

Schedule 18

Appendix 18G - Training Requirements

SECTION A. DEