environments. Our familiarity with the project objectives, expertise in local environments, and extensive experience with water quality projects in Florida distinguishes the Stantec project team in this field.

We are committed to employing sound environmental science to support public health and beach closure criteria. Our analytical chemistry expertise in identifying harmful microbiological contaminants will be instrumental in ensuring the success of this project.

We've had the honor to work throughout Florida, and we know while coastal community characteristics may be similar, each community has unique aspects. We are happy to adapt to your particular needs. We understand the scope of services identified and are prepared to work closely with you to execute a successful Water Quality Monitoring Program, as we have done for other municipal, state, and federal client agencies. In the following pages, we will introduce you to our team and some of the similar projects we have completed. We believe in the importance of this type of work and would love to be your partner. While we have outlined an approach that we believe to be appropriate based on our review and understanding, we are open to discussing and revising it to ensure that our proposed plan fits your goals and budget.

Requested Summary Corporate Information

Stantec is a New York registered corporation,
FEIN 11-2167170.

US Corporate Address:
Stantec Consulting Services, Inc.
410 17th Street, Suite 14
Denver, CO 80202

Point of Contact and Main Florida Office for this Project :

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Orlando, FL 32814
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LICENSEE DETAILS

12:08:42 PM 2/13/2025

Licensee Information

Name:	**STANTEC CONSULTING SERVICES INC.** (Primary Name)
Main Address:	**410 17 STREET STE 14 DENVER Colorado 80202**
County:	**OUT OF STATE**
License Mailing:	**410 17 STREET STE 1400 DENVER CO 80202**
County:	**OUT OF STATE**

License Information

License Type:	**Engineering Business Registry**
Rank:	**Registry**
License Number:	**27013**
Status:	**Current**
Licensure Date:	**05/30/2006**
Expires:	

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Licensee

Name:	**STANTEC CONSULTING SERVICES INC.**	License Number:	**27013**
Rank:	**Registry**	License Expiration Date:	
Primary Status:	**Current**	Original License Date:	**05/30/2006**

Related License Information

License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
72428	Current, Active	JAEGERMAN, ADRIANA	Registry		Professional Engineer	02/28/2027

2.

Qualifications and Relevant Experience

Qualifications

Stantec Consulting Services Inc., (Stantec), is a New York corporation. (*For an overview of our corporate structure, please see Tab 8*.) Stantec was formed in 1954 and is currently ranked the #14 environmental firm by ENR (2023) and #6 in environmental science. We have an extensive history of providing professional consulting services across the scientific disciplines (environmental, hydrologic, geological, archaeological, etc.) to engineering, construction oversight to planning and project management, as well as project economics and helping clients secure funding for infrastructure, facilities, and environmental restoration projects. With more than 32,000 employees operating out of more than 450 locations worldwide, we care about the communities we serve- because we live in these communities too. This emphasis on community allows Stantec to assess what is needed and to connect our expertise, to appreciate nuances, and envision what has never been considered to bring together diverse perspectives so we can collaborate toward a shared success.

There are more than 150 environmental staff in our Florida offices, and if needed, we can draw on the Stantec staff from around the world for specialized expertise and innovative approaches. Many of our local technical staff here in Florida have higher degrees (MS and Ph.D.) and have worked for the Water Management Districts (South, Southwest, and St. Johns River) as well as local governments (e.g., Leon, Sarasota, Manatee, Brevard) and municipalities (e.g., Naples, St. Petersburg, Tampa). We have assembled this strong technical team to support the City as we recognize the issues facing the waterways of Key West require a broadly skilled and scientifically comprehensive team. To that end, the team members assembled include scientists from Stantec who will help support this effort and offer their expertise as needed.

Our team has the necessary experience to perform the proposed work efficiently and effectively and can devote its energy to overall project success. Stantec is excited about the opportunity to collaborate with the City on this contract. We have the technical expertise, knowledge, and resources to work closely with you in executing a successful project as we have done countless times with our clients. Our collective project knowledge and experience are the strengths behind our organization and the reasons we deliver successful projects.

We understand what it takes to build a sound water quality monitoring program because we have done this work for many and diverse clients. We offer you comprehensive, rapid, cost-effective, and local delivery of all disciplines necessary to meet your program goals. Stantec has a strong inter-office communications plan to efficiently convey information between Stantec and City of Key West staff and we possess the technical expertise and management team to deliver a successful contract, on time and within budget.

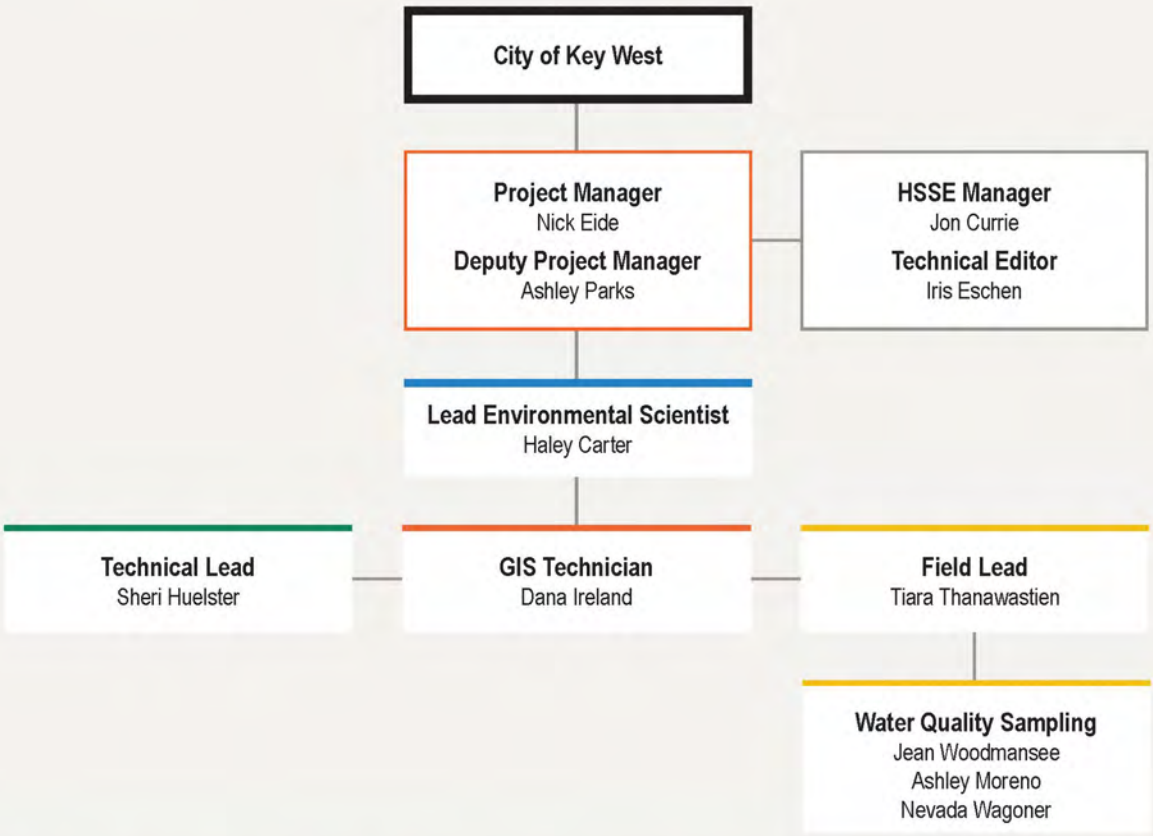
Team Overview and Commitment

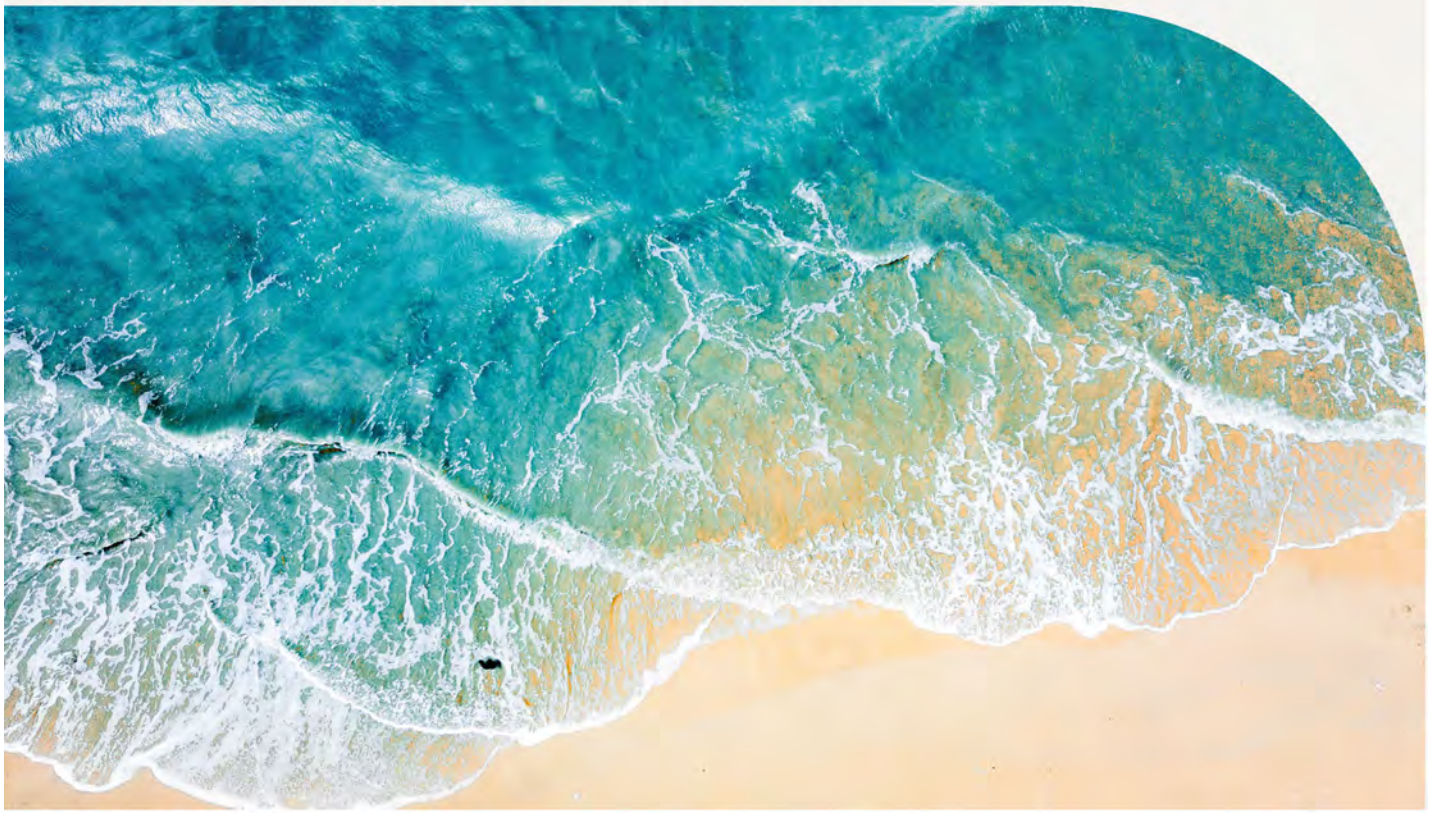
Our proposed team brings a well-rounded blend of technical expertise, project management experience, and regulatory knowledge to support the City in developing and implementing a water quality monitoring program. This highly qualified group of environmental scientists and biologists have extensive experience working on projects of similar scope and complexity across Florida's sensitive aquatic systems. Our team has worked in a variety of ecosystems like Key West's including Biscayne Bay, Long Key, and Conch Key.

Each of our team members specialize in a core area of environmental science- ranging from in situ water quality sensor deployment, to laboratory nutrient analysis, biological assessments, regulatory permitting, and long-term environmental monitoring. Our team has demonstrated success in working with federal, state, and municipal partners, including the Florida Department of Environmental Protection (FDEP), the Florida Fish and Wildlife Conservation Commission (FWC), the U.S. Environmental Protection Agency (EPA), and local municipalities across the state.

We are committed to working collaboratively with the City from project initiation through final reporting, and our team will remain dedicated to this initiative through its full duration. Staff continuity and institutional knowledge are cornerstones of our approach. Individuals selected for this effort are highly specialized and have been chosen due to their technical expertise and history of working in Florida. Our team organizational chart (figure 1) is on the next page followed by short descriptions of our key personnel's experience. One-page resumes are included in Appendix A.

Figure 1. Organizational Chart





Core Project Team

Nick Eide Project Manager 18 years experience B.S., Biology	• Over 15 years of project management experience leading large-scale environmental projects. • Expertise in leading technical teams and coordinating with regulatory agencies. • Proficient at overseeing regulatory permitting, compliance, and reporting efforts.
Ashley Parks Deputy Project Manager 17 years experience M.S., Marine Science (Chemical Oceanography) B.S., Marine Science	• Specializes in water quality monitoring, with a focus on harmful algal blooms (HABs) and ecosystem health. • Skilled in field data collection, laboratory nutrient analysis, and quality assurance/quality control (QA/QC) of environmental data. • Led the development of continuous water quality monitoring programs in Sarasota Bay, Tampa Bay, the Indian River Lagoon, and the Upper St. Johns River Basin to evaluate the effects of water quality on HAB development. • Experienced in preparing Standard Operating Procedures (SOPs), Sampling and Analysis Plans (SAPs), and Quality Assurance Project Plans (QAPPs) for municipal and federal clients, including integration of in situ monitoring technologies.
Haley Carter Lead Environmental Scientist 10 years experience B.S., Aquatic and Marine Biology	• Led water quality field sampling efforts in the St. Johns River watershed, including sample collection for nutrients, chlorophyll, and phytoplankton, including the maintenance of specialized monitoring equipment such as YSI EXO sondes. • Strong background in ensuring the accuracy and integrity of both discrete and continuous water quality data in accordance with SOPs. • Managed FDEP-contracted sampling programs for Status & Trends and Harmful Algal Blooms and conducted annual SOP audits and corrective action reporting. • Skilled in database management, data QA/QC, laboratory sample verification, and providing technical support for QAPPs to meet EPA requirements.
Sheri Huelster Technical Lead 19 years experience M.S., Marine Science B.S., Marine Science/Biology	• Expertise in collection and analysis of surface water and sediment samples, biological sampling and habitat assessments, data management, and QA/QC. • Assisted multiple municipalities in development and implementation of water quality sampling programs tailored to the needs of the resource. • Skilled in the review and interpretation of water quality data, vegetation monitoring, statistical data analysis, and technical report writing. • Proficient in analyzing data using various statistical software (e.g., Statistica, Change-Point Analyzer, or PRIMER-7).
Tiara Thanawastien Field Lead 13 years experience B.S., Environmental Science	• Experienced in water quality monitoring and environmental field investigations, including aquatic vegetation and wildlife studies. • Skilled in managing field teams and operating automated monitoring stations to collect and process large datasets related to water quality, hydrology, and meteorological conditions. • Specializes in long-term monitoring, data evaluation, and mapping to support environmental assessments and federal environmental documentation. • Experienced in compliance with environmental regulatory requirements.
Nevada Wagoner Field Sampler 9 years experience M.S., Biology B.S., Human Development	• Expertise in water quality monitoring, regulatory compliance, and ecosystem management, with a focus on wetland and coastal systems. • Skilled in operating, maintaining, and troubleshooting automated monitoring systems, and applying QA/QC protocols to ensure accurate environmental data collection. • Supports the South Florida Water Management District (SFWMD) monitoring programs aimed at assessing nutrient dynamics, tracking regulatory compliance, and evaluating nutrient load reduction efforts. • Leads field teams in water quality monitoring, wildlife and ecological surveys, and works collaboratively with stakeholders to implement best management practices for sustainable water resource management.
Jean Woodmansee Project Scientist 7 years experience B.S., Environmental Science	• Expertise in water quality and wetland monitoring including surface water, groundwater, and porewater sampling. • Experience also includes stream and wetland delineation projects, endangered species surveys, and native plant and invasive species management. • Field lead for multiple ecological surveys and water quality sampling projects, managed data QA/QC, and assisted in technical reporting efforts. • Benthic surveys to identify and map seagrass in Long Key and Conch Key
Ashley Moreno Field Sampler 4 years experience B.S., Agroecology	• Experience in water quality sampling, wetland plant surveys, and environmental monitoring to support restoration and management projects. • Skilled in conducting fieldwork including water sampling, habitat assessments, and wildlife surveys, with accurate data collection and entry to inform ecological decision-making. • Experienced in native plant restoration, invasive species control, and post-construction monitoring to evaluate environmental impacts.

Safety

We are committed to providing and maintaining an incident-free, healthy, and safe workplace. At Stantec, we believe in doing what is right, which includes sending our people home injury-free every day. Our written behavior-based occupational safety and health program, the Stantec Health, Safety, Security and Environment (HSSE) Program Manual, is the cornerstone of our Health and Safety Management System. The manual outlines general employer and employee responsibilities related to HSSE in addition to more specific requirements and practices documented within our Safe Work Practices and Programs. Each employee is expected to comply with all the requirements set forth in the Stantec HSSE Program Manual. A copy of our Corporate Health and Safety Program is included in Appendix C.

Our behavior-based HSSE program is designed to provide all employees with the guidelines and knowledge necessary to eliminate or reduce the risk of injury, illness, and damage in the workplace. We accomplish this through the identification and evaluation of workplace hazards and by taking action to manage the risks that arise in workplace operations (i.e., hazard recognition and control). Our HSSE program applies to anyone employed by Stantec, including consultants, contractors, subcontractors, and suppliers working within Stantec workplaces. Additionally, employees must also follow the health, safety and environment requirements specified by local legislation, clients, construction contractors, or others with responsibility for managing site and workplace safety.

Stantec's health and safety management practices are based on the Occupational Health Safety Assessment Series (OHSAS) 18001 framework. We maintain formalized Health and Safety programs and policies that are set forth in guidance documents and include tools for the implementation of our Safe Work Practices. Our HSSE program is designed to be dynamic to meet the evolving needs of our staff and clients.

Quality Assurance (QA) Program

At the cornerstone of every project is quality assurance, which is vital to ensure Stantec meets your needs as a trusted partner. We will incorporate QA into all elements of the project to provide scientifically sound and technically robust data and reports.

Stantec maintains a Quality Manual (see Appendix B) that provides a baseline system of practices, requirements, and SOPs to ensure that the samples, data, and metadata collected for each project will meet the rigorous data quality objectives expected by the City. The Quality Manual was developed using numerous sources, including FDEP QA Rule 62-160 F.A.C, and the most recent versions of the FDEP and SFWMD SOPs.

This manual contains references and procedures for the anticipated routine field sampling, lab analysis, and data assessment and management activities to be performed in Florida. For project activities not addressed in the Quality Manual, minimum requirements are detailed for development of project-specific Work Plans that must include any procedures, methods, or requirements not specified in the Quality Manual. The Quality Manual is intended to be a living document that can be modified to fit the specific needs of any project.

Our team also has experience developing project work plans and comprehensive Quality Assurance documents that outline data collection methods, analytical procedures, calibration methods, and other technical components for both large and small-scale data collection projects. If a plan needs to be developed, the precise guidelines that all personnel involved in data collection, management, and analysis must follow will be defined in the document. All related FDEP SOPs will be incorporated or referenced where appropriate to ensure the integrity, reproducibility, and quality of data. The roles and responsibilities of QA for the specific project will also be clearly established, and team members will read and sign the plan to acknowledge their understanding of the requirements. Following these protocols ensures that the correct data are being collected at the appropriate level of accuracy and precision in both a scientifically and legally defensible manner.

The Stantec team has conducted internal audits for both field and laboratory work as required by FDEP QA Rule 62-160 F.A.C and FDEP-SOP-01/001. We have also audited other field teams and contractors on behalf of the SFWMD. The need for audits will be project-specific, and we will participate in field audits conducted by the City as requested. These efforts will ensure data complies with the QA/QC plan and applicable standards. Any audit findings will be immediately shared with the entire team to ensure prompt corrective measures are taken by all when required.

National Environmental Laboratories Accreditation Conference (NELAC) Certification

Our laboratory vendor partner to analyze the beach water quality samples for Enterococci, Eurofins in Marathon, Florida, most recently successfully completed their NELAC certification requirements in July 2024. The certificate is provided in Appendix B and details the analyses for which the laboratory is certified. The laboratory has maintained their NELAC certification for the analysis of Enterococci via the EPA-approved Enterolert method (60030208) since 2016. Their certification is renewed annually, with the next renewal in July 2025.

3.

References and Quality of Past Performance on Similar Projects

Recent Stantec Water Quality Projects

Project Name and Client	Project Highlights
Turkey Point Monitoring and Assessment, Florida Power and Light 2009-present Mike Reid 700 Universe Boulevard, Juno Beach, 33408 941-316-6288	• Conducted quarterly sampling at groundwater and surface water stations for several parameters including nutrients, cations, anions, metals, and isotopes. • Developed and executed a rigorous quality assurance plan that involved FDEP SOPs, SFWMD SOPs, as well as SOPs that were unique to the project work plan. • Reviewed analytical data results and produced detailed data usability summary reports for each dataset. • Deployed, maintained, and regularly calibrated automated instrumentation and telemetry equipment at 69 groundwater and 35 surface water stations. • Reviewed, qualified, and validated over 5.5 million data values generated annually. • Analyzed, summarized, and compiled the results into an annual report for both state and federal government agencies.
Madison Blue Springs, Annual Permit Compliance, and Environmental Support Services April 2003-March 2024 Bill Myers 900 Long Ridge Road Stamford, CT 06902 786-442-4045	• Obtained field water quality measurements and collected water samples from the spring pool, spring run, and Withlacoochee River sites and analyzed them for nutrients, major ions, and color. • Developed and conducted the biological monitoring component of the Environmental Monitoring Plan (EMP), developed as a specific condition of the consumptive use permit (CUP) issued by the Suwannee River Water Management District (SRWMD). • Compared Spring discharge, river discharge, water withdrawals, and rainfall to the water quality and biological monitoring data. • Completed statistical analysis on the water quantity, water quality, and biological data (Mann Kendall, ANOVA, PCA, and Spearman's Correlation) to determine if there were any observed trends over time or notable changes in Madison Blue Spring or the Withlacoochee River downstream. • Produced an annual analysis report for 2022 as a requirement of the CUP.
Lake Okeechobee Watershed Restoration Project Aquifer Storage and Recovery Program, SFWMD In Progress Bob Verrastro 3301 Gun Club Road, West Palm Beach, FL 561- 682-6136	• Developed an extensive programmatic quality assurance plan to ensure adherence to the appropriate sampling methodologies, including FDEP, United States Army Corps of Engineers (USACE), and SFWMD SOPs. • Conducted periodic sampling for a wide array of water quality parameters for drinking water parameters. • Reviewed and validated field and analytical results according to the QA/QC procedures detailed in the QA plan or individual Work Plan.
Peace River Monitoring Program, The Mosaic Company Jan 2012-Dec 2024 Rich Mistretta 3033 Campus Drive, Plymouth, MN 55441 763-577-2845	• Conducted semi-annual fish and benthic macroinvertebrate monitoring. • Prepared a comprehensive annual report that analyzed results of the biological, water quantity and water quality standards and general trends. • Analyzed period of record water quantity and quality data for correlations and trends over time utilizing various statistical analysis methods. • Analyzed biological data using diversity and community metrics (Richness and Shannon-Wiener), compared among stations (ANOVA and Morisita's Index), and compared to water quantity and quality metrics over time to determine if either was potentially impacting the fish or macroinvertebrate communities.
Water Quality Monitoring, City of Naples May 2016-present Miguel Flores 295 Riverside Circle Naples, FL 34102 (239) 213-5004	• Collected surface water quality samples for nutrients, bacteriologicals and copper at 10 stormwater lakes monthly and an additional six stormwater lakes and three pump stations. • Completed QA on all sampling results. • Completed a comprehensive analysis of water quality data in the stormwater lakes and segments of Naples Bay where the lakes ultimately discharge

Project Name and Client	Project Highlights
Sarasota Bay Watershed Management Plan, Sarasota County Jan 2020- Sept 2022 Bob Laura 1001 Sarasota Center Blvd, Sarasota, FL, 34240 941-861-5000	• Led the Watershed Management Plan Update through performing a level of service analysis for water quality pollutants to identify project concepts, ultimately to improve the health of the watershed and Sarasota Bay. • Analyzed current water quality conditions and compared to regulatory standards to identify pollutant loading targets for each main basin in the watershed. • Facilitated meetings with stakeholders, to help identify and prioritize a list of capital improvement projects to protect the environment and improve water quality in Sarasota Bay. • Developed a roadmap of funding these projects to help the County pursue the funding available for these projects.
Lakewood Ranch Water Quality Monitoring Program, Manatee and Sarasota Counties, Schroeder-Manatee Ranch, Inc (SMR) May 1994-present 14400 Covenant Way, Lakewood Ranch, 34202 941-755-6574	• Currently providing project management and monitoring at 12 surface water stations in the watershed where municipal reclaimed water is used as an alternative irrigation source for SMR's Braden River Utilities (BRU). • Developed the water quality monitoring programs for SMR's Development of Regional Impact (DRI) projects, including multi-agency negotiations with Manatee and Sarasota counties according to their Land Development Codes and also with FDEP in consideration of the Impaired Waters Rule regulations mandated by EPA. • Management and evaluation of the laboratory results and reporting to multiple regulatory agencies.
Clam Bay Water Quality Analysis, Collier County Jan 2021-Jan 2022 Lisa Jacob 801 Laurel Oak Drive Naples, FL, 34108 239-597-1749	• Analyzed water quality data to determine whether numeric nutrient criteria for total nitrogen and total phosphorous were being met. • Calculated the analyzed values from the raw data using various water quality parameters.
Picayune Watershed Water Quality Feasibility Study, SFWMD Oct 2021-Aug 2022 3301 Gun Club Road West Palm Beach, FL 33406 561-686-8800	• Developed a water quality feasibility study (WQFS) to develop ways of improving water quality of discharges into the downstream Outstanding Florida Waters. • Analyzed local stormwater sampling results and evaluated pertinent studies and applicable literature to form a basis for a future treatment solution.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Contractor Performance Evaluation and Reference Check Form

To the left are thumbnail images of the two requested letters of reference. For full size letters please see the Appendix A following the Key Team Resumes.

Far left: Jake Reilly, Chesapeake Program Director, National Fish and Wildlife Foundation

Near left: Denise Gierhart, South Florida Water Management District

4.

Project Approach

Project Area

The City of Key West is located at the southernmost point of the Florida Keys archipelago, surrounded by ecologically diverse and environmentally sensitive marine waters. These waters include nearshore and offshore ecosystems that fall within the boundaries of the Florida Keys National Marine Sanctuary (FKNMS)- a federally protected marine area managed by the National Oceanic and Atmospheric Administration (NOAA) in partnership with state and local agencies. The Sanctuary spans approximately 3,800 square miles of ocean waters surrounding the Florida Keys, including the waters directly adjacent to Key West.

Key Environmental Features of the Project Area:

- **Coral Reefs and Seagrass Beds:** The waters surrounding Key West include some of the most biologically productive habitats in the Western Hemisphere, including extensive coral reef systems, patch reefs, and seagrass meadows. These ecosystems provide critical habitat for a wide range of marine species and play a key role in maintaining water quality through nutrient uptake and sediment stabilization.
- **Estuarine and Nearshore Waters:** The nearshore areas, including tidal creeks, channels, and mangrove-lined shorelines, serve as vital nursery grounds for fish and invertebrates. These waters are directly influenced by stormwater runoff, boating activity, and shoreline development, making them a focal point for monitoring potential pollution inputs.
- **Urban and Recreational Influence:** As a high-profile tourist destination and a densely developed island, Key West experiences significant human activity year-round. Marinas, boat traffic, cruise ship operations, and recreational use all contribute to potential stressors on water quality. Public beaches, such as Smathers Beach, Rest Beach, Higgs Beach, Fort Zachary Taylor beach, South Beach, and Dog beach, are popular with residents and visitors alike and require consistent monitoring to ensure safe recreational conditions.
- **Sanctuary Protections and Regulations:** The FKNMS includes multiple zones with specific resource protection objectives, such as Sanctuary Preservation Areas (SPAs), Ecological Reserves, and Wildlife Management Areas. These zones are governed by regulations that prohibit activities such as sewage discharge, anchoring on coral, and overboard disposal of waste. The City's monitoring program must be designed with sensitivity to these regulatory frameworks to support compliance and conservation goals.

Relevance to Monitoring Program

The surrounding waters of Key West represent a complex intersection of natural ecosystems and human influence, requiring a water quality monitoring program that is both scientifically rigorous and responsive to local conditions. Monitoring efforts must account for:

- Hydrologic connectivity between nearshore and offshore areas
- Seasonal and tidal variability in water quality parameters
- Pollution sources such as stormwater runoff, boating discharges, and nonpoint source inputs

By situating the monitoring program within this unique environmental context, the City will be able to effectively track changes in water quality, identify areas of concern, and guide future management actions that align with both municipal goals and the broader objectives of the Florida Keys National Marine Sanctuary.

Project Understanding

Our understanding of the project is based upon the Request for Proposals (RFP) issued by the City. The objective of this project is to develop a scientifically robust water quality monitoring plan that will identify water quality issues within the surrounding waterways of Key West. The data generated through this program will serve as a foundation for evidence-based policymaking, enforcement actions, and the development of targeted strategies to mitigate pollution and protect the surrounding marine environment.

This initiative direction supports the City's broader environmental mission to preserve the ecological integrity of the FKNMS. In alignment with this mission, the City has ratified Section 80.3 (Ord. No. 22-07, § 1, 4-5-2022) into its Code of Ordinances to establish a water quality monitoring program to identify pollution violations in the Waterways of the City of Key West.

Pollution from boats (sewage discharge; prohibited since 2010 sanctuary-wide), storm water runoff (nonpoint source of nutrients and contaminants), and marinas and boating (toxic metals from anti-fouling paints, hydrocarbons from motor operations/maintenance, and overboard solid waste disposal [e.g., cardboard frozen bait containers]) have all been identified as contributors to declines in water quality in the Florida Keys. The City has implemented many Best Management Practices (BMPs) in accordance with the FDEP Florida Keys Reasonable Assurance Plan (RAP). However, there remains a need for a structured, science-based monitoring framework to measure the effectiveness of these BMPs, detect emerging problems, and guide additional pollution control efforts. The development of this water quality monitoring program represents a vital next step in the City's ongoing commitment to protecting marine water quality for the benefit of both the FKNMS ecosystem and the community- including residents, visitors and local businesses that depend on clean water.

We understand the City's responsibility to safeguard and maintain high quality water resources. Therefore, we know the data collected must be in accordance with FDEP SOPs and be above legal reproach for their suitability in the implementation of City policies and ordinances. Our team brings years of direct experience working with FDEP-compliant methods and collaborating with regulatory and scientific partners. We are prepared to support the City in designing and implementing a monitoring program that provides

clear, actionable insights into water quality conditions and supports the long-term protection of Key West's treasured marine environment.

Technical Approach

As described above, the sensitivity of resources in the waterways of Key West requires a comprehensive approach for addressing water quality issues and strategizing potential mitigation measures. Stantec's overall technical approach provides a clear structure of the expectations and deliverables to manage complex information and to receive input from diverse perspectives to support environmental decision-making for the near- and long-term.

Throughout all stages of this project, our team will work consistently with the City to maintain a clear process and transparent transmission of information. Our leadership team will make one visit to the City of Key West to discuss with the City the findings of the comprehensive data review and discuss the development of the Water Quality Monitoring Program.

The rationale of our proposed approach derives from our history of related projects and an understanding of the City's mission and goals. Our team consists of experts in the field, and they have worked in the Florida Keys and throughout the State of Florida. We have been engaged in a wide array of water quality projects over the years, so we understand that it is important to develop customized solutions based on the need of the project.

Our project approach is organized into the six tasks, each of which has its own objectives and deliverables, allowing the work to progress in a controlled and cost-effective manner. We will work closely with the City so that the appropriate project development stages and timing are identified.

Task 1: Review Current Relevant Data Across All Geographic Areas of Concern (GOCs) and Identify Opportunities

Under this task, our team will conduct a virtual kickoff meeting with the City to:

1. Confirm goals and objectives of the analysis;
2. Discuss key issues, roles, and responsibilities;
3. Assemble and review data; and
4. Finalize the project schedule, including milestones and deliverables.

We are experienced with evaluating complex water quality data and translating them into actionable strategies. To support the City in developing a comprehensive water quality monitoring program, we will conduct a thorough review of all relevant water quality data across the City's GOCs, identifying key pollutant concerns and opportunities for improvement.

Comprehensive Data Review and Quality Assurance

Our team will begin by compiling and reviewing existing water quality data from multiple sources, including:

- City-collected monitoring data
- FDEP
- FDOH
- Previous studies and consultant reports
- Any relevant stormwater or infrastructure-related data

We will assess all data using proven quality assurance procedures to confirm their reliability and validity, identifying any data gaps or inconsistencies. Our expertise in data QA/QC means that our analysis is based on scientifically sound and regulatory-compliant data.

Identification of Pollutants of Concern by GOC

Using validated data, we will identify the primary pollutants of concern in each GOC, such as nutrients, bacteria, and metals, along with potential sources and seasonal or spatial patterns. By breaking this analysis down geographically, we can target specific challenges unique to each area.

Public-Friendly Data Summarization

We understand the importance of public engagement and transparency. Our team will translate complex water quality findings into plain language so that citizens can easily understand:

- What pollutants are of highest concern
- Where those pollutants are concentrated
- How this impacts recreational and environmental health

This user-friendly summary will support the City's outreach and education efforts, helping to build public trust and awareness.

Identification of Design Opportunities

With pollutants and patterns identified; we will recommend practical, data-driven opportunities for water quality design improvements. These may include:

- Green infrastructure options (e.g., bioswales, rain gardens)
- Stormwater retrofits
- Structural BMPs
- Target source control strategies

Each recommendation will be tailored to the conditions of the needs of the individual GOC and based on our team's technical knowledge of effective water quality design solutions.

Presentation to the City Commission

Our findings and design recommendations will be presented to the City Commission in a format that is both scientifically sound and accessible to decision-makers. The presentation will:

- Summarize key pollutant trends by GOC
- Recommend design strategies linked to those trends
- Invite commission feedback to help prioritize next steps based on impact, feasibility and community needs

With our team's background in water quality sampling, data integrity, and community communication, we are well-positioned to deliver a clear, actionable, and community-focused foundation for the City comprehensive water quality program.

Deliverables for Task 1: One draft and one final technical report summarizing the comprehensive data review, and a water quality dataset of the gathered and compiled data used for analysis.

Task 2: Identify Actions to Mitigate Pollutants

Under Task 2 we will identify actionable measures to mitigate the pollutants identified under Task 1. Using the data and conclusions from Task 1, we will determine feasible and effective mitigation strategies for those pollutants. Our goal is to propose feasible actions to directly address the specific challenges identified in the previous analysis. To accomplish this, we will do the following:

- Compile a list of potential actions the City can employ to reduce the identified pollutant. Example actions include infrastructure improvements, regulatory measures, and community-based programs. We will include estimates of the likely effectiveness of each action in reducing the identified pollutants.
- For the identified actions, we will provide a high-level overview of the scope, technical requirements, timeline, and resources needed for implementation. This will give the City a clear understanding of each action and how it can be realistically achieved within the available resources and timeframes.
- Provide approximate/ballpark cost estimates for each mitigation action that will include initial implementation costs as well as long-term maintenance and monitoring expenses. The actual costs will vary depending on the consultants and/or contractors that perform the work.
- Lastly, the recommendations will be presented to the City Commission. This will be an interactive process where the Commission can provide feedback on the proposed actions, helping refine and prioritize the list of potential mitigation strategies.

Deliverables for Task 2: One draft and one final technical report detailing potential proposed mitigation actions.

Task 3: Design Water Quality Monitoring Programs

During this task we will leverage our technical expertise, previous similar experience and the data collected under Task 1 and 2 to design a comprehensive Water Quality Monitoring Program tailored to the unique environmental conditions of the waterways of Key West. This program will have **two** main goals: (1) establish baseline pollutant levels across the City's GOCs, and (2) track pollutant changes over time in response to the implementation of mitigation actions.

Our highly qualified team will draw on years of experience designing and implementing water quality monitoring programs in coastal and urban environments to develop a Water Quality Monitoring Program that best fits the needs of the City.

- We will use best practices and regulatory guidance (e.g., EPA, FDEP) to inform appropriate sampling design, methodologies, and pollutant parameters.
- We will incorporate existing water quality data and trends gathered during Task 1 to understand historical conditions and spatial pollutant patterns.
- We will build on pollutant prioritization established in earlier tasks to target key contaminants of concern (e.g. nutrients, bacteria, metals, etc.).

The monitoring plans with different sampling scenario options will be structured to achieve two main goals:

1. Establish Baseline Conditions
    - Conduct initial sampling at representative locations within each GOC to quantify baseline concentrations of prioritized pollutants.
    - Determine the appropriate sampling method (grab samples, field parameters, continuous monitoring).
    - Identify spatial and seasonal trends to inform future adaptive management.
2. Track Effectiveness of Mitigation Actions
    - Design follow-up sampling schedules to align with the proposed mitigation strategies.
    - Use consistent sampling locations and methods to measure changes in pollutant levels post-implementation.
    - Include parameters that capture the appropriate targets.

Each sampling scenario will be outlined with detailed line-item costs based on the number and frequency of sampling events, types of parameters analyzed, required lab analyses, equipment, staff time, data management, QA/QC procedures, and optional components such as continuous monitoring stations or public-facing data dashboards.

Stantec's recommendations, including the Water Quality Monitoring Program structure, monitoring goals, and cost scenarios, will be presented to the City Commission for feedback. Based on the City Commission's input, the final program will be adjusted and finalized for alignment with the City's priorities, resources, and long-term environmental goals.

Deliverables for Task 3: One draft and one final technical report with recommended water quality monitoring plans.

Task 4: Increase Availability of Recent Beach Reports

Our team will work to supplement the current Florida Department of Health (FDOH) beach water quality sampling frequency, which will double the sampling events from once every other week to once per week at all four public beaches, while following the current FDOH program sampling methods and approach. The one-year contract period of this project will lead to the collection and analysis of 104 beach water quality samples. Our team has a strong foundation in water quality sampling under FDEP approved

methods including field collection, sample handing, QA/QC and laboratory coordination, meaning that the data collected will meet the same regulatory standards.

Prior to the start of sampling activities, Stantec will coordinate with FDOH to obtain and review the current sampling methods and protocols including:

- Sampling schedule, so that Stantec efforts occur on alternate weeks
- Sampling locations of the four beaches
- Sample collection times and tide conditions
- Sample containers and preservation methods
- Hold times
- Chain of custody procedures

Our Stantec team will use the Eurofins NELAC certified laboratory in Marathon, Florida to analyze the samples and generate the laboratory reports.

Deliverables for Task 4: Bi-weekly laboratory reports with beach water quality sampling results.

Task 5: Increase Community Knowledge of Data/ Beach Report Implications

Our team brings extensive experience in collecting, managing, and interpreting environmental data. We will leverage this expertise to help the City summarize water quality trends both geographically and seasonally, and to advise on effective public education messages that promote safe and informed use of the City's beaches.

Using high-quality FDOH/EPA compliant sampling data collected from all four public beaches we will:

- **Analyze data spatially** to identify which beach locations experience more frequent or severe water quality standards, allowing us to map areas of concern.
- **Evaluate seasonal patterns,** such as changes in water quality related to rainfall, temperature, or visitor volume, to determine when beaches may be at higher risk for contamination.
- **Maintain data integrity** through strict adherence to QA/QC protocols, so that any trends identified are statistically valid and scientifically defensible.
- **Visual trends** using clear charts, maps, and summary tables that can be easily shared with City staff, decision-makers, and the public.

Our analysis will directly support informed management decisions, such as:

- Posting advisory signage during high-risk times
- Adjusting beach maintenance practices or monitoring frequency
- Targeting pollution source investigations in problem areas

We understand that even high-quality data must be communicated effectively to the public in order to protect health and build trust. Based on our analysis of water quality trends, we will help the City with the following:

- Develop clear, accessible educational messages that explain the mean of the FDOH's beach water quality categories (Good, Moderate, Poor), including what those ratings mean for swimmer safety.
- Provide seasonal context in public outreach materials (e.g., "During the rainy season, bacteria levels may be higher.").
- Design visual tools such as infographics or signage to display trends and FDOH advisories in a user-friendly way.
- Coordinate with FDOH to ensure all messaging is consistent with state public heath guidance.

By combining our technical knowledge of water quality with a commitment to clear and transparent communication, we will help the City not only understand water quality trends but also empower residents and visitors to make informed choices about when and where it is safe to swim.

Deliverables for Task 5: One draft and one final technical report summarizing trends in beach water quality monitoring data, and a water quality dataset of the compiled beach water quality data collected by FDOH and as part of this project.

Task 6: Assist with Design of New Beach Water Quality Monitoring Plan

Our team understands that a successful beach water quality monitoring programs requires not only strong technical design, but also close coordination with local stakeholders and subject-matter experts. We will work closely with the City's Water Quality Improvement Plan members and other relevant technical experts to make sure that the beach water quality monitoring program we design is aligned with the City's goals, informed by local expertise, and positioned for long-term success along Key West swimming beaches.

We will actively engage with the Water Quality Improvement Plan members, City staff, and others involved in related initiatives, including:

- Reviewing existing goals and timelines
- Understanding the City's regulatory obligations, planning efforts, and infrastructure constraints
- Identifying shared data needs or opportunities for coordination
- Discuss key design elements of the proposed monitoring program (e.g., parameters, frequency, location, methods)
- Gather feedback on local priorities, known issues and logistical considerations

Our goal is that the beach monitoring program complements the broader water quality strategy efforts being undertaken by the City and supports ongoing planed efforts. We will approach this collaboration as true working meetings where local knowledge is valued and incorporated into the final plan.

Based on feedback gathered during the collaboration efforts, we will refine the monitoring plan, which may include:

- Adjusting sampling site selection or frequency
- Prioritizing certain pollutants or seasons based on local input

- Aligning the monitoring schedule with the other City initiatives

We will maintain open communication with the City throughout the process and will allow for an opportunity for the City to review and provide input on the beach monitoring program. By working closely with the City and technical experts, we will deliver a beach water quality monitoring program that is not only scientifically sound but also community informed, context specific, and ready for real world application.

Deliverables for Task 6: One draft and one final technical report with recommendations for the development of a more robust beach water quality monitoring plan.

Operations Plan

Our core staff proposed for this project have assisted with the development of water quality monitoring networks across Florida, including the data collection, QA/QC, and reporting associated with the programs.

Organization and Coordination of Field Staff and Support Staff

The Deputy Project Manager and Lead Environmental Scientist will be leading the effort for the acquisition and analysis of existing data with support from the Technical Lead. The Field Lead will lead and coordinate the field effort of the Water Quality Sampling team, overseeing the collection of water quality samples at designated beach sites. One sampler will be deployed to the four beach sites during scheduled sampling events. If a designated sampler is unavailable, other experienced members of the project team will step in to ensure consistent and uninterrupted sampling efforts.

The Project Manager and Deputy Project Manager will spend approximately five percent of the project time on project management (e.g., invoicing, scheduling, client communication and coordination). The Deputy Project Manager, Lead Environmental Scientist, and Technical Lead will contribute approximately 50 percent of the project time to the data analysis and report development for task deliverables. Field work in support of Task 4 will comprise approximately 40 percent of the project time and will be completed by the Field Lead and Water Quality Samplers. The remaining five percent of project time will be completed by project support staff (GIS technician, technical editing, and HSSE support).

This contract will be primarily supported by staff from our Coral Gables, Orlando, and Riverview offices; however, we can pull from our staff throughout Florida and globally.

Scheduling Activities

Beach sampling will be scheduled once every other week, Monday through Thursday, on weeks alternate of FDOH sampling. Our team will coordinate sampling efforts with FDOH. The Field Lead will be responsible for checking weather ahead of time to make sure an appropriate field sampling day is scheduled for the given week. The Water Quality Sampler will collect all four beach samples and deliver them to the laboratory within the appropriate hold time the same day of collection for bacterial analysis.

Field Data Entry, QA/QC Methods, and Correction Procedures

All field data collection, entry, and QA/QC will be completed in accordance with the Stantec Quality Manual for Florida (Appendix B). We routinely check FDEP's website for updates to QA/QC SOPs and receive feedback from our corporate network of scientists regarding other updates to SFWMD or EPA SOPs. Because we work on multiple projects that require complying with field and analytical data in Florida, we can keep abreast of changes in FDEP, SFWMD and EPA protocol.

Our team has developed comprehensive QAPPs and Sampling and Analysis Plans that outline data collection methods, analytical procedures, calibration methods, and other technical components. Instituting these protocols ensures that the correct data are being collected at the appropriate level of accuracy and precision in a scientifically and legally defensible manner. Our knowledge of QAPPs, the criteria contained therein, and the ability to comply with the requirements provides a higher level of assurance that the data quality objectives will be met and that appropriate cost-effective changes will be made to facilitate compliance.

Project Management

We take a structured and proactive approach to project management to ensure that all components of the project are completed on schedule, within budget and to the highest quality standards. Our team relies on clearly defined roles, detailed project schedules, and consistent coordination to keep all tasks- ranging from field sampling to data review and reporting- on track. Regular internal check-ins support progress monitoring, early identification of issues, and responsive adjustments to workflows when needed.

Clear and consistent communication will be a cornerstone of this project's success. Our team will maintain regular coordination with the City of Key West through scheduled progress meetings, email updates, and prompt responses to inquiries. Prior to each field sampling event, the Field Lead will communicate with Water Quality Samplers, followed by summary updates upon completion.

Data and reports will be delivered in a clear, organized format. We are also able to use secure, cloud-based platforms for sharing documents and ensuring easy access to project materials. This approach will ensure transparency, responsiveness, and strong collaboration throughout the project.

Equipment

Stantec has 18 offices throughout Florida and over 17,000 square feet of storage space for our available equipment. Below is a list of water quality specific equipment available to our team.

Airboats	Field trucks and SUV's	All-terrain amphibious vehicles
Drones	Transport trailers	Enclosed cargo trailer
Outboard boats (10-26ft)	Swamp buggies	ATVS/UTVs
Canoes/ Kayaks	Peristaltic pumps	Centrifugal & submersible pump
Rubber or plastic tubing	YSI ProDSS multiprobe meters	Hach Quanta water quality sonde
YSI EXO 2 water quality sonde	Hach Quanta water quality sonde	Hach 2100 Portable Turbidimeter
Teledyne Isco Auto-Sampler	Secchi disk	VanDorn (0.5 and 1.0 L capacity)
Carboy for DI water	NIST certified waterproof thermometers	YSI pH 100 Ecosense meter
Salinity refractometer	Solinst water level meter	Chlorophyll Filtering kit
Deionized Water Filtration System	Funnels	Erlenmeyer flasks
Glass beakers	Graduated cylinders	pH testing strips
Conductivity and pH calibration standards	Silver nitrate	Acid cabinet
Water Level Indicators	Rossum sand tester	Chloride field kit
Iron field kit	Hydrogen sulfide field kit	Meter sticks
Waders	Frotus	Temperature data logger
Dip nets	Microscope	ArcGIS

QA/QC Methods and Quality Assurance Manual

Stantec's Quality Manual for Florida, as described in Qualifications, is included in Appendix B. Staff training certifications for FDEP water sampling are also included in Appendix B.

Laboratory Analyses

Beach water quality samples will be submitted to the Eurofins laboratory in Marathon, FL for the analysis of Enterococci spp. Eurofins is a NELAC accredited laboratory that currently analyzes microbial samples for the Florida Keys Aqueduct Authority. The accreditation certificate, including the EPA approved method for Enterococci (Method Code: 60030208) is included in Appendix B.

Subcontractor Documentation

There are no subcontractors as part of this proposal.

5.

Other Information / Value Added Options / Contract Deviations / Other Clients/ Local Familiarity

Why Stantec?

As one of the largest full-service environmental firms, Stantec has built a reputation for quality and cost-effective services. We have more than 850 staff working in 18 offices throughout the state of Florida, giving us a strong Florida focus with specialized teams located throughout the state.

Our team has supported the South Florida Water Management District for over 25 years and our environmental capabilities were enhanced with the hiring of a team with extensive District experience in late 2020 and the acquisition of environmental consulting firms Cardno and Cox McLain in 2021. We hold active contracts for multiple District projects dealing with ASRs, flood control infrastructure, tree islands, STAs, and water quality. Other clients in the regions include the Southwest Florida Water Management District; multiple FDOT districts; numerous counties such as Manatee, Sarasota, Lee, Miami-Dade, Broward, Palm Beach, and Collier; various cities including Venice, North Port, Fort Myers, West Palm Beach, Lake Worth, Sunrise, Cape Coral, and Naples, and countless commercial entities.

Stantec operates as a single cohesive entity, and we offer a unique advantage in that we can leverage project experience and innovation from all over our companies through internal network. In addition, we invest in innovation throughout the world using our internal network. This cohesiveness is readily evident in our Innovation Office where we invest in future technologies to develop and implement new and emerging tools and techniques related to environmental monitoring, artificial intelligence, climate change, and remote sensing.

Additional Capabilities

In addition to our extensive experience in water quality monitoring, Stantec also has successfully delivered a variety of environmental services throughout the Florida Keys and nearby communities, demonstrating our broad expertise and deep understanding of the region's unique ecological and regulatory landscape.

- Seagrass and macroalgae survey/monitoring in Long Key and Conch Key
- In-water surveys for presence-absence and general limits of submerged aquatic vegetation, soft and hard corals (including ESA species), and benthic organisms beneath the Card Sound Bridge conducted by the scientific dive team
- Gulf-Wide In-Water Sea Turtle Data Collection Plan
- Key Deer surveys along the Overseas Trail
- Plant morphology measurements of dominant herbaceous and woody vegetation along Biscayne Bay
- Programmatic Environmental Compliance for Everglades and Dry Tortugas National Park
- Dry Tortugas National Park- Fort Jefferson Counterscarp Repairs and Dredging- Environmental Assessment

You Know Us!

We are proud to have a strong standing relationship with the City in other areas of our practice. We currently have an On-Call Planning Services contract. Previous City contracts include a vulnerability assessment for Duval Street and the Dolphin Pier Replacement.

6.

Cost Effectiveness

Cost Effectiveness

The Stantec Team will proactively manage costs to keep projects on budget. To enable our project managers to drill down to weekly time charges and billing status, Stantec uses Oracle for project financial management. We apply Earned Value Management (EVM) techniques to integrate project scope, time, and cost objectives and measure these against the baseline plan. EVM predicts project outcomes based on actual performance to date and facilitates proactive project management through early identification of potential challenges. Using this methodology, our project manager will conduct monthly meetings with senior project management staff to review project performance. Our proposed cost schedule for this project is presented below.

TASK #	TASK DESCRIPTION	ANTICIPATED HOURS	COST
1	Review Current Relevant Data Across all GOCs and Identify Opportunities	184	$27,956
2	Identify Actions that may Mitigate Pollutants	88	$13,508
3	Design Water Quality Monitoring Programs	100	$15,476
4	Increase Availability of Recent Beach Reports	316	$42,420
5	Increase Community Knowledge of Data/ Beach Report Implications	56	$8,484
6	Assist with Design of New Beach Water Quality Monitoring Plan	88	$13,508
	SUM	832	$121,352
	ADDITIONAL COSTS ASSOCIATED WITH TASK 4	**QUANTITY**	**COST**
	Laboratory sample fees	104	$2,750
	Mileage	8320	$5,824
	Per diem	26	$1,300
	Sampling Materials Fees	1	$50
	SUM		$9,924
	TOTAL		**$131,276**

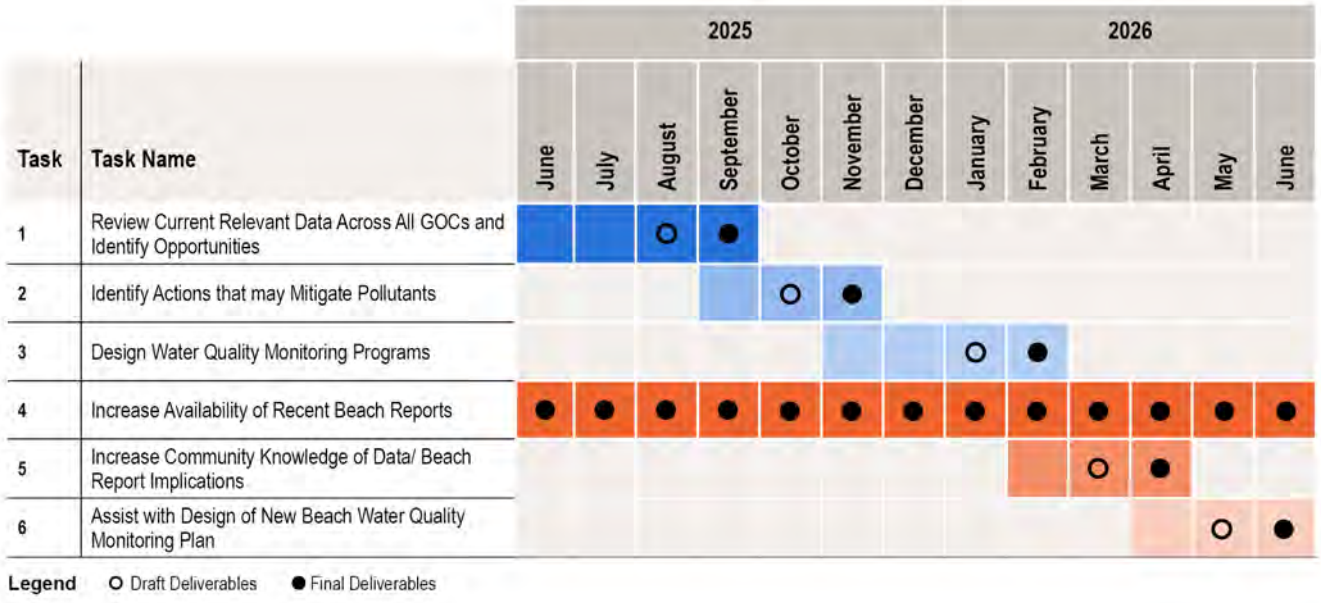
The beach water quality sampling associated with Task 4 has been scoped for the collection of 4 samples, bi-weekly, for one year, for a total of 104 samples collected for analysis. The cost to analyze the samples for Enterococci at the laboratory is $26.44 per sample, for a total of $2,750.00. The total scoped cost for sampling, including time and materials, is $503.31, for a total of $52,344.00 for Task 4.

7.

Project Schedule and Deliverables

Project Schedule

A schedule for completion of the project is presented in the graphic below. The schedule is based on our experience successfully completing similar projects and represents a realistic assessment of the time necessary to complete the work.



Deliverables

Nearly all the work conducted under this contract will end in a report. The content and format of that report will depend upon its purpose and the audience. Our team has authored reports ranging from highly scientific documents that outline details of the methods, statistical analyses, and results in great detail to a graphic heavy, non-technical document that is intended for the lay audience.

Technical Reports

Our team has experience in producing high quality technical report deliverables. Our team includes experts in water quality and has prepared numerous technical reports related to the assessment and development of water quality monitoring programs for local municipalities in Florida. We have prepared several in-depth technical reports for clients that have comprehensively evaluated the sources and effects of nutrient pollution on the water quality of water bodies in Florida. We understand that the reports developed for this project will need to communicate in an easy-to-understand manner the data presented so the residents of the City may understand how the results affect them and their waterways. We will include data summaries in plain language, as our team members have formal training and experience communicating science to the public by making the subjects relatable to shared experiences so they can easily understand the concepts presented.

One draft and one final technical report will be prepared per task for Tasks 1, 2, 3, 5, and 6, the contents of which are defined in the technical approach. The submission of the draft reports will allow a review period for the City to provide comments. After comments are received, we will incorporate them into the final reports. The proposed delivery dates of the reports are shown in the project schedule graphic and allow for the completion of previous tasks to inform the development of the next task's deliverables.

Water Quality Datasets

Our team has experience compiling and managing vast datasets for a variety of water quality programs. We have managed large water quality datasets, including the implementation of extensive suites of statistical methods for data analysis. We have also complied water quality data from several monitoring networks across the State of Florida for comprehensive analyses of water quality status and trends for many clients. We are experienced in managing water quality databases with millions of data points, including the QA/QC of those data through database queries and comparisons to standards and normal parameter ranges.

A comprehensive water quality dataset of data collected and used for analysis will be compiled and submitted to the City with the technical report for Task 1. Laboratory reports containing results of the Enterococci analyses for the beach water quality sampling effort will be submitted to the City bi-weekly as they are received from the laboratory. This will help expedite the dissemination of bacterial contamination status to the public for their health and safety. Beach water quality data from FDOH sampling events and the sampling events for this project will be compiled and submitted to the City with the report for Task 5.

8.

Litigation

Stantec Directors' and Executive Officers' Share Ownership

As of December 31, 2024, the directors and officers of Stantec Inc. as a group beneficially owned, controlled, or directed, either directly or indirectly, 304,569 common shares, which is approximately 0.27% of our issued and outstanding common shares. Stantec is a public company listed on the Toronto Stock Exchange and on the New York Stock Exchange under the symbol STN. Our shares are widely held.

List of Corporate Officers

Gord Johnston – President & Chief Executive Officer
Vito Culmone – Executive Vice President & Chief Financial Officer
John Take – Executive Vice President, Chief Growth & Innovation Officer
Susan Reisbord – Executive Vice President, Chief Operating Officer – North America
Cath Schefer – Executive Vice President & CEO – Global
Kenna Houncaren – Executive Vice President & Chief Corporate Services Officer
Ryan Roberts – Executive Vice President, Chief Practice Officer
Asifa Samji – Executive Vice President, Chief Human Resources Officer
Paul Alpern – Executive Vice President & General Counsel
Bjorn Morisbak – Executive Vice President & Chief Corporate Development Officer

Stantec's story is the story of our relationships with our clients. It's the story of how we've continued to improve the quality of life in communities around the world while working behind the scenes through our projects. We take pride in a long history of being part of the communities we serve. We started in 1954 as a one-person firm, and today, the Stantec community unites approximately 32,000 employees working in over 450+ locations across 6 continents. This growth has been guided by our founder and first chief executive officer (CEO), Dr. Don Stanley, and our previous CEOs, Ron Triffo, Tony Franceschini, and Bob Gomes. Our fifth and current CEO, Gord Johnston, continues a legacy of tenacious leadership and community focus.

Stantec Board of Directors

The board is responsible for the stewardship of our Company, and the board's actions reflect its responsibility to establish proper business practices, appropriate ethical standards, and leading inclusive policies. The board oversees the conduct, direction, and results of the business and fosters accountability, guiding Stantec towards the implementation of its vision and mission- with every community, we redefine what's possible.

The board of directors presently has nine members, the majority of whom are from outside Stantec. Eight of the current directors are unrelated to Stantec, independent of its management, and free from any interest or relationship that could materially interfere with their ability to act in the best interests of the Company.

Board of Directors

Martin A. à Porta
Douglas K. Ammerman, Chair
Shelley A.M. Brown
Angeline G. Chen
Rick Eng
Gord A. Johnston*
Christopher F. Lopez
Marie-Lucie Morin
Celina J. Wang Doka
*non-independent

Stantec Consulting Services Inc. Prior Names in Florida:

Name change filed 04/08/2005 – old name was Stantec Consulting Group Inc.
Name change filed 01/31/2005 – old name was Stantec Consulting Group, Inc.
Name change filed 01/31/2005 – old name was The Sear-Brown Group, Inc.

Answers to questions regarding claims and suits:

a. Has the person, principals, entity, or any entity previously owned, operated or directed by any of its officers, major shareholders or directors, ever failed to complete work or provide the goods for which it has contracted? **No.**

b. Are there any judgments, claims, arbitration proceeding or suits pending or outstanding against the person, principal of the entity, or entity, or any entity previously owned, operated or directed by any of its officers, directors, or general partners?

   There are no unsatisfied judgments, or arbitration awards outstanding against Stantec. Stantec does have some legal proceedings, lawsuits, or claims pending. These are a normal part of professional services industries. All have been reported to Stantec's insurers who are in the process of adjusting/managing them. None will have a material effect on the financial position of the company or its ability to undertake this assignment. Perhaps of greater comfort to our clients is the fact that Stantec seeks to deal with client concerns and claims promptly and fairly through its Risk Management group. As a public company, Stantec has substantial assets and maintains a high professional liability insurance limit. Stantec's claims history has resulted in relatively low insurance premiums when compared with firms of similar size and character.

c. Has the person, principal of the entity, entity, or any entity previously owned, operated or directed by any of its officers, major shareholders or directors, within the last five (5) years, been a party to any lawsuit, arbitration, or mediation with regard to a contract for services, goods or construction services similar to those requested in the specifications with private or public entities? **No.**

d. Has the person, principal of the entity, or any entity previously owned, operated or directed by any of its officers, owners, partners, major shareholders or directors, ever initiated litigation against the City or been sued by the City in connection with a contract to provide services, goods or construction services? **No.**

e. Whether, within the last five (5) years, the owner, an officer, general partner, principal, controlling shareholder or major creditor of the person or entity was an officer, director, general partner, principal, controlling shareholder or major creditor of any other entity that failed to perform services or furnish goods similar to those sought in the request for competitive solicitation; **No.**

Customer references

Jake Reilly
National Fish and Wildlife Foundation
1625 Eye Street, N.W. Suite 300, Washington, D.C. 20006
202-595-2610

Mike Reid
Florida Power and Light
700 Universe Boulevard, Juno Beach, FL 33408
941-316-6288

Denise Gierhart
South Florida Water Management District
8894 Belvedere Road, West Palm Beach, FL 33411
561-682-4753

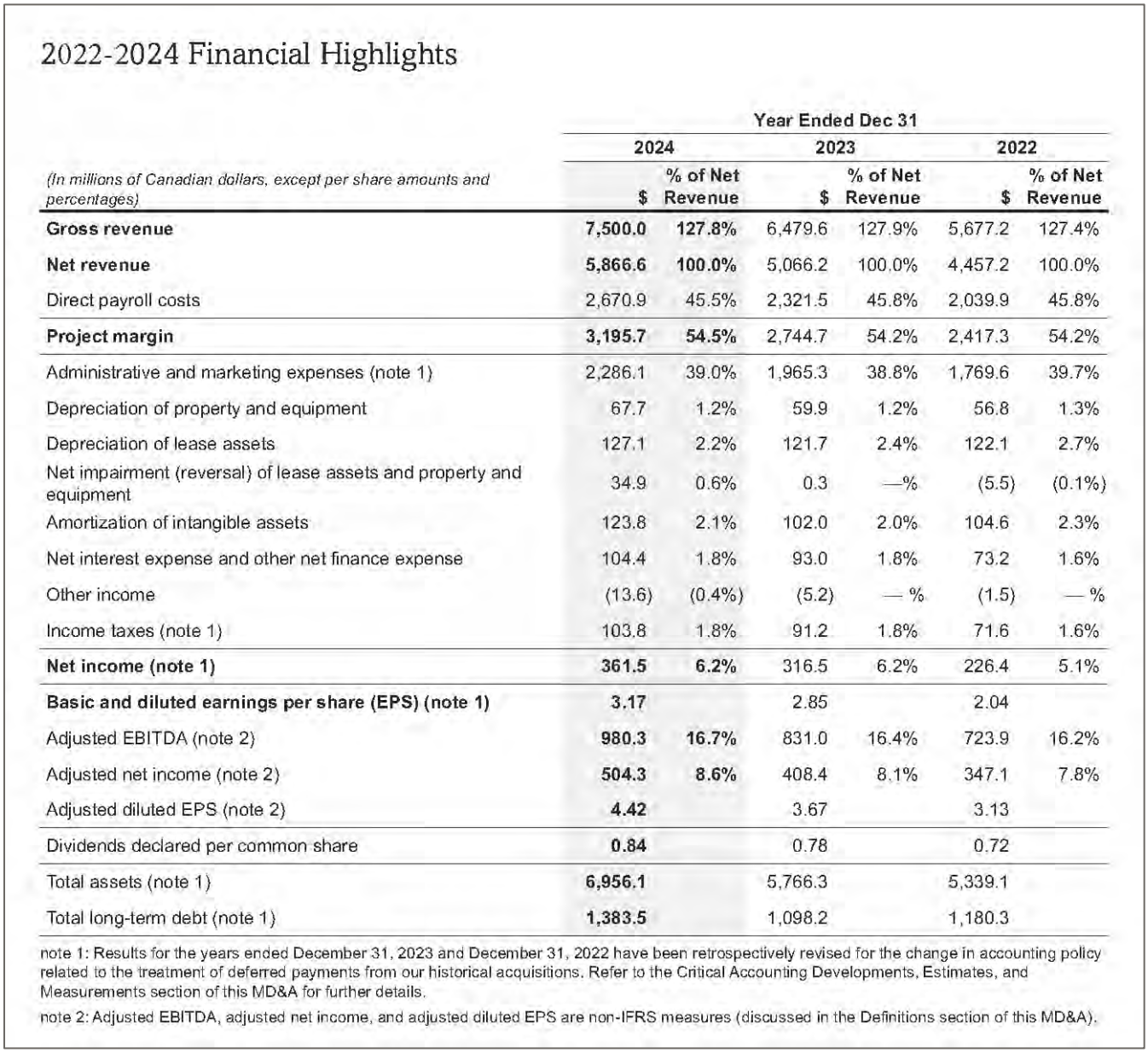
Stantec Trade Credit References:

Grainger
Phone: (847) 647-2060 Stantec Account #869461848

Staples Advantage
Account# 1819542LA – All requests must include the account number.
Email: creditreference@staples.com

Atlantic Relocation Systems, Agent of Atlas
Michael McCaddon, Sr. VP
Email: helpingu@atlanticrelocation.com

Financial Statements (2022-2024): See thumbnail below and full-size two-page report located after our client letters of reference in Appendix A.



2022-2024 Financial Highlights

(In millions of Canadian dollars, except per share amounts and percentages)	Year Ended Dec 31 2024 $	2024 % of Net Revenue	2023 $	2023 % of Net Revenue	2022 $	2022 % of Net Revenue
Gross revenue	**7,500.0**	**127.8%**	6,479.6	127.9%	5,677.2	127.4%
Net revenue	**5,866.6**	**100.0%**	5,066.2	100.0%	4,457.2	100.0%
Direct payroll costs	2,670.9	45.5%	2,321.5	45.8%	2,039.9	45.8%
Project margin	**3,195.7**	**54.5%**	2,744.7	54.2%	2,417.3	54.2%
Administrative and marketing expenses (note 1)	2,286.1	39.0%	1,965.3	38.8%	1,769.6	39.7%
Depreciation of property and equipment	67.7	1.2%	59.9	1.2%	56.8	1.3%
Depreciation of lease assets	127.1	2.2%	121.7	2.4%	122.1	2.7%
Net impairment (reversal) of lease assets and property and equipment	34.9	0.6%	0.3	—%	(5.5)	(0.1%)
Amortization of intangible assets	123.8	2.1%	102.0	2.0%	104.6	2.3%
Net interest expense and other net finance expense	104.4	1.8%	93.0	1.8%	73.2	1.6%
Other income	(13.6)	(0.4%)	(5.2)	— %	(1.5)	— %
Income taxes (note 1)	103.8	1.8%	91.2	1.8%	71.6	1.6%
Net income (note 1)	**361.5**	**6.2%**	316.5	6.2%	226.4	5.1%
Basic and diluted earnings per share (EPS) (note 1)	**3.17**		2.85		2.04	
Adjusted EBITDA (note 2)	**980.3**	**16.7%**	831.0	16.4%	723.9	16.2%
Adjusted net income (note 2)	**504.3**	**8.6%**	408.4	8.1%	347.1	7.8%
Adjusted diluted EPS (note 2)	**4.42**		3.67		3.13	
Dividends declared per common share	**0.84**		0.78		0.72	
Total assets (note 1)	**6,956.1**		5,766.3		5,339.1	
Total long-term debt (note 1)	**1,383.5**		1,098.2		1,180.3	

note 1: Results for the years ended December 31, 2023 and December 31, 2022 have been retrospectively revised for the change in accounting policy related to the treatment of deferred payments from our historical acquisitions. Refer to the Critical Accounting Developments, Estimates, and Measurements section of this MD&A for further details.

note 2: Adjusted EBITDA, adjusted net income, and adjusted diluted EPS are non-IFRS measures (discussed in the Definitions section of this MD&A).

9.

City Forms

ANTI-KICKBACK AFFIDAVIT

STATE OF Florida)

: SS

COUNTY OF Orange)

I, the undersigned hereby duly sworn, depose and say that no portion of the sum herein bid will be paid to any employees of the City of Key West as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

By: Nimes S Edu

Sworn and subscribed before me this 15th day of April 2025.

Wendy Wiles
NOTARY PUBLIC, State of Florida at Large

WENDY WILES
Notary Public - State of Florida
Commission # HH 394867
My Comm. Expires Jul 29, 2027
Bonded through National Notary Assn.

My Commission Expires: 7/29/2027

SWORN STATEMENT UNDER SECTION 287.133(3)(A)
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted with Bid or Proposal for City of Key West RFP#25-004 Water Quality Monitoring Program

2. This sworn statement is submitted by Stantec Consulting Services, Inc.
(name of entity submitting sworn statement)
whose business address is 4798 New Broad Street, Suite 100, Orlando, FL 32814

and (if applicable) its Federal Employer Identification Number (FEIN) is FEIN 11-2167170

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement _____

3. My name is Nick Eide
(please print name of individual signing)
and my relationship to the entity named above is Senior Biologist, Project Manager

4. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including but not limited to, any bid or contract for goods or services to be provided to any public or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, material misrepresentation.

5. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication guilt, in any federal or state trial court of record relating to charges brought by indictment information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

6. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means

   1. A predecessor or successor of a person convicted of a public entity crime; or

   2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

7. I understand that a "person" as defined in Paragraph 287.133(1)(8), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

8. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies).

   _X_ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

   _____ There has been a proceeding concerning the conviction before a hearing of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

   _____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or

affiliate from the convicted vendor list. (Please attach a copy of the final order.)

X
_____The person or affiliate has not been put on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

Nicholas S Eide
(signature)

4-15-25
(date)

STATE OF Florida

COUNTY OF Orange

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

Nicholas Eide who, after first being sworn by me, affixed his/her
(name of individual signing)

signature in the space provided above on this 15th day of April, 2025.

My commission expires:
7/29/2027

Wendy Wiles
NOTARY PUBLIC

WENDY WILES
Notary Public - State of Florida
Commission # HH 394867
My Comm. Expires Jul 29, 2027
Bonded through National Notary Assn.

CITY OF KEY WEST INDEMNIFICATION FORM

To the fullest extent permitted by law, the Consultant expressly agrees to indemnify and hold harmless the City of Key West, their officers, directors, agents and employees *(herein called the "indemnitees") from liabilities, damages, losses and costs, including but not limited to, reasonable attorney's fees and court costs, such legal expenses to include costs incurred in establishing the indemnification and other rights agreed to in this Paragraph, to persons or property, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the Consultant, its Subcontractors or persons employed or utilized by them in the performance of the Contract. Claims by indemnitees for indemnification shall be limited to the amount of Consultant's insurance or $1 million per occurrence, whichever is greater. The parties acknowledge that the amount of the indemnity required hereunder bears a reasonable commercial relationship to the Contract and it is part of the project specifications or the bid documents, if any.

The indemnification obligations under the Contract shall not be restricted in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Consultant under Workers' Compensation acts, disability benefits acts, or other employee benefits acts, and shall extend to and include any actions brought by or in the name of any employee of the Consultant or of any third party to whom Consultant may subcontract a part or all of the Work. This indemnification shall continue beyond the date of completion of the work.

CONSULTANT: 4798 New Broad St, Suite 100, Orlando, FL 32814 SEAL:

Address

Nicholas S Eide Digitally signed by Eide, Nicholas Date: 2025.04.09 09:25:27 -04'00'

Signature

Nick Eide

Print Name

Senior Biologist, Project Manager

Title

STANTEC CONSULTING SERVICES INC. Corporate Seal

DATE: April 9, 2025

EQUAL BENEFITS FOR DOMESTIC PARTNERS AFFIDAVIT

STATE OF Florida)

: SS

COUNTY OF orange)

I, the undersigned hereby duly sworn, depose and say that the firm of Stantec Consulting Services, Inc.

provides benefits to domestic partners of its employees on the same basis as it provides benefits to employees' spouses, per City of Key West Code of Ordinances Sec. 2-799.

By: Nicholas S Eide Nicholas S Eide

Sworn and subscribed before me this 15th day of April 2025.

Wendy Wiles

NOTARY PUBLIC, State of Florida at Large

My Commission Expires: 7/29/2027

WENDY WILES
Notary Public - State of Florida
Commission # HH 394867
My Comm. Expires Jul 29, 2027
Bonded through National Notary Assn.

CONE OF SILENCE AFFIDAVIT

STATE OF Florida)

: SS

COUNTY OF Orange)

I, the undersigned hereby duly sworn, depose and say that all owner(s), partners, officers, directors, employees and agents representing the firm of Stantec Consulting Services, Inc. have read and understand the limitations and procedures regarding communications concerning City of Key West Code of Ordinances Sec. 2-773 Cone of Silence.

By: Nicole S Gil

Sworn and subscribed before me this

15th day of April 20 25.

Wendy Wiles

NOTARY PUBLIC, State of Florida at Large

My Commission Expires: 7/29/2027

WENDY WILES
Notary Public - State of Florida
Commission # HH 394867
My Comm. Expires Jul 29, 2027
Bonded through National Notary Assn.

NON-COLLUSION AFFIDAVIT

STATE OF FLORIDA)

:

SS COUNTY OF ~~MONROE~~ Orange

I, the undersigned hereby declares that the only persons or parties interested in this Proposal are those named herein, that this proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

By: Willis S Eddi

Sworn and subscribed before me this

15th day of April, 2025

Wendy Wiles

NOTARY PUBLIC, State of Florida at Large

My Commission Expires: 7/29/2027

WENDY WILES
Notary Public - State of Florida
Commission # HH 394867
My Comm. Expires Jul 29, 2027
Bonded through National Notary Assn.

NOT APPLICABLE for Stantec Consulting Services, Inc.

LOCAL VENDOR CERTIFICATION

PURSUANT TO CITY OF KEY WEST CODE OF ORDINANCES SECTION 2-798

The undersigned, as a duly authorized representative of the vendor listed herein, certifies to the best of his/her knowledge and belief, that the vendor meets the definition of a "Local Business." For purposes of this section, "local business" shall mean a business which:

a. **Principle address as registered with the FL Department of State located within 30 miles of the boundaries of the city, listed with the chief licensing official as having a business tax receipt with its principle address within 30 miles of the boundaries of the city for at least one year immediately prior to the issuance of the solicitation.**

b. **Maintains a workforce of at least 50 percent of its employees from the city or within 30 miles of its boundaries.**

c. **Having paid all current license taxes and any other fees due the city at least 24 hours prior to the publication of the call for bids or request for proposals.**

- Not a local vendor pursuant to Code od Ordinances Section 2-798
- Qualifies as a local vendor pursuant to Code od Ordinances Section 2-798

If you qualify, please complete the following in support of the self-certification & submit copies of your County and City business licenses. Failure to provide the information requested will result in denial of certification as a local business.

Business Name Phone:

Current Local Address: Fax:
(P.O Box numbers may not be used to establish status)

Length of time at this address

_____ _____
Signature of Authorized Representative Date

STATE OF_____
COUNTY OF_____
The foregoing instrument was acknowledged before me this _____day of _____, 20___.
By_____, of_____
(Name of officer or agent, title of officer or agent) Name of corporation acknowledging)
or has produced_____as identification
(type of identification)

_____
Signature of Notary

_____
Print, Type or Stamp Name of Notary

Return Completed form with
Supporting documents to:
City of Key West Purchasing

_____
Title or Rank

THE CITY OF KEY WEST E-VERIFY AFFIDAVIT

Beginning January 1, 2021, Florida law requires all contractors doing business with The City of Key West to register with and use the E-Verify System in order to verify the work authorization status of all newly hired employees. The City of Key West requires all vendors who are awarded contracts with the City to verify employee eligibility using the E-Verify System. As before, vendors are also required to maintain all I-9 Forms of their employees for the duration of the contract term. To enroll in the E-Verify System, vendors should visit the E-Verify Website located at www.e-verify.gov.

In accordance with Florida Statute § 448.095, **it is the responsibility of the Awarded Vendor to ensure compliance with all applicable E-Verify requirements.**

By executing this affidavit, the undersigned contractor verifies it compliance with Florida Statute § 448.095, stating affirmatively that the individual, firm, or corporation which is engaged in the performance of services on behalf of the City of Key West, has registered with, is authorized to use, and uses the U.S. Department of Homeland Security's E-Verify system.

Furthermore, the undersigned contractor agrees that it will continue to use E-Verify throughout the contract period, and should it employ or contract with any subcontractor(s) in connection with the performance of services pursuant to this Agreement with The City of Key West, contractor will secure from such subcontractor(s) similar verification of compliance with Florida Statute § 448.095, by requiring the subcontractor(s) to provide an affidavit attesting that the subcontractor does not employ, or subcontract with, an unauthorized alien. Contractor further agrees to maintain records of such compliance during the duration of the Agreement and provide a copy of each such verification to The City of Key West within five (5) business days of receipt.

Failure to comply with this provision is a material breach of the Agreement and shall result in immediate termination of the Agreement without penalty to the City of Key West. Contractor shall be liable for all costs incurred by the City of Key West to secure replacement Agreement, including but not limited to, any increased costs for the same services, and costs due to delay, and rebidding costs, if applicable.

4-15-25
Date

(Signature of Authorized Representative)

State of Florida,
County of Orange,

Personally Appeared Before Me, the undersigned authority, Nicholas Eide who, ☒ being personally know or ☐ having produced his/her signature in the space provided above on this 15th day of April, 2025.

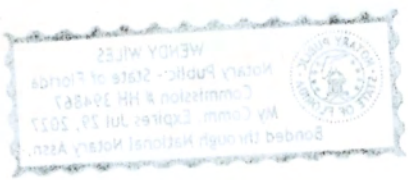
Wendy Wiles

My Commission Expired:
7/29/2027

WENDY WILES
Notary Public - State of Florida
Commission # HH 394867
My Comm. Expires Jul 29, 2027
Bonded through National Notary Assn.

Signature, Notary Public Commission Expires

Stamp/Seal:



AFFIDAVIT ATTESTING TO NONCOERCIVE CONDUCT

FOR LABOR OR SERVICES

Entity/Vendor Name: Stantec Consulting Services, Inc.

Vendor FEIN: 11-2167170

Vendor's Authorized Representative: Nick Eide, Senior Biologist, Project Manager

(Name and Title)

Address: 4798 New Broad St., Suite 100

City: Orlando State: Florida Zip: 32814

Phone Number: 407-541-0230

Email Address: nicholas.eide@stantec.com

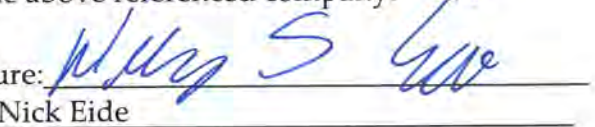
As a nongovernmental entity executing, renewing, or extending a contract with a government entity, Vendor is required to provide an affidavit under penalty of perjury attesting that Vendor does not use coercion for labor or services in accordance with Section 787.06, Florida Statutes.

As defined in Section 787.06(2)(a), coercion means:

1. Using or threating to use physical force against any person;
2. Restraining, isolating, or confining or threating to restrain, isolate, or confine any person without lawful authority and against her or his will;
3. Using lending or other credit methods to establish a debt by any person when labor or services are pledged as a security for the debt, if the value of the labor or services as reasonably assessed is not applied toward the liquidation of the debt, the length and nature of the labor or service are not respectively limited and defined;
4. Destroying, concealing, removing, confiscating, withholding, or possessing any actual or purported passport, visa, or other immigration document, or any other actual or purported government identification document, of any person;
5. Causing or threating to cause financial harm to any person;
6. Enticing or luring any person by fraud or deceit; or
7. Providing a controlled substance as outlined in Schedule I or Schedule II of Section 893.03 to any person for the purpose of exploitation of that person.

As a person authorized to sign on behalf of Vendor, I certify under penalties of perjury that Vendor does not use coercion for labor or services in accordance with Section 787.06. Additionally, Vendor has reviewed Section 787.06, Florida Statutes, and agrees to abide by same.

Certified By: Nick Eide, who is authorized to sign on behalf of the above referenced company.

Authorized Signature: 

Print Name: Nick Eide

Title: Senior Biologist, Project Manager

VENDOR CERTIFICATION REGARDING
SCRUTINIZED COMPANIES LISTS

Respondent Vendor Name: Stantec Consulting Services, Inc.

Vendor FEIN: 11-2167170

Vendor's Authorized Representative Name and Title: Nick Eide, Senior Biologist, Project Manager

Address: 4798 New Broad Street, Suite 100

City: Orlando State: Florida Zip: 32814

Phone Number: 407-541-0230

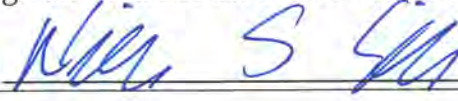
Email Address: nicholas.eide@stantec.com

Section 287.135(2)(a), Florida Statutes, prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services of any amount if, at the time of contracting or renewal, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to section 215.4725, Florida Statutes, or is engaged in a boycott of Israel. Section 287.135(2)(b), Florida Statutes, further prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services over one million dollars ($1,000,000) if, at the time of contracting or renewal, the company is on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, both created pursuant to section 215.473, Florida Statutes, or the company is engaged in business operations in Cuba or Syria.

As the person authorized to sign on behalf of Respondent, I hereby certify that the company identified above in the section entitled "Respondent Vendor Name" is not listed on either the Scrutinized Companies that Boycott Israel List, Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List I understand that pursuant to section 287.135, Florida Statutes, the submission of a false certification may subject such company to civil penalties, attorney's fees, and/or costs and termination of the contract at the option of the awarding governmental entity.

Certified By: Nick Eide (*Print Name*) Senior Biologist, Project Manager (*Print Title*),

who is authorized to sign on behalf of the above referenced company.

Authorized Signature:  .

END OF SECTION 4

10.

Project Location and Local Preference

Statement Regarding Project Location and Local Preference

The Stantec community unites approximately 32,000 employees working in over 450 locations across 6 continents. We have 18 offices in Florida with more than 150 environmental staff who provide a range of environmental services consistent with the scope of work. Many of our staff have been working in Florida for over 25, possessing detailed knowledge of the environmental issues, landscape, and local regulatory processes.

With key field resources based in our Coral Gables office and additional support from our Orlando, Tampa, and Riverview offices, Stantec is well-positioned to mobilize resources as needed to support this project in Key West.

Appendix A

Qualifications and References

- Key Team Resumes
- Client Reference Letters
- Stantec Financial Overview and Certificates

Nick Eide

Project Manager

18 years of experience · Orlando, Florida

Nick is an experienced Senior Biologist and Project Manager who has led and managed biological resources evaluations and documentation as well as regulatory permitting and compliance efforts. His expertise in project management includes mobilizing, managing, and coordinating with staff and technical experts on projects; working collaboratively with clients and regulatory agencies on projects to ensure effective solutions to biological resource issues; and providing clients with project deliverables on time and on budget.

As a Senior Biologist, Nick has considerable experience with biological resources evaluations and documentation for large and complex projects including special-status species surveys, habitat classification and evaluations, aquatic resources delineations, wetland functional assessments using WRAP and UMAM, and arborist surveys. Nick's experience also includes managing the preparation of technical reports/documents (e.g., aquatic resources delineations, biological resource assessments, habitat evaluations), CEQA and NEPA documents, and state and federal regulatory permitting (e.g., Clean Water Act Sections 404 and 401 applications, biological assessments for ESA Section 7 compliance, preparing HCPs for compliance under ESA Section 10(a)(1)(B), Notice of Lake or Streambed Alteration for FGC Section 1600 compliance, etc.).

EDUCATION

Bachelor of Science, Biology, Sonoma State University, Rohnert Park, California

PROJECT EXPERIENCE

Orange County State of the Wetlands Assessment * | Orange County | Orange County, Florida | Project Manager and Sr. Ecologist

As the project manager and senior ecologist, Nick led the field efforts to assess the health of over 50 wetland mitigation sites that were placed under conservation easement over 15 years ago. As part of the efforts Nick used both the Wetland Rapid Assessment Procedure (WRAP) or the Uniform Mitigation Assessment Method (UMAM) functional assessment methods to score each of the wetlands evaluated and compared the current scores to those predicted at the time the permits were issued.

Nick was also responsible for leading the development of the State of the Wetlands report for the project with included an evaluation of past vs. present wetland conditions, data/information/statistics from a variety of remote sensing and available imagery sources, UAS hyperspectral imagery mapping analysis, and available published literature and white papers, and providing recommendations to Orange County on potential regulatory and policy modifications that could be implemented to benefit wetland systems to be used as mitigation in the future.

Trinity River Restoration Project, Dutch Creek Rehabilitation Project | Bureau of Reclamation | Trinity County, California | Biologist/Wetland Specialist

Nick assisted with the preparation of the EA/IS for the Trinity River Restoration Program, Dutch Creek Rehabilitation site The Dutch Creek Rehabilitation site is part of the larger Trinity River Restoration Program, which involved restoration activities along 40-miles of the Trinity River in an effort to increase habitat for all life stages of naturally produced anadromous fish native to the Trinity River in the amounts necessary to reach congressionally mandated goals. The Dutch Creek Rehabilitation site was one of the Phase 2 sites included in the Trinity River Mainstem Fishery Restoration Master EIR and EA/EIR. The Dutch Creek Rehabilitation site encompassed approximately 160 acres along the mainstem of the Trinity River down stream of Lewiston Dam.

Tasks performed for this project included a reconnaissance-level survey, preparing the CEQA initial study checklist and a number of chapters and sections of the Environmental Assessment, including the biological resources sections and the development of avoidance and minimization measures for biological resources.

SeaPort Manatee—South Port Container Yard Expansion and Electrification, Phase 3 Project, NEPA and Ecological Support | SeaPort Manatee | Palmetto, FL | Project Manager

Managed the biological site evaluations and preparation of a NEPA EA for SeaPort Manatee. The biological site evaluations included a wetland delineation in accordance with the USACE and FDEP methodologies and requirements, and a listed species evaluation to support Endangered Species Act Section 7 consultation with the USFWS. The NEPA EA was prepared in accordance with the current CEQ guidelines, including evaluating cumulative effects and guiding the client on effective strategies for public noticing.

** denotes projects completed with other firms*

Ashley Parks

Deputy Project Manager

17 years of experience · Orlando, Florida

Ashley's professional experience has been focused on studying relationships between water quality and harmful algal blooms to determine mitigation and management strategies for improved water quality conditions and overall ecosystem health. Her highlighted skills include field data collection, laboratory nutrient analyses, data quality assurance and analysis, and sensor implementation and integration. She was integral in the development of a continuous water quality monitoring program in the Indian River Lagoon, Florida and Upper St. Johns River Basin, Florida for which she developed standard operating procedures (SOP) in coordination with the Florida Department of Environmental Protection (FDEP) and performed quality assurance of field and laboratory data. Ashley has also developed sampling and analysis plans (SAP) and quality assurance project plans (QAPP) for municipal and federal clients with a focus on projects that include the implementation of equipment for in situ water quality monitoring.

EDUCATION

MS, Chemical Oceanography, Univ of South Florida, Tampa

BS, Marine Science, Eckerd College, Saint Petersburg, FL

CERTIFICATIONS & TRAINING

30-Hour Construction Safety, OSHA, Melbourne, FL, 2023

First Aid-CPR, Health and Safety Inst., Melbourne, FL, 2023

Open Water Diver, PDIC Int'l, Saint Petersburg, FL, 2003

Boating Safety, State of Florida, Saint Petersburg, FL, 2003

PROJECT EXPERIENCE

Technical and Procurement Assistance for Nutrient Monitoring * | Osceola County, Florida | Environmental Scientist

Ashley was part of the team responsible for developing and implementing a sampling program for Osceola County for the purpose of evaluating the quality of water entering the County waters, including from other jurisdictions, as part of the County's Master Surface Water Management Plan. The focus of the sampling program is nutrients, including nitrogen and phosphorus, that contribute to the impairment of several waterbodies within the County. Tasks associated with this project include analysis of existing analytical data and data gaps; field reconnaissance and site selection; developing a Sampling and Analysis Plan (SAP) for sampling equipment operation, maintenance, and calibration; and developing a Quality Assurance Project Plan (QAPP). Ashley was responsible for SAP and QAPP development.

State of the Indian River Lagoon Technical Report * | Indian River Lagoon National Estuaries Program | Environmental Scientist

The Indian River Lagoon National Estuaries Program (IRLNEP) selected consultants to complete a comprehensive, science-driven technical report for the Indian River Lagoon (IRL) and its watershed. Ashley, other multi-disciplinary experts from the scientific community, as well as resource managers were assembled to guide the State of the Lagoon Technical Report and complete a multi-year work plan with milestones. The work plan was developed using data sources, availability, and gaps to guide data acquisition and needs. The State of the Lagoon Technical Report development aligned key stressors and condition indicators with vital signs in the IRLNEP Comprehensive Conservation and Management Plan through a comprehensive literature review and data synthesis of the critical stress and condition/response indicators for each vital sign. Ashley was one of the report writers and was responsible for data analysis and reporting of the IRL habitats, including seagrass, macroalgae, oyster reefs, epifauna and infauna, and shoreline habitats; and water quality indicators, including dissolved oxygen, chlorophyll, and harmful algal blooms.

DeSoto Canal Muck Removal Feasibility Analysis * | Florida Fish & Wildlife Conservation Commission | Satellite Beach, Florida | Project Manager

While at a predecessor firm, Ashley and her team were subcontracted to determine an appropriate muck removal scenario to allow for an increase in the DeSoto Canal's capacity for wintering manatees without removing the thermal characteristics necessary to maintain it as a thermal refuge. The physical characteristics of the canal were assessed for the creation and analysis of a 2D hydrodynamic model to determine the outcome of different muck removal scenarios. Ashley was responsible for the Sampling and Analysis Plan development, the sampling design and installation of monitoring equipment, equipment maintenance, final reporting, and coordinating with the client.

Field Monitoring Associated with Biosolids Application in the St. Johns River Watersheds * | Environmental Consulting & Technology, Inc. for St. Johns River Water Management District | Project Manager, Lead Field Scientist

Ashley helped provide field monitoring services in support of the St. Johns River Water Management District (SJRWMD) contract to investigate the quality of surface waters in areas where biosolids and biosolids derivative products have been land-applied. The objective of this study was to collect data to improve the understanding of the relationship between the timing, types and amounts of biosolids applied within watersheds, and the water quality of runoff waters draining these lands. Ashley collected stormwater runoff samples at numerous biosolid application sites within the St. Johns River watersheds to distinguish runoff effects. Grab samples were collected and analyzed for nutrients, metals, and general water quality parameters. Ashley was responsible for coordination with the client and laboratory, as well as surface water sampling, quality assurance of the data, and reporting.

** denotes projects completed with other firms*

Haley Carter

Lead Environmental Scientist

10 years of experience · Orlando, Florida

Haley is an Environmental Scientist with a strong background in surface water quality sampling, biological monitoring, and data quality assurance. She has ensured data quality for monthly, weekly, and annual surface water sampling projects for many lakes, rivers and springs in the Central Florida area. She consistently meets client expectations regarding timeliness, high quality work and deliverables. She was trained by FDEP in Status and Trends Network surface water quality sampling and Habitat Assessments. Haley also provides technical assistance with Quality Assurance Project Plans (QAPP) as required by EPA-funded projects.

She has performed submerged aquatic vegetation surveys, fish sampling, and soil/sediment sampling. Haley has experience with FWC gopher tortoise permitting and relocations, Bald Eagle, and Crested Caracara monitoring in compliance with US Fish and Wildlife Service protocols and other threatened and Endangered species surveys including, Florida Scrub Jay, Burrowing Owl, and Atlantic Salt Marsh Snake. Haley has conducted sea turtle nesting surveys and independent research on the impact of coastal armoring on nesting sea turtles.

EDUCATION

Bachelor of Science, Aquatic and Marine Biology, Stetson University, Deland, Florida

CERTIFICATIONS & TRAINING

Status and Trend Networks Sampling Workshop, Florida Department of Environmental Protection, Tallahassee, Florida, 2017

Airboat Operator Certification Course, U.S. Department of the Interior, Florida, 2018

Adult, Child and Baby First Aid/CPR/ AED, American Red Cross, Florida, 2024

PROJECT EXPERIENCE

Routine Water Quality Monitoring Program* | St. Johns River Water Management District | Central Florida | QA Specialist

As a QA Specialist with the St. Johns River Water Management District, Haley ensured accuracy and quality of discrete and continuous water quality data through visual and statistics-based software methods, according to standard operating procedures. She assisted with laboratory sample verification via regressions performed on historical data. Haley also prepared annual updates to SOPs for field data collection and managed the District's FDEP contracted sampling for Status & Trends and Harmful Algal Blooms. She conducted annual audits of field staff for adherence to SOPs and prepared recommended corrective action reports. She also performed data queries of water quality data from databases for internal and external stakeholders. As an environmental scientist, Haley planned and led daily-weekly field sampling trips to the St. Johns River and its watershed in support of the District's water quality monitoring programs. She maintained field and laboratory equipment, including YSI EXO data sondes; collected water samples for chlorophyll, phytoplankton, and nutrient analysis; managed water quality data through data entry and QA/QC; and trailered and operated research vessels, including airboats.

NFWF Chesapeake Bay Stewardship Fund (CBSF Project) | National Fish and Wildlife Foundation (NFWF) | Quality Assurance

Help NFWF grantees develop their EPA Regions 1 and 2 compliant Quality Assurance Project Plans (QAPPs) through technical assistance and hands-on guidance, and maintaining a web portal of QAPP examples. The QAPP describes CBSF project data collection, generation, use, and reporting of environmental data; design, construction, and operation of environmental technologies; and development of software, models, and methods. The Stantec-approved QAPPs ensure that accurate and reliable data is being collected as part of each CBSF project. Project

NFWF Long Island Sound Futures Fund (LISFF) Project | National Fish and Wildlife Association | Quality Assurance

Help NFWF grantees develop their EPA Regions 1 and 2 compliant Quality Assurance Project Plans (QAPPs) through technical assistance, hands-on guidance and maintains an online portal with QAPP examples. The QAPP describes LISFF project data collection, generation, use, and reporting of environmental data; design, construction, and operation of environmental technologies; and development of software, models, and methods. The Stantec-approved QAPPs ensure that accurate and reliable data is being collected as part of each LISFF project.

** denotes projects completed with other firms*

Sheri Huelster

Technical Lead

19 years of experience · Riverview, Florida

Sheri has expertise in collection and analysis of surface water and sediment samples, biological sampling and habitat assessments, data management, and quality assurance/quality control (QA/QC). Sheri is well-versed in the flora and fauna of freshwater and marine systems and holds numerous Florida Department of Environmental Protection (FDEP) certifications for biological community assessments including the Stream Condition Index, Habitat Assessment, Rapid Periphyton Survey, Lake Vegetation Index, and Linear Vegetation Survey. Besides data collection, Sheri also analyzes the data using various statistical software. Some of the statistics used include analysis of variance (ANOVA), various non-parametric tests, multidimensional scaling (MDS) plots, and time series trend analysis. Her main responsibilities have been project management, development and implementation of water quality sampling plans, review and interpretation of water quality data, statistical data analysis, and technical report writing.

EDUCATION

MS, Marine Science-Marine Resource Assessment, University of South Florida, Tampa, Florida

BS, Marine Science/ Biology, University of Tampa, Florida

CERTIFICATIONS & TRAINING

OSHA 40-hour HAZWOPER, Tampa, FL

Southwest Florida Water Management District, Wetland Assessment Procedure, Brooksville, Florida, 2019

Assoc. of Diving Instructors (PADI), NITROX Diver, Tampa

PROJECT EXPERIENCE

City of Naples Water Quality Analysis Project | Naples, Florida | Project Scientist

The Naples Water Quality Analysis Project is a comprehensive analysis of trends in water quality and biological data collected in Naples Bay and associated stormwater ponds over the last 10 years. Sheri has assisted in data compilation and analysis of the water quality and quantity data and calculated annual loads from the Golden Gate canal and pump stations to Naples Bay. She scheduled monthly fieldwork, reviewed collected data, acted as database manager, prepared quarterly reports, and completed statistical analysis for the annual reports.

Southwest Florida Water Management District Lower Hillsborough River Dissolved Oxygen Study | Florida | Project Scientist

Sheri assisted with initial data compilation from multiple public sources, QA/QC of data used in the analysis, database management, data analysis, and report writing. A complex analysis plan was developed to re-evaluate dissolved oxygen in the lower Hillsborough River after the minimum flow and level (MFL) implementation that used an extensive suite of statistical methods to analyze the data.

North Prong Alafia River Total Maximum Daily Load (TMDL) Study | Florida | Data Specialist/Staff Scientist

Sheri was involved in the data collection, management, and analysis for the North Prong Alafia River TMDL study. This project involved a twice quarterly deployment of a multi-parameter data sonde, collection of streamflow measurements, and water quality sampling. Sheri assisted with numerous quarterly sampling events and managed all the corresponding data. She assisted with the data analysis on both an individual sampling station and overall project scale.

Water Quality Regulatory Services: Clam Bay Estuary | Naples, Florida | Staff Scientist

Stantec provided technical and strategic regulatory support services regarding water quality integrity of the Clam Bay Estuary. Sheri assisted with the development of a water quality monitoring program focused on dissolved oxygen to characterize the current status of the waterbody, evaluate potential regulatory impacts, and implement strategies to ensure proper water quality management. Sheri created the database used in the analysis, assisted in analyzing water quality data, and contributed to the summary report and recommendations.

Water Quality Monitoring Evaluation and Optimization: Lake Worth Drainage District (LWDD) | Florida | Project Scientist/Data Analyst

Stantec was contracted by the LWDD to assist in developing a comprehensive database of existing water quality data within the LWDD boundaries, and to characterize water quality in the LWDD canal system and downstream waters. Sheri created a database of water quality data from the LWDD, Broward County, Palm Beach County, and other public sources, assisted in data analysis, and provided recommendations to LWDD for optimization of their existing monitoring program.

Statewide Water Quality Monitoring for the FDEP's Strategic Monitoring Program | Florida | Data Manager/Environmental Specialist

Hundreds of waterbody IDs (WBIDs) listed as Impaired Waters by the FDEP were sampled statewide during the project. The data were used to determine if a WBID can be removed from the Impaired Waters List or if a TMDL needs to be established. The samples collected were analyzed for a range of parameters including nutrients and metals. Field parameters were collected using YSI data sondes, and GPS coordinates were collected at each site. Biological assessments were conducted at selected sites and included collecting benthic macroinvertebrates, periphyton sampling, and habitat assessments. Sheri assisted in field water quality sampling, database creation and management, as well as reviewing all collected data.

Tiara Thanawastien

Water Quality Monitoring Field Lead

13 years of experience · Coral Gables, Florida

Tiara is Senior Scientist with experience conducting water quality monitoring, aquatic and terrestrial vegetation, and wildlife investigations. She specializes in long-term monitoring, mapping, and data evaluation to support comprehensive studies and preparation of federal environmental impact documentation (EAs, EISs, and ERs). She participates in wetland delineation and mitigation projects, habitat evaluations, threatened and endangered species surveys, and environmental regulatory compliance evaluations. Her fieldwork includes the monitoring and sampling of biota, sediment, surface water, soil, and groundwater. She also is experienced utilizing and maintaining automated monitoring stations recording water level, physical water quality parameters, meteorological conditions, and water flow and is adept with processing and synthesizing large amounts of water quality data. Tiara regularly manages field teams ensuring they fully understand the scope of work, including the level of effort and QA/QC requirements.

EDUCATION

B.S., Environmental Science, Florida International University, Miami, Florida

PROJECT EXPERIENCE

Turkey Point Long-Term Groundwater, Surface Water, Meteorological, and Ecological Monitoring | Florida Power and Light | Florida City, Florida | Senior Water Quality Scientist

Tiara oversees the operation and maintenance of the automated network that includes 42 groundwater wells and 20 surface water locations which comprise over 100 probes and sensors. She is trained using the QAPP sampling and calibration protocols approved by the SFWMD and wrote the operation and maintenance documentation for the calibration and troubleshooting procedures. In addition, she collects groundwater and surface water samples for a range of analytical parameters. She is experienced in using and implementing numerous water quality sampling devices including turbidimeters and handheld multi-parameter sondes in marine ecosystems.

NPS South Florida/Caribbean Inventory and Monitoring Network | National Park Service | Florida | Senior Scientist

With NPS, Tiara led the 2010 relocation and resampling of historical vegetation monitoring plots being used to document changes in the vegetation community structure, plant species composition, and movement of boundaries and ecotones between plant communities that might require management action in Big Cypress National Preserve, Biscayne National Park, and Everglades National Park. She used archival materials to monitor if change had occurred and performed subsequent monitoring to document current changes and help estimate potential future conditions. Tiara also helped assess the accuracy of the Everglades National Park vegetation map and was the lead photo interpreter for the Virgin Island Vegetation Map.

Biscayne Bay and Marsh Water Quality Monitoring | Miani-Dade County, Florida | Field Lead

To support the ecological monitoring projects in Biscayne Bay and marsh, mangrove, and tree islands of Southern Florida, Tiara collects groundwater and surface water samples for a range of analytical parameters; measures water quality both onshore and offshore using automated instrumentation; conducts data entry, data analysis, and report writing, and provides maintenance and calibration of the deployed survey equipment.

Boma Property Biological Field Surveys* | South Florida Water Management District | Florida, United States | Project Manager

For SFWMD, Tiara served as project manager for the Boma property to assess whether the location would be suitable water retention area and determine what the impacts will be. She coordinated and conducted biological field surveys including wetland and waterway delineations, land cover type classifications, and Threatened and Endangered Species habitat assessments on 1,800 acres. She conducted an initial desktop review of biological conditions at the site, provided QA reviews for data collected, compiled results and contributed to report writing, while managing the team and budget.

Manatee County Wetland and T/E species Survey* | Florida

Tiara conducted field surveys to delineate wetlands and waterbodies for state and federal jurisdictions, and to identify suitable habitat for state and federally listed species. She used Trimble technology to map wetlands and other jurisdictional water features, and for T/E habitat mapping assessments in the field. She also conducted gopher tortoise surveys covering over 72 acres of land. Tiara helped to compile and QA/QC the data and assisted with writing and compiling the permitting package for the USACE 404 permit.

FDEP Water Sampling* | Florida

For FDEP, Tiara provided support for an ongoing groundwater monitoring effort at various dry cleaner sites in Florida. She used YSI instrumentation to document field parameters and collected multiple groundwater and water samples following FDEP Standard Operating Procedures.

** denotes projects completed with other firms*

Jean Woodmansee

Water Quality Sampler

10 years of experience · Coral Gables, Florida

Jean is an environmental scientist with expertise in water quality and wetland monitoring including surface water, groundwater, and porewater sampling. Her experience also includes stream and wetland delineation projects, endangered species surveys, and native plant and invasive species management. Jean has served as the field lead for multiple ecological surveys and water quality sampling projects, managed data QA/QC, and assisted in technical reporting efforts.

EDUCATION

Bachelor of Science, Environmental Science, California State University, Chico, California

Bachelor of Arts, Latin American Studies, California State University, Chico, California

CERTIFICATIONS & TRAINING

Wetland Delineation Training, Wetland Training Institute, Sacramento, CA, 2017

Advanced Adventure Diver, Scuba Diving International, Gainesville, FL, 2024

Oxygen First Aid for Scuba Diving Injuries, Scuba Diving International, Gainesville, FL, 2024

Open Water Scuba Diver, PADI, Miami, FL, 2023

Boating Safety Course, Boat U.S. Foundation, Miami, FL, 2024

CPR and First Aid, DAN, Miami, FL, 2024

Airboat Operator Course, FWC, Miami, FL, 2024

PROJECT EXPERIENCE

Turkey Point Water Quality, Hydrogeologic and Ecological Monitoring | Florida Power and Light | Florida | Task Manager

Jean is a key member of the team conducting an extensive water quality, hydrogeologic, and ecological monitoring plan on behalf of FPL at Turkey Point. She is the task manager and field lead for the ecological monitoring program conducting repeated plant morphology measurements of dominant herbaceous and woody vegetation in freshwater and mangrove wetlands. For 5 years, Jean was also a field lead for the collection of water quality and water level data from automated probes, including probe calibration and telemetry troubleshooting, at over 70 locations located around and within the Turkey Point Facility. Additionally, she led the water quality sampling program at over 100 surface water, groundwater, and porewater sites for laboratory chemical analysis following strict FDEP protocols and the Quality Assurance Project Plan. In addition to managing field work, Jean also trained new employees, managed and maintained field instrumentation, conducted QA/QC reviews of analytical data, generated data usability summaries, and provides technical writing support on data deliverables.

Long Key Design & Permitting | Florida Department of Transportation | Florida

Conducted benthic surveys to identify and map seagrass; surveys supported permitting requirements for the reconstruction of the bridge supporting travel between Long Key and Conch Key within the Florida Keys.

Hydrologic Monitoring Services | South Florida Water Management District | Florida

Collected water level data from and performed maintenance on automated probes in Everglades National Park to better understand connectivity between groundwater and Florida Bay in support of the Groundwater Exchange Modeling and Monitoring program. All sites are accessed via helicopter due to the remote nature of the project.

Tree Island Monitoring and Assessment in Water Conservation Area 3 | South Florida Water Managment District | Florida | Deputy Project Manager

Jean serves as the deputy project manager for tree island vegetation and hydrology assessments in Water Conservation Area 3. As field lead, she established permanent plots in several locations throughout each island and inventoried all canopy and herbaceous species present. She was responsible for data management, analysis and reporting, which included analyzing the relationship between tree island ecology, plot elevation and water elevation to interpret the unique vegetative characteristics of each tree island. The long-term monitoring of these plots will provide insight into how tree island vegetation responds to the anticipated changes in hydrology that will result from restoration efforts.

Boma Property Biological Field Surveys* | South Florida Water Management District | Florida

Jean was the field lead for biological field surveys including wetland and waterway delineations, land cover type classifications, and Threatened and Endangered Species habitat assessments on 1,800 acres in South Florida. In addition to field work, she conducted an initial desktop site assessment of biological conditions at the site, provided QA reviews of all field data including USACE wetland delineation datasheets, GIS data, and land cover classifications, and wrote all UMAM datasheets for wetland features. Jean co-authored the biological survey report and coordinated report completion with project staff and subcontractor.

** denotes projects completed with other firms*

Nevada Wagoner

Water Quality Sampler

9 years of experience · West Palm Beach, Florida

Nevada is an environmental scientist with expertise in water quality monitoring, regulatory compliance, and ecosystem management. She specializes in the use and maintenance of automated monitoring systems, field sampling methodologies, and quality assurance/quality control (QA/QC) processes to ensure accurate environmental data collection and analysis. She has contributed to various large-scale monitoring projects that assess nutrient dynamics and water movement in wetland and coastal ecosystems.

Her recent work supports the Florida Department of Environmental Protection's (FDEP) and South Florida Water Management District's (SFWMD) system-wide monitoring initiatives focused on measuring compliance with water quality standards and tracking progress toward nutrient load reduction goals. She has extensive experience conducting field operations in compliance with established regulatory frameworks, including state and federal environmental guidelines. Her field experience includes training and leading field teams in various monitoring and compliance efforts, including conducting wildlife surveys and ecological surveys. She has experience troubleshooting and maintaining environmental monitoring equipment in remote and challenging conditions.

Beyond compliance monitoring, Nevada collaborates with stakeholders to implement best management practices that enhance water resource sustainability. Her contributions help clients bridge the gap between regulatory requirements and proactive environmental stewardship, ensuring that water quality improvements align with ecological restoration efforts.

EDUCATION

MS, Biology, Arizona State University, Tempe, Arizona

BS, Human Development, University of Arizona, Tucson, Arizona

CERTIFICATIONS & TRAINING

Cyanobacteria (Blue-green algae) Survey & Sample Collection, South Florida Water Management District, West Palm Beach, FL, 2023

PROJECT EXPERIENCE

SFWMD Continuous Environmental Monitoring Network | South Florida Water Management District | Florida

Nevada supported surface water quality monitoring efforts being completed by the Continuous Environmental Monitoring Network project at the South Florida Water Management District (SFWMD). Her work involved using the network's varied multi-parameter instruments, which incorporated advanced sensors such as YSI EXO series, Hydrolab, HOBO, and In-Situ Aqua Troll sondes. Along with hands-on experience in field deployment, calibration, and troubleshooting, Nevada also used necessary software to configure, monitor, and analyze instrument data. She frequently conducted fieldwork using boats and airboats to access remote monitoring locations. Additionally, she assisted with the design and upgrade of deployment stations, ensuring improved data collection efficiency and system performance. Her work spanned key monitoring locations, including Lake Okeechobee, the Kissimmee River, the Caloosahatchee River, the St. Lucie Estuary, and the Everglades. She collaborated closely with the project manager to oversee instrument deployment and system reliability, contributing to the network's ability to provide critical real-time water quality and hydrological data for resource management and decision making.

SFWMD Expanded Monitoring Initiatives | South Florida Water Management District | Florida

Nevada assisted with expanded water quality monitoring efforts aimed at assessing nutrient loading from upstream watersheds into the Caloosahatchee River, St. Lucie River, and Lake Okeechobee. This work was part of broader restoration initiatives, including the Comprehensive Everglades Restoration Plan (CERP). She contributed to field sampling initiatives designed to evaluate nutrient concentrations, salinity levels, and other critical water quality parameters, ensuring all work was conducted in accordance with applicable Florida Department of Environmental Protection (FDEP) standard operating procedures as set forth by the FDEP Quality Assurance Rule, Chapter 62-160, Florida Administrative Code. She had a role in training additional field staff in sampling techniques, field safety, and proper data collection protocols, ensuring consistency in data integrity and compliance with FDEP and South Florida Water Management District standards. She participated in internal and external audits, verifying adherence to quality assurance/quality control procedures.

Ashley Moreno

Water Quality Sampler

3 years of experience · Coral Gables, Florida

Ashley is a biologist in South Florida with demonstrated proficiency in her fieldwork and data entry. She works in team of environmental professionals in South Florida in roles that include habitat monitoring, wildlife surveys, data collection, and analysis to support environmental restoration and management efforts. She is experienced with wetland plant surveys and water sampling, native plant and invasive species management, post-construction fatality monitoring, and airboat driving.

EDUCATION

B.S. in Biological Sciences with a Certificate in Agroecology, Florida International University, Honors College, Miami, FL

CERTIFICATIONS & TRAINING

Adult First Aid/CPR/AED, Red Cross, Miami, Florida, 2023

Aquatic Pesticide Commercial Applicator License, Florida Department of Agriculture and Consumer Services, Miami, Florida, 2023

Boating Safety Course, Boat U.S. Foundation, Miami, Florida, 2024

PROJECT EXPERIENCE

ENVIRONMENTAL SCIENCES

Turkey Point Long-Term Groundwater, Surface Water, Meteorological, and Ecological Monitoring | Florida Power and Light | Florida City, Florida | Biologist

This project is a hydrological and ecological monitoring effort in areas around the Turkey Point Nuclear Power Plant to examine the impacts of plant operations on surface/groundwater hydrology as well as marsh and bay ecology. Ashley's responsibilities for this project have included: operating as field team lead for event preparation, and as an airboat captain in the field, conducting data collection, which includes field vegetation surveys, repeated plant morphology measurements of dominant vegetation species for non- destructive productivity and biomass calculations, percent cover determination, field collection/post-processing of plant biomass, and porewater collection for field and laboratory analysis (following strict QA/QC protocols); and recording, entering, organizing, managing, and analyzing field data.

Corkscrew Regional Mitigation Bank, Annual Monitoring Report | Plantation, Florida | Field Biologist

This project supported an ecological monitoring effort in the pinelands and marshlands of a wetland mitigation area to determine the health of the ecosystem. Ashley's responsibilities include: identifying aquatic and terrestrial plant species, conducting transect surveys to record percent cover of each species, recording tree biomass measurements (DBH and height).

Tree Island Monitoring and Assessment | SFWMD | Florida | Biologist

As part of the long-term monitoring of the Comprehensive Everglades Restoration Plan (CERP), this project establishes permanent monitoring plots on tree islands in WCA 3 to understand the hydrologic conditions needed to maintain healthy tree islands and restore degraded tree islands. Ashley's role responsibilities include: operating an airboat in the field, establishing permanent 10x10 meter monitoring plots in the high head and near-tail of each island, tagging, measuring height and DBH, and identifying the species of all trees rooted within the plot boundaries, assessing herbaceous percent cover within nested subplots. - Collecting soil elevation measurements for tree island hydrology investigations. - Writing data in the field and entering it in Excel afterwards.

NATIONAL FISH AND WILDLIFE FOUNDATION
1625 Eye Street, N.W. Suite 300
Washington, D.C. 20006
P 202-857-0166 | 202-857-0162 | nfwf.org

Dear Mr. Torres-Bull,

National Fish and Wildlife Foundation (NFWF) is providing this letter of reference for Stantec Consulting Services Inc., in recognition of their outstanding support and technical expertise on multiple NFWF projects requiring the development and implementation of Quality Assurance Project Plans (QAPPs).

Stantec has played a critical role in ensuring that QAPPs associated with US Environmental Protection Agency (EPA) funded projects meet rigorous federal requirements for data quality and project integrity. Their team of quality assurance specialists consistently demonstrate a clear understanding of the EPA guidance, and their deliverables routinely exceed expectations.

We have been impressed by Stantec's professionalism, responsiveness, and ability to communicate complex technical requirements in a clear, accessible manner to both grantees and NFWF.
Their attention to detail makes them a trusted partner.

We are pleased to recommend Stantec for any future work involving environmental consulting services, particularly those requiring regulatory compliance, technical expertise, and a demonstrated commitment to quality, communication, and timely deliverables.

If further information is needed, please feel free to contact me.

Sincerely,

Jake Reilly

Jake Reilly
Chesapeake Program Director
National Fish and Wildlife Foundation
202-595-2610
jake.reilly@nfwf.org

Contractor Performance Evaluation and Reference Check Form

Contractor Name: Stantec
Project Name/Description: Water Quality Sampling and Quality Assurance Support for Executive Order 19-12
Reference Name: Denise Gierhart
Company Name: South Florida Water Management District
Contact Information (Email/Phone): dgierhar@sfwmd.gov

Project Description and timeframe:

The primary objective of this work order is to obtain the services of technical staff capable of providing surface water quality monitoring and quality assurance activities on an “as needed” basis. Collection of groundwater, atmospheric deposition (rain), fish, soil/sediment, vegetation, and other biological samples such as blue green algal screening, field project management, reporting as well as associated quality assurance activities are not the primary focus but may be requested in addition to routine surface water quality collection activities. Work Order Start Date: JULY 1, 2024 2 Completion Date: JUNE 30, 2025

	Criteria	**Yes or No**
1.	Did the company have the right resources to perform the services?	yes
2.	Was the company responsive to your needs?	yes
3.	Did the company provide the service within the allocated schedule?	yes
4.	Was the project manager assigned accessible and responsive?	yes
5.	Would you rehire this company again?	yes
6.	Did the company perform the work within the allocated budget?	yes
	On a scale of 1-10 with 10 being the highest score please rate the company.	**1-10**
7.	How satisfied were you with the overall performance, qualifications, experience, and professionalism of the consultants personal, subcontractors and agents in completing the contract requirements?	8
8.	Rate the firms communication, explanation of risk, and documentation	6
9.	Overall customer satisfaction based on performance.	7

Additional Comments and Information:

Overall, we have had a good experience working with Stantec.

Signature/Date: Denise Gierhart

4/15/25

2022-2024 Financial Highlights

(In millions of Canadian dollars, except per share amounts and percentages)	Year Ended Dec 31					
	2024		2023		2022	
	$	**% of Net Revenue**	**$**	**% of Net Revenue**	**$**	**% of Net Revenue**
Gross revenue	**7,500.0**	**127.8%**	6,479.6	127.9%	5,677.2	127.4%
Net revenue	**5,866.6**	**100.0%**	5,066.2	100.0%	4,457.2	100.0%
Direct payroll costs	2,670.9	45.5%	2,321.5	45.8%	2,039.9	45.8%
Project margin	**3,195.7**	**54.5%**	2,744.7	54.2%	2,417.3	54.2%
Administrative and marketing expenses (note 1)	2,286.1	39.0%	1,965.3	38.8%	1,769.6	39.7%
Depreciation of property and equipment	67.7	1.2%	59.9	1.2%	56.8	1.3%
Depreciation of lease assets	127.1	2.2%	121.7	2.4%	122.1	2.7%
Net impairment (reversal) of lease assets and property and equipment	34.9	0.6%	0.3	—%	(5.5)	(0.1%)
Amortization of intangible assets	123.8	2.1%	102.0	2.0%	104.6	2.3%
Net interest expense and other net finance expense	104.4	1.8%	93.0	1.8%	73.2	1.6%
Other income	(13.6)	(0.4%)	(5.2)	— %	(1.5)	— %
Income taxes (note 1)	103.8	1.8%	91.2	1.8%	71.6	1.6%
Net income (note 1)	**361.5**	**6.2%**	316.5	6.2%	226.4	5.1%
Basic and diluted earnings per share (EPS) (note 1)	**3.17**		2.85		2.04	
Adjusted EBITDA (note 2)	**980.3**	**16.7%**	831.0	16.4%	723.9	16.2%
Adjusted net income (note 2)	**504.3**	**8.6%**	408.4	8.1%	347.1	7.8%
Adjusted diluted EPS (note 2)	**4.42**		3.67		3.13	
Dividends declared per common share	**0.84**		0.78		0.72	
Total assets (note 1)	**6,956.1**		5,766.3		5,339.1	
Total long-term debt (note 1)	**1,383.5**		1,098.2		1,180.3	

note 1: Results for the years ended December 31, 2023 and December 31, 2022 have been retrospectively revised for the change in accounting policy related to the treatment of deferred payments from our historical acquisitions. Refer to the Critical Accounting Developments, Estimates, and Measurements section of this MD&A for further details.

note 2: Adjusted EBITDA, adjusted net income, and adjusted diluted EPS are non-IFRS measures (discussed in the Definitions section of this MD&A).

We achieved diluted earnings per share of $3.17 and adjusted diluted earnings per share of $4.42, each an all-time high with respective increases of 11.2% and 20.4% compared to 2023. Record earnings reflect a very strong year of net revenue growth, strong project execution, and solid progression along our 2024-2026 Strategic Plan.

- Net revenue increased 15.8%, or $800.4 million, to $5.9 billion compared to 2023, primarily driven by 7.4% organic growth and 7.5% acquisition growth. We achieved organic growth in all of our regional and business operating units with the exception of Energy & Resources which remained consistent. We achieved double-digit organic growth in our Water and Buildings businesses.
- Project margin increased $451.0 million, or 16.4%, to $3.2 billion and, as a percentage of net revenue, project margin increased by 30 basis points from 2023 to 54.5% as a result of net revenue growth and solid project execution.
- Adjusted EBITDA increased $149.3 million, or 18.0%, to $980.3 million. Adjusted EBITDA margin increased by 30 basis points from 2023 to 16.7% and decreased by 30 basis points when normalized for the 2023 increase in long-term incentive plan (LTIP) expense that resulted from strong share price appreciation in the prior year. The change in margin primarily reflects higher administrative and marketing expenses as a percentage of net revenue resulting from claim provision estimates increasing to historically normal levels compared to 2023.

- Net income and diluted EPS achieved record highs in 2024. Net income increased 14.2%, or $45.0 million, to $361.5 million, and diluted EPS increased 11.2%, or $0.32, to $3.17, mainly due to strong net revenue growth and solid project margins, partly offset by a non-cash lease impairment charge of $34.9 million resulting from our real estate optimization strategy and higher administrative and marketing expenses as a percentage of net revenue.
- We continued to execute on the real estate optimization objectives outlined in our 2024-2026 Strategic Plan and drove approximately $0.08 adjusted EPS savings while reducing our footprint by 6.0% relative to our 2023 baseline.
- Adjusted net income increased 23.5%, or $95.9 million, to a record high of $504.3 million, representing 8.6% of net revenue, up 50 basis points compared to last year. Adjusted diluted EPS increased 20.4%, or $0.75, to $4.42. The LTIP revaluation had a downward impact on adjusted diluted EPS of $0.03 in 2024 and $0.24 in 2023.
- Contract backlog stands at $7.8 billion—a 24.1% increase from December 31, 2023—reflecting 9.7% acquisition growth and 8.5% organic growth. Organic backlog growth was primarily achieved in our Canada and US operations, with Water attaining 24% organic backlog growth. Contract backlog represents approximately 13 months of work.
- Net debt to adjusted EBITDA was 1.2x at December 31, 2024—within our internal range of 1.0x to 2.0x.
- Operating cash flows increased 16.0% from $520.0 million to $603.1 million, reflecting continued strong cash flow generation, growth, and operational performance.
- Days sales outstanding was 77 days at December 31, 2024, consistent with the prior year, remaining within our target of 80 days.
- On February 24, 2025, our Board of Directors declared a dividend of $0.225 per share, payable on April 15, 2025, to shareholders of record on March 28, 2025, representing a 7.1% increase.

PROFIT CORPORATION
APPLICATION BY FOREIGN PROFIT CORPORATION TO FILE AMENDMENT TO APPLICATION FOR AUTHORIZATION TO TRANSACT BUSINESS IN FLORIDA

(Pursuant to s. 607.1504, F.S.)

SECTION I
(1-3 MUST BE COMPLETED)

F01000005948
(Document number of corporation (if known))

1. STANTEC CONSULTING GROUP INC.
(Name of corporation as it appears on the records of the Department of State)

2. New York
(Incorporated under laws of)

3. 11/14/2001
(Date authorized to do business in Florida)

SECTION II
(4-7 COMPLETE ONLY THE APPLICABLE CHANGES)

4. If the amendment changes the name of the corporation, when was the change effected under the laws of its jurisdiction of incorporation? 12/20/2004

5. STANTEC CONSULTING SERVICES INC.
(Name of corporation after the amendment, adding suffix "corporation," "company," or "incorporated," or appropriate abbreviation, if not contained in new name of the corporation)

(If new name is unavailable in Florida, enter alternate corporate name adopted for the purpose of transacting business in Florida)

6. If the amendment changes the period of duration, indicate new period of duration.

(New duration)

7. If the amendment changes the jurisdiction of incorporation, indicate new jurisdiction.

(New jurisdiction)

Michael Slocombe
(Signature of a director, president or other officer - if in the hands of a receiver or other court appointed fiduciary, by that fiduciary)

March 29/05
(Date)

Michael J. Slocombe
(Typed or printed name of person signing)

Secretary
(Title of person signing)

State of New York
Department of State } ss:

I hereby certify, that the Certificate of Incorporation of STANTEC CONSULTING SERVICES INC. was filed on 08/27/1929, under the name of MANHASSET CIVIL ENGINEERS INC., fixing the duration as perpetual, and that a diligent examination has been made of the Corporate index for documents filed with this Department for a certificate, order, or record of a dissolution, and upon such examination, no such certificate, order or record has been found, and that so far as indicated by the records of this Department, such corporation is an existing corporation.

A Certificate of Amendment MANHASSET CIVIL ENGINEERS INC., changing its name to CHARLES E. WARD INC., was filed 11/15/1968.

A Certificate of Amendment CHARLES E. WARD INC., changing its name to THE SEAR-BROWN GROUP, INC., was filed 03/30/1988.

A Certificate of Amendment THE SEAR-BROWN GROUP, INC., changing its name to STANTEC CONSULTING GROUP, INC., was filed 04/02/2004.

A Certificate of Amendment STANTEC CONSULTING GROUP, INC., changing its name to STANTEC CONSULTING GROUP INC., was filed 06/18/2004.

A Certificate of Amendment STANTEC CONSULTING GROUP INC., changing its name to STANTEC CONSULTING SERVICES INC., was filed 12/20/2004.

STATE OF NEW YORK ★ DEPARTMENT OF STATE ★ EXCELSIOR

***

Witness my hand and the official seal of the Department of State at the City of Albany, this 05th day of April two thousand and five.

Secretary of State

200504060453 * 45

2025 FOREIGN PROFIT CORPORATION AMENDED ANNUAL REPORT

FILED
Jan 06, 2025
Secretary of State
0361740319CC

DOCUMENT# F01000005948

Entity Name: STANTEC CONSULTING SERVICES INC.

Current Principal Place of Business:

410 17TH STREET
SUITE 1400
DENVER, CO 80202

Current Mailing Address:

10220 - 103 AVENUE NW
SUITE 300
EDMONTON, T5J 0K4 CA

FEI Number: 11-2167170

Certificate of Status Desired: No

Name and Address of Current Registered Agent:

CORPORATION SERVICE COMPANY
1201 HAYS STREET
TALLAHASSEE, FL 32301 US

The above named entity submits this statement for the purpose of changing its registered office or registered agent, or both, in the State of Florida.

SIGNATURE: BARBARA CHRISTMAN FOR CORPORATION SERVICE COMPANY 01/06/2025

Electronic Signature of Registered Agent — Date

Officer/Director Detail :

Title	DIRECTOR, VP, ASST. SECRETARY	Title	PRESIDENT
Name	STONE, JEFFREY P	Name	JOHNSTON, GORDON A
Address	61 COMMERCIAL STREET SUITE 100	Address	10220 - 103 AVENUE NW SUITE 300
City-State-Zip:	ROCHESTER NY 14614	City-State-Zip:	EDMONTON T5J 0K4
Title	SECRETARY	Title	ACCOUNT MANAGER
Name	HEISLER, CHRISTOPHER O	Name	KENNEDY, MICHAEL A
Address	10220 - 103 AVENUE NW SUITE 300	Address	6920 PROFESSIONAL PARKWAY EAST
City-State-Zip:	EDMONTON T5J 0K4	City-State-Zip:	SARASOTA FL 34240
Title	VP	Title	VP
Name	CASTELLA, RAMON	Name	WILHOIT, KRISTOPHER
Address	901 PONCE DE LEON BLVD SUITE 900	Address	6920 PROFESSIONAL PARKWAY EAST
City-State-Zip:	CORAL GABLES FL 33134	City-State-Zip:	SARASOTA FL 34240
Title	SENIOR PRINCIPAL	Title	VP
Name	STOKER, DOUGLAS E	Name	HOLMES, MEGAN
Address	380 PARK PLACE BOULEVARD SUITE 300	Address	1500 SPRING GARDEN STREET SUITE 1100
City-State-Zip:	CLEARWATER FL 33759	City-State-Zip:	PHILADELPHIA PA 19130

Continues on page 2

I hereby certify that the information indicated on this report or supplemental report is true and accurate and that my electronic signature shall have the same legal effect as if made under oath; that I am an officer or director of the corporation or the receiver or trustee empowered to execute this report as required by Chapter 607, Florida Statutes; and that my name appears above, or on an attachment with all other like empowered.

SIGNATURE: CHRISTOPHER O. HEISLER SECRETARY 01/06/2025

Electronic Signature of Signing Officer/Director Detail — Date

Officer/Director Detail Continued :

Title SENIOR PRINCIPAL
Name BUTTARI, SCOTT
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Title VP
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Address 777 S HARBOUR ISLAND BLVD
STE 600
City-State-Zip: TAMPA FL 33602

Title TREASURER
Name CULMONE, VITO
Address 200-325 35 STREET SE
City-State-Zip: CALGARY ALBERTA T2A 7H8

Title VP
Name BURNHAM, ANDREW
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STE 600
City-State-Zip: TAMPA FL 33602

Title DIRECTOR, COO, EVP
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SUITE 140
City-State-Zip: WEST CHESTER PA 19308-5602

Title SVP
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Detail by Entity Name

Foreign Profit Corporation
STANTEC CONSULTING SERVICES INC.

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Principal Address

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DENVER, CO 80202

Changed: 04/16/2023

Mailing Address

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SUITE 300
EDMONTON T5J 0K4 CA

Changed: 07/24/2023

Registered Agent Name & Address

CORPORATION SERVICE COMPANY
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TALLAHASSEE, FL 32301

Name Changed: 02/14/2013

Address Changed: 02/14/2013

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Title VP

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PHILADELPHIA, PA 19130

Title Senior Principal

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SARASOTA, FL 34240

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STE 600
TAMPA, FL 33602

Title VP

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STE 600
TAMPA, FL 33602

Title Director, COO, EVP

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ADDENDUM NO. 1

Water Quality Monitoring Program

RFP 25-004

This addendum is issued as supplemental information to the Invitation to Bid package for clarification of certain matters of both a general and a technical nature. The referenced Invitation to Bid package is hereby amended in accordance with the following items:

1. **Clarification of Specifications:** [No Changes]
2. **Changes to Submission Requirements:** [No Changes]
3. **Updates to Project Timeline:** [No Changes]
4. **Responses to Questions:**

   1) Can you confirm that all analyses do need to be from a NELAC certified lab, including bacteria analyses?

   1) Yes, the City requires that all analyzes be completed by a NELAC certified lab. If the applicant is not NELAC certified, it will need to identify a subcontractor that it will be sending the samples to.

5. **Additional Resources:** [No Changes]

Signature

Stantec Consulting Services Inc.

Name of Business

ADDENDUM NO. 2

Water Quality Monitoring Program

RFP 25-004

This addendum is issued as supplemental information to the Invitation to Bid package for clarification of certain matters of both a general and a technical nature. The referenced Invitation to Bid package is hereby amended in accordance with the following items:

1. **Clarification of Specifications:** [No Changes]
2. **Changes to Submission Requirements:** [No Changes]
3. **Updates to Project Timeline:** [No Changes]
4. **Responses to Questions:**

   1) Is the water quality sampling of the Geographic Areas of Concern (discussed in 3.2, item A of the RFP) to be included within this Proposal, or will that be implemented after the water quality monitoring plan (Task 3) is finalized?

   1) Correct, actual water quality monitoring work for under Section A) Geographic Areas of Concern, would not kick off until after Task 3 was complete, and a monitoring program had been designed and approved.

   However, specifically for Section B) Beach Monitoring, there would be water quality monitoring for Task 4.

5. **Additional Resources:** [No Changes]

Signature

Stantec Consulting Services Inc.

Name of Business

ADDENDUM NO. 3

Water Quality Monitoring Program

RFP 25-004

This addendum is issued as supplemental information to the Invitation to Bid package for clarification of certain matters of both a general and a technical nature. The referenced Invitation to Bid package is hereby amended in accordance with the following items:

1. **Clarification of Specifications:** [No Changes]
2. **Changes to Submission Requirements:** [No Changes]
3. **Updates to Project Timeline:** [No Changes]
4. **Responses to Questions:**

1. 1) Will the water quality data to be analyzed as part of Task 1 be provided to the selected firm, or will the firm be responsible for extracting data from public resources?

   Answer: Both. The City does have some data from our marinas and stormwater outfalls. However, most water quality work has been done by other entities.

2. If the City of Key West does provide the water quality data, what format is being used for that data?

   Answer: The data for the marinas and stormwater outfalls are in excel spreadsheets

5. **Additional Resources:** [No Changes]

Signature

Stantec Consulting Services Inc.

Name of Business

ADDENDUM NO. 4

Water Quality Monitoring Program

RFP 25-004

This addendum is issued as supplemental information to the Invitation to Bid package for clarification of certain matters of both a general and a technical nature. The referenced Invitation to Bid package is hereby amended in accordance with the following items:

1. **Clarification of Specifications:** [No Changes]
2. **Changes to Submission Requirements:** [No Changes]
3. **Updates to Project Timeline:** [No Changes]
4. **Responses to Questions:**

   1) Should the bi-weekly beach sampling (Fort Zachary Taylor State Park, Smathers Beach, Higgs Beach, South Beach) be scoped to occur for the duration of 1 year contract period?

   1: Yes, a full year should be scoped. Please present the cost in the narrative as a lump sum and per sample cost.

5. **Additional Resources:** [No Changes]

Signature

Stantec Consulting Services Inc.
Name of Business

Appendix B

Quality Assurance

- Stantec Staff Certifications
- Laboratory Certification
- Stantec Quality Manual

Florida Department of Environmental Protection

Ashley Parks

Has Successfully Completed the
Status & Trend Networks Refresher Training
October 29, 2019

Stephanie Sunderman-Barnes
Quality Assurance Officer

Jay Silvanima
Section Administrator

Florida Department of Environmental Protection

Haley Nebergall

Has Successfully Completed the
Status & Trend Networks Sampling Workshop
February 21, 2017

Stephanie Sunderman-Barnes
Quality Assurance Officer

Jay Silvanima
Section Administrator

State of Florida
Department of Health, Bureau of Public Health Laboratories
This is to certify that

E35834

EUROFINS FLORIDA KEYS
3980 OVERSEAS HIGHWAY SUITE 103
MARATHON, FL 33050

has complied with Florida Administrative Code 64E-1,
for the examination of environmental samples in the following categories

DRINKING WATER - MICROBIOLOGY, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - MICROBIOLOGY

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

Date Issued: July 01, 2024 Expiration Date: June 30, 2025

Marie-Claire Rowlinson, PhD, D(ABMM)
Bureau of Public Health Laboratories
DH Form 1697, 7/04
NON-TRANSFERABLE E35834-34-07/01/2024
Supersedes all previously issued certificates

Ron DeSantis
Governor

Florida HEALTH

Laboratory Scope of Accreditation

Attachment to Certificate #: E35834-34, expiration date June 30, 2025. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E35834 **EPA Lab Code:** FL01174 **(305) 743-8598**

E35834
Eurofins Florida Keys
3980 Overseas Highway
Suite 103
Marathon, FL 33050

Matrix: **Drinking Water**

Analyte#	Analyte	Method/Tech	Method Code	Category	Effective Date
2525	Escherichia coli	SM 9223 B	20037676	Microbiology	8/4/2015
2500	Total coliforms	SM 9223 B	20037676	Microbiology	8/4/2015

Clients and Customers are urged to verify the laboratory's current certification status with the Environmental Laboratory Certification Program.

Certification Type **NELAP**
Issue Date: 7/1/2024 **Expiration Date: 6/30/2025**

Laboratory Scope of Accreditation

Attachment to Certificate #: E35834-34, expiration date June 30, 2025. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E35834 **EPA Lab Code:** FL01174 (305) 743-8598

E35834
Eurofins Florida Keys
3980 Overseas Highway
Suite 103
Marathon, FL 33050

Matrix: Non-Potable Water

Analyte#	Analyte	Method/Tech	Method Code	Category	Effective Date
1555	Carbonaceous BOD (CBOD)	SM 5210 B-2016	20135039	General Chemistry	1/4/2024
2520	Enterococci	ENTEROLERT / QUANTI-TRAY	60030208	Microbiology	6/28/2016
2525	Escherichia coli	SM 9223 B-2016 (Colilert QT)	20037701	Microbiology	1/4/2024
2530	Fecal coliforms	COLILERT®-18 (Fecal Coliforms)	60002688	Microbiology	6/28/2016
1960	Residue-nonfilterable (TSS)	SM 2540 D-2015	20051223	General Chemistry	1/4/2024
2500	Total coliforms	SM 9223 B /QUANTI-TRAY	20211603	Microbiology	6/28/2016

Clients and Customers are urged to verify the laboratory's current certification status with the Environmental Laboratory Certification Program.

Certification Type NELAP
Issue Date: 7/1/2024 **Expiration Date: 6/30/2025**

Stantec Quality Manual

Florida

Date Prepared: November 30, 2023
Version: 1.0

This document entitled Stantec Quality Manual - Florida was prepared by Stantec Consulting Services Inc. for offices operating in Florida.

Contact Information:

2056 Vista Parkway, Suite 100
West Palm Beach, 33411
561-686-7707

This document has been prepared / revised and approved by the following individuals:

Version	Effective Date	Prepared / Revised by	Approved By

See Section 7 of this document for revision details

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TABLE OF CONTENTS

TABLES

Acronyms and Abbreviations

%D	percent difference
%R	percent recovery
ASR	Aquifer Storage and Recovery
CAP	Corrective Action Plan
CCV	continuing calibration verification
CFR	Code of Federal Regulations
COC	chain of custody
DO	dissolved oxygen
DQO	data quality objective
DUS	data usability summary
EDD	electronic data deliverables
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FSM	Field Sampling Manual
IC	initial calibration
ICP	inductively coupled plasma
ICS	interference check standard
ICV	initial calibration verification
IMS	Integrated Management System
LCS	laboratory control spike
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NELAP	National Environmental Laboratory Accreditation Program
NIST	National Institute of Standards and Technology
PDS	post digestion spike
PE	performance evaluation
PM	Project Manager
PQAP	Programmatic Quality Assurance Plan
LCSD	laboratory control sample duplicate
PQL	Practical Quantitation Limit
QA	quality assurance
QC	quality control
QM	Quality Manual
RL	reporting limit
RPD	relative percent difference
SD	serial dilution
SFWMD	South Florida Water Management District
SOP	Standard Operating Procedure
TNI	The National Environmental Laboratory Accreditation Conference Institute
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1 INTRODUCTION

1.1 INTEGRATED MANAGEMENT SYSTEM

Stantec applies a rigorous Integrated Management System (IMS) to all phases of a project that provides a disciplined and accountable framework for how services are provided to our clients and communities, using our quality, environmental, and occupational health and safety processes. One of our key quality objectives is achieving deliverables consistently on time, within budget and in a manner which meets the client's needs while providing a technically appropriate and socially responsible solution.

The IMS complies with the requirements of the following ISO standards:

- ISO 9001 Quality Management,
- ISO 45001 Occupational Health & Safety Management,
- ISO 14001 Environmental Management,
- ISO 27001 Information Security Management, and
- ISO 22301 Business Continuity Management standards.

By maintaining these ISO certifications in various global locations, we demonstrate our commitment to providing excellence in project delivery through a process of continuous improvement which is central to our IMS and is documented in our Quality Policy.

The IMS provides the foundation for practical implementation of systems to achieve the objectives set out in the project. The IMS guides all Stantec staff on the following operations:

- Project management
- Health and safety
- Document and data control
- Independent review process
- Personnel qualifications and training
- Contract management
- Procurement
- Performance evaluation (PE)
- Cybersecurity
- Ethics

1.2 QUALITY MANUAL (FLORIDA)

This Stantec Quality Manual (QM) is based on the policies and practices developed in the corporate IMS. This QM is an overarching quality assurance/quality control (QA/QC) plan that provides a system of practices, requirements, and standard operating procedures (SOPs) for data collection, data storage, and sample processing for Florida-based projects and operations. This QM was developed using numerous sources including the Code of Federal Regulations (CFR) Title 40; Chapter 62-160 of the Florida Administrative Code (F.A.C.); and, Florida Department

of Environmental Protection (FDEP), and South Florida Water Management District (SFWMD) SOPs. This QM was developed based on the current understanding of the activities and studies associated with Florida-based field studies, including:

- Water Quality Sampling, Analysis, and Assessment
- Soil and Sediment Sampling, Analysis, and Assessment
- Tissue Sampling, Analysis, and Assessment
- Ecological Evaluations
- Data Management

This QM is a living document and will need to be updated as the specific needs of individual projects are identified. In the event revisions are required, these updates will be incorporated in a subsequent version of the QM. In addition, the Programmatic Quality Assurance Plan (PQAP) QM outlines QA/QC procedures and approach for field test data, and local-scale hydrogeologic modeling. This QM has been prepared using the most recent SOPs, standards, rules, guidelines, and procedures. In some instances, SOPs may not exist and a general approach or standard industry practices are summarized to ensure activities follow consistent procedures and the results yield their intended quality objectives.

This QM and all pertinent project documents are required reading for all participating staff and contractors. All individual Work Plans must include a signature page that states all pertinent parties have read this QM, and the Work Plan, and will follow all requirements therein. Appropriate portions of this QM will be in the possession of all project team members, contractors, and laboratories performing work for the project. All contractors and subcontractors will be required to comply with the applicable procedures documented in this QM and the individual project plans to ensure that comparability and representativeness of the data produced is maintained and quality of work produced undergoes QA/QC. All laboratory process sample analysis by standard methods for water quality parameters must be accredited by the National Environmental Laboratory Accreditation Program (NELAP) for the matrix and method of analysis.

1.3 QM DEVELOPMENT DOCUMENTS

The following QM procedures and guidelines were used in the development of this document's structure and content:

- U.S. Environmental Protection Agency (USEPA) Requirements for QA Project Plans, Final, EPA QA/R-5 (EPA, latest version)
- USEPA Guidance for QA Project Plans, Final, EPA QA/G-5 (EPA, latest version)
- USEPA Requirements for Quality Management Plans, Final, EPA QA/R-2 (EPA, latest version)
- FDEP Chapter 62-160, F.A.C.

This QM incorporates specific QA/QC requirements from the following documents, including, but not limited to, the following:

- 40 CFR Chapter 1, Subchapter D, Part 136 and Part 141
- The 2003 National Environmental Laboratory Accreditation Conference Standard, EPA/600/R-04/003, June 2003 or the NELAP standard 2016 revision, as applicable
- USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (USEPA SW-846, most recent updates)
- USEPA Methods for Chemical Analysis of Water and Wastes, revised March 1983 EPA-600/4-79-020
- Standard Methods for the Examination of Water and Wastewater methods
- FDEP regulatory requirements included in DEP-QA-002/02 Requirements for Field and Analytical Work and DEP-EA 001/07 Process for Assessing Data Usability, and the SOPs included in DEP-SOP001/01 (FDEP SOPs)
- SFWMD requirements, including SFWMD Water Quality Monitoring Section's Field Sampling Manual (FSM) (SFWMD-FIELD-FSM-001) and associated SOPs
- USEPA Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Data Review (USEPA, latest versions)

1.4 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) are established at the beginning of a project. The process details the intended use of the data, including the types of decisions that will be made based on the results of the project, and the project requirements to meet the stated goals. Data quality indicators include precision, accuracy, representativeness, completeness, consistency, and sensitivity. The following is a summary of the data quality indicators.

1.4.1 Precision

Precision is a measure of mutual agreement between duplicate or co-located sample measurements of the same analyte. The closer the numerical values of the measurements are to each other, the more precise the measurement. Precision for a single analyte will be expressed as a relative percent difference (RPD) between results of co-located field samples or laboratory duplicate samples or matrix spike duplicates (MSD).

As a general rule, a field duplicate will be collected for every 20 actual samples. Precision will be determined for field duplicates, laboratory duplicates, and laboratory MSDs, and must meet the goals established in this QM or determined in the individual Work Plans.

1.4.2 Accuracy

Accuracy is the measure of bias in a measurement system. The closer the value of the measurement agrees with the true value, the more accurate the measurement. This will be expressed as the percent recovery (%R) of a surrogate, laboratory control spike (LCS), or matrix spike (MS) analyte or, if applicable, of a standard reference sample, also known as a PE sample, or Standard Reference Material.

Accuracy of spiked sample analyses will be determined for no less than one sample in 20 samples collected. Accuracy will be determined for LCS, MS, PE, and laboratory MSDs, and must meet the goals established in the individual monitoring plans.

1.4.3 Traceability

Traceability is a component of accuracy and is used to verify the correctness or integrity of data. Traceability refers to the ability of a given measurements accuracy to be traced back to a reference material or certified value (i.e., National Institute of Standards and Technology (NIST) or similar). Solutions or standards used to calibrate or verify the accuracy of field or laboratory instruments must be of sufficient quality to meet project DQOs. All solutions or standards purchased must come with certificates of analysis (or equivalent) that are traced back to known concentrations and, if possible, associated uncertainty with the certified value.

1.4.4 Analytical Sensitivity

Analytical sensitivity is expressed by the method detection limit (MDL). MDLs are set such that the minimum concentration of an analyte is reported with a 95% percent confidence that the analyte concentration is greater than zero. MDLs are determined using the method specified in 40 CFR Part 136, Appendix B, and meet The National Environmental Laboratory Accreditation Conference Institute (TNIT) requirements for the determination of the limit of detection.

1.4.5 Completeness

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. The closer the numbers are, the more complete the measurement process. Completeness will be expressed as the percentage of valid or usable measurements to planned measurements. This will be achieved by obtaining samples for all types of analyses required at each individual location, a sufficient volume of sample material to complete the analyses, samples that represent all possible situations and conditions, and samples at critical data locations, such as background and control samples.

The completeness goal for water quality measurements is 95%, but for all other data-gathering activities the completeness goal is 90%.

1.4.6 Representativeness

Representativeness is the degree to which data for a sampled source accurately and precisely represents a characteristic or variation of the sampled source in terms of a measured analyte or

parameter. The design of and rationale for the sampling program (in terms of the purpose for sampling, selecting the sampling locations, the number of samples to be collected, the ambient conditions for sample collection, the frequencies and timing for sampling, and the sampling techniques) assures that the environmental condition has been sufficiently represented.

The characteristic of representativeness is difficult to quantify. The following subjective factors must be taken into account:

- Degree of site homogeneity
- Degree of homogeneity of a sample taken from one point on a site
- Available information on which the sampling plan was based

To maximize representativeness of results, sampling techniques and locations are carefully chosen so that they provide samples and/or measurements that are representative of both the site and the specific area. The methods and approaches used to satisfy the representativeness criterion must be included in the individual method SOP and station descriptions in the Work Plan.

Field QC blanks are collected to monitor the sample collection process, decontamination procedures, quality of sample preservatives, and sample storage and transport conditions, to help assure that samples are representative of the sampling source and have not been artificially contaminated by the sample collection and laboratory processes.

Within the laboratory, precautions are taken to extract from the sample bottle an aliquot representative of the whole sample and must be included in the laboratories' QM and SOPs. These precautions include premixing the sample in the sample container and excluding sampled elements that are not a part of the target matrix (e.g., discarding large pebbles from soil samples).

1.4.7 Comparability

Comparability is a qualitative parameter expressing the confidence with which one set of data can be compared to another. Data sets will be considered comparable only when precision and accuracy are considered acceptable during data validation. Comparability will be maintained by consistency in sampling conditions, selection of sampling procedures, sample preservation methods, analytical methods, and data reporting units. Each analytical procedure selected from among the acceptable options will be used for all analyses of that analyte unless a rationale is provided for any alteration.

1.4.8 Consistency

Consistency is a component of comparability. Consistency of data collection and management are facilitated though the use of SOPs, approved methods, QMs, and Quality Assurance Project Plans. When followed by staff and contractors, these documents ensure data are collected consistently throughout the course of a project. Field staff must follow procedures established in the QM, project Quality Assurance Project Plan, and/or approved FDEP or SFWMD SOPs when documenting, collecting, and handling samples. Laboratories are obligated to use the same or equivalent analytical methods required for a project. The procedures established for the

verification and validation of both field and analytical data must be performed consistently to ensure comparability of data when making decisions for a project.

1.5 WORK PLAN DEVELOPMENT REQUIREMENTS

Throughout the life of a project, a variety of projects, activities, and studies will need to be developed and implemented. This QM has been developed to provide guidance and references for standard procedures, requirements, and activities anticipated to be performed.

Work Plans that address water quality, biological, ecological, and soil data collection and management must:

- Include signature page stating all parties have reviewed and will follow the requirements of the QM and Work Plan
- Define project scope and purpose
- Reference standardized procedures and guidelines when available
- Provide a work schedule
- Justify design strategy and sampling locations
- Discuss DQOs for representativeness, completeness, comparability, detection limits, precision, and accuracy of the plan
- List minimum qualifications and special training for personnel
- Reference or define as necessary maximum holding times by parameter and method
- Reference or define as necessary methods for sample collection (for matrix and technique)
- Reference or define as necessary equipment material and construction by parameter
- Reference or define as necessary equipment decontamination procedures
- Reference or define as necessary sample processing (homogenization, filtration, splitting, or compositing)
- Describe and justify required non-standard analytical or sampling methods (non-standard methods must be approved by FDEP and SFWMD prior to use)
- Identify chain of custody (COC) procedures
- Reference or define as necessary all relevant field forms, including sample custody forms

- Identify the data repository including procedures for archiving

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2 FIELD SAMPLING

2.1 DATA COLLECTION

The following sections outline the procedures to be followed during field activities associated with water, soil, and sediment sampling to assure project DQOs are met..

The general sampling requirements outlined in this chapter are sourced from FDEP and SFWMD SOPs and QC procedures. The FDEP and SFWMD SOPs referenced therein should be reviewed and incorporated into future Work Plans.

2.2 RECORDING OF FIELD DATA

Before starting field activities, field notebooks, and data forms shall be set up to ensure organized data collection. Hard copy as well as electronic forms may be utilized to record data. Daily logs and data forms are necessary to provide sufficient data to enable participants to reconstruct events that occurred during the project and to refresh the memory of the field personnel. Documentation of field sampling procedures and field-testing data will be recorded as applicable in accordance with FDEP SOP FD 1000 and Rule 62-160.240, F.A.C.

All daily logs will be kept in a waterproof notebook containing numbered pages. All entries will be made in waterproof ink. Per FDEP Rule 62-160.240, F.A.C., at the beginning of each day, the project name and number, the date that the entries were recorded, and weather conditions will be recorded at the top of each page of the logbook. If corrections are necessary, they must be made by drawing a single line through the original entry (so that the original entry can still be read) and writing the corrected entry alongside or below. The correction must be initialed and dated.

To prevent entries being added at a later date, unused portions of the notebook pages for each day will be struck through and include the statement "no further entries this date" or words similar.

Drilling and well construction documentation requirements are detailed in the following sections associated with these activities.

2.2.1 Sampling Records

The field records shall include, but not be limited to, the following:

- Name of person making the entry
- Name of team members, subcontractors, and visitors on-site
- Weather conditions
- Description of activities to performed/objectives that day
- Equipment/materials to be used that day Documentation on samples taken shall include:
- Sampling location
- Sample matrix

- Sampling depth for subsurface and surface water or soil samples
- Sample identification number
- Sampling date, time, and personnel
- Equipment used
- Type of sample (e.g., grab, composite, quality control (QC))
- Quantity of each aliquot (if sample is a composite)
- Required analyses, sample preservation (including lot number and expiration date) and verification of preservation
- The type and source (and lot if available) of water used for decontamination or blank preparation
- Types of field QC samples, including when and where they were collected

2.2.2 Sampling Data Sheets

Sampling data sheets shall be created for each sample location. Minimal guidelines for these sheets are found in FDEP SOP FD 1000 (in particular FD 5000) and FS 2200. Requirements for documentation of biological samples are detailed in FDEP SOP FD 5300. The records should include at a minimum:

- Project name
- Date and time of measurement or test
- Source and location of the measurement or test sample (e.g., monitoring well identification number, outfall number, station number, or other description)
- Latitude and longitude of sampling source location (if not specified in the monitoring plan)
- Analyte or parameter measured
- Measurement or test sample value (if performed in the field)
- Reporting units
- Initials or name of analyst performing the measurement
- Unique identification of the specific instrument unit(s) used for the test(s)Equipment used
- Field measurements (temperature, dissolved oxygen (DO), specific conductance, turbidity, and pH)
  - Specific to groundwater sampling: Depth to water, total well depth, sampling depth
  - Calculations used for volume purged
  - Flow rate of water from well
  - Volume purged
  - Length of purge time
  - Date and time well was purged (start and end times)

2.2.3 Calibration Log

All field instruments will be calibrated in accordance with FDEP SOP FT 1000 and will be documented in accordance with FDEP SOP FD 4000. The documentation will include, but is not limited to, the documentation of standards, reagents, and field instrument calibration documentation. The calibration log will also include a summary indicating the acceptable calibration criteria and acceptable ranges for each parameter.

The following information shall be recorded in the log concerning standards and reagents:

- Date opened and expiration date
- Manufacturer
- Standard description
- Lot number
- Concentrations

Calibration documentation shall include:

- Vendor certifications
- The instrument identification (make, model, serial numbers)
- Time and date of calibration (whether initial calibration (IC), IC verification, or continuing calibration verification)
- Instrument reading
- Person(s) performing the calibration
- Result of calibration or calibration verification (detail acceptance criteria and whether pass or fail

2.2.4 Maintenance Logs

All inspection, cleaning, and maintenance activities for both field sampling and testing equipment will be recorded in a maintenance log for the purpose of validating field data. Each log shall include, at a minimum, the applicable items specified in FDEP SOP FD 3000:

- Inspection notes
- Cleaning activities
- Date(s) problem was fixed
- Date(s) instrument was not functioning
- Description of the problem
- Description of the solution
- Names of personnel involved
- Name of specific instrument
- Vendor service records, if applicable
- Date of instrument calibration, including a description of all issues encountered, as applicable

2.3 FIELD EQUIPMENT REQUIREMENTS AND CALIBRATION

Field parameter measuring equipment includes instruments used during the manual collection of surface water or groundwater samples to identify physical/chemical characteristics of the samples that are representative of field conditions as they exist at the time of sample collection. They are also used during the purging of a monitoring well prior to the collection of groundwater samples. The use of all instruments must follow a basic format to imply consistency of use.

Regardless of the brand of meter used, all meters shall be properly maintained and operated in accordance with the manufacturers' instructions, and calibrations shall be verified prior to and following use.

2.3.1 Field Instruments Minimum Requirements

The field parameters listed in Table 2-1 will be measured during groundwater and surface water sampling events. Table 2-1 describes the performance criteria for the selection of monitoring equipment. The accuracy of the instrument employed must meet or exceed the criteria specified. These criteria, as well as the other field measurement specifications below, are in accordance with FDEP-SOP FT 1000 General Field Testing and Measurement and the SFWMD FSM.

Table 2-1. Field Parameters and Instrument Minimum Specifications

Parameter	FDEP SOP	Reporting Units	Instrument Sensitivity	WQ Acceptance Criteria*
pH	FT 1100	pH Units	0.01 units	± 0.2 pH units
DO	FT 1500	mg/L	0.01 mg/L	± 0.3 mg/L of saturation chart at temp
Specific Conductance	FT 1200	µS/cm	1 µS/cm	± 5% of the true value of KCl standard
Temperature	FT 1400	ºC	0.01 °C	± 0.5ºC
Turbidity	FT 1600	NTU	0.1 NTU	0.1-10 NTU: ± 10% of standard value 11-40 NTU: ± 8% of standard value 41-100 NTU: ± 6.5% of standard value >100 NTU: ± 5% of standard value
Residual Chlorine	FT 2000	mg/L	0.1 mg/L	± 10 % of standard value

Note:
*Acceptance criteria taken from FDEP SOP Table FT 1000-1 and FSM, Section 6

Key:
± = plus or minus
ºC = degrees Celsius
DO = dissolved oxygen
FDEP = Florida Department of Environmental Protection
mg/L = milligrams per liter
NTU = nephelometric turbidity unit
KCl = potassium chloride
SOP = Standard Operating Procedure
µS/cm = microSiemens per centimeter
WQ = water quality

2.3.2 Field Instrument Calibration Requirements

The specifications for calibration of monitoring equipment in FDEP SOP FT 1000, applicable FT series SOPs, and the SFWMD FSM, Section 6, will be followed. The procedures specified below are essential calibration requirements that must be performed on field monitoring equipment for each field parameter:

- Initial Calibration (IC): The probes are adjusted (manually or automatically) to a theoretical value (e.g., DO saturation) or a known value of a calibration standard.

- Initial Calibration Verification (ICV): The probe is checked or verified directly following initial calibration by measuring a calibration standard of known value as if it were a sample and comparing the measured result to the calibration acceptance criteria listed in the FDEP SOP.

- Continuing Calibration Verification (CCV): The probe is checked or verified by measuring a calibration standard of known value as if it were a sample and comparing the measured result to the calibration acceptance criteria listed in the SOP.

- Chronological Calibration Bracket: The interval of time between verifications within which environmental sample measurements must occur. This time interval shall be consistent with manufacturers' recommendations for each type of probe used and initially set not to exceed 24 hours. If historically generated data demonstrate that a specific instrument remains stable for longer or shorter periods of time, the time interval will be adjusted based on the shortest interval the instrument remains stable.

- Quantitative Calibration Bracket: The probe is calibrated or verified at a minimum of two known values that encompass the range of observed environmental sample measurement(s).

IC and ICV checks shall be within stated calibration acceptance criteria in Table 2-2. If an IC or ICV fails to meet the acceptance criteria during a calibration, the probe will be immediately re-calibrated following a specific IC procedure or removed from service. Any affected field test data must be qualified with a 'J' qualifier (refer to Section 4 for details).

For probes that are calibrated by the manufacturer, only verification is performed. Verification failures will be documented in the comment section of the field log with discussion of which parameter failed and corrective actions taken. Verification failures for parameters calibrated by the manufacturer require the instrument be returned to the manufacturer for re-calibration.

Table 2-2. Field Instrument Calibration Requirements

Parameter	Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
pH	• Use at least 2 standards: pH 7 and then pH 4 and/or 10 • Conduct daily prior to use for grab sample collection or if CCV fails	• Read a standard as a sample immediately following IC • Must read within ±0.2 standard pH units of calibration buffer true value	• Read daily, no later than 24 hrs after ICV or previous CCV • Read as a sample • Two buffers that bracket the sample value range. Preferably use the pH 7 and one other pH 4 or 10 • Must read within ± 0.2 standard pH units of calibration buffer true value
Specific Conductance	• Use 1 standard at the upper end of expected sample reading range but no less than 720 µS/cm • Conduct daily prior to use for grab sample collection or if CCV fails	• Read a standard as a sample immediately following IC at the low end of the expected sample reading range but no less than 100 µS/cm • Must be within ± 5% of true value	• Read daily, no later than 24 hrs after ICV or previous CCV. • Read as a sample • Two standards that bracket the sample value range. • Must be within ± 5% of true value
Temperature	• Verify against NIST- traceable thermometer prior to use at several temperatures within the expected sample range. • Must be within ± 0.5ºC of NIST traceable readings	• --	• Monthly verification against NIST-traceable thermometer prior to collection and at the end of each sampling event • CCVs must bracket the sample temperature range • Must be within ± 0.5ºC of NIST traceable readings
DO	• Calibrate under water-saturated atmosphere • Reading must be within ± 0.3 mg/L of expected soluble oxygen (in water saturated air) value at that water temperature • Conduct daily prior to use for grab sample collection or if CCV fails	• Read under water-saturated atmosphere immediately following IC • Reading must be within ± 0.3 mg/L of expected soluble oxygen (in water saturated air) value at that water temperature	• Read daily, no later than 24 hrs after ICV or previous CCV. • Read under water saturated atmosphere • Reading must be within ± 0.3 mg/L of expected soluble oxygen (in water saturated air) value at that water temperature
Residual Chlorine	• Use 2 primary standards and a blank bracketing the expected sample reading range • Conduct daily prior to use for grab sample collection or if CCV fails*	• Read a primary standard as a sample immediately following IC • Must be within ± 10% of true value	• Read secondary standard daily, no later than 24 hrs after ICV or previous CCV • Read secondary standard as a sample • Two standards that bracket the sample value range • Must be within ± 10% of true value

Parameter	Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
Turbidity	• At least two primary standards used to calibrate, bracketing the expected sample range • Conduct IC at least quarterly • Standard value = 0.1-10 NTU: the response must be within 10% of the standard • 11-40 NTU: 8% • 41-100 NTU: 6.5% • >100 NTU: 5%	• One primary standard read as a sample for verification immediately following IC • Standard value = 0.1-10 NTU: the response must be within 10% of the standard • 11-40 NTU: 8% • 41-100 NTU: 6.5% • >100 NTU: 5%	• Two secondary standards read as a sample for verification. • The two secondary standards must bracket the range of values read for the day. • Read daily, no later than 24 hrs after ICV or previous CCV • Standard value ˜ 0.1 NTU: the response must be within 0.02 NTUs. • 0.1-10 NTU: the response must be within 10% of the standard. • 11-40 NTU: 8% • 41-100 NTU: 6.5% • >100 NTU: 5%

Notes:
* = IC frequency for Residual Chlorine may be instrument dependent. Some instruments can only be calibrated by the manufacturer.
Key:
± = plus or minus > = greater than ºC = degree(s) Celsius DO = dissolved oxygen mg/L = milligrams per liter
NIST = National Institute of Standards and Technology NTU = nephelometric turbidity unit
µS/cm = microSiemens per centimeter

Calibration and verification for each instrument and field parameter must be linked with all sample measurements from that site. If any calibration verification fails to meet the acceptance criterion outlined in Table 2-2 in the field and it is not possible to reanalyze or resample the sample(s), the comment "Calibration verification failed for parameter X" will be placed in the comment field of the field sampling or calibration log with discussion of which parameter failed and corrective actions taken. Data collected with an instrument that fails the IC, ICV, or CCV will be qualified as estimated with a 'J' qualifier.

2.4 FIELD QUALITY CONTROL REQUIREMENTS

The following section outlines field QC samples to be collected in accordance with DEP-SOP-001/01 – FQ 1000 Field QC Requirements. Individual Work Plans may include or require additional or more stringent requirements. Assessment of the field QC elements below are detailed in Section 4.2.

2.4.1 Field QC Blanks

Field QC blanks are collected to demonstrate the collected samples have not been contaminated by the sampling environment, sampling equipment, or sample containers and preservatives during storage and transportation or during laboratory processes. Field QC blanks are collected for organic, inorganic, and radiological analyses but not typically required for biological or toxicity analyses. Analyte-free water shall be used to prepare all field QC blanks. With the exception of trip blanks, all field QC blanks will be prepared on-site in the field.

At a minimum, prepare and submit a field QC blank for every 20 samples collected. Collect at least one blank for each reported test result/matrix combination each year for each project.

If more stringent validation is required, as determined in the Work Plan development and detailed in the Work Plan, collect a field QC blank daily. In order to claim that a positive result is due to external contamination sources during sample collection, transport, or analysis, at least one field-collected blank (excludes trip blanks) must have been collected on the same day the samples were collected and analyzed with the same sample set.

2.4.1.1 Equipment Blanks

An equipment blank, or "EB," is a sample of analyte-free water poured into, over, or through the sampling device, collected in a sample container, and transported to the laboratory for analysis. Equipment blanks monitor the on-site sampling environment, sampling equipment decontamination, sample container cleaning, the suitability of sample preservatives and analyte-free water, sample transport and storage conditions, and laboratory processes for water, waste, soil, or sediment samples. Equipment blanks will be collected as a single pre-cleaned equipment blank at the start of the event according to FQ 1000. Equipment blanks will be collected each day new equipment is used prior to sampling and analyzed for all laboratory analyses requested for the environmental samples collected at the site according to FQ 1000. "New" equipment refers to materials that either have never been used before (i.e., new lot of tubing) or equipment cleaned at the base of operations. If equipment is cleaned in the field, a field-cleaned equipment blank, referred to as an "FCEB," is collected following procedures in the same FDEP SOP.

2.4.1.2 Field Blanks

Field blanks are not required if an equipment blank has been collected. Field blanks consist of analyte free water poured into sample bottles on-site in the field and analyzed for all applicable parameters for that specific sampling day. Field blanks monitor the on-site sampling environment, sample container cleaning, the suitability of sample preservatives and analyte-free water, sample transport and storage conditions, and laboratory processes.

2.4.1.3 Trip Blanks

Trip blanks monitor volatile constituents (e.g., volatile organic compounds (VOCs), methyl mercury, etc.) for sample storage and transport conditions. The laboratory performing the analysis shall provide prepared VOC vials with analyte-free water. It is important to not open these vials. They are labeled and kept with the VOC samples throughout the sampling event and returned for analysis with the collected samples. See FQ 1213 for frequency, preparation, and handling requirements.

2.4.2 Field Duplicates

A field duplicate sample is a second sample collected at the same location as the original sample. Duplicate samples are collected simultaneously or in immediate succession, using identical recovery techniques, and treated in an identical manner during storage, transportation, and analysis. The sample containers are assigned an identification number in the field but will not be

identified as duplicate samples (blind duplicate) on the COC record. Specific locations are designated for collection of field duplicate samples prior to the beginning of sample collection.

Duplicate sample results are used to assess the precision of the sample collection process and for evaluating the homogeneity of composite samples. Field duplicates will be collected at a frequency of one for every 20 samples collected or one per sampling event, whichever is more frequent, for each analysis.

2.4.3 Field Splits

A field split sample is a single sample that is homogenized and divided into two equal parts for analysis. The sample containers are assigned an identification number in the field, such that they cannot be identified as split samples by laboratory personnel performing the analysis. Specific locations are designated for collection of field split samples prior to the beginning of sample collection. Split sample results are used to assess laboratory analysis precision, and/or the performance between two or more laboratories. Field split samples will be collected if SFWMD or FDEP require split samples for analysis by different laboratories for comparison purposes.

2.5 DECONTAMINATION REQUIREMENTS

Sampling equipment decontamination procedures will follow DEP-SOP 001/01 FC 1000 *Field Decontamination*.

The cleaning/decontamination procedures must assure that all equipment that contacts a sample during sample collection is free from the analytes of interest and constituents that would interfere with the analytes of interest. The cleaning reagents and other cleaning supplies cannot contribute analytes of interest or interfering constituents unless these are effectively removed during a subsequent step in the cleaning procedure. The effectiveness of any cleaning procedure (including all cleaning reagents) must be supported by equipment blanks with reported non-detected values. A single source of water shall be used to perform decontamination.

FC 1000 should be reviewed prior to an event or project to determine the appropriate decontamination procedures as the specifics are very dependent on the sample collection method(s) and analytes to be sampled for. FC 1100 addresses sampling equipment and FC 1200 addresses field instruments and drilling equipment. The general equipment cleaning procedure is as follows:

1. Rinse equipment with analyte-free water.
2. Soak equipment in a sudsy water solution (Luminox® or equivalent).
3. Use a brush to remove particulate matter or surface film.
4. Rinse thoroughly with analyte-free water.

5. If metals are being collected, and equipment is not stainless steel, rinse with appropriate acid (FC 1001, Section 4). If VOCs or semi-volatile organic compounds are being collected, rinse with isopropanol.

6. Triple-rinse thoroughly with analyte-free water. Use enough water to ensure that all equipment surfaces are thoroughly flushed with water.

7. Allow to completely air dry.

8. Place clean sampling equipment in a new plastic bag for storage.

Note that hot water is preferred for cleaning procedures if available, although ambient temperature water is acceptable.

2.5.1 Sample Containers

Containers used for sample collection should always be new. However, if reusing sample containers is necessary, follow the container decontamination procedures based on analyte group detailed in Table 2-3 below.

Table 2-3. Container Decontamination Procedures

Parameter / Class	Decontamination Procedures
VOCs, semi-volatile organic compounds	1, 2, 4, 6 (not required if Luminox (or equivalent is used), (5 and 7 optional), 11 1, 2, 4, (6 optional, methanol only), 7
Metals	1, 2, 3, 4, 8, 11 ** **Procedures to clean containers for ultra-trace metals are found in FS 8200
Inorganic non-metalics, Pesticides, Radiological, Nutrients	1, 2, 3*, 4, 8, 11 * For nutrients, replace nitric acid with hydrochloric acid, or use a hydrochloric acid rinse after the nitric acid rinse; see FC 1001, Section 4
Microbiological	1, 2, 4, 8, 9, 11
Toxicity / Bioassay	1, 2, 10, 2, 4, 6.1, (10 optional), 11

Source: FC 1000 – Table 2 Notes:

Steps 1 and 2 may be omitted when cleaning new, uncertified containers.

1. Wash with hot tap water and a brush using a suitable laboratory-grade detergent:
    a. Volatile and Extractable Organics: Luminox, Liquinox, Alconox or equivalent;
    b. Inorganic nonmetallics: Liquinox or equivalent;
    c. Metals: Liquinox, Acationox, Micro or equivalents:
    d. Microbiologicals (all): Must pass an inhibitory residue test.
2. Rinse thoroughly with hot tap water.
3. Rinse with 10% nitric acid solution.
4. Rinse thoroughly with analyte-free water (deionized or better).
5. Rinse thoroughly with pesticide-grade methylene chloride.
6. Rinse thoroughly with pesticide-grade isopropanol, acetone or methanol. For bioassays, use only acetone, and only when containers are glass.

7. Oven dry at 103°C to 125°C for at least 1 hour. VOC vials and containers must remain in the oven in a contaminant-free environment until needed. They should be capped in a contaminant-free environment just prior to dispatch to the field.
8. Invert and air-dry in a contaminant-free environment.
9. Sterilize containers:
    a. Plastic: 60 min at 170°C, loosen caps to prevent distortion.
    b. Glass: 15 min at 121°C.
10. Rinse with 10% hydrochloric acid.
11. Cap tightly and store in a contaminant-free environment until use. Do not use glass if collecting samples for boron or silica.

2.5.2 New Tubing

As a general rule, new tubing may be used without preliminary cleaning if an equipment blank is collected using that tubing. Protect new tubing from potential environmental contamination by sealing it in new untreated plastic bags or keep the tubing in the original sealed packaging until use. If new tubing is exposed to potential contamination, rinse the exterior and interior tubing surfaces with hot tap water followed by a thorough rinse with analyte-free water. If new tubing is to be used to collect samples, thoroughly rinse the tubing with sample water (i.e., pump sample water through the tubing) before collecting samples. Refer to FDEP SOP FC 1160 or treat tubing according to the procedures outlined in Section 2.5.1 above for cleaning various types of tubing if the tubing is to be reused for a project or activity.

2.5.3 Shipping Containers

Reusable ice chests and shipping containers shall be washed with laboratory detergent, rinsed with tap water, and air dried after each use as described in FDEP SOP FC 1190.

2.6 FIELD SAMPLE COLLECTION

Field sample collection conducted during the ASR program shall follow FDEP SOPs in conjunction with the SFWMD FSM (as appropriate). FDEP SOP FS 1000 *General Sampling Procedures* contains information on equipment selection, appropriate equipment construction materials, holding times and preservation, and analyte group compatibility for a variety of matrices.

During the development of individual projects, the Work Plans must include details of or references to the sampling procedures and requirements depending on the analytes to be tested for and sampling techniques employed (see Section 1.6). The methods selected must be evaluated by the project team to determine the best method to achieve the project DQOs and, if applicable, permit requirements.

Project managers (PMs) must evaluate specific project needs; and if a different 40 CFR–listed method is required to meet project objectives for a particular parameter, the method and associated DQOs (i.e., detection limits) must be specified in the project Work Plan and must be approved by the PM. If a project requires the use of a method not listed in 40 CFR, the PM shall follow Chapter 62-160.330 F.A.C., *Approval of Alternative or Modified Laboratory Methods*.

2.6.1 Field Mobilization

Sampling personnel must have the following prior to mobilization to a site to conduct ecological assessments or sampling:

- Client scope of services or Work Plan
- Electronic copy of the current QM
- Electronic copy of the current Health & Safety Plan
- Access to all applicable SOPs
- Flora and fauna identification manuals (where applicable)
- Project specific information:
  - Project site list(s)
  - Project maps
  - Property access codes and owner contact information
- All appropriate PPE
- All appropriate sampling equipment
- State park sampling permits (where applicable)
- Permission from parks or private property owners (where applicable)
- Client gate keys or lock combination (where applicable)

All equipment that comes in contact with samples during collection shall be cleaned according to procedures outlined in DEP-SOP-001/01 FC 1000 unless otherwise noted within this document. All equipment will be stored and transported in a way that minimizes exposure to contaminants.

2.6.2 Groundwater Sampling

Groundwater well purging and sampling will be conducted in accordance with FDEP SOP FS 2000 *General Water Sampling* and FS 2200 *Groundwater Sampling*. The procedures and requirements in these SOPs are intended to ensure the collected samples will be representative of water in the aquifer or target formation, and that the samples have not been altered or contaminated by the sampling and handling procedures.

To ensure a representative sample, wells must be purged prior to sampling. The well purging technique employed will be determined based on the well and groundwater characteristics.

Figure FS 2200-2 in the SOP provides a flow chart to assist in selecting appropriate techniques and stabilization requirements for a variety of purging situations. The project anticipates two primary purging techniques: purging wells with plumbing (e.g., pumps, piping) permanently installed and wells without plumbing (i.e., requires portable pump). DEP Form FD 9000-24 Groundwater Sampling Log must be used for documenting the purging and sampling of groundwater.

FS 2213 *Purging Wells Without Plumbing (Monitoring Wells)* details purging procedures for monitoring wells using portable pumps (e.g., peristaltic, variable speed submersible). When the depth of the well screen interval is known, the screen is <10 feet, and the screen is completely submerged, the preferred variation of this method is the minimum volume purge (i.e., low-flow) procedure. The pump or bottom of the tubing will be placed in the middle of the well screen and

purged at a rate of <0.1 gallons per minute until the water quality parameters stabilize. The first set of stabilization readings will be taken as soon as the purge rate equal to the well recovery rate is established and an additional three equipment volumes (i.e., volume of tubing and flow cell) of water have been purged.

If the well screen interval is unknown or the well is an open borehole, the conventional purge method is performed using a variable speed submersible pump. In this method, the pump or tubing intake will be placed at the top of the water column. The well will be pumped until the purge rate equals the recovery rate. Then, a minimum of one well volume will be removed from the well before the first set of stabilization readings can be collected. A minimum of one-fourth of the well volume will be removed between subsequent readings.

FS 2215 *Purging Wells with Plumbing* details purging procedures for wells with pumps installed and equipped with sampling ports or spigots (i.e., ASR wells). For pumps operating intermittently, the spigot is opened and flushed with enough volume until the purge completion criteria are met. If the pumps are continuously running, water quality parameters are measured but stabilization verification is not required.

Whether purging with or without plumbing, FS 2212 details water level measurement, equipment and well volume determination, and purge completion determination. For the procedures above, excluding the continuous running permanent pump configuration, the purge is complete when three sets of readings are within the required limits shown below:

- Temperature: ±0.2°C
- pH: ±0.2 standard units
- Specific conductance: ±5% of reading
- DO: ≤20% saturation
- Turbidity: ≤20 nephelometric turbidity unit

Stabilization readings will be taken no sooner than two minutes apart until three sets of readings are within the required limits. If five readings are taken and stabilization has not occurred, sampling will proceed according to FDEP SOP FS 2212 *Well Purging Techniques* subsection 3.6, and this will be documented in the field notes and data usability summary (DUS). Purge records will be kept on the well sampling data sheet (see Section 2.1). Samples will be collected immediately after the well purge is complete.

Refer to the FDEP SOP FS 2212 if the well screen interval is unknown, partially submerged, an open borehole for additional procedures that should be incorporated, or referenced in the work plan.

Groundwater sampling techniques are detailed in FS 2220. Once purging is complete, samples will be collected directly from the portable pump tubing or spigot into appropriate sample containers; intermediate containers should not be used. The sample stream flow rate should be within 100 to 400 milliliters per minute.

The collection of VOCs from portable pumps has specific requirements to reduce loss of target compounds. If VOCs are to be collected, refer to FDEP SOP FS 2221 for specific procedures.

Sample preservation must be conducted within 15 minutes of sample collection. Refer to analytical methods listed in 40 CFR Part 136 for sample container and preservation requirements, analytical holding times, and filtration requirements. Refer to Section 2.7 for sample handling and custody procedures.

2.6.3 Surface Water Sampling

Surface water samples shall be collected using the operating procedures described in DEP-SOP FS 2000 *General Water Sampling* and FS 2100 *Surface Water Sampling*. These SOPs describe a variety of techniques and devices that can be used for surface water sample collection. For the project, it is anticipated that two types of surface water samples will be collected, surface grab samples and depth grab samples.

Surface grab samples are collected from the top 12 inches of the water column. Avoid skimming the surface of the water during collection unless specifically required by the sampling plan. Make sure to not disturb sediments during collection when in shallow water bodies. Where practical, use the actual unpreserved sample container as the collection device. Sample containers attached to poles are also considered direct grabs. In any case, it is essential that the bottle be held neck down such that no air leaves the bottle until it is at the sampling depth.

For samples collected from a specific depth, there are several options to consider: Niskin or Van Dorn type devices, or pump and tubing. See FS 2000 for proper collection procedures for extractable organics and volatile organic compounds (VOCs). If a Van Dorn device is used, the device will be lowered to the depth required and the sample collected in accordance with FS 2110.

Ensure enough water is collected to completely fill each required sampling container. If a tubing setup is used, the tubing will be attached to a pole or weighted line so that the sample can be collected from the required depth.

Sampling must be performed so that samples are neither contaminated nor altered from improper handling, and disturbing sediments in the vicinity of the sampling location is to be avoided.

When taking samples in a boat, samples must be taken near the bow, away and upwind from any gasoline outboard engine. The vessel must also be oriented so that the bow is positioned in the up-current direction. When sampling while wading, samples shall be taken up-current from the body. Provisions must also be made so that sediments are not disturbed in the immediate area.

Compositing buckets will be used when the total volume of sample water required from a sample site exceeds the volume of a single grab of the sampling equipment. Compositing the sample in a bucket prior to pouring into individual sample bottles will assure that all water samples from a particular site are homogenized. Samples collected in the sampling device that do not require compositing will be shaken prior to pouring to assure homogeneity.

Refer to analytical methods listed in 40 CFR Part 136 for analytical methods, sample container and preservation requirements, analytical holding times, and filtration requirements. Refer to Section 2.7 for sample handling and custody procedures. PMs must evaluate specific project

needs; and if a different 40 CFR–listed method is required to meet project objectives for a particular parameter, the method and associated DQOs (i.e., detection limits) must be specified in the project Work Plan and must be approved by the PM. If a project requires the use of a method not listed in 40 CFR, the PM shall follow Chapter 62-160.330 F.A.C., *Approval of Alternative or Modified Laboratory Methods*.

2.6.4 Sediment Sampling

Sediment samples shall be collected using the operating procedures described in FDEP SOP FS 4000 *Sediment Sampling*. Sediment samples must be collected using one of three different types of equipment: scoops, corers and dredges, or grab samplers. The selection of equipment will be based on the site characteristics. Table FS 4000-1 *Summary of Bottom Sampling Equipment (from ASTM 1391-94)* describes the approved devices for sediment sampling for various types of sample types/locations and details the advantages and disadvantages of each. This SOP also provides guidance and describes procedures for sampling interstitial or porewater samples if necessary for a project or study.

2.6.5 Soil Sampling

Soil samples shall be collected using the operating procedures described in FDEP SOP FS 3000 *Soil Sampling*. The SOP provides techniques for collecting surface and subsurface soil samples using shovels, augers, split spoons, and drilling rigs. The selection of equipment will be based on the site characteristics and depths required. The SOP also details specific procedures required for samples to be analyzed for VOCs.

2.6.6 Sampling for Dissolved Constituents

Water samples collected for analysis of dissolved constituents will be field-filtered in accordance with FDEP SOP FS 2000 *General Water Sampling*. When filtering groundwater samples, a disposable, one-piece, molded construction 0.45-micron filter for non-metal parameters (1-micron filters for metals) will be placed at the outfall of the pump tubing or spigot. Position the filter with the outfall facing up and flush with sample water until all air is expelled before collecting samples. Filtered sampling must begin within 15 minutes of collection of the non-filtered sample from the same location using the same sampling methodology selected for the non-filtered sample. Filters shall be purchased from the same manufacturer consistently throughout the project, if possible.

2.7 SAMPLE HANDLING AND CUSTODY

2.7.1 Chain of Custody

The primary objective of the COC procedures is to provide an accurate written or computerized record that can be used to trace the possession and handling of a sample from the receipt of precleaned sample bottles through completion of all required analyses. A sample is “in custody” if it is:

- In a team member’s physical possession

- In a team member's view
- Locked up
- Kept in a secured area that is restricted to authorized personnel

The COC record must be completed by the field personnel designated by the PM as responsible for sample shipment to the appropriate laboratory for analysis. The COC will include, but will not be limited to, all samples collected, including QC, sampling dates, matrix, preservation, and requested analyses as detailed in FDEP SOP FD 5000. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or holding time limitations) a representative from the laboratory will be notified. The custody record must also indicate any special preservation techniques necessary. Copies of the COC records are maintained with the project file.

The coolers in which the samples are packed must be accompanied by a COC record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the COC record. If samples require shipping to a laboratory, the shipping containers (coolers or boxes) are sealed in as many places as necessary to ensure security. Upon receipt at the laboratory, the custodian must check that seals or taping on boxes and/or coolers are intact.

2.7.2 Sampling Forms

Upon completion of a sampling event, the sample collection team shall provide the laboratory all field sampling forms and/or other water quality data. Groundwater quality data will be collected using the FDEP Form FD 9000-24 (Appendix A). When applicable, water quality data collected during the sampling of surface water or wells with plumbing shall be provided to the lab. The sample collection team must review all forms for completeness and accuracy prior to submittal. This data shall be used by the laboratory to generate the field data ADaPT file used during validation and usability assessment described in Section 4.3.1.

2.7.3 Preservation and Holding Times

Sample container type, preservation, and holding times shall follow the requirements in FS 1000, 40 CFR Part 136, or the specific analytical method. The laboratory must be consulted on the volume of sample required for analysis. Samples requiring preservation must be preserved within 15 minutes of sample collection. Sample holding time tracking begins with the collection of samples and continues until the analysis is complete.

2.7.4 Sample Storage and Shipping

The transportation and handling of samples must be accomplished in a manner that protects the integrity of the samples. Samples must be packaged carefully to avoid breakage or contamination and must be shipped to the laboratory at proper temperatures. The following sample packaging requirements will be followed:

- All sample lids must stay with the original containers

- If the sample height does not reach the neck of the bottle, a waterproof marker will be used to show sample level; this will help the laboratory determine if any leakage occurred during shipping

- Samples shall be submersed in ice immediately after collection

- Shipping coolers must be partially filled with packaging materials and ice (when required) to prevent the bottles from moving during shipment

- Wet ice will be used to cool samples during shipping

- A duplicate custody record must be placed in a plastic bag and taped to the inside of the cooler lid

- Custody seals are affixed to the sample cooler by the laboratory shipping agent

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3 CHEMICAL ANALYSIS

3.1 LABORATORY REQUIREMENTS

Projects and associated Work Plans must comply with QA Rule Chapter 62-160, F.A.C. Chemical analysis must be performed by laboratories with TNI certification for a specific matrix, method, and analyte when available.

Laboratories performing analyses will be required to maintain a QM documenting the quality systems according to applicable TNI standards, Chapter 64E-1 and F.A.C., Chapter 62- 160, F.A.C.

Some projects or studies may require an analyte or test for which TNI certification is not available. Follow guidance provided in Rule 62-160.600, F.A.C., Research Field and Laboratory Procedures. Even if a certification is not available, laboratories must meet all requirements for laboratories specified in Chapter 62-160, F.A.C. Exceptions to the laboratory certification requirement must be documented in the Work Plan and approved by the client prior to implementation.

Any laboratory conducting sample analysis is responsible for reviewing this QM to ensure that they can generate data that will meet the project DQOs. The laboratory shall notify Stantec immediately when any TNI certification applicable to a project has been lost or revoked. The laboratory or contractor performing the work will inform Stantec, and steps will be taken immediately to subcontract another TNI laboratory certified for the analysis if the current laboratory cannot obtain recertification prior to the next scheduled sampling.

The QM, applicable laboratory SOPs, MDL studies, or PE studies shall be provided to Stantec upon request. Laboratory audits performed by Stantec will be allowed for any facility analyzing samples from applicable projects and will respond to the recommended corrective actions in a timely manner.

The laboratory manager, technicians, and analysts are responsible for ensuring compliance with the laboratory QM, the analytical method procedures and requirements, and all applicable standards and practices throughout the laboratory process. The laboratory's QA Officer has overall responsibility for compliance with all QA requirements.

Laboratories shall securely maintain all associated records for a period of at least five years or as otherwise directed by Stantec or the client.

3.2 LOGGING AND STORAGE OF SAMPLES

The laboratory QM and associated laboratory SOPs will specify the laboratory sample handling and custody requirements to be followed. These requirements will be consistent with the TNI standard and 40 CFR Part 136, as well as 40 CFR Part 141, where drinking water methods are prescribed. In addition, the following procedures will be adhered to:

- Once the samples reach the laboratory, they will be checked for anomalies against information on the COC form accompanying the samples. Each cooler containing samples must have a COC seal and tape. The receiving laboratory will reject any sample cooler that shows evidence of tampering with the COC seal and tape.

- The condition, temperature, and appropriate preservation of samples will be checked and documented on the COC form. Appropriate measuring methods include measurement of a temperature blank contained in the cooler. Infrared temperature measurement of an aqueous sample is also acceptable. For samples that are delivered to the lab on the same day they are collected, if ice is present in the cooler upon receipt, the lab will note this on the COC form and accept the samples, even if the sample temperatures are above the acceptance criterion of 6°C. Checking an aliquot of the sample using pH paper is an acceptable procedure for checking acid/base preservation. The occurrence of any anomalies in the received samples and the resolution of these anomalies will be documented in laboratory records, a sample receipt log, and the case narrative submitted with the laboratory data package.

- While in the laboratory, samples will be stored in limited-access, temperature-controlled areas. Refrigerators, coolers, and freezers will be monitored for temperature daily. The acceptance criterion for the temperatures of the refrigerators and coolers is 0.1 to 6°C. Acceptance criteria for the temperatures of the freezers will be less than 0°C. All cold storage areas will be monitored by thermometers or other temperature monitoring devices that have been calibrated against a NIST-traceable thermometer. As indicated by the findings of the calibration, correction factors will be applied to each thermometer. Records that include acceptance criteria will be maintained. All samples will be stored separately from standards.

- Samples will be stored after analysis until they can be disposed of in accordance with applicable local, state, and federal regulations. Prior to disposal, the laboratory will contact Stantec for approval. PMs must communicate with the laboratories on minimum time frames the sample will be stored to meet project needs. Disposal records will be maintained by the laboratory.

3.3 LABORATORY QUALITY CONTROL REQUIREMENTS

The following are definitions of typical laboratory QC elements that may be employed if required by the analytical method. Additional QC elements may be required for certain analyses; refer to each analytical method for details.

3.3.1 Method Detection Limits and Reporting Limits

The laboratory data package shall include the MDLs and reporting limits (RL) (also known as Practical Quantitation Limit (PQL)) for each analyte reported. The laboratory must follow the process outlined in 40 CFR for determining MDLs when applicable to a specific method and parameter. The MDL is the lowest concentration of an analyte measured by a specific method in a specific matrix that can be reported as “detected.” The RL is typically 3 to 10 times the MDL for the majority of target analytes and has a higher degree of confidence.

Laboratory data packages must report non-detect results as the value of the MDL (qualified as "U"). Results reported as detected between the MDL and RL are qualified as estimated ("I"). Results reported above the PQL are not qualified with an "I" or a "U".

Each Work Plan must detail the MDL requirements based on the project-specific DQOs and provide information regarding alternative methods that may be needed to meet the required MDLs. In addition, given that values between MDL and PQL are qualified as estimated and may have a high associated uncertainty, PMs should attempt to set the MDL below standards and criteria when possible.

3.3.2 Instrument Calibration Data

The laboratory data package shall include initial and continuing calibration supporting data, when applicable, according to the analytical method or laboratory SOP. This will include a copy of the results for each level of calibration, the linear range, and the correlation coefficient or response factor. It must be clear as to which standards (files) were used in the calibration, the number of standards, and if any points were deleted to attain an acceptable correlation coefficient. The equations presented shall be complete and use enough significant figures to reproduce the analytical results during data validations.

3.3.3 Surrogate and Internal Standard Data

Depending on the analytical method requirements, a surrogate may be used to determine preparation/extraction efficiency while an internal standard is used to determine analytical efficiency. The surrogate or internal standard shall be a compound similar to but not a contaminant of concern is added to each analytical sample during the preparation phase. Test reports for methods using surrogates and/or internal standards shall include the concentration of the surrogate or standard added, the amount observed, the calculated %R, and the lab QC limits for %R.

3.3.4 Laboratory Blank Data

Laboratory blank samples consist of all reagents and materials used for a particular sample analysis and run throughout the entire method procedure. The laboratory data package shall include test reports or summary forms for all blank samples (e.g., method and preparation blanks) pertinent to the sample analyses. If a target analyte was detected in any of the blanks associated with an analytical and/or preparation batch that includes samples from the project, the type of blank, the level of the contamination, the environmental samples affected, and the potential effect on the associated data will be described in the case narrative. Blank sample test reports will contain all of the information required for sample test reports (e.g., surrogate recoveries). Sample data shall not be blank corrected. Results for blank analyses for which the blank does not go through the method preparation and extraction procedures, such as solvent blanks, system blanks, calibration blanks, etc., may be reported on blank summary forms instead of on test reports.

3.3.5 Laboratory Control Spike Data

The laboratory data package shall include the LCS test reports or LCS results summary forms. The LCS will be taken through the entire preparation, cleanup and analysis procedure. The LCS samples shall contain all chemicals of concern identified in the site-specific work order. The LCS test report, or LCS results summary form shall include the amount of each analyte added to the sample, the amount measured during the analysis, the %R between the amount added and the amount measured, and QC limits for each analyte in the LCS. The form shall also include the laboratory batch number and the identification number of the sample spiked. If applicable to the laboratory's QA plan and/or SOPs, the %R and RPD data for each analyte in the laboratory control sample duplicate (LCSD) will be reported.

3.3.6 Matrix Spike Data

The laboratory data package shall include all MS result summary forms. Certain project samples may be designated on the COC for MS analysis. Additional sample volume may be required depending on the analysis. The PM should consult with the laboratory prior to sampling to determine whether additional volume is required. The MS project samples shall be spiked with all chemicals of concern identified in the site-specific work order. The MS test reports or results summary forms will include identification of the compounds in the spike solution, the amount of each compound added to the MS and the MSD, the parent sample concentration, the concentration measured, the calculated %R, and the QC limits for %R. The form shall also include the laboratory batch number and the identification number of the sample spiked. If applicable to the laboratory's QA plan and/or SOPs, the %R and RPD data for each analyte in the MSD will be reported.

3.3.7 Laboratory Duplicate Data

If an analytical duplicate (or laboratory duplicate) sample is analyzed, the laboratory data package shall include the duplicate sample test report or analysis summary form. The duplicate sample test report or analysis summary form shall include the calculated RPD between the sample and the sample duplicate results and the QC limits for the RPD. The test report or summary form shall also include the laboratory batch number and the identification number of the sample duplicate. The laboratory data package will include an easy means by which the samples associated with that particular duplicate analysis can be identified.

The following (Sections 3.3.8, 3.3.9, and 3.3.10) are typical of, but not limited to, Inductively Coupled Plasma (ICP) methods by atomic emission spectroscopy using EPA methods 200.7 and 6010, and by mass spectrometry using 200.8 or 6020.

3.3.8 Interference Check Standards

The mixed element interference check standard (ICS) solution is used daily to check that the instrument is free from interference from elements typically observed in high concentrations and to check that interference corrections applied are still valid. The laboratory data package shall include ICS analysis results when applicable. The ICS results will include all analytes in the

standard and their respective %R. The applied method contains the QC acceptance criteria for ICS results.

3.3.9 Serial Dilution Data

If the analyte concentration is within the linear range of the instrument and sufficiently high (minimally, a factor of 25 times greater than the lower limit of quantitation), an analysis of a 1:5 dilution should agree to within ± 20% of the original determination. If not, then a chemical or physical interference effect should be suspected. The MS is often a good choice of sample for the dilution test, since reasonable concentrations of most analytes are present. Elements that fail the dilution test are reported as estimated values.

3.3.10 Post Digestion Spike Data

If a high concentration sample is not available for performing the dilution test, then a post-digestion spike (PDS) must be performed. The test only needs to be performed for the specific elements that failed original MS limits, and only if the spike concentration added was greater than the concentration determined in the unspiked sample. The recovery of the PDS should fall within a ± 25 % acceptance range, relative to the known true value, or otherwise within the laboratory derived acceptance limits. If the PDS recovery fails to meet the acceptance criteria, the sample results must be reported as estimated values.

3.3.11 Laboratory Data Qualifier Codes

The following table of data qualifier codes and descriptions is from Rule 62-160.700, F.A.C. Laboratories will apply these qualifier codes to data that have not met method or laboratory QC requirements. Table 3-1 below details the FDEP approved qualifier codes used for various deficiencies. Qualifier codes and definitions for field related activities are detailed in Table 4-1.

Table 3-1. Laboratory Data Qualifier Codes and Definitions

Qualifier	Definition
A	Value reported is the arithmetic mean (average) of two or more determinations. This code shall be used if the reported value is the average of results for two or more discrete and separate samples. These samples shall have been processed and analyzed independently. Do not use this code if the data are the result of replicate analysis on the same sample aliquot, extract or digestate.
F	When reporting species: F indicates the female sex.
H	Value based on field kit determination; results may not be accurate. This code shall be used if a field screening test (i.e., field gas chromatograph data, immunoassay, vendor-supplied field kit, etc.) was used to generate the value and the field kit or method has not been recognized by the Department as equivalent to laboratory methods.
I	The reported value is greater than or equal to the laboratory method detection limit but less than the laboratory practical quantitation limit.

J	Estimated value. A "J"–qualified sample value shall be accompanied by a detailed explanation to justify the reason(s) for designating the value as estimated. When possible, the organization shall report whether the actual sample value is estimated to be less than or greater than the reported value, to assist data users in any evaluation of the usability of the sample value. A "J" data qualifier code shall not be used as a substitute for G, K, L, M, S, T, V, or Y; however, if additional reasons exist for identifying the value as an estimate (e.g., laboratory control spike or matrix spike failed to meet acceptance criteria), the "J" code may be added to a G, K, L, M, T, U, V, or Y qualifier. Examples of situations in which a "J" code must be reported include instances in which: a quality control item associated with the reported value failed to meet the established quality control criteria (the specific failure must be identified); the sample matrix interfered with the ability to make any accurate determination; data are questionable because of improper laboratory or field protocols (e.g., composite sample was collected instead of a grab sample); the analyte was detected at or above the method detection limit in an analytical laboratory blank other than the method blank (such as a calibration blank), and the blank value is greater than 10% of the associated sample value; or the field or laboratory calibrations or calibration verifications did not meet calibration acceptance criteria, including quantitative or chronological bracketing requirements for field testing data.
K	Off-scale low. Actual value is known to be less than the value given. This code will be used if: The value is less than the lowest calibration standard and the calibration curve is known to be non- linear; or The value is known to be less than the reported value based on sample size, dilution or some other variable. This code will not be used to report values that are less than the laboratory practical quantitation limit or laboratory method detection limit.
L	Off-scale high. Actual value is known to be greater than value given. To be used when the concentration of the analyte is above the acceptable level for quantitation (exceeds the linear range or highest calibration standard) and the calibration curve is known to exhibit a negative deflection.
M	When reporting chemical analyses: presence of material is verified but not quantified; the actual value is less than the value given. The reported value will be the laboratory practical quantitation limit. This code will be used if the level is too low to permit accurate quantification, but the estimated concentration is greater than the method detection limit. If the value is less than the method detection limit use "T" below.
N	Presumptive evidence of presence of material. This qualifier shall be used if: The component has been tentatively identified based on mass spectral library search; or There is an indication that the analyte is present, but quality control requirements for confirmation were not met (i.e., presence of analyte was not confirmed by alternative procedures).
O	Sampled, but analysis lost or not performed
Q	Sample held beyond the accepted holding time. This code will be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected. This symbol will be used to indicate that the specified component was not detected. The value associated with the qualifier will be the laboratory method detection limit.
V	Indicates that the analyte was detected at or above the method detection limit in both the sample and the associated method blank and the value of 10 times the blank value was equal to or greater than the associated sample value. Note: unless specified by the method, the value in the blank shall not be subtracted from associated samples. V qualifier applied to method blanks only; J qualifier applies to all other blanks.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data
*	Not reported due to interference

3.4 LABORATORY REPORTING REQUIREMENTS

Upon completion of the analyses, the laboratory shall compile the results in a data package to be submitted to Stantec. The data package will contain the case narrative and required reportable data described in Rule 62-160.340, F.A.C. The data package will be submitted in hard copy or Adobe Acrobat electronic copy along with the required electronic data deliverables (EDD). All files associated with the deliverable shall be transferred to Stantec by the laboratory via the web portal or ftp site. The laboratory shall notify Stantec when the upload is complete.

It is anticipated that several laboratories will be required to meet all the possible analytical requirements. If the primary laboratory is authorized to subcontract certain analyses, the primary laboratory compiling the final deliverables submitted to Stantec shall identify all subcontracted laboratories providing results for the project. NELAP accreditation shall be provided for subcontracted labs performing methods certified to the TNI standard. The original reports from the subcontracted laboratories will be provided in the final deliverable for review.

Two levels of reporting requirements are detailed below, depending on the level of data review and validation being performed. A Level 2 laboratory data package shall include at a minimum:

- Signed and dated laboratory data package
- Identification of all laboratories providing results to the data package
- Client site name and project number
- Case narrative detailing problems and/or anomalies observed by the laboratory
- Completed COC documentation
- Sample identification cross-reference
- Sample receipt information
- Analytical results for environmental samples and field QC samples
- Preparation date, method, batch
- Analytical data, method, batch
- Dilution factors applied
- Data qualifiers applied
- MDL/PQL data
- Laboratory QC data
- Laboratory blank sample data
- LCS/LCSD data
- MS/MSD data
- Laboratory duplicate data
- ICS, PDS) data, and/or serial dilution (SD) results (if applicable)

If provided to the laboratory, the data package and associated ADaPT files must include any water quality sampling data and forms used to collect the samples being analyzed.

When required as part of a project detailed below or upon request, a Level 4 data package will be issued and will include all information described in the Level 2 data package above in addition to the following:

- Standard certificates of analysis
- Instrument calibration data
- Batch CCV and continuing calibration blank data
- Original analysis records (raw data), including, but not limited to, preparation logs, batch summaries, analysis sequences, chromatograms, etc.

3.4.1 Electronic Data Deliverables

Electronic records that provide input to data validation may be referred to as EDDs. The data will be provided in two electronic forms; a laboratory report in pdf format and an ADaPT file. All results shall be reported to three digits but only two may be significant. Each laboratory shall provide its ADaPT library to the Stantec PM, which must contain the analyte list, methods of analysis, and detection limits for each analyte. It must define the QC requirements, frequency, and acceptance criteria for blanks, laboratory control standards, MSs, surrogates, and sample duplicates. The ADaPT EDD shall include three text files: the laboratory analytical data, the laboratory receipt data, and the field data. The ADaPT file will be used by a Stantec-designated data validator to generate an EDD with the final qualifiers applied for submission to the client.

3.5 LABORATORY DATA REVIEW

The laboratory shall perform reviews of the following three elements: the data package, the EDDs, and the data upload.

The initial review of the data package is to verify the correctness and completeness of the data. The laboratory will evaluate the quality of the analytical data based on an established set of laboratory guidelines (laboratory QA plan and SOPs) and this QM. The laboratory will review the data packages to confirm the following:

- Sample login is correct and complete
- Sample preparation information is correct and complete
- Analysis information is correct and complete
- Appropriate SOPs have been followed
- Analytical results are correct and complete
- QC sample results are within established control limits
- Blank results are below detection limits
- Analytical results for QC sample spikes, sample duplicates, initial and continuous calibration verifications of standards and blanks, standard procedural blanks, laboratory control samples, and ICP interference check samples are correct and complete
- Tabulation of RLs related to the sample is correct and complete

- Documentation is complete (all anomalies in the preparation and analysis have been documented; holding times are documented; qualifiers have been added where appropriate)

The laboratory shall perform the in-house analytical data reduction and QA review under the direction of the laboratory manager or designee. The laboratory is responsible for assessing data quality and advising of any data that were rated "preliminary" or "unacceptable," or other notations that would caution the data user of possible unreliability. Data reduction, QA review, and reporting by the laboratory will include the following:

- Raw data produced by the analyst will be processed and reviewed for attainment of QC criteria as outlined in this QM, the laboratory QA Plan, and/or established USEPA methods and for overall reasonableness.

- The data reviewer will check all manually entered sample data for entry errors and will check for transfer errors for all data electronically uploaded from the instrument output into the software packages used for calculations and generation of report forms and will decide whether sample re-analysis is required.

- The laboratory will review initial and continuing calibration data, and calculation of response factors, surrogate and internal standard recoveries, LCS recoveries, MS recoveries, PDS and SD recoveries, sample results, and other relevant QC measures.

- Upon acceptance of the preliminary reports by the laboratory data reviewer, the laboratory QA officer (or their designee) will review and approve the data packages prior to the final reports being generated. The data reduction and the QC review steps will be documented, signed, and dated by the analyst.

The laboratory has the responsibility for verifying the correctness and completeness of the electronic deliverables by performing the ADaPT EDD Review. The laboratory QA section shall perform a QA check on 100% of data key-punched into EDDs and will perform a 5% spot-check of data electronically transferred into an EDD for consistency with hard copy deliverables.

All ADaPT EDDs shall be reviewed by the ADaPT EDD Error Checker to ensure completeness and that no critical errors exist prior to submission. QC checks using ADaPT will be performed on each laboratory data EDD. The QC checks must ensure that field and laboratory QC data are acceptable and that the format for each data type is consistent with the database attributes and elements. The EDD is imported into the ADaPT data checker and compared to the project-specific library consisting of a set of valid values. This project-specific library will be based on FDEP valid values, and the methods and criteria specified in this QM.

Any ADaPT-defined critical errors shall be corrected by the laboratory before submitting to SFWMD. Stantec will return any ADaPT EDDs that contain critical errors to the laboratory for resolution. The laboratory shall enter a comment or explanation for any other errors identified by ADaPT in the EDD error log.

Once the laboratory has completed the EDD check and generated the required reportable data, the laboratory shall submit the project required reportable files to the Stantec PM. Stantec will coordinate with the laboratory on the specific reporting procedures.

3.6 LABORATORY DATA STORAGE

Unless otherwise specified, data will be stored on the Stantec secure project server. The Stantec-designated data validator will use the ADaPT files to validate the data, qualify data as necessary, and then generate an EDD for the client. See Chapter 4 for data management requirements for the project.

4 DATA ASSESSMENT

4.1 LITERATURE DATA ASSESSMENT

Historical and reference data for the area will be tapped into as needed to help assess results on a regional scale and fill in data gaps, as necessary. Data from non-direct measurement may come from various sources, including, but not limited to, the following:

- Physical information, such as descriptions of sampling activities and geologic logs
- State and local environmental agency files
- Reference computer databases and literature files
- Historical reports on a site or similar projects

Data from non-direct measurements will be reviewed by competent personnel for accuracy and applicability. Data must be evaluated for comparability and applicability to the DQOs of the project how the data is being used. The specifics for the review process will depend on the type of data to be reviewed. Data from all non-direct measurement sources will be stored as project data to ensure data can be accessed in project reviews.

4.2 FIELD DATA ASSESSMENT

Data collected by field crews, including, but not limited to, geophysical, geological, ecological, water quality, and land survey data, will be reviewed by each entity collecting the data. The reviewer will confirm the method of data collection and note any deviations in the field log. Data will be reviewed for completeness, comparableness, and representativeness. When applicable, accuracy and precision will be assessed. Any calibration exercises and QA/QC procedures will also be assessed to confirm the data is valid and appropriate. Work Plans shall reference the SOP for field test data validation (excluding water quality assessment) associated with the specific project.

Field data assessment of water quality parameters (i.e., pH, DO, etc.) measured in association with samples collected for laboratory analysis shall initially be performed by the sample collection team. This assessment shall include the review of calibration logs for appropriate standards (based on sample concentrations) if calibration verifications are within acceptance limits specified in Table 2-2, and if samples were preserved appropriately and within 15 minutes of sampling. The results of the assessment must be documented in the field log or the forms specified in the associated Work Plan. Water quality field data not meeting any of the requirements associated with these QC elements must be qualified as estimated ("J," see Table 3-1).

Table 4-1 below provides the qualifier codes and definitions related to other issues commonly encountered during field activities. With the exception of the "G" qualifier, which can only be applied once analytical results are obtained, the sample collection team shall note in the field log any qualifiers in Table 4-1 that may apply to samples collected during an event.

Table 4-1. Field Data Validation Qualifier Codes and Definitions

Qualifier	Definition
D	Measurement was made in the field (i.e., in-situ). This code applies to any value (except field measurements of pH, specific conductance, dissolved oxygen, temperature, total residual chlorine, transparency, turbidity, or salinity) that was obtained under field conditions using approved analytical methods. If the parameter code specifies a field measurement (e.g., "Field pH"), this code is not required.
E	Indicates that extra samples were taken at composite stations.
G	A "G"–qualified sample value indicates that the analyte was detected at or above the method detection limit in both the sample and the associated field blank, equipment blank, or trip blank, and the blank value was greater than 10% of the associated sample value. The value in the blank shall not be subtracted from associated samples.
R	Significant rain in the past 48 hours. (Significant rain typically involves rain more than 1/2 inch within the past 48 hours.) This code shall be used when the rainfall might contribute to a lower or higher than normal value.
S	Secchi disk visible to bottom of waterbody. The value reported is the depth of the waterbody at the location of the Secchi disk measurement.
!	Data deviate from historically established concentration ranges.

The assessment by the sample collection team, documented in the field logs or sampling forms, must be submitted to the Stantec PM to be validated and included in the DUS. Additional field data review, validation, and documentation is detailed in Section 4.3.1 below.

4.3 LABORATORY DATA ASSESSMENT

The following laboratory data assessment procedures meet all the requirements for data validation and assessment in Rule 62-160.670, F.A.C., Quality Assurance Oversight Team SOP-007 *SOP for Validation of Contract Laboratory Data by an Analytical Provider for USACE Water Quality Compliance Monitoring*, DEP-QA-002/02 *Requirements for Field and Analytical Work*, DEP-EA-001/07 *Process for Assessing Data Usability,* and USEPA *National Functional Guidelines*.

4.3.1 Data Validation

Stantec shall designate a data validator to perform the validation and assess the usability of laboratory data and associated field data. The PM shall provide the data validator all laboratory project deliverables, COCs, sampling forms, and field logs submitted for an event. The data validator will be responsible for:

- Assessing completeness of the documents received based on contractual requirements
- Performing validation of analytical and associated field data according to requirements in this QM or the project-specific requirements of the associated Work Plan
- Documenting the results of the review in a DUS and EDD

The FDEP DEP-EAS 00/01 *Tiered Approach to Data Quality Assessment* will be referenced for guidance on the degree of data validation required to meet project DQOs. The Tier 2 advanced data review, which includes all Tier 1 elements, will be performed by the Stantec-designated data validator, and includes:

- Verifying completeness (all samples submitted are reported) and data reported in the correct format
- COC forms signed and dated (both by sampler and lab)
- Samples preserved properly
- Holding times met
- MDLs comply with Work Plan requirements
- Appropriate data qualifiers applied when necessary
- Field QC blank and field duplicate evaluated
- Lab QC checks (method blanks, LCS, MS, surrogate recoveries, duplicates)
- Data reversal evaluation (e.g., total versus dissolved, OP<TP)
- Inter-parameter checks (e.g., conductivity versus total dissolved solids)
- Reasonable range checks (e.g., pH)

If a more detailed Tier 3 review is deemed necessary by the client, a Level 4 laboratory data package will be generated, and the following review elements will be added to the above Tier 2 list:

- Calibration curves meet method requirements
- MDL studies
- Mass spectra, chromatograms, and other instrument reports
- Lab bench notes
- Field notes

The data validator shall perform the Tier 2 advanced data review utilizing ADaPT. If the ADaPT library does not support a particular method or parameter required for a specific project (i.e., radiological, ecotoxicity data), the data validator must validate this data following requirements in this QM or in individual Work Plans, and then generate an EDD with the validation results.

4.3.2 Data Usability Summary

The Stantec-designated data validator will prepare a DUS that describes the results of the data validation effort and summarizes the usability of the data in meeting specific project objectives.. The DUS will discuss what QC measures were reviewed and validated, how these measures were reviewed or validated, the evaluation criteria used in the review/validation, all items identified as falling outside the evaluation criteria, the specific data potentially affected, and the potential effect on the quality of the associated data.

The DUS provides a description of the data that were validated, and identifies the project for which the validation was performed and the contents of the DUS. The validation SOP used, project-specific QC objectives, and when the analytical reports were received from the laboratory must be discussed.

The data validation section will include a table cross-referencing the laboratory identification number to field identification numbers and will identify all field QC samples submitted to the laboratory. This section will also include the results of the data validation, as applicable to the project. The section will indicate all items identified as falling outside the evaluation criteria, the specific data potentially affected, and the potential effect on the quality of these associated data. While the validation SOP covers common issues encountered, the data validator may have information (i.e., from field logs) that would result in data needing qualification based on professional judgment. All professional judgment used to qualify data associated with QC measures outside acceptance criteria will be discussed in detail. It is acceptable for this section to contain descriptions only of those QC measures failing to meet acceptance criteria, as long as the text specifically indicates that all other QC measures specified for review met acceptance criteria for data review.

The validation section of the DUS will also contain a description of the reason for qualification and the direction of potential bias or imprecision (if known). Data review procedures will involve assignment of bias codes to each result qualified or rejected during data review. These bias codes will reflect the reason for qualification as well as the potential direction of bias.

Qualifiers and bias codes to be used are listed in Table 3-1, Table 4-1, and Table 4-2. The validation section will include a discussion of the following QC elements:

- Sample receipt temperature and holding time issues
- Calibration issues
- MDL issues
- Blank contamination
- LCS issues
- MS issues
- ICS, SD, and PDS issues
- Lab duplicate precision
- Field duplicate precision
- Summary table of qualified data

The summary section of the DUS will describe the effect of the uncertainty associated with results qualified as estimated, which may affect the usability of the data in making a meaningful comparison to the project objectives. The text will include an evaluation of how representative the analytical results are of the medium being evaluated based on measures such as sampling design, replicate analyses, etc. It will include discussion on the sufficiency of the valid data set in meeting project objectives. The DUS will also contain a listing of all data that have been rejected during data review or that have been considered to be unusable in meeting specific project objectives. It will further provide a detailed discussion of whether any of the rejected or unusable data are considered critical to meeting project objectives and what the specific project consequences are of having these rejected or unusable data. In addition to the DUS, the qualifiers identified during the validation process may be added to the ADaPT file.

4.3.2.1 QC Element Validation Criteria

The following sections detail the QC elements reviewed during data validation and the appropriate qualifiers to be used when failures are noted.

Sample Temperatures and Holding Times

The holding times and sample temperatures will be compared to the holding time and sample temperature requirements for the analytical method being reviewed. Results for analyses not

performed within holding time limits will be qualified "Q." If the holding time is exceeded for any analyte, the data will be qualified with a "Q" and the reviewer should use professional judgment to evaluate the need to reject non-detectable results.

Instrument Calibration

The acceptance criteria specified in the respective method shall be used to evaluate the IC. If the Case Narrative or data validation process indicates that the IC for any analyte did not meet the acceptance criteria, then all results for that given analyte associated with the IC will be qualified as estimated ("J").

Method or laboratory specific acceptance criteria shall be used to evaluate CCV results. If the data validation process indicates that the initial or CCV for any analyte did not meet the acceptance criteria, then all results for that given analyte associated with the initial or CCV will be qualified as estimated ("J").

Surrogate and Internal Standards

Surrogate standards are used to evaluate sample preparation efficacy, while analysis of internal standards determines the existence and magnitude of instrument drift and physical interferences. The laboratory established acceptance criteria for surrogate or internal standard recoveries shall be used to evaluate associated sample data. If surrogate or internal standard recoveries fall outside the acceptance criteria, associated data will be qualified as estimated ("J").

Blanks

Criteria for evaluating blank results are provided in the DEP-EA-001/07. The results for equipment blanks, field blanks, preparation or method blanks, calibration blanks, and other blanks reported in the data package will be reviewed. If the associated sample matrix is a solid, positive rinsate, calibration, and other associated aqueous blank results will be converted to equivalent concentrations in the solid samples by assuming that all contamination found in the aqueous blank aliquot analyzed is potentially present at up to 10 times that amount in the solid sample aliquot analyzed. When applicable (at least one sample in the analytical batch is equal to or less than 10 times the detected concentration in the method blank), the lab will re-prepare and reanalyze the batch with the blank contamination. If the contamination persists, or if limited sample is available for re-preparation, the laboratory shall qualify all detected sample results less than or equal to 10 times the blank concentration with the "V" qualifier at the reported concentration ("V" qualifier is not used for non-detect results). Preparation blanks are associated

with all samples prepared with that sample (preparation batch). Continuing calibration blank samples are considered to be associated with all samples back to the previously analyzed continuing calibration blank sample and up to the next continuing calibration blank sample in the analytical run. The "V" qualifier is specific to laboratory blank (i.e., method, preparation, calibration) contamination, while the "G" qualifier will apply to contamination in all other blank types (i.e., equipment, field, trip blanks).

LCS Data

Criteria for evaluating LCS (and LCSD if applicable) results are provided in the respective method or established by the laboratory. Analyte recoveries obtained for LCS analyses will be compared to an acceptance range of 85% to 115% or analytical method requirements and to laboratory acceptance ranges (Work Plans must specify). All analytes specified in the analytical method must be spiked into the LCS. Data associated with LCS recoveries outside the acceptance range will be qualified as follows:

- If the LCS recovery for an analyte is greater than the upper acceptance limit, suggesting a potential high bias in reported results, all positive results for that analyte in all associated samples in the batch will be qualified as estimated ("J"), whereas non-detect results will be considered to be acceptable for use without qualification because the high bias does not affect non-detected results.

- If the LCS recovery for an analyte is less than the lower acceptance limit but less than the ADaPT library rejection point, suggesting a potential low bias in reported results, positive and non-detect results for that analyte in all associated samples in the batch will be qualified as estimated ("J").

- If the LCS recovery for an analyte is less than the ADaPT library rejection point, positive sample results will be qualified as estimated ("J"), whereas non-detect results will be qualified as unusable ("?") for all associated sample results in the batch.

Matrix Spike Data

Recoveries obtained for MS (and MSD if applicable) analyses will be compared to an acceptance range of 80% to 120% or analytical method requirements and to laboratory acceptance ranges (Work Plans must specify). Recovery calculations are not required if the concentration added is less than 30% of the sample background concentration. In such a case, the MS recovery may not be an appropriate measure of accuracy. All MS will be fortified with the analyte of interest at an appropriate level respective to expected sample concentration (0.5 to 5 times the target analyte concentration). Automatic laboratory reanalysis is required for all unacceptable MSs (and spikes not in the specified spike to sample ratio) as specified in Standard Methods. Data associated with MS recoveries that are outside the acceptance range will be qualified as follows:

- If the MS recovery for an analyte is greater than the upper acceptance limit, suggesting a potential high bias in reported results, all positive results for that analyte in the sample used for the MS/MSD will be qualified as estimated ("J").

- If the MS recovery for an analyte is less than the lower acceptance limit but less than the ADaPT library rejection point, suggesting a potential low bias in reported results, positive and non-detect results for that analyte in the sample used for the MS/MSD will be qualified as estimated ("J").

- If the MS recovery for an analyte is less than the ADaPT library rejection point, positive sample results will be qualified as estimated ("J"), whereas non-detect results will be qualified as unusable ("?") for that analyte for the sample used for the MS/MSD.

All samples of a similar matrix in the analytical batch will be qualified with a "J" if both the MS and MSD do not meet acceptance criteria.

Laboratory Duplicate Data

Criteria for evaluating duplicate results are provided in DEP-EA- 001/07. Results for the duplicate sample (LCSD, MSD, laboratory duplicate) analyses will be compared to an acceptance criterion of ≤20% RPD (per Quality ASR, for all matrices and parameters) or the laboratory acceptance criteria (Work Plans must specify). Sample results with RPDs exceeding this criterion are qualified as estimated, "J."

Samples with reported analyte concentrations above the MDL, but below the PQL, can produce greater variability, leading to greater RPDs. RPD values are not considered representative or appropriate for evaluation by the data validator when the following conditions exist:

- One or both results are less than the PQL
- One or both results are qualified as estimated or rejected or are suspected of blank contamination
- One or both results are not detected

Interference Check Standard Data (Metals)

The respective method specifies the QC acceptance criteria for ICS analysis for metals analysis methods covered under this QM.

- If the %R for analytes present in the ICS sample is above the upper acceptance criterion, then results reported as detected for that analyte in associated samples for which the potentially interfering elements were present at concentrations equivalent to or greater than those present in the ICS sample will be qualified as estimated ("J").

- If the %R for analytes present in the ICS sample is less than the lower acceptance criterion, then both detected and non-detected results for that analyte in associated samples for which the potentially interfering elements were present at concentrations equivalent to or greater than those present in the ICS sample will be qualified as estimated ("J").

Serial Dilution Data (Metals)

ICP serial dilutions are run to help evaluate whether or not significant physical or chemical interferences exist due to sample matrix. When analyte concentrations are sufficiently high (the concentration in the original sample is minimally a factor of 50 above the MDL), the results obtained for a five-fold dilution of the original sample are compared to the original results by means of a percent difference (%D). The %D is compared to a precision acceptance limit of the respective method. If the absolute value of the percent difference between the diluted and original result is greater than the method limits, all results for that analyte in the analytical batch are qualified as estimated ("J").

Post Digestion Spike Data (Metals)

The analyte recoveries obtained for PDS analyses will be compared to the acceptance range for accuracy in the respective method. The test only needs to be performed for the specific elements that failed original MS limits. The recovery of the PDS must fall within a ±25 % acceptance range, relative to the known true value, or otherwise within the laboratory-derived acceptance limits. If the PDS recovery fails to meet the acceptance criteria, the sample results will be qualified based on the following guidance:

- If the recovery is above the upper acceptance limit, detected results will be qualified as estimated ("J"). No action will need to be taken for non-detects.
- If the recovery is below the lower acceptance limit, but greater than or equal to 30%, detected and non-detect results will be qualified as estimated ("J").
- If the recovery is less than 30%, detected results will be qualified as estimate ("J") and reject ("?") non-detect results.

Field Duplicate Data

Criteria for evaluating field duplicate results are not provided in the analytical methods. Therefore, the following criteria will be used for validation of homogenized or collocated field duplicate results for all analyses based on DEP-EA-001/07. Where both the sample and duplicate values are greater than the PQL, acceptable sampling and analytical precision is indicated by an RPD for the two field duplicate results of less than or equal to 20% for waters and 40% for other matrices (i.e., soils, sediments, tissues). If the above criteria are not met for an analyte, all associated sample data for that analyte will be qualified as estimated ("J"). Where one or both analytes of the field duplicate pair are less than the PQL, RPD is not calculated.

Technical Consistency Checks

For chemistry results, the sum of the individuals for most routine measurements should not be more than 120% of the total measurement based on FDEP-QA-002/02. If sample result uncertainty is provided by the laboratory, the data validator may use professional judgment in the evaluation of these checks. When relevant chemical analyses are performed, the following comparisons must be evaluated according to FDEP-QA-002/02 Section 4:

- Charge balance – total anion charge must be within 80-110% of total cation charge
- Measured conductivity must be within 80-120% of the calculated conductivity from either cations or anions
- Total dissolved solids must be with 40-120% of the measured conductivity
- Ammonia must be less than 120% of TKN [total Kjeldahl nitrogen]
- Ortho-phosphate must be less than 120% of total phosphorous
- In general, dissolved or filtered results must be less than 120% of total or unfiltered results

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5 ECOLOGICAL EVALUATIONS

Ecological evaluations can vary greatly depending on the individual needs of each project. When developing Work Plans for ecological evaluations, all related chemical sampling and analysis should conform to the QA/QC guidance laid out in Chapters 2 and 3 of this QM. Similarly, any instrumentation used to collect physical parameters, such as temperature, pH, DO, specific conductance, and photosynthetically active radiation, must be maintained, calibrated, and used according to manufacturers' specifications and QA/QC guidance laid out in this QM. Further, all ecological field data must conform to the rules as described in Chapter 4 of this document. SFWMD-FIELD-QM-001 may be used in conjunction with FDEP SOPs for field sampling procedures.

For sampling associated the waters, soils, sediments, and tissues for ecological evaluations and assessments, refer to Section 2 of this QM and the referenced FDEP SOPs.

The QM is a living document, and as specific ecological sampling work plans are developed, relevant QA/QC methods will be developed to address their specific needs.

5.1 ECOLOGICAL RELATED FDEP SOPS AND FORMS

In addition to the FDEP SOPs detailed in Section 2 of this QM, FDEP also provides SOPs for several typical biological/ecological assessment and sampling activities. These include:

- FS 6000 – Tissue Sampling
- FS 7000 – Biological Communities
  - Phytoplankton Sampling
  - Periphyton Sampling
  - Macrophyte Sampling
  - Wetland Condition Index Sampling
  - Benthic Macroinvertebrate Sampling
  - Lake Condition Index Sampling
- FT 3000 – Aquatic Habitat Characterization
  - Physical/Chemical Characterization
  - Stream/River Habitat Assessment
  - Lake Habitat Assessment
- LT 7000 – Biological Indices
- LVI 1000 – Lake Vegetation Index Methods
- SCI 1000 – Stream Condition Index Methods

FDEP has also developed a variety of field forms to facilitate documentation of sampling, field-testing and bioassessment training activities associated with the DEP SOPs. These forms are incorporated into the DEP QA Rule, Chapter 62-160, F.A.C. Some of these forms are required by specific DEP SOPs, while other forms are for optional use. These include:

- FD 9000-1, Biorecon Field Sheet

- FD 9000-3, Physical/Chemical Characterization
- FD 9000-4, Stream/River Habitat Sketch Sheet
- FD 9000-5, Stream/River Assessment Field Sheet
- FD 9000-6, Lake Habitat Assessment Field Sheet
- FD 9000-25, Rapid Periphyton Survey
- FD 9000-27, Lake Vegetation Index Field Sheet
- FD 9000-31, Lake Observation Field Sheet
- FD 9000-32, Linear Stream Vegetation Survey Form
- FD 9000-33, Wetland Condition Index Vegetation Field Form
- FD 9000-34, Stream Habitat Assessment Training Checklist and Event Log
- FD 9000-35, Stream Condition Index Training Checklist and Event Log

5.2 POREWATER SAMPLING

Porewater samples for laboratory analysis will be collected from the appropriate sediment depth depending on Work Plan requirements. Porewater samples shall not be collected while it is raining. Samples will be extracted using a porewater sipper (e.g., stainless steel Push Point sampler attached to flexible tubing and a peristaltic pump per EPA LSASDPROC-513-R4 or equivalent). An appropriate volume of water (depending on the number and type of analytes to be tested) will be collected in new collection bottles provided by the laboratories.

If composite samples are collected, an equal amount of water from each location will be pumped into the collection bottle. The collection bottle will be thoroughly mixed prior to pouring into individual samples bottles. Samples requiring filtration in the field will be filtered on-site. Samples requiring preservation, including ice, will be preserved on-site within 15 minutes. The sample pH will be verified at the end of sample collection to help ensure proper preservation before storage.

5.3 TISSUE SAMPLING

Tissue samples shall be collected using the operating procedures described in FDEP SOP FS 6000 *General Biological Tissue Sampling*. The assessment of contaminant bioaccumulation and biomagnification may require analysis of the tissues of various plant or animal organisms. The presence of contaminants in biological tissues is also important when assessing pollution impact across environmental media (e.g., air, water, soil and sediment).This SOP describes equipment, procedures, field measurement, and storage and shipping of shellfish and finfish. Table FS 6100-1 *Summary of Shellfish Sampling Equipment* and Table FS 6200-1 *Summary of Fish Sampling Equipment* summarizes the approved sampling techniques for each tissue type. The procedures described in the shellfish FDEP SOP FS 6100 may also be adapted for collection of tissues from shrimp, scallops, crabs, crayfish, spiny or clawed lobsters, and turtles.

In general, a 20 g sample is required for the analysis of metals (including Hg) and a 200 g sample is required for the analysis of organics. The sample size must also include enough tissue for QC analyses per laboratory methods. Always check with the laboratory on their specific requirements.

5.4 WETLAND DELINEATION

Florida wetlands are defined as those areas that are inundated or saturated by surface water or ground water at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils. Soils present in wetlands generally are classified as hydric or alluvial, or possess characteristics that are associated with reducing soil conditions.

FDEP has developed the Florida Unified Wetland Delineation Methodology (Chapter 62-340, F.A.C. to provide standardized procedures and practices for consistent wetland delineations across the state. As a part of this methodology, FDEP also developed several reference documents to assist personnel in accurate delineations including:

- Florida Wetlands Delineation Manual,
- Florida Wetland Plants Identification Manual,
- Data Form Guide Book for Chapter 62-340, and
- Soil and Water Relationships of Florida Ecological Communities

All staff performing wetland delineations in Florida must have formal training and current certification. This training is designed to enable Florida wetland delineators to determine the correct approach to delineating wetland areas in the state. Training also addresses both federal and state methodology and the spectrum of regulatory requirements and actions for given projects, from exemptions to major joint individual permits.

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6 DATA MANAGEMENT AND AUDITS

6.1 DATA MANAGEMENT

The following sections detail requirements and procedures for storage, custody, security, access, and archiving of data generated during the course of a project.

6.1.1 Storage

Data management of physical data (i.e., field logbooks, calibration logs, data sheets) and electronic data (i.e., electronic files, laboratory data, engineering documents, and project reports) will be maintained and managed following DEP-SOP 001/01 FD 1000 *Documentation Procedures*.

Water quality and hydrological data will be stored in the Stantec project folder and in databases relevant to the project Work Plan. Data changes such as unit adjustments, changes in RLs based on data validation, and rejection of data, will be maintained in separate fields or records with specific metadata acknowledging how and why data were modified and specific party authorizing the data change.

6.1.2 Custody

Custody procedures must be established to protect data and information integrity. Custody of data shall be documented from creation to its final storage place. Once data is finalized, validated, and transferred to the database, further changes may only be made upon approval from the Stantec PM (or their designee). If the data are stored in a database, data custody will be the responsibility of the client. Contractors will not release data to third parties without written permission from the client. On a yearly basis, the PM will oversee audits to document compliance with custody requirements.

6.1.3 Security

All data and all records will be protected against fire, theft, loss, and environmental deterioration. Electronic data and electronic records will also be protected from electronic or magnetic sources. Storage media will be protected from deteriorating conditions such as temperature, humidity, magnetic fields, or other environmental hazards. An electronic data backup procedure to recover from disaster or hardware failures must be identified. Backup systems should be tested annually (at a minimum) by restoring information from back-up to online resources.

Data migrations and changes in information technology infrastructure must be documented. It is critical that new operating systems, electronic data filing systems, databases, and data handling systems are capable of supporting existing data for the required retention period or provide an adequate path of migration for it.

6.1.4 Archiving

The Stantec server will be backed up periodically to minimize the risk of data loss; data that is backed up will be stored off-site in order to provide further physical protection.

Per the FDEP QA Rule, 62-160.220 and.340, F.A.C., and FDEP SOP FD1000

Documentation, all raw data records, including laboratory and sample collection documentation, will be kept for a minimum of five years beyond the end of the project. All information necessary for the historical reconstruction of data, including original observations, calculations, calibrations, and reports, must be maintained by the data collection organization for at least five years beyond the end of the project. Five years after the end of the project, records can be destroyed unless records are to be used for evidentiary or legal purposes. Records that are stored only on electronic media must be supported by the hardware for their retrieval. In the case of laboratory stored data, the record keeping system must ensure that all records are maintained or transferred if a laboratory transfers ownership or goes out of business. The laboratory will obtain written consent from Stantec before disposing of records.

6.2 AUDITS

Audits will be conducted as a principal means to determine compliance with this QM. This approach will be used to review the actual performance of the project during its course and throughout all operations and levels of management. Specifically, audits will be conducted for both field and laboratory operations to assess the accuracy of the measurement systems and to determine the effectiveness of QC procedures. Several factors will be taken into consideration for determining the scope and frequency for audits as follows:

- Complexity of the activity
- Duration and scope of activity
- Degree of QC specified
- Criteria to achieve QA objectives
- Requirements for deliverables
- Participation of subcontractors
- Criticality of data collection
- Potential for or frequency of nonconformances

The client will have responsibility for conducting audits and has the authority to delegate project audit functions, as necessary. For complex or highly specialized tasks, senior technical specialists may be assigned portions of an audit. Both the Stantec PM (or their designee) and technical specialists will be familiar with the technical and procedural requirements of both field and laboratory operations, the associated Work Plan, and this QM. In addition, auditors will not be directly involved with the actual tasks, so as not to introduce bias in the auditing process.

The audit process includes selecting an audit team, notifying the auditee, pre-audit planning, conducting the audit, identifying nonconformances (if applicable), reporting the audit results, and tracking closure of corrective actions. A process that does not meet the specifications in this QM is considered to be a non-conformance and must be resolved through the corrective action

procedures described in the following section. The term "nonconformance" is the same as a deficiency as referred to in F.A.C. 62-160.650. In circumstances where corrective actions have not been completed as planned or scheduled, the audit process provides for management intervention to resolve problems and for issuance of stop work orders, if necessary.

The various types of audits to be conducted during the project are described in the following sections. These audits will be used for the following purposes:

- To verify that measurement systems are operating properly
- To assess whether data quality is adequately documented
- To confirm the adequacy of data collection systems
- To evaluate management effectiveness to meet QA guidelines

All audits should be scheduled in advance. Audits should be conducted at or near the beginning of the project or task start to ensure sufficient time to implement corrective actions. The lead auditor will complete an audit plan and send the plan to the auditee approximately one week before the audit is scheduled. The audit plan should communicate all the requirements to auditee regarding the documents that will be reviewed and any materials or tasks that must be reviewed during the audit. The lead auditor should gather all relevant project documents, including any documents referenced that are applicable to the task being audited. The client shall review and approve the audit plan prior to submittal to the auditee.

The auditor will be responsible for preparing a findings report after completion of the audit and submitting this report to the Stantec PM. The findings report will include a short summary of what was audited, copy of completed checklists, statements as to the conformity of the process with this PQAP, notable process improvements, and any deviations from this QM or other guidance that has not been fully documented or approved. The findings report should also include a data usability statement for audits involving environmental sampling and/or laboratory analyses. The client will be responsible for initiating corrective actions. The client will perform follow-up audits as necessary to confirm the implementation of corrective actions.

Subcontractors will be used to collect and/or generate certain data for the project. These may fall under field or laboratory operations. Subcontractor audits may be performed on new sources or existing sources of services that have had significant changes in personnel, ownership, or quality systems. Audits may be performed to assess a subcontractor's QA program or verify the supplier's capability to supply an item or service in a manner that satisfies the project quality requirements. In addition to the subcontractor's QA program, the audit may include, as appropriate, the subcontractor's facilities, production capabilities, personnel capabilities, process and inspection capabilities, and organization.

6.2.1 Technical Systems Audits

A technical systems audit is used to confirm the adequacy of the data collection (field activities), data generation (laboratory activities), and engineering (construction and operation) systems.

These are typically performed as an on-site audit to determine whether the QM, project- specific Work Plan, SOPs, and well construction and operation are properly implemented.

6.2.1.1 Laboratory Evaluation and Audits

Prior to use of any analytical laboratory, its NELAP accreditation to the specific method and matrix shall be confirmed. Certification documentation must be provided by the laboratory for consideration prior to selection of the laboratory. If the client deems necessary, the evaluation will involve the review of PE samples analyzed for specific methods for accreditation by NELAP. Laboratories are required under NELAP to routinely analyze PE samples for parameters for which they are accredited. These samples have known concentrations of constituents that are analyzed as unknowns in the laboratory.

Results of the laboratory analysis will be calculated for accuracy against the known concentrations and acceptance limits provided by the supplier or manufacturer. The client (or their designee) will audit the last three rounds of PE from the laboratory to verify compliance with the acceptance limits. For laboratories and/or laboratory parameters that are not accredited by NELAP, other method specific samples will be audited. Depending on the type of test, these samples could include initial demonstration of proficiency samples, secondary source calibration standards, and analysis of other standards with traceability to a certified standard, such as NIST Standard Reference Materials. These results will be evaluated in relation to this QM and the project DQOs.

During the project, technical systems audits will be conducted for the laboratory operation as deemed necessary by the project team. Laboratory audits may be omitted or abbreviated if the laboratory is a current participant in a federal validation program or equivalent state certification program which requires assessments (such as NELAP). However, certification does not always replace an audit relative to project-specific requirements.

A systems audit of laboratory procedures will evaluate and document, at a minimum, methods for: data qualification, analytical data generation, COC documentation and protocol, instrument calibration, data reporting, and QC methods. Systems audits also will evaluate laboratory procedures for procurement of supplies and standards as well as disposal of samples.

Audits of laboratories supplying data for the project using non-standard methods (not certified by NELAP) shall be performed at the discretion of the client. During the data assessment process, if the PM or Quality Assurance Oversight Team identify items requiring an audit, then the audit team will develop the appropriate checklists to employ depending on the specifics of the laboratory.

6.2.1.2 Field Audits

Technical systems audits of field activities (ecological and water quality audits) may be conducted as needed. A systems audit of field procedures will evaluate and document, at a minimum, sampling methods (including collection, containers, and preservation), equipment decontamination, COC, sample tracking and shipment documentation, sample labeling, methodology, pre-field activities, equipment maintenance and calibration, post-field activities, sampling documentation and other field activity logs, field team debriefing, and equipment check-in and re-calibration. Table 12-1 details the checklist elements from FDEP SOP FA 1000 to be used as the basis for conducting audits of field activities and/or documents, whether an on-

site inspection is required or if a review of the documentation is sufficient. These audits may be performed together or scheduled separately, but all are recommended to be performed on an annual basis.

Table 6-1. Field Technical Audit Checklists

Checklist	Description	FA 1000 Reference
Universal Documentation	Documentation audit	FD 1000 Checklist
Chain of Custody	Documentation audit	FD 1000 Checklist
Decontamination	Documentation audit	FD 1000 and FS 1000 Checklist
Field Calibration	Documentation audit	FT 1000 and FD 1000 Checklist
Field QC	Documentation audit	FQ 1000 Checklist
Maintenance	Documentation audit	FD 1000 Checklist
Groundwater	On-site audit	FS 1000 Checklist FS 2000 Checklist FS 2200 Checklist
Surface Water	On-site audit	FS 1000 Checklist FS 2000 Checklist FS 2200 Checklist
Ecological	On-site audit	FS 1000 Checklist

6.2.1.3 Data Quality Audits

Over the course of a long-term project, the client should periodically perform a data quality audit. The data quality audit is an examination of data after they have been collected and verified by project personnel. It is conducted to determine how well the measurement system performed with respect to the performance goals specified in this QM and whether the data were accumulated, transferred, reduced, calculated, summarized, and reported correctly. The data quality audit report shall detail the results of custody tracing, a study of data transfer and intermediate calculations, and a study of project incidents that resulted in lost data. Particular attention is paid to the QC data to assess if systemic issues are present (i.e., consistent blank contamination, field duplicates failing criteria, elevated MDLs, etc.) that may not be sufficiently highlighted in single event data reviews. The audit report ends with conclusions about the quality of the data from the project with respect to the DQOs and their fitness for intended use.

6.2.2 Data Management Audits

An audit of data management will evaluate and document, at a minimum, methods for data storage, access, custody, security, and archiving of project data. Systems audits will also evaluate data management procedures for tracking changes and access to the data and ensuring only

current or the latest versions of data are available for access. Audits conducted by the client shall follow the guidance and requirements stated in this QM when conducting systems audits.

6.2.2.1 Corrective Actions

Provisions for establishing and maintaining QA reporting to the appropriate management authority will be instituted to assure that early and effective corrective action will be taken when data quality falls outside of established acceptance criteria described or referenced in this QM. In this context, corrective action involves the following steps:

- Discovery of a nonconformance
- Identification of the responsible party
- Plan and schedule of corrective/preventive action
- Review of the corrective action taken
- Confirmation that the desired results were produced
- Reporting/documentation of nonconformance, required corrective actions and verification of corrective actions taken

The discovery of a nonconformance, either from observations, data review, or from an audit conducted by the client, shall be documented in writing and promptly sent to the client PM and responsible parties. A corrective action plan (CAP) will be prepared by the group or contractor responsible for the activity within 45 days of receipt of the documented nonconformance.

CAPs must include the following:

- Identification of the nonconformance and the associated corrective action taken
- Organizational level responsible for the action taken
- Steps to be taken to implement the corrective action
- Verification of the corrective action taken, including confirmation that the desired results were achieved
- Corrections to all prior findings/data impacted by the nonconformance
- Transmittal of documentation of these steps to the SFWMD

Corrective action measures will be selected to prevent or reduce the likelihood of future nonconformances and address the causes to the extent identifiable. Selected measures will be appropriate to the seriousness of the nonconformance and realistic in terms of the resources required for implementation. Once the CAP has been received, the client shall have 30 days to provide written comments to the submitting party pertaining to technical applicability, appropriateness, and completeness of the CAP.

Upon implementation of the CAP, the client will evaluate the adequacy and completeness of the action taken. If the action is found inadequate, the client will resolve the problem and determine any further actions. Implementation of any further action will be scheduled by the client.

7 QM VERSIONS

Revisions to this QM may be needed periodically to address programmatic updates, additions, changes, equipment replacement. These changes may include, but are not limited to, approved modifications to analytical or field procedures, revised/new sampling locations, data collection protocols, and sampling frequencies. All revisions to this QM will adhere to the specifications and requirements of the Work Plan.

7.1 VERSION TRACKING

Requests for changes to the QM shall be conducted annually or within a timeframe (e.g., annually) as mutually agreed upon by all relevant parties. Proposed changes to the QM will be submitted in writing at least 60 days prior to the intended modification for review and approval. Exceptions to the 60-day advance notice requirement shall be granted based on demonstrated good cause (such as a sudden loss of equipment where rapid resolution is needed to prevent/minimize a break in continuity of time series data collection). Requests for changes to the QM shall, at a minimum, include the following information:

- Specific locations and type of monitoring impacted by proposed modification or addition
- Justification/basis for request, including supporting data if needed or requested
- Specific text to be inserted, deleted, and/or modified
- Identification of any text or provisions contained in the individual project plans that may conflict with the proposed PQAP changes, along with proposed revision language which would prevent a conflict between the two documents

7.2 CHANGES TO DOCUMENT

Changes to the QM will consist of an overview of the revision number, date, section, page, as well as the changes and basis for those revisions (example shown in Table 7-1). All agreed- upon amendments to the document will be recorded in Table 7-2 for the relevant sections.

Table 7-1. Chronological QM Revision Dates

Revision Description and #	Revision Date	Section	Page	Changes, Additions, Deletions	Basis

Table 7-2. Summary of Versions to Approved PQAP

Section	Approved PQAP Version	Revisions	Revision Approval Date

Once a revision has been approved in writing, the revision date will be stated at the bottom of each affected page in this QM. In addition, a description of each approved revision will be appended to Table 7-2. The last date entered in Table 7-2 will correspond to the current and active copy of this QM and documented in the Title Page table.

8 REFERENCES

FDEP (Florida Department of Environmental Protection). 2002. Requirements for Field and Analytical Work, DEP-QA 002/02, April 15, 2002.

FDEP (Florida Department of Environmental Protection). 2008. Process for Assessing Data Usability, DEP-EA 001/07, March 31, 2008.

FDEP (Florida Department of Environmental Protection). Latest versions. Standard Operating Procedures, DEP-SOP 001/01.

FDEP (Florida Department of Environmental Protection). Latest version. Quality Assurance Rule, 62-160 Florida Administrative Code (F.A.C.).

SFWMD (South Florida Water Management District). Field Sampling Manual (FSM), SFWMD-FIELD-FSM-001, Water Quality Monitoring Section.

USEPA (U.S. Environmental Protection Agency). 1983. Methods for Chemical Analysis of Water and Wastes. Revised March 1983. EPA-600/4-79-020; Document Display | NEPIS | US EPA.

USEPA (U.S. Environmental Protection Agency). 2001. Requirements for Quality Assurance Project Plans, Final, EPA QA/R-5, March 2001. EPA QA/R-5, EPA Requirements for Quality Assurance Project Plans | US EPA.

USEPA (U.S. Environmental Protection Agency). 2002. Guidance for Quality Assurance Project Plans, Final, EPA QA/G-5, December 2002. Guidance for Quality Assurance Project Plans, EPA QA/G-5 | US EPA.

USEPA (U.S. Environmental Protection Agency). 2020a. USEPA National Functional Guidelines for Organic Superfund Methods Data Review, SFAM01.1, November 2020.

USEPA (U.S. Environmental Protection Agency). 2020b. USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, SFAM01.1, November 2020.

USEPA (U.S. Environmental Protection Agency). Most recent updates. Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods (USEPA SW-846, most recent updates); Hazardous Waste Test Methods / SW- 846 | US EPA.

Appendix C

Safety Plan

- Stantec Health, Safety, Security, and Environmental Program Manual

Health, Safety, Security, and Environment Program Manual

This manual is an integral component of Stantec's Occupational Health and Safety Management System (OHSMS) and Environmental Management System (EMS).

Stantec

Revision Date: September 2, 2024

SaferTogether™

Table of Contents

1.0 Health, Safety, Security, and Environment (HSSE) Program

1.1 Introduction

Stantec is committed to providing a healthy, safe, and secure workplace for all employees as well as minimizing the environmental impacts of our business operations. The responsibility for fulfilling these commitments ultimately reside with the company, but it is the responsibility of every employee to work safely and to exercise their situational awareness at all times. As a result, the Stantec Health, Safety, Security, and Environment (HSSE) Program is designed to provide all employees with guidelines to help reduce the risk of injury, illness, and damage at the workplace. This is accomplished through identification of workplace hazards and taking action to assess and manage the risks that arise in workplace operations. The HSSE Program applies to anyone employed by Stantec; employees, consultants, contractors, subcontractors, and suppliers working within Stantec workplaces. Employees must follow the health, safety, security, and environment requirements specified by local legislation, clients, subcontractors, or others with responsibility for managing site and workplace safety.

The HSSE Program has been developed in accordance with:

- Stantec policies, procedures, and objectives for HSSE
- Client requirements
- Government and regulatory statutes and guidelines
- Industry codes of practice
- National and regionally based systems of certification
- The requirements of the ISO 45001 Occupational Health and Safety Management Systems Standard and ISO 14001 Environmental Management Standard.

As a related resource to the HSSE Program, applicable occupational health and safety and environmental legislation are available for all employees. Instructions for accessing both printed and electronic copies will be posted on the HSSE bulletin board in each office. Links to applicable occupational health and safety legislation can be found here. Links to environmental legislation can be found here.

1.1.1 Health, Safety, and Security (HSS) Policy and Practice

The HSS Policy and Practice is the corporate guidance document that establishes Stantec's objectives and commitment with respect to health, safety, and security. The document is reviewed by the Board of Directors and signed by the chief executive officer (CEO) on an annual basis; changes to the HSS policy statement must be approved by Stantec's Board of Directors. A current copy must be posted prominently in each Stantec office reception area, in proximity to the sign-in sheets. Employees can access the HSS Policy and Practice on The Lens.

1.1.2 Environmental Policy and Practice

As outlined in our Environmental Policy and Practice, Stantec is committed to minimizing the environmental impacts of our business operations and complying with legal and other requirements. In the execution of our professional and project delivery services, we will manage environmental risks, minimize the negative environmental impact of our efforts, and promote a philosophy of environmental

conservation and restoration. The document is reviewed by the Board of Directors and signed by the CEO on an annual basis.

1.1.3 Sustainability Policy and Practice

The Sustainability Policy is the corporate guidance document that states Stantec's commitment to do business in a way that meets the needs of the present while contributing to an environmentally, socially, and economically sustainable future. This document is reviewed by the Board of Directors.

Stantec's Corporate Sustainability team drives Stantec's emissions performance, influences positive environmental and social performance in our project work, manages public sustainability disclosures, and works with Functional Services Teams (including HSSE) to incorporate environmental, social, and governance (ESG) best-practices.

1.1.4 Health, Safety, Security, and Environment (HSSE) Program Manual

This HSSE Program Manual documents the basic structure of Stantec's HSSE Program. It also outlines general employer and employee responsibilities related to health, safety, security, and the environment with more specific requirements and practices documented within Stantec's Safe Work Practices and supporting Programs. Each employee is expected to be familiar with the HSSE Program Manual as it can provide information and direction on a wide range of HSSE topics.

1.1.5 Safe Work Practices (SWPs)

Safe work practices (SWPs) are documents designed around specific work activities to outline the control of hazards while reducing risk to an acceptable level. Supervisors must discuss relevant hazards with employees and identify SWPs applicable to the intended work effort. Employees must read, understand, and follow the SWPs that are relevant to the work they will be conducting. If, as a result of this review, it is determined that an applicable Stantec SWP does not exist for a component of the proposed job or task, then a hazard assessment must be performed using the Quantified Hazard Assessment (RMS7) (Section 4.4.2.1) or other appropriate documented risk assessment method.

The requirement for development of a new SWP or the modification of an existing SWP could be due to:

- A regulatory change
- Addition of a new practice or new service
- A familiar task is applied in a new environment, which introduces new hazards and potential risks
- An incident or near miss in an area not currently covered by a SWP

If employees become aware of any changes that may affect a SWP, they should notify their regional HSSE manager. The most current versions of Stantec's SWPs can be found on The Lens.

As Stantec has operations around the globe, SWPs are designed to complement and support local legislation. Where a conflict is identified between an SWP and legislation in the jurisdiction where Stantec work is being performed, local legislation will prevail if it requires a higher standard. For information on legislative requirements by geography, refer to the Critical Task Inventory (CTI), the Environmental Aspects and Impacts Register, the Health & Safety Regulatory Requirements Library, and the Environmental Regulations Library.

Please note: Standard Operating Procedures (SOPs) are detailed, step-by-step instructions for a specific task. Although SOPs may contain safety measures, they are not developed or maintained by HSSE, but typically fall under the technical documentation of the various disciplines.

1.1.6 Environmental Scope

The environmental scope of the HSSE Program is focused on Stantec's internal operations (e.g., office recycling programs, waste management planning for field work, and managing chemical and equipment storage). For environmental scopes related to project work (e.g., permits/approvals for project environmental impacts, industrial building assessments, or options for addressing contaminated sites), consult with the local Environmental Services team using the Environmental Services Subject Matter Experts Search Tool and list of Global Environmental Services Contacts.

1.1.7 Critical Task Inventory (CTI)

A critical task is one that has significant potential for harming people or the environment, or for non-compliance with health, safety or environmental regulations if performed incorrectly. Examples: confined space entry, working at height, working within a trench or excavation, exposure to hazardous materials, working around traffic or mobile equipment.

Stantec's Critical Task Inventory (CTI) is a collection of specific work activities identified by the business lines where health and safety hazards have been evaluated and identified for risk severity. Note that the tasks and controls (including regulatory references) are specific to work performed by Stantec personnel.

Tasks that have high risk ratings have the potential to become the critical risks for the organization. Once tasks have been assessed to have a higher risk rating, controls are identified or developed to mitigate the identified risk and decrease the risk for loss.

The CTI outlines applicable controls for each identified task and will be maintained by the HSSE team and can be found here. Worldwide regulatory references are included in the CTI and can be a resource for project planning to determine if local legislative or regulatory requirements will have an impact on guidance and controls outlined in Stantec site and project-specific plans and controls. Project managers and supervisors may consult their local HSSE representatives for information and guidance on local requirements.

Stantec's CTI will be reviewed every three (3) years or as conditions and operations change.

1.1.8 Environmental Aspects and Impacts Register

The environmental aspects and impacts relating to Stantec's operations are captured in the Environmental Aspects and Impacts Register, supported by the Environmental Regulations Library, as part of Stantec's Integrated Management System (Section 1.2.4). The goal of the Register is to identify environmental aspects and related impacts arising from Stantec's activities and services and to identify ways to reduce Stantec's overall environmental impact (Corporate Environmental Targets).

Stantec's Environmental Aspects and Impacts Register will be reviewed every three (3) years or as conditions and operations change.

1.1.9 Regulatory Libraries

Stantec maintains two Regulatory Libraries related to its HSSE Program and Management Systems, one for Occupational Health & Safety legislation and one for Environmental legislation. The libraries provide regional resources which can be reviewed in conjunction with project and task planning and are linked in the Critical Task Inventory (CTI), Safe Work Practices (SWPs), and Environmental Aspects and Impacts Register.

The geographic regions represented in the CTI, Environmental Aspects and Impacts Register, and in the libraries reflect the locations where Stantec maintains a regular business presence and the tasks performed by Stantec personnel. As a worldwide organization, there are instances where Stantec may bid and plan for work in new locations. In these cases, application of regulatory controls can be embedded in the project/site-specific health and safety plan (HASP). Should Stantec establish a consistent presence in a new location, additions can be made to the libraries, CTI, Environmental Aspects and Impacts Register, and SWPs in consultation with HSSE.

The content of the regulatory libraries will be reviewed every three (3) years or as conditions and operations change.

1.1.10 Critical Risk Controls (CRCs)

Critical risks have the greatest potential to cause recurring incidents, serious injuries, and fatalities. To reduce or eliminate the potential for loss, we have established controls for employees to follow when engaged in critical risk work. These controls can be found in our Safe Work Practices (SWPs), Health & Safety frameworks, and the CTI.

Supporting resources have been developed for our 12 critical risks. These risks were selected based on the work that we do, are consistent with industry standards, and reflect our incident history. These resources are intended to make it easier to identify, recall, and access information about critical risk controls so that when critical risks are present—in the field or in the office—everyone will know how to work safely.

Stantec's Twelve Critical Risks

Whether you're in the field or in an office, you can use the Critical Risk Information Sheets to easily access concise information about critical risk controls. As well, these sheets can be included in field packages and project reviews and can even be used as promotional materials. The Energy Wheel Field Guide provides portable connection between sources of energy as presented in Section 4.2 and the 12 Critical Risks.

1.1.11 HSSE Forms

Forms have been developed to support the HSSE Program and specific SWPs, which are reviewed and revised periodically. Completed HSSE forms become the records necessary to document the implementation and execution of the HSSE Program.

Any alteration or modification of forms to suit local or practice purposes must be approved by the appropriate regional HSSE manager and HSSE director. Where a local or business/discipline-specific version of a form is developed, it is the responsibility of the local office leadership or relevant discipline/business leadership to coordinate with the appropriate HSSE personnel to include any changes or revisions to the HSSE forms as posted on The Lens are mirrored in the local/practice version.

To request an approval, please send an email to hsse@stantec.com with a copy of the proposed revision and a completed Management of Change (MOC) Form (RMS11). The HSSE manager and HSSE director will be provided with the documentation and work with the requesting party to evaluate the request. The HSSE group will keep a copy of the final Management of Change (MOC) Form (RMS11) and provide a copy to the requesting party for use in training and audit activities. For more information on Management of Change, please refer to Section 4.5.

1.1.12 SaferTogether™

SaferTogether™

By continually strengthening our safety culture, we can reduce workplace injuries, provide our employees with the tools to work safely each day, and improve our overall safety performance. SaferTogether™ began in 2016 with employees attending sessions facilitated by their regional and operational leaders, making personal connections through safety with the leaders and teams they work with every day.

At Stantec we care about our people and those around us – at work, home, and in our communities. We focus our efforts to protect health, safety, security, and the environment. We use our SaferTogether™ culture to support knowledge, communication, relationships, and a 24/7 mindset in all we do.

Elements of SaferTogether™:

- **Knowledge** - Understanding how to work safely and sharing that knowledge with others.
- **Communication** - Empowering our people to communicate when they feel something isn't right and to accept feedback when a concern is raised.
- **Relationships** - Building open, honest, and trusting relationships where people are involved in the decision-making process.
- **Mindset** - Having a 24/7 mindset of safety and caring about personal safety and the safety of others at work, at home, and in the community.

We are S.A.F.E.R. when we:

- **Speak** to others about safety (make safety part of our daily conversations)
- **Act** safely at all times (model safe behaviors to demonstrate our commitment to safety)
- **Focus** on the task at hand (build systems of work that embed health, safety, security, and the environment into our daily activities)
- **Engage** others in the safety process (get others involved by asking questions, starting conversations, and building relationships)
- **Recognize** others for working safely (provide immediate and authentic feedback to others when they do something good – at work, at home, and in our communities)

1.2 Documentation

All documentation pertaining to the Stantec HSSE Program is subject to revision; printed copies are considered uncontrolled. The official and most current versions of HSSE Program documentation are always available on The Lens.

All employees are encouraged to identify the need for new information or changes to existing documentation. If an employee identifies the requirement for a new or revised document, they should contact their HSSE representative.

HSSE Document	Author	Approver	Review Frequency
Health, Safety, and Security Policy	Chief Executive Officer (CEO)	CEO and Board of Directors	Annually
Environmental Policy	CEO	CEO and Board of Directors	Annually
Sustainability Policy	CEO	Board of Directors	As needed
HSSE Program Manual	HSSE	SVP HSSE	Annually
Safe Work Practices	HSSE with guidance from appropriate Subject Matter Experts	SVP HSSE	Technical review every three (3) years; or as applicable regulations change.
Critical Task Inventory (CTI)	HSSE with guidance from Operations	HSSE Services Director	Every three (3) years or as conditions and operations change.
Environmental Aspects and Impacts Register	HSSE with guidance from Operations	Environmental Director	Every three (3) years or as conditions and operations change.
Regulatory Libraries – OH&S and Environment	HSSE with guidance from Operations	HSSE Services Director and Environmental Director	Every three (3) years or as conditions and operations change.

Should an employee have questions or concerns regarding any aspect of Stantec's HSSE Program, additional guidance and information can be obtained from their supervisor, the local office safety and environment coordinator (OSEC), regional HSSE advisor, or the regional HSSE manager. Additionally, inquiries can be sent directly to HSSE via email (hsse@stantec.com).

1.2.1 Records Management

HSSE records must be clearly identified, legible in nature, accessible only to designated personnel, and appropriately maintained, and disposed of when required. Additional guidance and direction can be found in Stantec's Records Management Practice Guide.

1.2.2 Occupational Health and Safety Management System (OHSMS)

To review how Stantec's HSSE Program components and associated practices are coordinated within the OHSMS and the Integrated Management System (IMS), please click here.

ISO 45001 is an internationally recognised standard for health & safety management, and has been adopted by Stantec as a means of helping the company to:

- Safeguard the occupational health, safety, and security of employees
- Monitor compliance with safety regulations
- Advance safety performance commitments consistent with the Company's HSS Policy

The scope of the system includes all critical business processes, including all operations at Stantec-owned and leased facilities, labs, and properties, as well as field and professional services.

For a visual reference on how the HSSE Program and documentation flows through Stantec's PM Framework and project delivery processes, follow the link to the HSSE Process for Projects, under Employee Fundamentals on the HSSE tab on The Lens.

1.2.3 Environmental Management System (EMS)

Stantec's Environmental Management System (EMS) practices are based on the ISO 14001 framework. ISO 14001:2015 is an internationally recognized standard for environmental management and has been adopted by Stantec as a means of helping the company to reduce the environmental impacts of our operations, monitor compliance with environmental regulations, and advance environmental performance commitments consistent with the company policies.

The scope of our environmental management certification is the management of environmental risks associated with the office and fieldwork activity that supports the provision of professional design and consulting services in planning, engineering, architecture, surveying, economics, and project management to private and public sector clients in a diverse range of markets. The Environmental Aspects and Impacts Register has been prepared as part of the EMS, in alignment with ISO 14001.

An Emissions Management Strategy has been developed as part of our continued leadership in industry-leading sustainable practices. Each year, Stantec's Sustainability Report is published to share information on our sustainability program, ESG performance, and our sustainability/climate change-related revenue.

1.2.4 Integrated Management System (IMS)

Stantec is registered under internationally recognized consensus ISO standards (including ISO 45001:2018 Occupational Health & Safety Management and ISO 14001:2015 Environmental Management), which,

along with our other ISO standards, are referred to as the Integrated Management System (IMS). Stantec's IMS is about doing things right and providing a disciplined and accountable framework for how we provide services to our clients and communities.

Global ISO certification of our IMS helps us stand out among our competition. It shows our clients and communities that Stantec operates safely and sustainably while delivering project quality in ways that work best within their local context. More information on Stantec's IMS can be found on The Lens, here.

1.2.5 International Specifications

In a global organization, there can be geographically specific certifications or requirements which need to be communicated to the affected employees. Regional HSSE documentation and practices are hosted on The Lens under HSSE > Country Specific.

1.3 Safety Pledges

1.3.1 Introduction

Traditionally, workplaces have created basic safety rules that would apply to anyone entering a workplace or worksite, including employees, supervisors, management, and visitors. These rules would outline restrictions and prohibited behavior.

Stantec's Safety Pledges are intended to showcase the commitment we all have as individuals to our own health and safety, the health and safety of our colleagues, and those we connect with in our personal and professional communities. In our effort to be SaferTogether, we ask employees to commit to Stantec's Safety Pledges.

1.3.2 Stantec's Safety Pledges

- I will make sure hazards are recognized, and risks are assessed, and controlled before starting any task.
- I will ask for help when I need it.
- I will take all necessary precautions when operating vehicles and working around mobile equipment.
- I will report all incidents, regardless of severity.
- I will keep my work area tidy and free of hazards.
- I will recognize and respect my limitations and only perform work I know I can do safely.
- I will be mentally and physically fit for duty.
- I will exercise my stop work authority immediately if I see an unsafe act or condition that could endanger myself or others or if I am not confident in the work plan.
- I will protect Company equipment, materials, and property in my care and take steps to prevent theft, vandalism, and damage.
- I will always use the personal protective equipment (PPE) identified in my work plan and make sure I'm properly trained to select, use, and care for it.
- I will only use tools, vehicles, and equipment that are in working order and have all guards and safety devices in place.
- I will set a positive example for others and encourage safe behavior.

1.3.3 Visitor Safety Rules

Visitors to Stantec office locations must sign in at reception or with a company representative. The signing-in process is required to verify that visitors, including subcontractors and service providers, have been made aware of Stantec's HSS and Environmental Policies and commit to following all applicable regulations while on the premises. For a template of the sign-in sheet, please click here.

1.3.4 Corrective Action and Discipline

Stantec endorses a practice of progressive discipline in which it provides employees with notice of deficiencies and an opportunity to improve. However, Stantec does retain the right to administer discipline appropriate to a given situation. The HSSE Program does not modify the status of employees at-will or in any way restrict Stantec's right to bypass or accelerate disciplinary procedures.

In most cases, inappropriate workplace behavior and violations of work rules and practices are to be rectified through progressively more serious corrective actions beginning with the least serious action necessary to correct the unacceptable behavior. The specific corrective action taken depends, in part, on the circumstances of the situation, the degree it affects the work environment, and the employee's past record. Appropriate steps of corrective action may include the following:

- Verbal counseling
- Written warning
- Suspension and/or final warning
- Termination of employment with cause

All corrective actions will not necessarily apply in all cases since a suspension or discharge may be warranted on the first occasion of serious misconduct. In instances of serious misconduct, any of the above steps may be eliminated.

See Stantec's Employment Practices and Programs page for information related to your home country. Relevant practices will be outlined under "Corrective Action" or "Disciplinary Procedures."

Failure to comply with the requirements of the Stantec HSSE Program, provincial, state, territorial, or federal legislation, client policies, or other relevant requirements may result in corrective action and/or disciplinary measures, up to and including dismissal for serious violations. The individual may also be subject to charges and actions under occupational health and safety and environmental legislation, up to and including criminal charges in some jurisdictions.

1.4 HSSE Responsibilities

1.4.1 Stop Work Authority

Stantec is committed to providing and maintaining a safe and healthy workplace. We believe that incidents and injuries are preventable, and that a job is only well done if it is done safely. Time taken to confirm understanding and execution of HSSE roles and responsibilities is time well spent. Review Stantec's Stop Work Authority document, endorsed by the company's CEO. Please also see Section 1.5 Fundamental Rights of Employees (1.5.2 Right to Refuse).

1.4.2 Roles and Responsibilities

Occupational health and safety and environmental legislation outlines general responsibilities designed to help employers and employees achieve a healthy and safe work environment and to minimizing the environmental impact of our operations. Depending on the jurisdiction, legislation may refer to people in a workplace as employees, workers, supervisors, employers, or a combination of these terms. Rather than assigning responsibility by job title, an individual's responsibility is related to the level of authority they have within the workplace. Although everyone employed by a company is considered an employee (or worker), leadership, management and supervisors carry the responsibility of implementing and operating the HSSE policies, programs, and systems of the employer. The following section outlines general responsibilities for everyone in the organization; specific tasks related to HSSE can be found within role descriptions.

1.4.3 The Employer

The employer is ultimately responsible for the development and implementation of Stantec's HSSE Program and management systems. Individuals at all levels of authority – from the chief executive officer to the first-level supervisor – represent the employer and can demonstrate their commitment to health, safety, security, and environment in the workplace by performing the duties as noted below for each category of authority.

Occupational health and safety and environmental legislation around the globe has varying terminology to refer to the responsibilities of an employer – please contact your HSSE representative to discuss any questions or concerns you may have.

1.4.3.1 Management

Management refers to the individuals and/or groups within a company that have authority over supervisors and departments, and who are responsible and accountable for managing the operations and personnel of an organization.

Management will:

- Take every reasonable precaution to provide a safe work environment.
- Annually review the Stantec HSS Policy, Environmental Policy, and HSSE Program
- Provide general direction to supervisors and employees about their responsibilities and roles in providing a safe and healthy workplace and minimizing the environmental impact of our operations.
- Provide supervisors with the support and training necessary to carry out their HSSE responsibilities.
- Consult and cooperate with individuals carrying out occupational HSSE duties.
- Provide employees with the information, instruction, training, and supervision relative to the HSSE program.
- Support consultation opportunities for employees to participate in the ongoing evaluation and operation of the HSSE Program, the OHSMS, and the EMS.
- Support development of the annual Sustainability Report to annually calculate and publicly disclose Stantec's carbon footprint.
- Provide access to and maintain protective equipment, devices, and clothing, and require that they be used in accordance with Safe Work Practices and other instructions.
- Keep records of work-related injuries and illnesses.
- Encourage employees to express concerns and suggest improvements on HSSE issues.

1.4.3.2 Supervisors

Anyone with responsibility and authority over individuals, groups, locations, departments, shifts, or projects is considered a supervisor. Supervisors need to give health and safety the same priority as productivity or quality. They must know and comply with occupational health and safety requirements as determined by their local legislation. Even when employees are working on sites controlled by clients or other contractors, supervisors must make sure the health and safety of Stantec personnel is being upheld. Examples include all leadership, project managers, site supervisors, crew leads, site health and safety officers.

Supervisors will:

- Take every reasonable precaution to provide a safe work environment.
- Know the HSSE requirements (standards and legislation) that apply to the work being supervised and require they be followed.
- Be familiar with Stantec's HSSE Program and their role in its operation.
- Utilize the principles of hazard recognition, assessment and control when evaluating processes, projects, worksites, etc.
- Communicate foreseeable hazards to employees, along with information and training on appropriate control measures.
- Consult and cooperate with individuals carrying out occupational HSSE duties.
- Support opportunities for employees to participate in the ongoing evaluation and operation of the HSSE Program.
- Monitor and reinforce that the appropriate personal protective equipment and clothing are available, are used and properly worn when required, and properly inspected and maintained.
- Participate in investigations of unsafe acts and conditions, incidents, and near misses reported to them and facilitate prompt corrective action.
- Support efforts to lower Stantec's eco-footprint.

1.4.4 The Employee

Employees are responsible for their own health and safety and have general responsibilities for the health and safety of other employees and to minimize environmental impacts. In addition, employees have significant fundamental rights which are outlined in Section 1.5.

Employees will:

- Take every reasonable precaution to protect themselves and to provide a safe work environment for all employees.
- Perform work in a safe manner; not engaging in horseplay or working while impaired by alcohol, drugs, or other causes.
- Take reasonable and practical measures to prevent or minimize environmental harm.
- Learn and follow the practices and procedures outlined by Stantec's HSSE Program and by local legislation.
- Report all unsafe acts and conditions, hazards, near misses and incidents to their supervisor as required in this manual.
- Ask questions to resolve any uncertainties about the work, risks, or potential hazards, which may be encountered.
- Cooperate with individuals carrying out occupational HSSE duties.

- Wear personal protective equipment as required. If necessary, use any special protective equipment, supplies and tools required to do the job safely. Keep all such equipment properly cleaned and maintained.
- Actively participate in the ongoing evaluation and operation of the Stantec HSSE Program.
- Support efforts to lower Stantec's eco-footprint.

1.4.5 Stantec's HSSE Resources

1.4.5.1 Board of Directors, Sustainability & Safety Committee (SSC)

The Sustainability & Safety Committee is appointed by, and responsible to, the board of directors of Stantec. The committee is responsible for overseeing the overall framework for managing health, safety, security, and environment risks, sustainability, and emergency preparedness.

The committee reviews, assesses, and makes recommendations regarding the Company's HSSE and Sustainability performance on an ongoing basis and provides leadership, focus, and guidance to management by subscribing to the principle that nothing is more important than the health, safety and well-being of the Company's employees, contractors, visitors, and stakeholders, and the communities that the Company serves.

The committee meets at least twice yearly but receives reporting on a quarterly basis.

1.4.5.2 Executive HSSE Committee

Stantec leadership is committed to operationalize our company's safety culture by asking regional leaders (RLs), regional business leaders (RBL), business center discipline leaders (BCDLs), and business center operating leaders (BCOLs) to take on visible accountability and responsibility for HSSE performance within the organization.

The resultant Executive HSSE Committee is chaired by the chief practice and project officer (CPO) and consists of geographic and business leadership at an authority level of VP or higher. Its mandate is to assist the CPO in fulfilling the responsibility to oversee and support Stantec's HSSE policy, programs, goals, initiatives, and management systems. It meets at least twice yearly to review the progress of the HSSE Program and the Occupational Health and Safety Management System, and to provide feedback and advice on Stantec's HSSE Action Plan. This management review is complementary, and can provide a driver for, HSSE planning and review that occurs globally.

1.4.5.3 Executive Environment, Sustainability, and Governance (ESG) Committee

Stantec's Executive ESG Committee, accountable for our sustainability performance, communicates critical ESG knowledge and concerns to the board of directors. Committee members ensure that sustainability and stakeholder priorities align, that sustainability is integrated into the Strategic Plan and operations, and that sustainability-related impacts, risks, and opportunities are addressed.

The Executive ESG Committee meets twice yearly.

1.4.5.4 HSSE Team

The HSSE Team reports up to the chief practice and project officer (CPO), and is led by the senior vice president (SVP) of HSSE. HSSE is responsible for the maintenance and administration of Stantec's HSSE Program, the OHSMS, and the EMS at the corporate level. Subject-matter experts from across the business lines and regions are invited to contribute to the overall process.

HSSE will:

- In conjunction with practice area representatives, develop HSSE practices, procedures and guidelines that complement and enhance the business processes at Stantec.
- Consult with and provide guidance to senior leadership, regional, business, and BC leadership and project managers.
- Monitor maintenance of corporate records (HSSE training records, incident investigations, statistical reporting, etc.).
- Coordinate regular communication with Office Safety and Environment Coordinators (OSECs) and regional HSSE advisors, where applicable, to discuss practices, procedures and current HSSE issues.
- Review all reported incidents and investigations; utilize standard criteria for the categorization of injuries and incidents and follow up on recommended actions where required.
- Collect and compile information on safety and environmental issues and provide reports to the Executive Leadership Team.
- Participate in the setting of HSSE objectives and targets.
- Provide direction and guidance to all Stantec employees on health, safety, security, and environmental issues.
- Recognize employees for contributions to the HSSE Program.
- Work collaboratively with other functional service teams to coordinate injury management, return to work and claims cases, training, and medical surveillance programs.

1.4.5.5 Regional HSSE Managers and Business Line HSSE Managers

As part of HSSE, the regional and business line HSSE managers are responsible for the coordination and execution of the HSSE Program, the OHSMS, and the EMS within a geographic region or business line. Regional and business line HSSE managers will assist in the development and revision of tools and documentation for the corporate program.

The duties of the regional or business line HSSE manager include, but are not limited to:

- Support operations and employees in the application of the HSSE Program, the OHSMS, and the EMS.
- Provide guidance to employees in order to maintain and improve the HSSE Program, implement initiatives, and to address HSSE issues.
- Monitor changes to legislation which may impact the HSSE Program.
- Coordinate communication and training related to HSSE tools and practices.
- Regional HSSE managers and advisors act as first point of contact for the OSECs in their region; business line HSSE managers connect primarily with business line personnel.
- Participate in HSSE audit activities, whether internally or externally driven.
- Investigate incidents using root cause analysis, and prepare lessons learned
- Conduct meetings and training related to Stantec HSSE objectives.
- Provide project support and assistance as required.

1.4.5.6 Regional HSSE Advisors

Regional HSSE advisors support the regional HSSE manager to coordinate the day-to-day operation of the HSSE Program, the OHSMS, and the EMS in an area or practice where there are many OSECs or offices to coordinate. Regional HSSE advisors should have knowledge of the types of work conducted in their region, as well as HSSE training or work experience required to support the HSSE Program. The role of the regional HSSE advisors includes, but is not limited to, the following:

- Overall facilitation of the HSSE Program, the OHSMS, and the EMS at a regional level, working in conjunction with the regional HSSE manager.
- Lead the coordination of OSEC activities and monthly meetings.
- Support the incident management system, including reporting, investigation, lessons learned, follow-up, and statistics.
- Liaise with the workers' compensation claims coordinator (WCCC) or regional equivalent during injury management as required.
- Be a focal point for communication between the HSSE Program, the OSECs, and regional operations.
- If appropriate, may provide project-related assistance.

1.4.5.7 Office Safety and Environment Coordinators (OSECs)

The primary mandate of an OSEC is to act as a resource to local office operations in the administration of day-to-day HSSE activities. In addition to their regular duties, OSECs promote the Stantec HSSE Program and OHSMS, the EMS, and Sustainability Programs, and may assist in the development and revision of tools and documentation.

In some jurisdictions, the role of a health and safety representative is a legislative requirement, with stipulations around selection, role, training, and participation. Please consult your regional HSSE manager or HSSE advisor for additional information.

In Australia and New Zealand, Stantec and its employees have agreed on an elected employee health and safety representative in each office. Smaller offices may be represented by an H&S representative from another office.

The duties of the OSEC include, but are not limited to:

- Maintain a secure filing system containing the forms, reports, and training records required by the HSSE Program.
- Act as a local resource for the HSSE Program, employee comments, concerns, and suggestions. Bring relevant items forward at OSEC meetings and/or Joint Health and Safety Committee meetings.
- Help project managers, supervisors, and others obtain appropriate safety and environment equipment for employees working on their projects.
- Conduct HSSE Program orientation for new employees.
- Post and distribute HSSE Program documents such as policies, rules, practices, procedures, and forms.
- Help supervisors and project managers prepare and submit incident reports and conduct investigations. If required, assist with the completion of corrective actions.

- Support efforts to track Stantec's eco-footprint by providing information on resource management at an office level. Also, support efforts to disseminate corporate information on our environmental commitments to the local operations.
- Communicate HSSE initiatives and support messaging in their area of responsibility.
- Participate in regional OSEC conference calls.
- Assist in facility or office inspections as required.
- Coordinate HSSE training as identified by HSSE Program requirements and hazard assessment.
- Participate in HSSE professional development opportunities as needed.
- Schedule or coordinate medical surveillance activities for required employees.

1.4.5.8 Workers' Compensation Claims Coordinators (WCCCs)

The workers' compensation claims coordinators (WCCC) are the primary point of contact for injured employees and their supervisors in North America. In other global jurisdictions, a similar function is performed by Human Resources representatives. Injured employees often require assistance submitting information to the relevant compensation system and with staying connected to the workplace if they are out of work due to injury. For information on processes in your region, please contact your HSSE representative.

The duties of the WCCC and their global counterparts include, but are not limited to:

- Reporting injuries to appropriate service providers or compensation boards.
- Coordinating workers' compensation claims to make sure employees are receiving optimal care.
- Communicating with insurance providers and compensation boards.
- Providing guidance on Early and Safe Return to Work practices and plans
- Liaise with Human Resources, payroll, supervisors, regional HSSE advisors, regional HSSE managers, and/or other internal resources to develop an early and safe return to work plan for injured employees.

1.4.5.9 Employee Participation and Joint Health and Safety Committees (JHSC)

Certain jurisdictions require a joint health and safety committees (JHSC) or a similar body, which is made up of employee and employer representatives consulting in a cooperative spirit to identify and resolve health and safety issues in the workplace.

Where required, a JHSC should be governed in size, function, and meeting frequency by the applicable legislation of its country, province, territory, or state, as well as by the terms of reference drafted by the JHSC itself. A Terms of Reference document, or similar consultation agreement, outlines the purpose, structure, and scope of a committee to establish common understanding among members and the office they serve, and can be used to assist committees in setting up or refining their operations.

A list of committee members, meeting schedule, and proposed agenda items must be posted on the HSSE information board in each office. A designated representative will record meeting minutes, and the minutes will be posted as well as kept on file. Where required by legislation a copy of the minutes will be submitted to the regulatory body. Some jurisdictions require specific training for JHSC members, and recommendations made to local management must be responded to within the time period and in the fashion dictated by law. If a committee is not required by legislation in your region, please contact your regional HSSE manager or advisor for guidance.

The primary functions of a JHSC are:

- Promote awareness, education and interest in topics related to health and safety,
- Provide a resource for employees who have concerns about or recommendations for the HSSE program and its operation at Stantec.
- Identify hazardous and potentially hazardous situations through activities such as workplace inspections, incident investigations, and data analysis.
- Evaluate these hazards and situations, giving particular attention to employee concerns, issues, and recommendations.
- Recommend corrective plans by participating in the development of assessment and control programs, discussing problems, recommending solutions, and providing input into existing and proposed health and safety programs.
- Participate in incident investigations and work refusal processes.
- Follow-up on implemented recommendations, maintain records, and encourage awareness and education related to HSSE.

Consultation and discussion on HSSE topics and issues at Stantec take place using a variety of mechanisms and media. These may include:

- Office meetings
- Team meetings
- Stantec Moments
- Office Safety and Environment Coordinator (OSEC)
- HSSE notice boards
- Risk Registers/Task inventories
- HSSE Committee Meetings
- Project meetings
- Health and Safety Plans
- Job Safety Analysis
- Field Level Risk Assessment (FLRA app or RMS2)
- Site, subcontractor, and stakeholder meetings

1.4.6 Subcontractor Prequalification

Due diligence requires that Stantec evaluates the HSSE history and profile of all parties performing work on Stantec's behalf. To deliver on our commitment to do what is right, as well as to meet legislative requirements, industry standards, and maintain certifications, we must understand the processes and culture of our subcontractors.

A system has been developed by Risk Management and HSSE to assist in prequalifying organizations or individuals that may provide onsite project services for Stantec. Prequalification verifies that they meet Stantec's minimum requirements (not project or client specific) for HSSE and insurance and provides an option to initiate a Subcontractor Master Services Agreement.

All Stantec subcontractors performing onsite project services are to be prequalified.

Outside of North America there are regional processes in place for subcontractor prequalification – please contact the Subcontractor Coordinators at mailto:sub.prequal@stantec.com for more information.

For North American operations, there is a direct link on The Lens to the Prequalified Subcontractors List in Point 1 of the PM Framework. A quick reference guide is available on the Prequalified Subcontractors landing page. Project teams and leadership can become familiar with the process by enrolling in a PM245: Introduction to Subcontractor Prequalification session, available on the Learning Management System.

Please note, the project team is still required to follow policies and procedures to verify that subcontractors are under contract with Stantec before any work is performed by the subcontractor. The project team must also confirm that the subcontractor meets client requirements for the applicable project.

For details, please contact the Subcontractor Coordinators at sub.prequal@stantec.com.

1.4.6.1 Subcontractor Management

Site-specific risk assessments performed by subcontractors need to be coordinated with the Stantec HASP/RMS1. Field Level Risk Assessments (FLRA app or RMS2) are used to review plans and controls as outlined in Section 4.4.4 – On-site HRAC Monitoring. Subcontractors will participate in these daily toolbox reviews and acknowledge their roles and responsibilities.

The project manager (PM) is responsible for verifying that the subcontractor is aware of the client's Alcohol and Drug program, where applicable.

Incidents involving subcontractors will be reported to the client, and an investigation will be performed. Please refer to Section 14.0 Incident Notification, HSSE Reporting, and Investigation for more information.

1.5 Fundamental Rights of Employees

Under health and safety legislation, all employees (including supervisors and leadership) have specific rights and responsibilities. In general, these fundamental rights can be summarized as the right to know, the right to refuse and the right to participate, with the right to report being an associated process.

1.5.1 Right to Know

All employees have the right to know what hazards are present on the job, how these hazards can affect them, and what is to be done to control or mitigate the risk associated with these hazards. Employees will learn about the job-specific hazards during training and through on-the-job instruction. For example, learning about workplace chemical safety as outlined in the applicable SWP or equivalent local learning is part of the right to know. Additionally, as part of the Hazard Recognition, Assessment, and Control (HRAC) process, hazards associated with project work are communicated to each employee working on the project.

1.5.2 Right to Refuse

All employees have the right to refuse work when they feel there is a danger to their own health and safety, or to the health and safety of others present at the worksite. Employees, supervisors, and when appropriate, members of the Joint Health and Safety Committee (JHSC) have specific roles to play in a work refusal to properly identify and address the situation. This process, as outlined in Occupational Health and Safety legislation, varies slightly between regions and jurisdictions. For a more detailed description of local legislative requirements, please contact your regional HSSE manager.

The basic steps are listed below.

Step 1: The employee must report the issue immediately to their supervisor, giving the reasons for refusing the work. The supervisor will immediately investigate the situation. If the issue is resolved to the employee's satisfaction, they would return to work. If the employee still believes the work is unsafe, despite investigation and discussion with the supervisor, then move to Step 2.

Step 2: Bring the matter to the attention of the Joint Health and Safety Committee and regional HSSE manager *as* soon as possible, giving the reasons for refusing the work. If the office does not have a JHSC, contact your regional HSSE manager directly. At this point, the JHSC and/or the regional HSSE manager would call upon other internal resources for assistance (such as office leaders, HSSE directors, and others). The goal is to exhaust every possible internal resource to address this issue. If the JHSC/regional HSSE manager together with the additional internal resources resolves the matter to the employee's satisfaction, the employee would return to work.

If the employee still believes the work is unsafe, contact the senior director, HSSE Operations. The senior director will then facilitate a conversation between the employee and the appropriate level(s) of leadership (PM, DL/OL, RL/country lead, RBL, BL, etc.) to address the issue at hand. If the employee still believes the work is unsafe, this is considered a work refusal. Move to Step 3.

Step 3: Stantec is committed to responding to HSSE concerns promptly and thoroughly and will endeavor to exhaust all internal steps and resources if a work refusal occurs. If a resolution cannot be reached, all employees have a legal right to contact the local occupational health and safety regulatory agency, who will send an officer to investigate and determine whether the work is safe, or whether additional controls are required. Every effort will be made by Stantec to avoid reaching this step.

A work refusal is considered an incident and must be reported in Pro-Sapien as outlined in Section 14.0 Incident Notification, HSSE Reporting, and Investigation.

1.5.3 Right to Participate

All employees have a right to participate in health and safety activities. For example, an employee can participate in a worksite inspection or be a health and safety representative or a member of a JHSC. Participation also includes providing feedback and input on HSSE programs, practices, and local implementation. Submission of hazard identification, safety opportunities, or other prevention activities may be included in the calculation of the Leading Indicator Safety Index (LISI). Leading indicators don't require an incident to occur for an individual to take action – these measures give employees the opportunity to be proactive, which is positive both culturally and from a loss prevention perspective. For more on Metrics and Statistics, please refer to Section 19.0.

1.5.4 Right to Report

All employees have the right to report incidents and unsafe practices and conditions without fear of punishment or reprisal. An employee's primary resource should always be their supervisor. However, if for any reason an employee believes a HSSE concern is not being addressed, they should not hesitate to contact the HSSE representatives in their region.

2.0 Global Security

Stantec is committed to providing a safe and secure environment for all employees, contractors, and guests. To achieve and maintain such an environment, security processes, tools, and procedures are established and communicated under the guidance of the senior vice president, Health, Safety, Security and Environment (HSSE). Aspects of the security program can be found on the Workplace Security, International Travel Risk & Security, Project Security, and Canadian Contract Security Program pages.

2.1 Workplace Security

Workplace Security includes a range of topics, from physical security to workplace violence. Stantec strives to accomplish the following:

- Locate offices in safe areas
- Provide an appropriate level of office security
- Design and establish protocols that promote safety and security on site
- Establish security system standards that comply with IT and network security requirements
- Respond to employee security concerns

Working with geographic and business line leadership, HSSE oversees the Workplace Security Program and provides knowledge and resources to help prevent, mitigate, and resolve security issues.

2.2 Travel Risk and Security

Given Stantec's global reach, reducing risk for employees who travel and those on expatriate assignment (living away from a person's home country) is paramount. In the sincere belief that knowledge is power, HSSE provides the following resources:

- Country-specific information and travel advice
- Emergency security and medical contact information
- Security and health websites
- Mitigation plan templates and standards
- Travel Safety Briefings
- Pre- and post-bid project security review and advice

HSSE also provides security assessments and advice to Stantec business operations seeking to operate overseas, conducts risk mitigation planning, and can arrange a full range of security services necessary to support Stantec's global mission.

3.0 Internal Sustainability Program and Reporting

Sustainability in the context of a corporation means finding long-term business value through the balance of financial, social, and environmental performance. For more than a decade, Stantec has maintained an internal sustainability program and publicly reported on our sustainability progress. Our Corporate Sustainability program follows international standards and meets the needs of our primary company stakeholders (employees, clients, investors, and communities). Our sustainability efforts help Stantec act responsibly as a company, provides positive branding, and reflects stakeholder expectations.

The Corporate Sustainability team is responsible for leadership regarding Company environmental stewardship commitments. The broader reporting requires close coordination with other functional service groups to reflect Stantec's social and governance performance. Stantec annually produces a Sustainability Report that is compliant with the Global Reporting Initiative (GRI), report our carbon footprint to CDP (formerly known as the Carbon Disclosure Project), and are signatories to the United Nations Global Compact. Also, investors regularly require disclosure of information pertaining to our sustainability programs.

4.0 Hazard Recognition, Assessment, and Control (HRAC)

The **Hazard Recognition, Assessment, and Control (HRAC)** process is designed to help employees identify hazards, assess risk, and then take the appropriate action by implementing controls aimed at preventing incidents from occurring. The HRAC process develops a list of hazards for activities, tasks, or projects, and then guides the application of appropriate controls to reduce the risk associated with each identified hazard to an acceptable level. All employees will receive information on using the HRAC process, which they can apply to their job tasks and exposure to hazards.

HRAC must be conducted and/or repeated:

- When a new work process is introduced
- When a work process or operation changes
- When field activities are added to a proposal or project
- At intervals to reduce the possibility of substandard acts or conditions being developed
- Before the initiation of new work at an existing site
- When employees will be working alone or are the sole Stantec representative at a project site.

4.1 Definitions

A **hazard** is any condition, device, substance, or practice that has the potential to cause loss, such as injury to people, or damage to equipment, materials, environment, property, or reputation.

Risk is the **likelihood** of that potential loss actually occurring, and the **severity** of the loss if it does occur. When determining **likelihood**, consideration needs to be given to the frequency of exposure and the probability of loss occurring.

Mitigation consists of the actions, processes, or controls provided to reduce or eliminate the likelihood of an incident occurring from an identified hazard. Mitigation efforts can also be aimed at reducing the severity of an incident, should it occur.

Health Hazards pose a risk to physical well-being, presenting short-term and/or long-term effects. Health hazards include:

- **Chemical** - petroleum solvents, compressed gas, acids, plant oils
- **Physical** - noise, vibration, heat, cold, radiation, explosions
- **Ergonomic** - workplace design, repetitive motion, force, posture
- **Biological** - bacteria, viruses, fungi, parasites, insects
- **Social** - stress, pace of work, violence, harassment

Safety Hazards tend to affect our well-being through instantaneous impacts. Safety hazards include:

- **Machinery** - moving parts, rotating shafts and augers, pulley belts, blades, saws
- **Energy** - pneumatics, hydraulics, steam, heat, electricity, potential energy
- **Material Handling** - manual and mechanical handling

Uncontrolled hazards have the potential to cause incidents that range from minor to severe and must be quickly identified and addressed.

4.2 Using the Energy Wheel for HRAC

There are many ways to perform hazard and risk assessments on workplace and worksite tasks. Most methods ask the individual to visualize and predict what hazards they will encounter using past experiences in similar settings, while they also consider other information such as lessons learned and incident reports.

Supervisors, PMs, and employees have a wide range of experiences to draw upon, but their ability to predict and prepare for hazards can be compromised if nearby work is not taken into consideration, if they do not acknowledge that work is dynamic and can change while in progress, and that there can be significant differences between the work as planned and the actual execution on the day.

Recent studies have shown that organizing information about known hazards into general topics or memory cues can improve the individual's ability to recall and apply their knowledge in a dynamic environment.

Consider that there are many different hazards that an individual could point out on a worksite or in any of Stantec's working environments. Incidents and injuries are caused by energy sources such as motion, gravity, or radiation so researchers generated a list of ten energy sources which could be used as cues for systematic hazard identification. A relatively small number of energy sources can generate an exhaustive list of hazards, both familiar and new. The energy sources, as represented by icons on the energy wheel diagram, can also provide a framework for hazard discussion and review. Using each energy source as a starting point, a systematic review of the working environment can be conducted using the energy wheel as a basis for identification and discussion.

Energy Sources and Associated Hazards

	**Thermal:** Open flame, electric ignition sources (including phones and friction), hot or cold surfaces, liquids or gasses, weather conditions including humidity levels and snow/ice		**Gravity**: Falling objects, collapsing objects, slipping, tripping or falling
	**Chemical:** Flammable vapors, reactive hazards, carcinogens or other toxic compounds, corrosives, pyrophorics, combustibles, oxygen deficient atmospheres, fumes, dusts, naturally occurring gases		**Motion**: Vehicles (car, truck, ATV, ARGO, boat, snowmobile, bicycles, transit, mobile equipment, trailer), workers and other people (lifting, pushing, pulling, carrying, use of hand and power tools, body position, walking), flowing water, sprung branches
	**Biological**: Animals, bacteria, viruses, insects, blood borne pathogens (needles), poisonous and noxious plants, contaminated water, human behaviors (protesters, concerned citizens, onlookers)		**Mechanical**: Rotating equipment (augers, pulleys, drive shafts), compressed springs, drive belts, conveyors and motors
	**Radiation**: Welding, NORMs (Naturally Occurring Radioactive Material), X rays, Nuclear Densometers, Lasers, Microwaves, Solar, Radioactive waste and sources		**Electrical**: Power and communication lines (overhead and buried), static charge, lightning, energized equipment, wiring, batteries, GFCI cords/plugs, lighting levels, double insulated tools, wet environment
	**Noise**: Stationary or mobile equipment, impact noise, high pressure release, impact of noise on communication		**Pressure**: pressure piping, compressed cylinders (fire extinguisher, calibration gas, propane), control lines, vessels, tanks, hoses, pneumatic and hydraulic equipment

4.3 Responsibilities

Supervisors must be diligent in addressing HSSE issues and will be trained in the HRAC process. A suitable risk assessment must be prepared for all activities where hazards are present that have the potential to cause harm. All supervisors must address employee concerns regarding hazards in a timely manner to determine suitable and reasonably practicable actions and controls.

Project Managers (PMs) must see that personnel on their projects follow the HRAC process and must take every reasonable precaution to reduce the risk to Stantec staff, subcontractors, and the environment to an acceptable level. Under legislation, PMs are considered to be supervisors when they have control over the work assigned to Stantec personnel.

OSECs and regional HSSE advisors will be familiar with using the HRAC process as it relates to all facets of Stantec operations, including its use in generating plans for project work. The OSECs will act as a resource for the HRAC process and may facilitate use and understanding of the HRAC procedure and associated forms.

For Stantec facilities where physical alterations of the building or working environment are planned, the regional leader (or designate) will include a review of SWP-116 – Office Safety, and preparation of a Quantified Hazard Assessment (RMS7) as part of the documentation and communication to staff.

Regional HSSE managers will perform periodic audits at Stantec offices and project sites to evaluate and consult on the implementation of the HRAC process throughout Stantec operations.

On-Site Field Personnel are responsible for following the HRAC process to recognize hazards, assess contributing factors, and implement and use designated controls to reduce the risk of incidents. When on-site field personnel supervise Stantec subcontractors, they always have the authority to stop work determined to be unsafe. All project personnel will be actively involved in providing information and background for HRAC documentation used to help establish controls and to designate personnel who will be responsible for implementing the chosen controls.

4.4 Steps to Follow

The HRAC steps outlined below are required for all projects and activities with a field-work component (work performed outside of an office environment).

When entering an occupied, non-Stantec office space, employees must familiarize themselves with the emergency response plans of the host location. When visiting public spaces, offices, or facilities, any access to spaces/areas requiring authorization, use of ladders, tools, or specialized knowledge, the team will follow the HRAC steps and documentation.

The HRAC process will be conducted in the following order:

Step1: Hazard Recognition
Step 2: Risk Assessment
Step 3: Selection of Controls
Step 4: On-site HRAC Monitoring

Stantec has two methods to help project teams plan field work: the electronic Project HSSE Plan (RMS1) and a HASP (Health and Safety Plan).

Project HSSE Plan (RMS1)

Define the overall scope of work for the project and begin to identify hazards anticipated at the project site. As part of the planning process, the PM will complete the Project HSSE Plan (RMS1) to document this step. All employees conducting field work on the project will review the Project HSSE Plan (RMS1) and sign the document personally acknowledge that they have been advised of the hazards, controls, and PPE required, and have reviewed the applicable SWPs. A copy will be provided to on-site personnel as a resource to identify the primary HSSE contact for the site, as well as to outline all applicable emergency contacts and emergency facility information. A Project HSSE Plan (RMS1) as a field-resource will complement the use of the Field Level Risk Assessment (FLRA app or RMS2).

HASP (Health and Safety Plan)

Some projects may require the development of a Health and Safety Plan (HASP) in place of the Project HSSE Plan (RMS1). Generally, HASPs may be required if any of the following conditions are present:

- Project is multi-disciplinary and requires a large number of personnel
- Stantec is considered the primary contractor and/or service provider on the project
- Client requirements or local legislation requires a HASP be submitted
- Work planned involves one or more critical tasks.

A HASP will define the overall scope and major definable work tasks the project personnel will be performing and will identify anticipated hazards. The HASP can be written by the PM or by HSSE personnel but **should** be reviewed by HSSE personnel (business line, sector, or corporate, as appropriate) if they are not the author. A HASP will assist the project personnel in the implementation of controls to mitigate the identified hazards specific to the site. As HASPs tend to be complex and specifically aligned to a business line or geographic location, please contact your HSSE manager or advisor for guidance and examples.

- Please note: Project HSSE Plan/HASP and associated documentation must be updated and reviewed yearly for active project work. Additionally, if scope or conditions change over the course of a project, an update and review is also required.

For a visual reference on how the HSSE Program and documentation flows through Stantec's PM Framework and project delivery processes, follow the link to the HSSE Process for Projects, under Employee Fundamentals on the HSSE tab on The Lens.

4.4.1 Step 1: Hazard Recognition

It is important to identify hazards that employees and others may face when carrying out work. Methods for identifying hazards include utilizing PM and project personnel experience to consider the following types of information from an HSSE perspective:

- Sources of energy as represented on the Energy Wheel
- Previous experience with type of work and its hazards
- Observations
- Employee concerns
- Inspections
- Audits
- Incident reports, investigations, and HSSE Lessons Learned
- Information provided by the client
- Human performance and physical demands
- Task and process analysis

Depending on the work environment, the project team may need to consider other groups of people in their assessment outside of Stantec employees, such as members of the public, visitors, or other subcontractors.

- When field work or site visits are required in the proposal stage of a project, potential hazards must still be identified and controlled. Since these activities occur prior to development of a Project HSSE Plan (RMS1) plan that follows the full HRAC process, tools such as the Quantified Hazard Assessment (RMS7) or Field Level Risk Assessment (FLRA app or RMS2) may be used to document the risk and controls. Please contact your regional HSSE manager or regional HSSE advisor for assistance.
- If the scope of work for a project that originally did not involve field work changes to include field work, a plan which follows the full HRAC process must be developed and reviewed with employees before field work begins.

Critical Task

Critical tasks may be identified and included in a Project HSSE Plan (RMS1) or a HASP. Critical tasks have significant potential for harming people or the environment, or for non-compliance with health, safety or environmental regulations if performed incorrectly. Examples: confined space entry, working at height, working within a trench or excavation, exposure to hazardous materials, working around traffic or mobile equipment. Also, be aware that some critical tasks may be identified as critical risks. See Section 1.1.10 Critical Risk Controls (CRCs).

Worldwide regulatory references are included in the CTI and can be a resource for project planning to determine if local legislative or regulatory requirements will have an impact on guidance and controls outlined in Stantec site- and project-specific plans and controls. Project Managers and supervisors may consult their local HSSE representatives for information and guidance on local requirements. Please refer to Section 1.1.7 Critical Task Inventory (CTI) for additional information.

4.4.2 Step 2: Risk Assessment

A hazard and risk assessment will help project personnel identify the hazards and assess the applicable risks involved in the work and designate appropriate controls to mitigate these hazards and risks. SWPs are documents designed around specific tasks to outline the control of hazards while reducing the risk to an acceptable level. If there is not an applicable Stantec SWP for a component of the proposed job or task, (examples, new service line, new type of work), a hazard assessment must be performed and documented using Quantified Hazard Assessment (RMS7) (Section 4.4.2.1) or other appropriate risk assessment method. To complete the hazard and risk assessment, project personnel and their HSSE resources, will have to compare the unknown job/task to:

- Applicable acts and regulations
- Existing Stantec policies and procedures
- Client expectations/procedures
- Manufacturers' recommendations

The results of the hazard and risk assessment will be discussed with all project personnel before work commences, and at the project kick-off meeting (on projects where one is held). A copy of the completed form will be kept in the project file.

Please be sure any hazards or energy sources selected on the Project HSSE Plan (RMS1) are represented by the SWP chosen; the SWP will then outline applicable controls. If the RMS1 or HASP identifies one of Stantec's Critical Risks as being part of the project, the applicable flatsheet (Critical Risk Controls – CRCs) should be readily available to the project team, either in printed or digital format. CRCs can be reviewed in the field using the In Case of Crisis smartphone app where it is available.

In the United Kingdom, project teams may utilize model risk assessments to develop site-specific controls at a project level.

4.4.2.1 Quantified Hazard Assessment (RMS7)

If there is not an applicable Stantec SWP for a component of the proposed job or task, (examples, new service line, new type of work), a hazard assessment must be performed using Quantified Hazard Assessment (RMS7) or other appropriate risk assessment method.

The Stantec risk matrix is based on two components, which are used to assess the risk level of the task at hand. The first component is severity, and the second is likelihood. All identified hazards must be assessed and have controls assigned, based on the established level of risk. The risk level will determine the type of controls needed to manage the hazards. The higher the risk level, the more specific the controls that are required. The Quantified Hazard Assessment (RMS7) can be used as documentation and guide through the HRAC process for a specific task.

4.4.2.2 Severity

Severity simply outlines the consequences of the risk should an incident occur. Severity levels are available for each category of risk – People, Environment, Assets, and Reputation. Assign a severity level according to the following table.

Table 1: Incident Severity

Severity Level	People	Environment	Assets	Reputation
(0)	• No Injury	• No Effect	• No Damage	• No Impact
Minor (1)	• No affect on performance or daily life activities • First aid cases • Exposure to irritation or temporary effects	• Spill or release with minor local effects	• Operational upset or damage with minor loss <5,000	• Public awareness of an incident
Moderate (2)	• Medical treatment • Restricted or modified work • Use of Stop Work Authority	• Spill or release with localized, moderate effects	• Operational upset or damage with moderate loss between $5,000 - $25,000	• Some local public concern or complaints • Potentially negative media aspects for operations and client relationships
Significant (3)	• Lost time injuries	• Spill or release which requires response from outside agencies • Requires reporting to regulatory authorities	• Operational upset or damage with significant loss between $25,000 and $100,000	• Regulatory orders, citations, or localized stop work restrictions • Negative attention in the local media with client impact
Serious (4)	• Death • Disability • Hospitalization of personnel • Multiple injuries from a single event	• Spill or release that requires an ongoing cleanup with use of significant resources • Regulatory or other charges are possible	• Serious damages, upset, or loss to essential resources totalling more than $100,000	• Criminal charges laid against company or employees • Operation of site or operation halted by regulatory agency attributed to Stantec • Company-wide negative effects with public attention, action groups, restrictions to operations

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4.4.2.3 Likelihood

Once the potential severity has been determined, a likelihood level must be assigned according to the frequency of exposure and the probability of loss. Take into consideration personal experience, knowledge, and historical data.

Table 2: Likelihood Result Criteria

Likelihood Level	Result Criteria (where Likelihood = Frequency x Probability)
1 Unlikely	Very low frequency of exposure to the risk. Task or activity performed or may occur once per month or less. Incidents are very unlikely and may not have occurred in the past.
2 Possible	Low frequency of exposure to the risk. Task or activity is performed or may occur two or three times per month. Incidents have happened within the Company, or more than once per year in the Industry.
3 Probable	Regular exposure to the risk. Task or activity is performed or may occur once per week or more. Incidents have happened locally, or more than once per year in the Company.
4 Very Likely	Constant or continuous exposure to the risk. Task or activity is performed or may occur daily on a continuing basis. Incidents have occurred several times per year either locally, or within the Company.

4.4.2.4 Risk Level

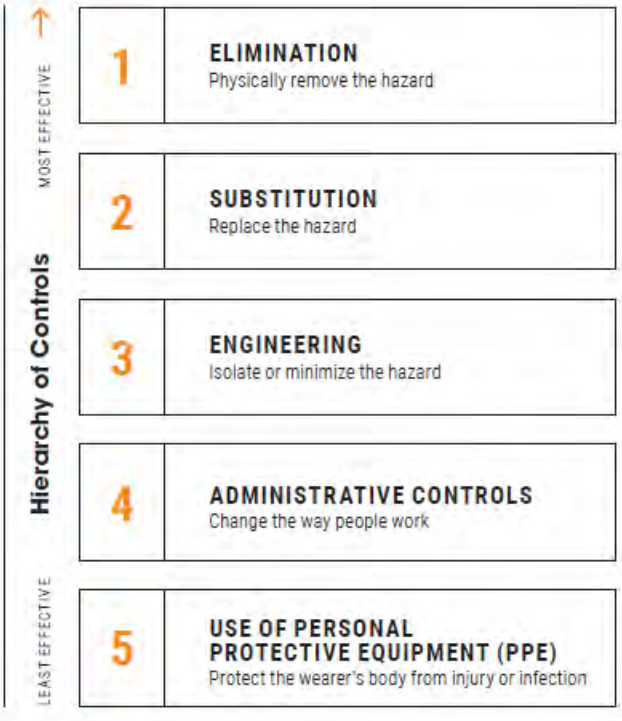
Risk Level is then assigned as a function of likelihood and severity. Both values are applied to the risk matrix below. Items with risk levels "A" and "B" will be considered critical tasks/activities.

RISK LEVEL MATRIX					
LIKELIHOOD	*4*	C	B	A	A
	3	C	B	B	A
	2	D	C	B	B
	1	D	D	C	C
		1	**2**	**3**	**4**
		SEVERITY			

Table 3: Required Action For Each Risk Level		
Risk Level	**Category**	**Action Required**
A	**VERY HIGH** - Unacceptable	Must be mitigated with appropriate controls to a risk ranking of C or D immediately.
B	**HIGH** - Undesirable	Must be mitigated with appropriate controls to a risk ranking of C or D as soon as possible.
C	**MEDIUM** - Acceptable with Controls	Risk mitigation to risk ranking of D is optional; procedures and controls must be verified.
D	**LOW** - Acceptable as is	No risk mitigation required.

4.4.3 Step 3: Selection of Controls

When selecting mitigations or controls to address identified hazards and quantified risk, consider that some types of controls are more effective than others. Corrective actions and controls can have unintended results outside of the incident or hazard they were created to address. Employees are encouraged to discuss any change and its impact with their supervisor, OSEC, or member of the HSSE team.



Control	Examples
Elimination	• Set a video conference instead of a site visit, where appropriate
Substitution	• Exchange a hazardous chemical for less hazardous option
Engineering	• Machine guarding • Ventilation • Remote control • Reduce speed or force • Ergonomic redesign
Administrative	• Safe work practices • Inspections • Training • Hazard assessments • Signs and signals
Personal Protective Equipment (PPE)	• Safety glasses • Gloves • Steel-toed boots • Respirators • Long-sleeved shirt

4.4.4 Step 4: On-site HRAC Monitoring

Since preparation of the Project HSSE Plan (RMS1) and/or HASP is a planning exercise, when crews report to the field, they must verify that all hazards and controls have been identified. The Field Level Risk Assessment (FLRA app or RMS2) will be used to identify any new or previously unidentified conditions, as well as to review hazards and controls outlined in the Project HSSE Plan (RMS1) form or HASP. As part of a daily toolbox review, the Field Level Risk Assessment is to be completed by appropriate on-site project personnel and will identify the specific site controls to be implemented, including availability of personal protective equipment (PPE), materials, and equipment.

The purpose of the Field Level Risk Assessment (FLRA) is to check that the relevant control measures identified in the RMS1/HASP can be implemented and that the job can be carried out safely. It is also a chance for the people carrying out the work to consider whether there have been any changes to the work environment which may introduce new hazards and risks.

The Field Level Risk Assessment should consider and verify roles that have been assigned to subcontractors (e.g., traffic control, maintenance, police assistance), as well as other operations not under Stantec control that are occurring at the same site. If Stantec employees are participating in on-site reviews led by a general contractor or a prime contractor, this participation must also be documented.

The Field Level Risk Assessment will be completed daily to reflect the potential for changing situations on the worksite. The "Daily Renewal" portion of the form can be used for tasks/activities on the same site that extend beyond a single day and should reflect changes in on-site field personnel and weather conditions.

If Stantec employees are performing work under the care and control of a client's HSSE management system and are required to follow the client's processes and participate in their on-site field assessments, notation of this equivalent procedure must be documented in the RMS1 and/or the HASP. Copies of the

documentation should be obtained from the client on a regular basis. Be aware that systematic review and supervision of Stantec employees must still occur.

When reviewing field operations, human performance factors must also be considered when determining if the level of control in place is adequate to the work of the day. Individuals make decisions and take actions that make sense to them - given their goals, knowledge, and focus of attention. Each day, individuals adapt to changes in the workplace and make adjustments.

For additional guidance on how to consider and communicate the interactions between people, field sites, workplaces, jobs or tasks, and their organization – please review the Energy Wheel Field Guide. The Energy Wheel Field Guide can be printed and carried as a resource, or it can be accessed on the In Case of Crisis mobile app.

Before beginning or restarting work, supervisors and employees need to conduct a Last Minute Risk Assessment (LMRA). This is not a form to be filled out, but a deliberate stop in the process to check for potential hazards and to determine whether appropriate controls are in place. Remember, all Stantec employees have the authority and responsibility to stop unsafe work.

Remember to:

1. **Stop and Think**
2. **Look Around**
3. **Assess Risk**
4. **Control Risks**
5. **Begin/Resume Work**

4.5 Management of Change (MOC)

The purpose of an MOC procedure is to identify risks, associated with change and reduce them to acceptable levels. An MOC procedure provides a process by which the impact of changes to HSSE practices are recognized, reviewed, approved, communicated, and documented. This section is primarily applicable to project-based situations where even small changes in processes could result in significant risks of injury or damage, such as equipment/valve lock-out procedures, implementing underwater inspection operations, etc., and when required by regulation, such as client processes involving Highly Hazardous Chemicals as identified by OSHA in the US.

A **project** is defined as a temporary endeavour undertaken to create a unique product, service, or result.

MOC applies to changes in operating parameters, equipment, maintenance practices, product compositions, chemicals used, procedures, equipment, and personnel. Examples of where an MOC process may become necessary are for confined space operations, when client requirements dictate changes to our internal processes, and utility clearance procedures. Regulatory changes must also be considered and may impact permit limits or other operating parameters. These changes could take the form of new or emerging regulations, or changes to existing regulations.

4.5.1 Responsibility

The MOC owner is typically the project manager or other designated responsible person who is looking to implement the proposed change. The reviewers will likely be technical experts familiar with the impacts that could be caused by the proposed change. The approver is a sufficient level of management to authorize the change, given the potential impacts. Input from the appropriate HSSE resources should also be sought. Please note: MOC Approval must come from a sufficient level of authority to authorize the change. Changes to the HSSE Program, SWPs, the OHSMS, or the EMS as applied to a geography, region, business line, or discipline must be approved by an HSSE senior director or above. For making alterations to forms, please see HSSE Forms (Section 1.1.11).

The Management of Change (MOC) Form (RMS 11) must clearly identify:

- Who is responsible for initiating the MOC (the MOC owner)
- Who needs to review and approve the MOC
- Who manages the MOC process
- How the MOC is communicated to affected personnel and what review/audit process is in place
- The completed MOC form will be maintained in the project file, with a copy sent to the appropriate regional HSSE manager.

4.5.2 Condition Limits

Changes must be time limited. If the change must continue beyond the intended time limit, then an additional MOC is required. Additionally, if a change is approved within given physical parameters, and any of these parameters are to be exceeded, then another MOC review is required.

4.5.3 Emergency Changes

On rare occasions, a provision for emergency changes may be required. Using the MOC form and process provides a mechanism for authorizing an emergency change and a requirement to have the change formally reviewed in a prompt fashion.

5.0 Safe Work Practices (SWP)

Safe work practices (SWPs) are documents designed around specific tasks and are intended to help identify hazards and applicable controls necessary to reduce our employees' exposure to health and safety risks. Stantec has developed a collection of SWPs for tasks and operations with inherent hazards and risk exposure. Supervisors are responsible to see that all employees read, understand, and comply with SWPs relevant to their specific discipline. Compliance monitoring will be conducted by applicable management personnel with the input of Stantec HSSE.

If the need to develop a new SWP is identified, the following procedure should be implemented:

- A team of individuals with expertise in that particular area should be created to research any industry specific information, best practices etc.
- Obtain the SWP template from your HSSE representative to create the document. Identify all references.
- Submit a copy to HSSE for review. Once reviewed and approved by HSSE and the senior vice president of HSSE, it will be added to the catalogue of SWPs. Please note: Depending on implementation requirements, additional leadership reviews and approvals may be required.

If employees become aware of any regulatory changes that may affect an SWP, they should notify the HSSE group for modification at hsse@stantec.com.

5.1 Review of Safe Work Practices

SWPs will be reviewed every three years, or when applicable regulations change. Experienced staff, Joint Health and Safety Committees, HSSE personnel, OSECs, and other subject matter experts will be asked to review the documents and provide input.

In the event of an incident, any SWP relating to the job should be thoroughly reviewed by the employee(s) associated with the incident, supervisors, and HSSE personnel to confirm that the practice meets the requirements of the job and current regulations. If gaps are identified, the SWP will be revised to reflect the lessons learned.

All new and revised SWPs will be submitted to the senior vice president, HSSE for review/approval.

5.2 Specialized Programs

Some topics and processes require unique instructions, supporting resources, and forms and are referred to as HSSE Programs. Examples include the Alcohol and Drug Program, and Early and Safe Return to Work. HSSE Programs can be accessed by navigating to the HSSE tab on The Lens and locating Programs in the navigation list at the top of the page.

6.0 Communication and Training

Communication and training are key components of the HSSE Program. Through effective communication and training, Stantec will provide all employees with the knowledge necessary to work safely, and the methods to communicate their HSSE questions and concerns. Employees will receive training specific to their job tasks and discipline. All employees are prohibited from doing work for which they have not been adequately instructed or trained.

Supervisors and leadership are responsible for verifying:

- An employee is trained in the safe operation of the equipment they are required to operate.
- An employee is trained in the safe execution of all job tasks.
- The employee is competent in performing job tasks.

The definition of competent may have slight variations within provincial, state, territorial, and federal legislation. In general, a "competent" individual may be defined as someone who is adequately trained, knowledgeable of applicable standards and legislation, can identify hazards, and can safely perform work with minimal or without supervision.

6.1 Communication

Free flow of information through all levels of an organization is critical to the success of an HSSE Program, OHSMS, and EMS. Leadership must outline their support of the HSSE program and their expectations of employees. Employees must be able to communicate information about hazards, risk, logistics and job specific safety and health requirements.

The HSSE group works in partnership with Stantec's internal communications team to distribute information, results, and messaging throughout the organization. Stories on The Lens, creation of newsletters, HSSE moments, HSSE alerts, and tools to support the application of the HSSE Program, the OHSMS, and the EMS are only some of the methods used.

Stantec facilitates HSSE communication by holding regular HSSE meetings, supporting the Joint Health and Safety Committees, and maintaining applicable HSSE tools and documentation on The Lens.

Meetings are an effective and direct means of sharing information between employees, contractors, clients, supervision, and leadership. Every meeting involving Stantec employees, whether it is a project meeting, toolbox meeting or Board of Directors meeting need to start with a Stantec moment. The discussion of HSSE in meetings helps to increase awareness of general HSSE issues, as well as government, client and Stantec HSSE requirements. Topics for discussion such as HSSE Moments resources and HSSE Lessons Learned as provided by the HSSE Team, can be found in the HSSE Libraries on The Lens.

Safety meetings may include information regarding:

- Hazard assessments conducted
- Review of relevant incidents and lessons learned
- Findings of an inspection
- Refresher training
- Review of documentation, procedures, or practices
- Other HSSE information specific to the individuals or departments

In all formal health and safety meetings, the minutes must be documented, including the assigning of responsibilities for action items, target dates, names of all in attendance, and the date and location of the meeting. Anyone assigned a follow-up activity should be required to report on progress set by deadlines.

If an employee feels uncomfortable discussing health and safety with their supervisor or local leadership, they can reach out to their OSEC as a resource, as well as the HSSE team. Inquiries or concerns sent to hsse@stantec.com will be assigned to HSSE for discussion and resolution. Continuing concerns may be raised with the employee's supervisor or leadership.

6.2 Training

6.2.1 New Employees (Full Time and Contract)

All employees will receive New Hire HSSE Orientation Training This training will occur within the first 30calenar days of hire, with the online portion completed within the first 10 business days, and before field activities begin. Completion records for orientation training will be maintained in Stantec's learning management system. OSECs and supervisors can obtain hard copies of the completion records upon request.

OSECs and supervisors, with consultation from HR, are responsible for coordinating new hire HSSE training. Employees, supervisors and HR representatives can access training records through the learning management system.

The HSSE Orientation training covers the key tenets of behavior-based safety and includes local legislative requirements. Additional safety-related responsibilities are addressed in the Employee HSSE Orientation Checklist. Additional information, checklists, and the corporate course catalogue can be found on the Employee Orientation Training page on The Lens.

Additional training will be determined based on job function and training completion will be reviewed yearly during the Performance Review process. As new projects arise and the need for increased skills becomes apparent, new training will be recommended. Training needs will also be evaluated when an employee has been absent from the work environment for a year or more or has been transferred to a new facility and/or new duties that expose them to new hazards.

6.2.2 Short-term Employees, Seasonal Employees, Contract Employees, Volunteers

Stantec is a dynamic working environment which encourages many types of participation; volunteers, cooperative students, and seasonal employees to name a few. As a minimum, the individual will be oriented to the office layout and emergency procedures and be directed in how to report hazards and incidents. If the tasks to be performed include additional risks outside of an office environment, the training and orientation procedure will be consistent with Section 6.2.1.

6.2.3 On-The-Job Training Requirement

Before employees begin unsupervised work, the immediate supervisor will assess the employees' qualifications, training, and experience to determine if they are competent to perform the required work. An employee's competency is determined by:

- Educational background
- Relevant training

- Knowledgeable of applicable standards and legislation
- Able to identify hazards and implement applicable controls
- Overall years of experience in the role
- Ability to carry out the work safely with minimal or without supervision

To provide all Stantec employees with the necessary training, skill, and experience to safely perform the tasks required for their employment, all on-the-job training will include the following steps as necessary:

- Observe through job shadowing.
- Be observed while conducting work under direct supervision by a competent employee.
- Prove through training, skill, ability and experience they can safely perform work under minimal or limited supervision.
- Review documentation relevant to the work to be performed.

Employees serving in certain roles as identified by each business operating unit may be entered into a formal HSSE Competency Assessment Program, completion of which is required prior to being allowed to work alone in the role.

6.2.4 Young Workers

In some jurisdictions, workers under the age of 25 are considered "young workers". In addition to the new employee orientation and the on-the-job training referred to above, supervisors will confirm all young workers received information and/or instruction on the following topics before beginning work:

- Name and contact information of the young worker's supervisor and the HSSE representative
- Instruction and demonstration of the work tasks or work process
- Working alone or in isolation (SWP-118 – Working Alone in the Field)
- Violence in the Workplace (SWP-102 – Workplace Violence Prevention Program)
- Personal protective equipment (SWP-105 – Personal Protective Equipment)

Additional instruction will be required for the young worker if workplace observation reveals the individual is not able to adequately perform work tasks or processes, or if requested by the young worker.

6.2.5 Subcontractors

When preparing a project team, project managers must be aware that any subcontractors must have the required training as determined by the identified hazards. See Subcontractor Prequalification for more information (Section 1.4.6).

6.3 Safety Training Records

Stantec is responsible for keeping and maintaining records which document the health and safety training of employees. In this fashion, it is possible to verify each person has the training they require, and that training is renewed at appropriate intervals (as determined by legislation and/or company practice). Maintaining clear and accurate training records is a component of Stantec's due diligence for occupational health and safety; appropriate training has been identified, provided/made available, and participation has been recorded and verified.

Copies of all health and safety-related training records and certifications, including those obtained outside Stantec (first aid, H2S Alive, etc.) must be accessible to the OSEC for record-keeping purposes.

Please contact your OSEC for more information.

7.0 Driver Safety and Motor Vehicle Use

Operators of Stantec vehicles, or any other vehicles being used for Stantec business, will comply with all applicable motor vehicle regulations, laws, and ordinances at all times. All Stantec drivers must comply with SWP-124 – Safe Driving.

7.1 Vehicle Equipment and Requirements

All luggage and equipment must be stored in a secure fashion so that it does not interfere with the safe operation of the vehicle or endanger the safety of the passengers. This requires that cargo be secured so that nothing can be lost during travel on the road. This may be accomplished through the use of tie downs, cargo netting, or other methods appropriate to the cargo and the vehicle.

7.2 Inspections

Employees will conduct a walk-around of their vehicle prior to operation. This will assist the operator in determining if there are any obstacles that may strike the vehicle during driving or to alert the operator of any potential problems (examples: flat tires, debris under the vehicle, etc.).

For Long-Haul trips as identified in SWP-124 (one-way trips exceeding 250 miles/420 kilometers, and/or 4.5 hours) vehicle inspections will be documented using SWP-124a – Vehicle Pre-Use Checklist.

7.3 Driver Conduct

An employee of Stantec who is convicted of driving a vehicle for Stantec while under the influence of illegal drugs or the inappropriate use of alcohol, drugs, or medications, may be terminated from employment.

Any employees of Stantec who were passengers in the vehicle will also be subjected to disciplinary action, where it is shown that such employees knew that the driver was under the influence of illegal drugs or inappropriately using alcohol, drugs, or medications and did not take reasonable action to prevent the driver from driving the vehicle.

7.3.1 Communication Devices and Distractions

The driver's attention must always be on the safe operation of the vehicle. Smoking is prohibited in Stantec vehicles and communication devices (such as cellular phones - including hands-free, two-way radio, satellite phones, etc.) must not be operated while driving. Please refer to Stantec's Acceptable Use of Technology policy and SWP-124 – Safe Driving for more information.

7.3.2 Vehicle Authorization and Use

Authorization to operate company vehicles may be required. If so, this will be coordinated by HR.

Vehicles are to be used only in the advancement of company business or approved personal use, and operated in a safe, courteous, and professional manner.

7.3.3 Unauthorized Use

An employee of Stantec who permits a Stantec vehicle to be driven by an unauthorized driver or who transports or permits the transportation of an unauthorized passenger may have their Stantec vehicle operator privileges suspended or revoked and may be held personally liable to the extent permitted by law for any liability for any personal injury, death or property damage arising out of the unauthorized use or occupancy of the Stantec vehicle.

7.3.4 Major Violations

Stantec vehicle operator authorization is invalid upon revocation, suspension, or expiration of a Stantec employee's license to operate a motor vehicle. Anyone convicted of a major violation after becoming an approved driver must notify their supervisor; authorization to drive Stantec motor vehicles will then be withdrawn.

7.3.5 Compliance

Local leadership or supervisory staff may suspend or revoke an authorized driver's vehicle operator privileges for failure to comply with Stantec's requirements for safe and responsible vehicle operation. The employee will be notified when their Stantec vehicle operator authorization has been revoked.

7.3.6 Motor Vehicle Collisions or Incidents

If a Stantec vehicle is involved in a motor vehicle collision or incident resulting in bodily injury or property damage, the first order of safety is to attend to the injured parties, contact emergency services, and to take care that all parties are safe from further harm.

Immediately after the scene is secure, the employee must notify their supervisor, their OSEC, and/or regional HSSE manager by telephone. Please refer to the Incident/Claims Reporting page on The Lens.

In the event of a motor vehicle collision:

- Make no statement to anyone other than to law enforcement personnel or to Stantec personnel
- Make no statement regarding payment of damage
- Admit no liability
- Move the vehicle only when so instructed by police unless your best judgment under the circumstances is that moving the vehicle is the best and safest course of action. Drivers of Stantec vehicles are responsible for all personal citations received as a result of an automobile accident, excessive speed, and other moving violations.

8.0 Ergonomics

Ergonomics is a science which focuses on the interactions between people and all the elements of their working environment. The systems in which people work include devices, tools, technologies, environments, and/or organizational structures with which people interact to accomplish defined objectives. The goal of ergonomics is to optimize human well-being and overall system performance.

If an employee is concerned about the design of their working environment or job task, they can contact their OSEC, regional HSSE advisor, or regional HSSE manager for information and support. It is essential to speak to an HSSE representative if you begin to notice signs of discomfort or increased soreness that you

think may be related to job tasks. Early detection and assessment with your local HSSE representative can significantly increase the success of any intervention. This includes many workstation applications, including field stations, lab benches, reception desks, and desktop computer and laptop use.

An employee may also request a workstation assessment as a proactive measure. For example, they may have moved to a new workstation or some of their existing office equipment needs replacement due to wear and tear or change in job tasks.

For details on initiating the workstation assessment process, please refer to SWP-125 – Workstation Ergonomics. "Display Screen Assessments" are required by legislation in the UK; please contact your HSSE representative for more information.

If there are questions about workstation ergonomics, the Ergonomics page under HSSE on The Lens provides links to the Workstation Ergonomics Tutorial (HSE1250), Office Ergonomics Stretches, and a Workstation Set-up Guideline.

Ergonomic hazards are also presented while lifting, carrying, or moving material or equipment. Guidance to protect employees can be found in SWP-115 – Material Handling and Safe Lifting.

9.0 Chenical Exposure

All employees have the right to know what hazards are present on the job, how these hazards can affect them, and what is to be done to control or mitigate these hazards. When hazardous materials are used or present in the working environment, employees must be trained to identify potential hazards, how to use appropriate precautions when handling, storing, or disposing of any hazardous materials, and any associated emergency procedures.

If staff are required to handle, store, or use hazardous materials or substances, they must have received appropriate training and have familiarised themselves with the risk assessments and requirements of the Safety Data Sheet (SDS) before handling hazardous substances and dangerous goods. Hazardous substances and dangerous goods must always be stored, managed, and disposed of in accordance with requirements of the SDS.

All Canadian employees are trained in the Workplace Hazardous Materials Information System (WHMIS). HSE 1221: WHMIS for Canadian Employees can be found in the Course Catalog of the Learning Management System. SWP-103 – Workplace Hazardous Materials Information System (WHMIS – CAN) is the safe work practice which outlines WHMIS compliance.

The OSHA Hazard Communication Standard (HazCom) states that US companies that produce and use hazardous materials must provide their employees with information and training on the proper handling and use of these materials. SWP-104 – Hazard Communication (US) outlines how Stantec complies with the HazCom standard. HSE 1220: HAZCOM/GHS Online as be found in the Course Catalog of the Learning Management System.

In the UK, the Control of Substance Harmful to Health (COSHH) Regulations govern the selection, assessment, and control of hazardous substances. Refer to SWP-134 – Control of Substances Hazardous to Health (COSHH) for UK requirements.

SWP-133 – Hazardous Chemicals or Substances - Australia and New Zealand provides guidance on the safe handling and use of hazardous chemicals or substances and dangerous goods in Australia and New Zealand.

For all other jurisdictions, please contact your HSSE representative for more information.

10.0 Transportation of Dangerous Goods (TDG)

Employees who handle, offer for transport or transport dangerous goods require specialized training to meet the transport regulations in their jurisdiction. The definition of 'dangerous goods' covers articles or materials capable of posing significant risk to people, health, property, or environment when transported in quantity. Practice areas need to identify their requirement for TDG, and appropriate access to training can be established through the OSEC and/or regional HSSE manager.

10.1 Nuclear Density Gauges

The operation of nuclear density gauges has been classified as high risk by the Nuclear Safety agencies in both Canada and the United States.

SWP-502 – Radiation Safety Program Field Manual for Portable Gauges and SWP-516 – Radiation Safety - Nuclear Density Gauges (US) provide the administrative controls for all qualified users. It is important to note that only qualified users are to be given access to the gauges. All employees having to use or transport a gauge receive training on radiation safety and transportation of dangerous goods every three years.

Any emergency involving a gauge is to be reported to the local police, then to the Radiation Safety Officer (RSO), who will contact the appropriate regional HSSE manager. The RSO will contact the appropriate regulatory agency and will forward a written report as required.

Vehicles used for the transportation of nuclear gauges will not be used to carry non-Stantec passengers.

11.0 Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) is worn to reduce exposure to hazards to an acceptable level after all other reasonable control measures have been implemented. Using PPE is the last step in the hierarchy of controls discussed in Section 4: Hazard Recognition, Assessment, and Control.

For more information on selection and use of PPE, please refer to SWP-105 – Personal Protective Equipment. Your regional HSSE representative can also provide guidance.

12.0 Preventative Maintenance

The primary goal of preventative maintenance is to prevent breakdowns and failures. All tools, vehicles and equipment must be properly maintained to reduce the risk of injuries to employees or the public, or

damage to property or the environment. The key to preventing failure of equipment is through routine upkeep and inspection to identify deficiencies, damages or defects that reduce the life of the tool, equipment, or machinery.

To accomplish this, a preventative maintenance program will be maintained within each office that consistently uses tools, machinery, and/or specialized equipment and will include the following components:

- Adherence to applicable regulations, standards, and manufacturers' specifications
- Services of appropriately qualified maintenance personnel
- Identification of damaged or defective tools, which are to be removed from service until repaired
- Scheduling and documentation of all maintenance work
- Equipment inventory listing

Instruments such as nuclear density gauges and monitoring equipment require regular calibration and leak tests. These tests should be done according to manufacturer's specifications, and documentation of regular servicing is to be kept on file. Supervisors are responsible for implementing and documenting activities and checks required by the program in their area of responsibility.

12.1 Checklists

Checklists assist in the inspection of tools and equipment to confirm that they are in good condition and are included in the regular inspection program. Since a wide variety of work is performed at Stantec, it would be impossible to make one checklist to fit all needs. Employees, supervisors, or Joint Health and Safety Committees may determine a need for a new checklist to reflect a specific job task or operation. Should a new checklist be developed, please refer to Section 1.1.11 on the process for introducing new HSSE forms.

13.0 Inspections and Observations

An inspection is an activity used to identify and reduce substandard working acts and conditions, while reinforcing good behaviors and practices. When a system of ongoing inspections is in place, identifying hazards becomes a normal part of everyday work. Inspections provide three important pieces of information about the workplace:

- Identify hazards or potential hazards that have not been previously noted
- Confirm the effectiveness of hazard controls for eliminating or reducing the risk of known hazards, and
- Confirm compliance with SWPs

Ongoing inspections are the responsibility of supervisors and other identified personnel. The supervisor will discuss the results of inspections with employees to keep them informed and to encourage feedback.

13.1 Types of Inspections

13.1.1 Site Inspections

Site inspections may be conducted at any time by applicable Stantec representatives at the worksite. This is documented using the Inspection - Field (RMS5). Supervisors review items such as documentation, work habits, site organization and emergency response. They should also take the opportunity to observe technical work to confirm employees are following established job practices and procedures. All observations (both positive and negative) need to be discussed with field staff. The inspection report is available to the OSEC in the Inspection Submission List on the Pro-Sapien Data and Analysis page, and a copy may be placed in the project file.

Stantec's HSSE team also performs periodic field audits to support the Integrated Management System including the OHSMS and EMS continual improvement cycles.

13.1.2 Office and Laboratory Inspections

Office and/or laboratory inspections will be conducted on a monthly basis using the Inspection - Office/Lab (RMS4). This inspection can be completed by the office lead (or designate) or representatives from the JHSC. Items that are often reviewed in the inspection are housekeeping, lighting, ergonomic issues, signage, fire extinguishers and first aid kits. The inspection report is available to the OSEC and the office lead (or designate) in the Inspection Submission List on the Pro-Sapien Data and Analysis page. Action items may be submitted to the JHSC and/or the OSEC for monitoring.

13.1.3 Equipment Inspections

To assist with preventative maintenance, equipment must be inspected prior to use. In addition to owned equipment, equipment that is rented by Stantec must also be inspected prior to use. Survival kits and first aid kits must be inspected on a regular basis to verify that the contents are complete and in good condition. Please see SWP-107 – First Aid for additional information.

13.1.4 New Equipment

Prior to the initial use of new field or lab equipment with the potential to endanger the health and safety of the operator, the piece of equipment must have a Quantified Hazard Assessment (RMS7) completed.

This activity will be led by the OSEC, BC leaders, and/or the Joint Health and Safety Committee (where applicable) prior to the purchase of the new piece of equipment. The team will refer to the equipment manual for manufacturers' recommendations and specifications, as well as to industry practices. New equipment will need to be incorporated into the local preventative maintenance program. Contact your regional HSSE manager to determine if local legislation requires a Prestart Health and Safety Review, or equivalent process.

13.1.5 Hazard Assessment and Corrective Actions

When performing an inspection, whether in the field or in an office/lab environment, the team/individual will need to assign a potential severity rating to any hazards they observe. Potential severity will be ranked from 0 through 4 as shown on the Stantec HSSE Risk Matrix Severity scale, found in Section 4.4.2.2 of this HSSE Program Manual.

If hazards are observed with a potential severity ranking of 4, the unsafe practice or condition must be reported as soon as possible to local leadership or supervision for investigation and corrective action.

13.2 Planned Job Observations (PJO)

In a Planned Job Observation (PJO), knowledgeable individuals observe the work practices of employees, offering coaching and feedback on the safe/unsafe execution of the employee's duties. Data is collected from the observation process and compiled and analyzed so that trends may be reviewed and addressed, much the same way trends in incidents and injury statistics would be analyzed to choose appropriate corrective actions and program improvements. It should be noted that job observation data can be submitted without naming the employees involved, making it a broad, proactive measure of company HSSE practices. Planned Job Observations and similar activities are included in Stantec's Leading Indicator Safety Index (LISI), which is outlined here.

The premise of planned job observations is to engage our teams in conversations around HSSE risks related to the task they are performing and to proactively address unsafe acts and unsafe conditions that can lead to an incident or injury in a workplace. Observations are viewed as opportunities to intervene, before a loss can occur, using a formal observation and feedback process. In any observation process, employees of all levels, from field technician to leadership, are instructed to observe each other performing daily tasks, then have meaningful positive reinforcement conversations and correct any at-risk behavior. The Planned Job Observation can be completed in any job situation in Pro-Sapien; it can also be submitted using the In Case of Crisis smart phone app where available. (See Related Documents here.)

Coaching and feedback can also take place outside of a formal observation process; employees need to report incidents and issues and discuss HSSE concerns to their supervisor whenever they arise. Remember, all Stantec employees have the responsibility and authority to stop unsafe work, and the right to refuse dangerous work if they feel their safety is at risk.

14.0 Incident Notification, HSSE Reporting, and Investigation

14.1 General Overview

HSSE reporting and investigation will facilitate continuous improvement of the HSSE Program, the OHSMS, and the EMS by determining the causes of near misses and incidents, and documenting that corrective actions are being or have been implemented to reduce the possibility of recurrence. Leading indicators also follow the reporting process so that Stantec may assess prevention and proactive efforts for HSSE.

It is expected that incidents will be reported and investigated utilizing the incident investigation process and form(s) as outlined in this section.

Notification and investigation response are based upon the severity of the loss experienced during the incident, or by the severity of a potential loss.

For recordable, significant (L3), serious (L4), and high potential incidents, root cause(s) must be established through a formal investigation process. It is expected that Stantec employees will assist and cooperate with those individuals assigned to carry out internal incident investigations. The final incident investigation report must be submitted to the operations line management (business line and/or regional). The goal is to complete the investigation within 14 calendar days, but this can be impacted by complexity and severity of the incident.

Please note that there may be client notification requirements that project teams must take into consideration. Notifications and reporting to clients regarding significant, serious, or high potential incidents must be supported by HSSE and appropriately reviewed by risk management before being sent to external clients, due to confidentiality and litigation considerations. Based on their knowledge of client and contractual requirements, managing this part of the process will be the responsibility of the PM and the Account Manager.

Regulatory agencies also require notification for incidents that meet specific criteria. Regulatory notification will be done under the authorization and designation of the SVP HSSE. Be aware that there are time constraints for regulatory reporting in many jurisdictions; if leadership cannot be reached, HSSE must take the lead.

Corrective and preventive actions are managed at the Business Line (BL) or BC level, as appropriate with consideration given to regional or geographic applications.

The individual charged with making a notification call in the following procedures must make personal, vocal contact with their intended recipient. If the next person in the call-out cannot be reached, the individual must move to the next level of authority, whether geographic, business unit, or HSSE.

All **serious and high potential incidents** must be reported to the president and CEO within 24 hours of occurrence. See Section 14.5.4 Serious Incident Notification Process for details.

14.2 Definitions

Incidents and HSSE Event Reports can be categorized by type and severity.

Table 4: Definitions related to Incidents and Indicators

Incident	Any unplanned event that adversely affects our employees, our business, its physical assets, the clients we serve, or the environment.
Recordable Incident	Work-related injuries and illnesses incurred by employees serious enough to warrant medical attention beyond basic first aid, require restricted work or lost time, or result in a fatality. As per US OSHA definitions – see Section 19.1 for details.
Significant Incident	Any incident that is Severity Level 3; see Incident Severity table.
Serious Incident	Any incident that is Severity Level 4; see Incident Severity table.
High Potential Incident (HPI)	An incident for which potential severity of loss is assessed to be a severity level of 4. That is, the severity had the potential to be a 4 given slightly different circumstances. HPIs can be incidents that result in injuries, illnesses, or damage to assets, the environment or company reputation, or they can be near misses.
HSSE Incident Report	An HSSE Incident Report is the documentation of a health, safety security or environmental incident, which may have adverse consequences. The Incident Report form is available in Pro-Sapien and can be used to report incidents as described in Table 5 (below).
Leading Indicator	Proactive activities such as audits, inspections, near misses, observations, Personal HSSE Commitments, and report only, are intended to prevent incidents. Performing leading indicator activities promotes improvement of the management system and evolution of safety culture. The Stantec metric focused on leading indicators is the Leading Indicator Safety Index (LISI).
Lagging Indicator	Lagging indicators are intended to track where gaps in the HSSE Program, the OHSMS, or the EMS may have occurred and include many types of incidents. A metric focused on injury-based incidents is the Total Recordable Incident Rate (TRIR).
RIDDOR (UK)	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (United Kingdom) 2013. Includes specified injuries, reportable diseases and dangerous occurrences as defined by the legislation. There are parameters around specified injuries, 7-day lost time, and categorization of dangerous occurrences that must be reported to the UK Health and Safety Executive (regulator). For more information, please refer to your regional HSSE manager.

Table 5: Incident and Observation Types

Incident Type	Inicdent Subtype	Definition
Injury/Illness	First Aid	A work-related injury or illness that requires first aid treatment only. First aid refers to medical attention that is usually administered immediately after the injury occurs and at the location where it occurred. It often consists of a one-time, short-term treatment and requires little technology or training to administer. First aid can include cleaning minor cuts, scrapes, or scratches; treating a minor burn; applying bandages and dressings; the use of nonprescription medicine; draining blisters; removing debris from the eyes; massage; and drinking fluids to relieve heat stress.
	Medical Treatment	A work-related injury or illness requiring treatment by a medical professional above and beyond first aid, without loss of work time beyond the day of injury or illness
	Restricted Work	A work-related injury or illness where a medical professional has recommended changes in job duties and/or shortened workday, and the recommendations affect the employee's ability to engage in one or more routine work activities (i.e., an activity carried out at least once per week)
	Lost Time	A work-related injury or illness where a medical professional has recommended one or more days away from work to recover, not including the day of the injury
	Fatality	A work-related injury or illness that results in death
Near Miss	Injury/Illness, Environmental, Security	An unplanned work-related event that did not result in injury, illness, or damage, but had the potential to do so.
Security	Suspicious Activity, Theft, Vandalism, Workplace Violence/ Harassment	Incidents such as theft, vandalism, suspicious activity, or instances of violence or harassment that affect employees, their personal property while engaged in employment, or property under the care and control of Stantec
Report Only	Ergonomic Signs & Symptoms, Stantec, Third Party, Work Refusals	An employee needs to document an occurrence or condition that may be relevant in the future. Examples include: an incident on a worksite not involving Stantec personnel; a non-work-related injury that may impact an employee's ability to perform their work safely; physical signs and symptoms related to workstation ergonomics and/or materials handling; an instance where an employee exercises their right to refuse work as described in Section 1.5.2. (i.e., work refusal)
Non-compliance	Regulatory, Program, Client-Related	An instance where an employee or project is identified as operating outside the parameters of Stantec's policies and

Incident Type	Inicdent Subtype	Definition
		procedures, client requirements, or legal/regulatory requirements.
Environmental	Spill/Release	Discharge of material or substance that may expose an employee to a health risk, have the potential to cause adverse environmental impacts, and/or is reportable to a third party such as a regulatory agency or a client. This could be a spill, a release, or other exposure.
Damage	Property Damage – Vehicle	Damage to any vehicle used for Stantec business, includes normal wear and tear (e.g., tire damage, minor scratches, stone chips to paint or windshield, mechanical wear), whether the vehicle is attended or not.
	Property Damage - Other	Damage to equipment, materials, etc., excluding vehicle damage.
	Motor Vehicle Incident	An incident involving a vehicle driven by an employee, whether on or off the road, which has resulted in damage to assets, the environment, or Stantec's reputation. This does not include damage as a result of normal wear and tear (see Property Damage – Vehicle).
	Utility Strike	Compromising or disrupting of service to buried and/or overhead utility service lines, municipal or third party owned utility services, UST system components, and other subsurface property service lines or systems.
	Fire/Explosion/Flood	A natural or man-made hazard including fire, explosion, or flood that causes damage or injury.

Observation Type	Definition
Behavior Based Safety Observation (BBSO)	A simple peer-to-peer observation for any activity in the work environment to determine if the work is being performed safely and provide immediate feedback. May be a client specific requirement.
Hazard Identification	The pro-active identification of a condition or practice that has the potential for an incident or damage and taking action to correct it.
Planned Job Observation (SAFER)	A proactive conversation in all environments about the risks involved with an activity, the controls in place, and any opportunities for improvement.

Observation Type	Definition
Raising the Bar at Work	An event/action used to promote Stantec's SaferTogether culture in the work environment. Examples include organizing a work-related HSSE knowledge share event such as a defibrillator demonstration at work, taking proactive action to apply learning from participating in a knowledge share event, and non-mandatory training such as volunteering to be an office first aider.
Raising the Bar Away from Work	An event/action used to promote Stantec's 24/7 SaferTogether culture outside the work environment. Examples include organizing a defibrillator demonstration at the local sports club, relevant personal (at home/public) prevention actions such as a home fire drill, and sharing the learnings that have come from an incident that occurred outside the work environment.
Safety Observation Checklist (SAFE)	A peer-to-peer observation checklist for key work-activities to determine if the work is being performed safely. May be a client specific request.
Stop Work Authority	An employee has enacted Stantec's Stop Work Authority upon observing an unsafe act or condition that could place anyone in danger, or if they are not confident in the work plan.

14.3 Severity and Response

Notification and investigation response are based upon the severity of the loss experienced during the incident, or by the severity of a potential loss. To determine severity, the following table from our Quantified Hazard Assessment Process will be used (Section 4.4.2.2).

Table 1: Incident Severity
(Repeated from Section 4.4.2.2)

Severity Level	People	Environment	Assets	Reputation
(0)	• No Injury	• No Effect	• No Damage	• No Impact
Minor **(1)**	• No affect on performance or daily life activities • First aid cases • Exposure to irritation or temporary effects	• Spill or release with minor local effects	• Operational upset or damage with minor loss <5,000	• Public awareness of an incident
Moderate **(2)**	• Medical treatment • Restricted or modified work • Use of Stop Work Authority	• Spill or release with localized, moderate effects	• Operational upset or damage with moderate loss between $5,000 - $25,000	• Some local public concern or complaints • Potentially negative media aspects for operations and client relationships
Significant **(3)**	• Lost time injuries	• Spill or release which requires response from outside agencies • Requires reporting to regulatory authorities	• Operational upset or damage with significant loss between $25,000 and $100,000	• Regulatory orders, citations, or localized stop work restrictions • Negative attention in the local media with client impact
Serious **(4)**	• Death • Disability • Hospitalization of personnel • Multiple injuries from a single event	• Spill or release that requires an ongoing cleanup with use of significant resources • Regulatory or other charges are possible	• Serious damages, upset, or loss to essential resources totalling more than $100,000	• Criminal charges laid against company or employees • Operation of site or operation halted by regulatory agency attributed to Stantec • Company-wide negative effects with public attention, action groups, restrictions to operations

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14.4 Notification and Investigation for High Potential Incidents

The occurrence of incidents classified as high potential (HiPo), be they a near miss, first aid, medical aid, modified work, lost time, or fatality, are regarded as a heightened warning of systemic and/or other organizational failures and will be acted upon promptly with a proper investigation. Please contact your HSSE manager or advisor if you are unsure if the event is a high potential incident.

For all events confirmed by HSSE to be high potential, the HSSE regional manager, BOU HSSE manager (where applicable) and Sr. Director HSSE Operations will decide if a HSSE Alert is warranted. If a HSSE Alert is created, it will be shared to leadership for broader distribution.

Additionally, a conference call must be scheduled within 72 hours to discuss the incident and confirm that leadership is aware of immediate actions identified as a result of the incident and next steps involved

in the investigation process. A record of this call will be retained and made available upon request. The HSSE representative will provide a template to help guide the meeting.

- **For project based high potential incidents, the PM will coordinate and lead the call**. Participants may include the RL, country leader, regional HSSE manager, BOU HSSE manager, BOUL, BL, RBL, BCOL, BCPL, Supervisor, Sr. Director HSSE Operations, and appropriate site/project personnel.
- **For office based high potential incidents, the Office Lead will coordinate and lead the call.** Participants may include the RL, country leader, regional HSSE manager, regional HSSE advisor/OSEC, ROUL, BCOL, BCPL, Supervisor, and Sr. Director HSSE Operations.

Short-term corrective actions or communications may be determined and assigned on this conference call.

14.5 Incident Notifiation - General

Always secure the scene of the incident and provide/obtain care for any injuries. An employee must never place themselves or others at additional risk.

Supervisors and leadership must be sure that employees fully understand the importance of making incident notifications as soon as possible. Some projects may include client requirements for notification, communication, and investigation at all levels of incident severity, including minor incidents and near misses. As part of the project planning, teams will need to determine alignment of client and Stantec requirements and address any gaps or concerns.

Incidents involving injury, potential injury, or report of pain, soreness, or discomfort must be verbally reported immediately (within one hour) to a supervisor. If the employee cannot make direct contract with their supervisor, they must contact their HSSE manager or advisor for their region.

If a supervisor is notified of an injury, potential injury, or report of pain, soreness, or discomfort they are responsible to immediately contact their HSSE manager or HSSE advisor by phone to discuss incident severity and determine if further notifications (internal or external) are required.

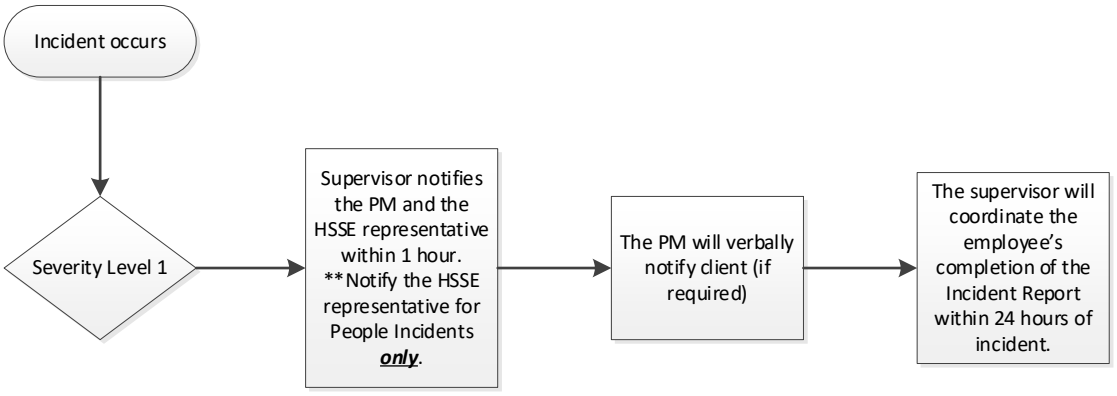
In the case of work-related injury, obtain assistance from the OSEC and workers' compensation claims coordinator (WCCC) or regional equivalent to fill out any required insurer/government employee compensation forms. The WCCC will provide applicable reports to the appropriate personnel/authorities within regulated reporting timeframes.

For easy reference, please refer to the Incident Reporting Protocols located on the HSSE tab on The Lens here, or through the In Case of Crisis application on your smartphone.

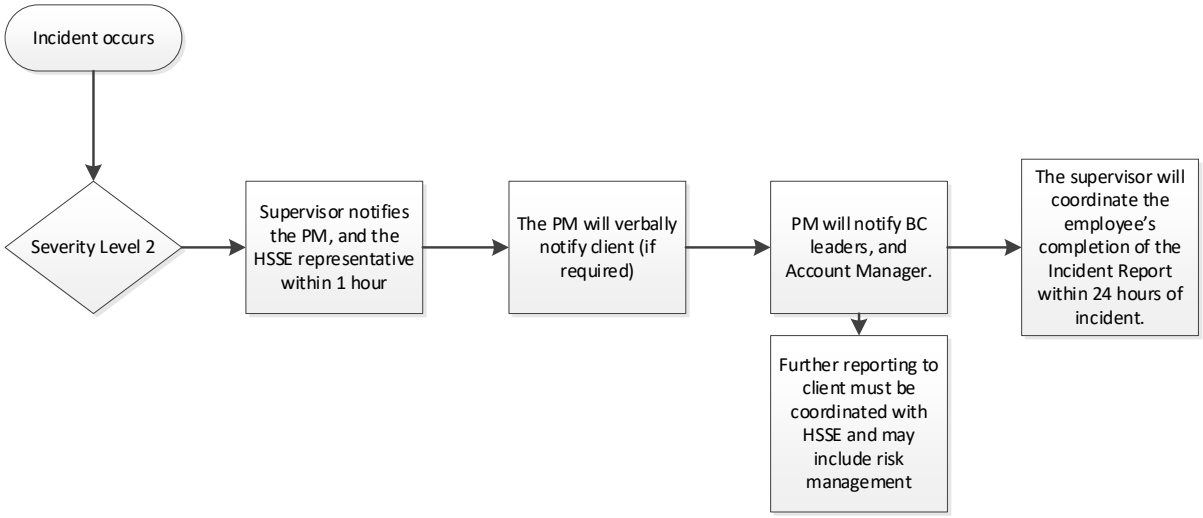
In addition to incident notification, incidents must also be reported in Pro-Sapien within 24 hours. See Section 14.6 HSSE Incident Reporting for details.

14.5.1 Minor Incident Notification (Severity Level 1)

**Only verbally notify the HSSE representative for People Incidents, as described in Table 1: Incident Severity.



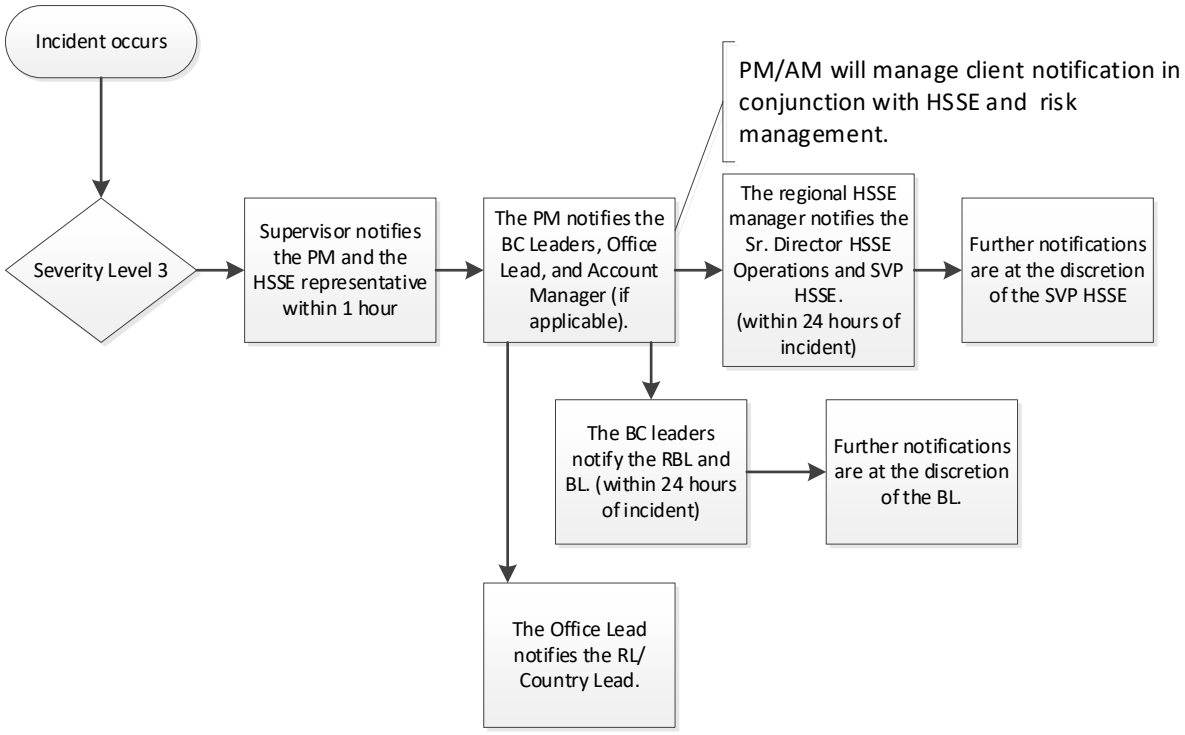
14.5.2 Moderate Incident Notification (Severity Level 2)



14.5.3 Significant Incident Notification Process (Severity Level 3)

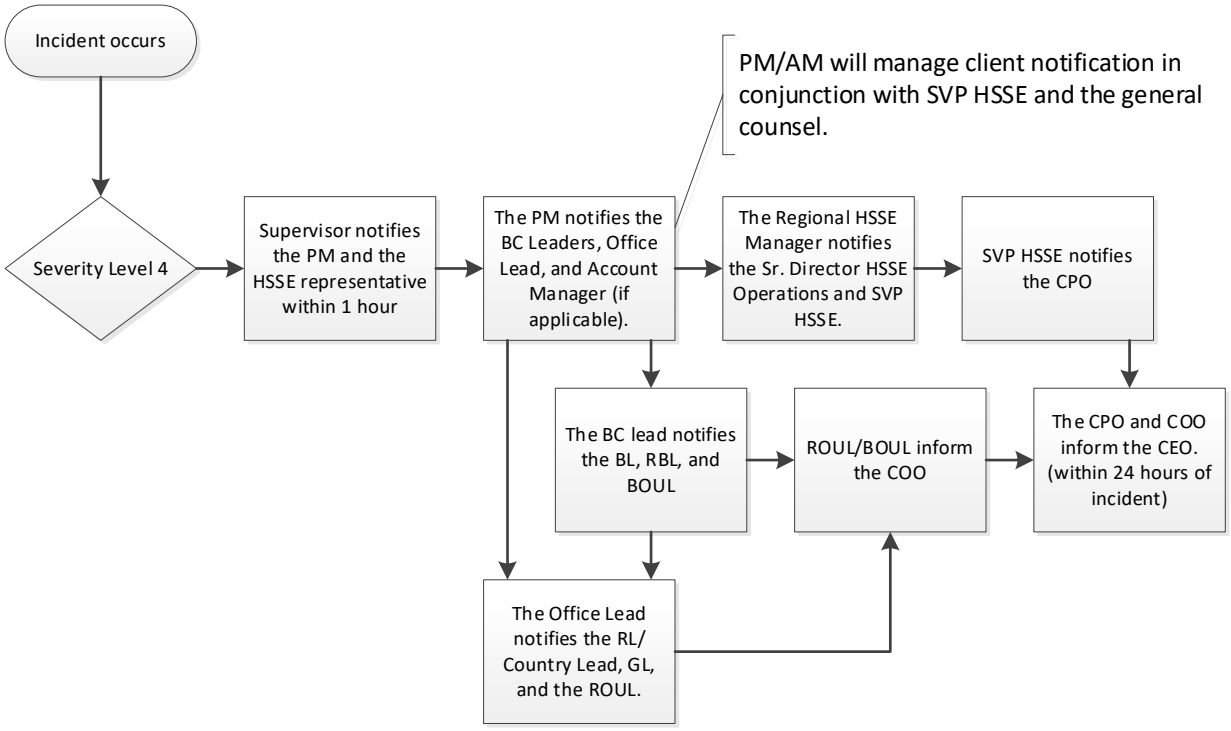
When a significant incident occurs (severity level 3), the following communication process will be followed to inform leadership and personnel:

- If any emergency response is required, on-site personnel will make sure it is underway before initiating notification.
- Client notification, where required, must be approved for external distribution by risk management and will be managed by the PM and the account manager.
- Regulatory notification, where required, will be authorized by the HSSE Operations director, who will notify the SVP of HSSE. Be aware that there are time constraints for regulatory reporting in many jurisdictions; if leadership cannot be reached, HSSE must take the lead.



14.5.4 Serious Incident + High Potential Notification Process (Severity Level 4)

When a serious incident occurs (severity level 4) or a high potential incident is identified, the following communication process will be followed to inform leadership and personnel:



The individuals with the best knowledge of the incident will provide a current incident summary and submit it to the Sr. Director of HSSE Operations who will then circulate it to the appropriate internal contacts. An HSSE Incident Report must also be submitted within 24 hours of incident.

For serious incidents, client notification will be managed by the PM and Account Manager, but all communication must be accomplished in consultation with the general counsel and SVP HSSE.

Notification to regulatory authorities will be coordinated by the Sr. Director of HSSE Operations and will notify the SVP HSSE. Be aware that there are time constraints for regulatory reporting in many jurisdictions; if leadership cannot be reached, HSSE must take the lead.

Incidents at severity level 4 will correspond to a level 2 or 3 in Stantec's Corporate Crisis Management Plan. Additional notifications may be necessary depending on the incident details.

The president and CEO will provide the information to the company Board of Directors, as required.

14.6 HSSE Incident Reporting

To report an incident:

- Always secure the scene of the incident and provide/obtain care for any injuries. An employee must never place themselves or others at additional risk.

- Verbally report work-related hazards, incidents, and near misses to the supervisor and to the local OSEC immediately after the incident has been managed (within one hour, or as soon thereafter as is practicable). Additionally, follow any protocols dictated by a client or project agreement.
- Incidents involving injury, potential injury, or report of pain, soreness, or discomfort must be reported immediately after the incident has been managed (within one hour, or as soon thereafter as is practicable) to a supervisor. Supervisors will then immediately contact their HSSE representative to develop a plan for assessment and care.
- In the case of workplace injury, obtain assistance from the OSEC and Workers' Compensation Claims Coordinator (WCCC) or regional equivalent to fill out any required insurer/government employee compensation forms. The WCCC will provide applicable reports to the appropriate personnel/authorities within regulated reporting timeframes.
- In the case of spills of hazardous materials, complete reporting to external authorities in accordance with local requirements.
- Participate in any additional investigation efforts deemed necessary by management and HSSE representatives.
- Submit an incident report in Pro-Sapien within 24 hours. To submit an incident report, go to Pro-Sapien and click "Report an Work-Related Incident." The OSEC, HSSE Advisor, and Project Manager will be notified of incident and the Supervisor will be required to review the incident report.

14.7 Incident Investigation

14.7.1 Investigation Responsibilities

Incident investigation will be conducted by employees with appropriate training, which may include regional HSSE managers, regional HSSE advisors, OSECs, or other members of the HSSE group. Proper equipment will be available to investigation teams to assist in completing the investigation.

Employees/Contractors are responsible to immediately verbally contact their supervisor as soon as possible after the incident has occurred.

Supervisors who receive information regarding an incident, hazard, or near miss will communicate the information to HSSE representatives and claims personnel. Additionally, they will ensure incident details are recorded in a Pro-Sapien incident report and they will complete the initial review process.

Clients and projects may have reporting requirements, separate and distinct from Stantec. If incident reporting was not adequately reviewed during site and project orientation, contact the client HSSE representative so requirements may be communicated to the project team.

14.7.2 Preserving the Scene

The scene of a serious incident or high potential incident must be preserved for internal and external investigators. Except to the extent necessary to free a trapped person or to avoid the creation of an additional hazard, Stantec personnel must not alter or move anything involved in a serious incident or high potential incident without clearance from an HSSE director.

14.7.3 Communication with the Media

Only assigned and qualified personnel will respond to media inquiries or communicate with the media. For further information please refer to Stantec's Communication Policy.

14.7.4 Investigation

For recordable, significant (L3), serious (L4), and high potential incidents, root cause(s) must be established through a formal investigation process facilitated by trained practitioners. For all other appropriate incidents, investigations may be conducted locally.

Stantec's investigation methodology is modeled after the Det Norske Veritas Systematic Cause Analysis Technique (SCAT). As part of the investigation process, direct causes and root causes will be determined and documented.

It is expected that Stantec employees will assist and cooperate with those individuals assigned to carry out internal incident investigations. The final incident investigation report must be submitted to the operations line management (both business line and regional) and the BOUL/ROUL and submitted in Pro-Sapien within 14 calendar days. The goal is to finalize the investigation report in Pro-Sapien within 14 calendar days, but this can be impacted by complexity and severity of the incident.

14.7.5 Action Planning

Results of the investigation will determine actions necessary to reduce the possibility of re-occurrence and/or to improve the HSSE Program as a whole. To monitor the assignment and completion of the actions, the regional HSSE manager, regional HSSE advisor, OSEC, and the Joint Health and Safety Committee can utilize the Action function of Pro-Sapien, the Health and Safety Action Plan (RMS12) or alternate tools. Be aware that corrective actions can have unintended results outside of the incident or hazard they were created to address, and that employees must be informed and encouraged to discuss any change and its impact.

In the event of an incident, the SWP relating to the work should be thoroughly reviewed by the involved employees and supervisor and revised, if required, to meet the requirements of the work being performed as well as current regulations.

14.7.6 Documentation

Investigation documentation and findings, as well as resultant corrective actions must be combined with the original incident report into a single, complete, record. Local offices must have access to complete incident records, regardless of ownership of investigation. Be aware that some confidentiality restrictions may apply, depending on the scope and severity of the incident.

14.7.7 Lessons Learned

Lessons learned through investigation will be communicated throughout the region, business unit, sector, and potentially throughout the company, as appropriate. Methods used to communicate lessons learned can include HSSE alerts, through BC and office meetings, HSSE bulletins, as well as postings on The Lens. This should be a collaborative process that may including the investigator, the OSEC, the regional HSSE manager, director - HSSE Operations, business leaders, and the local Joint Health and Safety Committee or HSSE representative.

15.0 Emergency Preparedness

An emergency is a sudden, urgent, usually unexpected occurrence or occasion requiring immediate action that affects or threatens:

- Health, safety, or welfare of people
- The environment through the actual or likely release of a polluting substance
- Property and infrastructure, public and/or private
- The ability of the Company to reasonably carry on normal operations

An emergency could be caused by a natural disaster, man-made catastrophe, terrorist activity, civil disturbance or other violent or threatening behavior by an individual or group, which can lead to injury or significant financial loss.

During such events, Stantec is committed to the protection of our primary goal: **health and welfare of people**, the **protection of the environment, property,** and **our corporate reputation**. This is accomplished by:

- Preparing for and responding effectively to an emergency situation through the appropriate use of resources
- Providing first aid to the injured
- Providing for transportation to a medical facility as soon as possible (and accompanying the injured employee if appropriate)
- Conducting initial fire response and evacuation
- Promptly contacting outside agencies for assistance to deal with additional foreseeable emergencies
- Creating response plans for foreseeable emergency situations

15.1 Emergency Preparedness and Response

This process applies to all activities conducted by Stantec employees that may lead to emergency situations, except in cases where a Project HSSE Plan, HASP, and/or Emergency Response Plan (ERP) has been developed for a site, or where employees are required to use a client's emergency response plan. In any case, the roles and responsibilities for emergency response must be discussed with and communicated to any sub-contractors involved in the project before the job commences or when conditions change and warrant a review. This plan must include both routine and non-routine emergencies and changes to the operation of work. Each office, in conjunction with their JHSC, where present, will develop an office-specific ERP, and these plans must be consistent with applicable regional regulations. See the Emergency Response Plan template for specific information to help develop one for your office.

Where possible, visitors to Stantec offices should be informed of the evacuation procedures when they first arrive. Where this is not possible, employees should be encouraged to account for visitors in the event of an evacuation.

All areas within Stantec control will have a current site evacuation procedure. These procedures include a list of responsibilities, are prominently displayed, and verbally communicated to impacted personnel.

15.1.1 Identification of Activities Addressed Within an ERP

The specific content of an ERP will depend on the location(s) where an activity is being carried out, local legislative requirements, the nature of the activities carried out on-site, and the nature of the hazards associated with the activities.

The ERP will:

- Outline specific responses for a variety of probable emergency situations at a site, including pandemic response and spills of hazardous materials stored on-site
- List internal emergency contacts and telephone numbers
- List external agencies/resource contact names and telephone numbers
- Specify the notification and reporting requirements
- Identify measures needed to contain the emergency and reduce impacts on the health and safety of employees and the environment.

Designated employees will have access to emergency equipment (e.g., fire extinguishers, spill kits) and be trained in their proper use. When emergency action is required to address an immediate threat to employees, only those individuals qualified and properly instructed, and necessary to correct the unsafe condition, will be exposed to the hazard. Every possible effort will be made to control exposure to the hazard, and only a minimum number of trained employees will be involved in the corrective action.

15.1.2 Testing an ERP

ERPs will be implemented, reviewed, tested, and updated on an annual basis by the JHSC and/or the HSSE representative with the support of leadership. Drills are a part of emergency response training and confirm employee preparedness in responding to various emergency situations. The information gathered by the emergency response drills will be used to update and improve current plans. Locations with lab facilities must include testing of spill response. Please note that each facility, as part of their drill schedule, is required to conduct one evacuation drill per year, or more frequently if conditions change; refer to SWP-116 – Office Safety for additional information.

At the end of SWP-116 – Office Safety, there is an appendix titled, “ERP – Drill Review and Plan.” Results and recommendations from this activity will be submitted to local management through the JHSC and copied to hsse@stantec.com. If no JHSC is present, submit to local management and hsse@stantec.com.

15.1.3 Lessons Learned

Lessons learned through post-incident review of emergency situations will be used to update and improve current plans. This should be a collaborative process including the OSEC, regional HSSE advisor (where applicable), regional HSSE manager, and the local Joint Health and Safety Committee, where applicable. Additionally, these lessons learned may be communicated throughout the region and potentially throughout Stantec. Communication methods used can include Stantec Moments, Stop & Talk Bulletins, as well as other postings on The Lens.

16.0 Medical Surveillance

The primary purpose of a medical surveillance program is to identify and monitor exposures (situations and substances) which have the potential to lead to an occupational disease. The secondary objective is to comply with provincial, federal, territorial, national, or state regulations which require medical monitoring when employees use, or have the potential to be exposed to, certain materials.

16.1 Identifying Employees Requiring Medical Surveillance

There are three methods of determining whether an employee is required to participate in the medical surveillance program: by job task, by workplace, or by individual exposure to hazards.

1) The job tasks an employee undertakes defines the associated hazards and any potential adverse health outcomes that may be expected (e.g., asbestos removal). This classification assumes that all employees conducting the same type of work would be exposed to the same stressors and, therefore, has the potential for similar health effects.

2) The workplace environment sets the level of exposure for all employees and assumes everyone working in that area will experience the same type and level of exposure.

3) Individual exposure identifies hazards, levels, and stresses unique to each individual employee.

As part of the new hire orientation process for field staff, the supervisor and/or OSEC will have employees complete the Medical Surveillance Assessment Form (RMS9) to determine whether the employee requires medical monitoring. The need for participation will be reviewed on an annual basis, or as conditions and job tasks change.

For additional information, please refer to SWP-111 – Medical Surveillance on The Lens.

16.2 Employee Monitoring

The supervisors and OSEC will identify all employees who are required to participate in the medical surveillance program and will maintain a list of requirements and expiry dates for testing requirements.

16.3 Medical Tests

16.3.1 Pre-employment Medical Exams

These exams are conducted at or before the time of employment when required. They are intended to determine if the employee can safely perform the work required, meets acceptable performance standards, and to develop baseline measurements for future comparison.

16.3.2 Periodic Medical Exams

This type of examination is conducted on a regular schedule for various types of employee exposures. This examination may include history, physical exam, blood tests or other medical procedures.

16.3.3 Exit/Termination Medical Exams

These examinations, when required, are to assess the employee's health on completion of the exposure to the specific hazard or upon termination of the employment relationship.

16.3.4 Other Required Testing

Any employee who meets the medical surveillance criteria as established will participate in the medical surveillance program. For assistance, please refer to SWP-111 – Medical Surveillance and the Medical Surveillance Assessment Form (RMS9).

16.4 Cost of Medical Examinations

All medical examinations required by Stantec will be performed by a licensed physician and will be provided at no cost to the employee.

16.5 Employee Notification

Employees must be informed of the results of any medical test results even if they are within normal ranges. This communication must be done as soon as reasonably practical following the receipt of the results. Any results falling outside normal ranges will result in the employee being referred for further testing and/or corrective treatments.

16.6 Recordkeeping

All employee medical surveillance information will be maintained in accordance with established Human Resources practices and policies for the handling of medical records. All records maintained under this standard will be kept in a secure storage cabinet separate from regular HR records. Once an employee terminates employment with Stantec, the employee's medical file is to be sealed and sent to the Corporate HR department for archiving. All medical files are subject to a 30-year retention period from the date of separation from the company. Additional guidance and direction can be found in Stantec's Records Management Practice Guide.

16.7 Annual Review

This program is subject to an annual review by the corporate HSSE team to verify compliance with legal requirements and applicable standards.

17.0 Early and Safe Return to Work (ESRTW) Program (HSSE-602)

The purpose of this program is to assist an injured employee in returning safely and effectively to work following a workplace injury. It is important to note that this program is not meant as a replacement for the workers' compensation process, but rather to compliment this service with internal resources and support. Studies have shown that employees who participate in ESRTW programs are more likely to return to their pre-injury employment faster and suffer less physical and mental stress than employees who use workers' compensation alone.

17.1 Responsibilities

Workers' Compensation Claims Coordinator (or regional equivalent) - is the primary point of contact for injured employees and their supervisors and is responsible for the administration of this program. Can also be referred to as the ESRTW Coordinator for the purposes of this program.

Employee – The employee is responsible to participate in the program and to communicate with the WCCC in all matters relating to early and safe return to work. The employee is also responsible for advising their supervisor of any changes in their medical condition or work habits which may affect their recovery.

Supervisor – The supervisor of the injured employee is responsible to participate in the program, providing light, modified, or alternative duties to the injured employee if available.

Health Care Professional – The employee will have the health care professional complete the required forms to assist in re-integrating the injured employee back into the workplace post-injury.

Workers Compensation Carrier – It is the responsibility of the compensation carrier in the jurisdiction of the injured employee to work cooperatively with the employer, employee, and health care providers to facilitate an early and safe return to work for the injured employee.

17.2 Requirements

When an employee is injured, it must be reported as directed in this Manual so that applicable Stantec personnel may assist in obtaining necessary care and treatment for the injured employee. See Section 14.0 – Incident Notification, HSSE Reporting, and Investigation.

The employee will provide Health Care Professional Notification Letter (HSSE-602a) and Functional Abilities Form (HSSE-602b) to the Health Care Professional on their initial visit.

If the injury or illness results in restricted work or lost time, the employee will have the medical professional complete Health Care Professional Notification Letter (HSSE-602a) and Functional Abilities Form (HSSE-602b) to outline the work limitations in writing. The forms will be returned to the WCCC as soon as possible.

A workers' compensation claim will be filed with the appropriate carrier, including a notification that Stantec has an ESRTW program. The forms provided by the compensation carrier will be used.

If the functional abilities are within the employee's normal scope of job duties, they will return to their pre-injury duties. If the employee's abilities are not within the range required, the employee will participate in modified work if available.

The WCCC or regional equivalent will review the functional abilities form and discuss with the employee's direct supervisor to determine if there is work available within the employees BC that they may do within their functional abilities. Should work not be available within the employee's pre-injury BC, the WCCC will investigate placement options within other BCs. This discussion should involve the RL and affected BC Leaders within the area office to accommodate the injured employee within the scope of the return to work plan.

An Early and Safe Return to Work Plan (HSSE-602d) will be developed and agreed to by the employee and their supervisor in consultation with the medical practitioner and the WCCC. The employee and their supervisor shall sign the form and the form shall be sent to the WCCC.

When the employee has recovered and is ready to return to their regular duties, the employee shall have their medical practitioner complete a new Functional Abilities Form (HSSE-602b) showing the employee's capacity to perform the core function of their pre-injury position.

All medical information, including compensation-related correspondence will be kept confidential once completed and placed in secured compensation files kept with the WCCC.

17.3 Annual Review

The ESRTW Program is subject to an annual review by the corporate HSSE team to confirm that legal requirements are met, and standards are maintained. When an employee has finished their participation in the ESRTW Program, they will be provided with an exit survey (HSSE-602e) to gather feedback and opportunities for process improvement.

17.4 Recordkeeping

All employee ESRTW information will be maintained in accordance with established Human Resources practices and policies for the handling of medical records. All records maintained under this standard will be kept in a secure storage cabinet separate from regular HR records. Once an employee terminates employment with Stantec, the employee's medical file is to be sealed and sent to the Corporate HR department for archiving. All medical files are subject to a 30-year retention period from the date of separation from the company. Additional guidance and direction can be found in Stantec's Records Management Practice Guide.

For more information, please refer to HSSE-602 – Early and Safe Return to Work Program on The Lens.

18.0 HSSE Audit Program

Audits are a measurement tool used to determine the effectiveness of a management system by identifying strengths and weaknesses against a known standard. This is accomplished by comparing site/office practices to government regulations and corporate HSSE policies and practices not only to verify compliance, but to highlight program strengths and identify opportunities for improvement in the health and safety performance of an individual office and the company as a whole.

18.1 Internal Audits

Internal audits are a key component of Stantec's IMS, including the OHSMS and the EMS (Internal Practice Audit Procedure).

Internal audits are intended to:

- Assess the company's compliance with the requirements of Stantec's IMS
- Evaluate the effectiveness of Stantec's IMS
- Look for opportunities to improve our processes and procedures

If the internal audit uncovers any "gaps" between the written procedure and actual practice, a corrective action, opportunity for improvement (OFI), or ISO CAPA is created and assigned to the applicable team members and leadership to address the issue.

18.2 HSSE Field Audits

As a complement to our IMS audit schedule, Stantec conducts HSSE Field Audits on projects throughout the organization. Any findings are communicated to the project teams, and ISO CAPAs are developed as appropriate.

18.3 Supplier Audits

Stantec may conduct external audits on suppliers and subcontractors to evaluate compliance with the HSSE Program requirements. Standards adopted by external service providers can exceed those of Stantec but cannot be less stringent. External audits will be performed by Stantec personnel with experience and training in audit processes and practices. Should suppliers and subcontractors fail these audits, mitigation plans may be put in place, or they may be prohibited from use.

18.4 Independent (3rd Party) Audits

Independent (third party) audits of the HSSE Program, OHSMS, and EMS may be conducted as necessary to obtain and maintain external certification (e.g., a Certificate of Recognition). These audits are conducted on a regular basis (often every three years) by an independent auditor. The results of the audits will be documented and brought to the attention of the local Joint Health and Safety Committee (JHSC) (where applicable), and appropriate member(s) of corporate HSSE, and geographic leadership involved. Where applicable, the JHSC and/or facility leadership will monitor corrective actions addressing deficiencies found by the audit, and facilitate preventive action if opportunities are identified. Responsibility for corrective and preventive actions will be assigned and recorded in a Health and Safety Action Plan (RMS12).

18.5 HSSE Audits: Client, Contractor, or Regulatory Agency

Clients, subcontractors, and regulators may visit a worksite to perform a formal inspection or audit. Inspections can result from an incident, can be driven by regulatory programs and initiatives, or can be random in nature (an officer was driving by). It is important for Stantec employees to ask and, if necessary, insist that the individual(s) properly identify themselves as representatives of the client/subcontractor or regulatory agency. This can be accomplished by requesting a business card or other form of identification.

Be aware that many regulatory agents and authorities have the legal power to enter a premises or worksite, question employees, and obtain records or equipment.

Once their identity has been confirmed, Stantec staff must:

- As soon as possible, contact the project manager and/or managing leader and the office OSEC to inform them of the inspection.
- Provide an explanation of the hazards present at the site as explained in the Field Level Risk Assessment (FLRA app or RMS2) and request that the visitor signs the form (office sites will explain emergency procedures). If the visitor refuses to sign the Field Level Risk Assessment, they will not be allowed to access the site.
- Notify the inspector/auditor of the required PPE while at the site. If the inspector/auditor refuses to wear the required PPE, access to the site will be refused until such PPE can be obtained.
- Comply with the inspection in a friendly and cooperative manner.
- Request a copy of the completed form/audit be provided to either the on-site Stantec staff member or the Project Manager.
- Communicate the details of the visit to the OSEC, regional HSSE manager, and the Project Manager, and the RL or their designated office leaders.
- Fill out an HSSE Event Report (RMS3) and submit to hsse@stantec.com.

If an order or citation is written or a fine is issued:

- Verbally communicate the details of the order, citation or fine to the PM and/or managing lead immediately.
- Inform regional counsel and the HSSE manager/advisor as soon as possible.
- Complete an HSSE Incident Report in Pro-Sapien.
- Communication with clients and the regulatory agency regarding orders, fines, and corrective actions must be approved by counsel.

19.0 Metrics and Statistics

19.1 HSSE Metrics

Stantec maintains statistical information related to both **leading** and **lagging metrics**.

19.1.1 Lagging

Lagging metrics are statistics that are intended to track where gaps in the HSSE Program, OHSMS, and EMS may have occurred and include many types of incidents. These measures are considered a reactive measure and only consider incidents after they have occurred. Our primary lagging metric is **Total Recordable Incident Rate** (TRIR). TRIR can be defined as the number of recordable incidents that a company experiences during a year normalized to 100 full-time employees. Recordable incidents are those injuries and illnesses incurred by employees serious enough to warrant medical attention beyond basic first aid. It is calculated using the following formula:

$$\text{TRIR} = \frac{(\text{Medical Treatment incidents} + \text{Restricted Work incidents} + \text{Lost Time incidents} + \text{Fatalities}) \times 200{,}000}{\text{Total Hours Worked}}$$

The 200,000 multiplier reflects the number of hours 100 full-time workers would generate in a year (40 hours per week, 50 weeks per year). Using this common framework allows companies to track their own performance over time, and to compare that performance to others in their industry. Stantec follows the definitions and criteria for recording injuries and illnesses provided by the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) (Title 29 of the US Code of Federal Regulations (CFR), Part 1904). If the categorization of an injury or illness is in doubt, this is the standard against which an incident's details are compared.

Injury – any wound or damage to the body resulting from an event in the work environment. Examples include cuts, punctures, abrasions, fractures, bruising, a chipped tooth, amputation, insect bite, electrocution, or a thermal, chemical, electrical, or radiation burn. Sprain and strain injuries to muscles, joints, and connective tissues are injuries when they result from a slip, trip, fall, or other similar occurrence.

Illness – any abnormal condition or disorder caused by exposure to environmental factors associated with employment. May be caused by inhalation, absorption, ingestion of, or direct contact with the hazard, as well as exposure to physical and psychological hazards. It will generally result from prolonged or repeated exposure. Examples include contact dermatitis, inflammation of the skin, rashes, silicosis, poisoning, hearing loss, heatstroke, and frostbite.

Determination of recordability and classification of injuries and illnesses will be set by HSSE.

19.1.2 Leading

To help reduce possibility of incidents occurring, and to promote a proactive approach to health, safety, security, and environment, Stantec also has leading metrics. These are statistics that measure activities such as site inspections, office inspections, file reviews and HSSE meetings. These activities help promote a culture of HSSE and provide awareness around issues at the office level to reduce the number of incidents. For definitions, please see Section 14.2.

To provide a more balanced view of an organization's HSSE metrics and performance, Stantec began tracking a variety of leading indicators in 2015. With leading indicators, proactive activities like inspections, planned job observations (PJOs), use of Stop Work Authority, or file reviews are highlighted to promote the identification of unsafe actions and conditions before they lead to loss. Leading indicators do not require an incident to occur for an organization to respond – these measures give employees the opportunity to be proactive, which is positive both culturally and from a loss prevention perspective.

In Q1 2016, Stantec began publishing and communicating a calibrated metric for leading indicators, called a **Leading Indicator Safety Index (LISI)**.

$$\text{LISI} = \frac{\text{Number of Leading Indicator Activities x 1,000}}{\text{Total Hours Worked}}$$

It was determined by the Executive HSSE Committee that Stantec's goal would be 1.0. This number indicates that one (1) leading indicator activity is taking place for every 1000 hours of work at Stantec.

The components of the LISI are submitted in Pro-Sapien, making collection and reporting streamlined and scalable. In the future, the organization may choose to add other activities to the calculation, as reporting and submission tools progress. It should also be noted that individual regions or business centers have increased their focus on leading indicators, driving the reporting.

19.2 HSSE Records

All HSSE records, including training records, medical assessment records and reported records of incidents or illness are maintained and accessed as outlined in Stantec's Records Management Best Practice Guide. Project-related HSSE records will be retained in project files.

19.2.1 OSHA Documentation – US Only

OSHA requires Stantec to maintain written records of work-related fatalities, injuries, and illnesses for a minimum of five years. Corporate HSSE is responsible for managing these records. There are two forms related to this requirement, the OSHA 300 Log and the OSHA 300A Summary.

19.2.2 OSHA 300 Log – US Only

The OSHA 300 Log is used to document the abbreviated details of each recordable fatality, injury, or illness. All personal data is removed to maintain the confidentiality of the employees involved. As permitted under the regulations, Stantec is using equivalent forms [(1904.29(a)] and maintaining records on a computer [1904.29(b)(5)].

19.2.3 OSHA 300A – US Only

Under 29 CFR §1904.2, certain industries are exempt from the requirements to prepare and post the 300A Summary. The exempted industries include most types of professional services, including engineering, architectural, interior design, and environmental consulting services. Most of Stantec's US operating locations are primarily engaged in one of these industries, and therefore are exempt from the requirements. For US operating locations whose primary work activities are not exempt, or where the state OSHA Plan requires it, Corporate HSSE will prepare an OSHA 300A Summary following the end of each year. In those locations, the 300A Summary must be posted in a conspicuous location where it is visible to all employees from February 1st through April 30th of the year following the year covered by the form.

Some clients and third-party contractor qualification services may request OSHA 300 Logs and/or 300A Summaries. Corporate HSSE can assist with these requests; please contact hsse@stantec.com.

20.0 International HSSE Specifications

As Stantec continues to expand its global operations, there will be a need to reflect regional or geographic requirements as accessory items to the core HSSE Program, OHSMS, and EMS.

The core HSSE Program as reflected in this HSSE Program Manual, Safe Work Practices (SWPs), forms and other documentation will be the primary HSSE resources, with country- or region-specific connecting to the larger narrative.

As Stantec has operations around the globe, SWPs are designed to complement and support local legislation. Where a conflict is identified between an SWP and legislation in the jurisdiction where Stantec work is being performed, local legislation will prevail if it requires a higher standard. For information on legislative requirements by geography, refer to the Critical Task Inventory (CTI), the Environmental Aspects and Impacts Register, the Health & Safety Regulatory Requirements Library, and the Environmental Regulations Library.

Stantec maintains two Regulatory Libraries related to its HSSE Program and Management Systems, one for Occupational Health & Safety legislation and one for Environmental legislation. The libraries provide regional resources which can be reviewed in conjunction with project and task planning and are linked in the CTI, the Safe Work Practices (SWPs), and the Environmental Aspects and Impacts Register.

Please be aware that Management System certifications may also be country- or region-specific but will connect to the core documentation to meet system requirements.

21.0 Revision History

Date	Change	Acknowledgments	Approval
September 2, 2024	Revised Section 14.2 - Table 4 Definitions. Revised titles for RMS4, RMS4 WFH, RMS5, and RMS6. Updated Security Incident Subtypes. Added document cross-references throughout. Updated for ADA accessibility.	K. Hancock	J. Parker
July 25, 2024	Revised section 6.2.1 – New Employees (Full Time and Contract)	K. Hancock	J. Parker
February 16, 2024	Revised section 19.2.3 - OSHA 300A Summaries; minor clarifications to language in sections 19.1.1, 19.2.1, and 19.2.2.	K. Bayer	J. Parker
October 26, 2023	Updated references to Pro-Sapien and Project HSSE Plan throughout; wording edited to align with HSS and Environmental Policies; small edits for clarity and terminology change including changing Health and Safety to HSSE throughout; Table 1: Incident Severity wording updated (s. 4.4.2.2); FLRA app added to RMS2 references; additional detail to On the Job Training Requirement for formal HSSE Competency Assessment Program (s. 6.2.3); added engagement of teams in conversations around HSSE risks related to the task they are performing (s. 13.2); updated definitions to include terminology used in Pro-Sapien (s. 14.2); edits to terminology workflows (s. 14.5.1 – 14.5.4); moved content of sections 14.6 through 14.10 to section 14.5, resulting in renumbering of the rest of that section; Added reference to the environment in Emergency Preparedness (s. 15.0); replaced iPlan with ISO CAPA (s. 18.2); referenced US only (s. 19.2.2-19.2.3)	P. Fox	J. Elkins

Date	Change	Acknowledgments	Approval
January 27, 2023	Wording included to connect SWPs, CTI, and regulatory libraries for OH&S and Environmental (s. 1.1.5); added Environmental Scope (s. 1.1.6); additional detail to Critical Task Inventory description and function including connection to planning and review cycle (s. 1.1.7); added Environmental Aspects & Impacts Register and review cycle (s. 1.1.8); addition to outline function of regulatory libraries and review cycle (s. 1.1.9); language describing SaferTogether, its elements, and S.A.F.E.R. (s. 1.1.12); update to Documentation table, responsibilities, and review (s. 1.2); removed Internal Sustainability as description (s. 3.0); clarification of roles for supervisors and PMs in HRAC (s. 4.3); HSSE Process for Projects reference added (s. 4.4); connection point for worldwide regulatory requirements and the CTI for project planning (s. 4.4.1); change to hierarchy of controls to separate substitution and elimination and to remove warnings as a separate category (s. 4.4.3); additions to connect to CTI, SWPs, local legislation, and local HSSE resources (s. 20.0).	C. Ferguson-Scott	P. Poelzer
February 7, 2022	Small edits for clarity and terminology change throughout, including HSSE Policy to HSS Policy. s.4.4.3 update to Hierarchy of Controls diagram, s. 14.4 edits to notification flows. Removed section 20.1, International HSSE Specification for Australia and New Zealand as document has been retired. Update references to sections 4.3, 4.4 and 4.5. Added new location of Stop and Talks and Lessons Learned to section 6.0. Updated links for migration from KNet to the Lens.	P. Fox, C. Ferguson-Scott	J. Treen
June 30, 2020	Updates to links and references for migration from StanNet to The Lens.	P. Fox	C. Ferguson-Scott

Date	Change	Acknowledgments	Approval
March 4, 2020	Update of terminology throughout to align with organizational and global change. Update in s. 1.1.6 of Critical Risk Control icons and description. SaferTogether branding updated and addition of four pillars in s. 1.1.8. Included reference to ISO 45001 in s. 1.2.2 and where applicable throughout. Addition of s. 1.2.3 describing the Environmental Management System (EMS), and s 1.2.4 outlining the role of International Specifications. Addition of s. 1.4.5.1 describing the Board of Directors HSSES Committee and s. 1.4.5.3 for the Executive ESG Committee. S. 1.4.6.1 highlights general Subcontractor Management duties. Energy Wheel description added in s. 4.2. Removed RMS2 – Fit for Duty reference as will be replaced by energy wheel version of the RMS1. Permanent MOC removed from s. 4.5. Addition of RIDDOR to incident definitions s. 14.2.	C. Ferguson-Scott	J. Lessard
June 28, 2018	Addition of s. 20.0 International Specifications, and link to documentation for Australia and New Zealand.	C. Ferguson-Scott	J. Lessard

Date	Change	Acknowledgments	Approval
May 8, 2018	Addition of national certifications to development sources (s. 1.1); update to OHSMS scope statement, addition of ANZ references (s. 1.2.2); edits to roles and responsibilities (s. 1.4.2); role of Officer in ANZ and connection to H&S rep (s. 1.4.3); removed position titles (s. 1.4.3.1); connect Executive HSSE Committee to geographic management review cycle (s. 1.4.5.1); added H&S rep connection for OSEC section (s. 1.4.5.5); employee participation added to section heading, mechanisms for consultation (s. 1.4.5.7); need to consult HSSE manager on subcontractor prequalification outside of N. America (s. 1.4.6); Project Safety Plan (PSP) used in ANZ (s. 4.3.1); edit for clarity (s. 4.3.2.1); very high/high/ medium/low added to risk level descriptions (s. 4.3.2.4); clarification to chemical exposure section and mention of other jurisdictions (s. 9); corrected significant and serious terms – were reversed (s. 14.1); requirement for emergency procedures (s. 15.1).	C. Ferguson-Scott	J. Lessard
December 11, 2017	Many terminology edits throughout; addition of Safer Together (s. 1.1.8); update to documentation table (s. 1.2); inclusion of the Executive HSSE Committee and their role (1.4.5.1); update to Corporate HSSE Group description (1.4.5.2); update to Subcontractor Prequalification to reflect Risk Management process (1.4.6); addition of Security (2.0) and Sustainability (3.0); edits in s. 4.1, 4.3, and 4.4. Addition of Young Workers (6.2.4); significant update of s. 14.0 with respect to notification. Testing an ERP (15.1.2).	J. Elkins, C. Ferguson-Scott	J. Lessard
December 8, 2016	Changed HSE to HSSE, update to job titles for RSEC (Regional HSSE Manager), and LSEC (Regional HSSE Advisor). Added s. 1.1.3.2 to reflect Critical Risk Controls. Updated 1.3 to change Safety Rules to Safety Pledges. Removed TIR from 17.2. Other minor edits.	C. Ferguson-Scott	J. Lessard

Date	Change	Acknowledgments	Approval
May 8, 2015	Clarification in s. 1.1.1 for posting of HSE policy, addition of s. 1.3.3 for Visitor Safety Rules, edit to s. 2.2 for hazard assessment of office alterations, inclusion of OSHA reporting guidelines.	C. Ferguson-Scott	P. Salusbury
April 1, 2014	Changes to reflect titles in new organizational structure, edits to subcontractor prequalification, RMS2, planned job observations (PJO), and HSE Metrics.	C. Ferguson-Scott	
November 6, 2013	Updated Stantec new logo branding	T. Smith	
July 6, 2012	Clarification with respect to sign off on RMS1 and 1A.	K. Robinson	
November 1, 2011	Annual update and review by HSE and CGC	K. Robinson	
March 1, 2011	Full review and modifications done by Stantec ELT/SVP leadership.	Final manual compilation by K. Robinson	
July 1, 2010	Modified and brought up to date.	Updated HSE manual posted to StanNet	

Stantec

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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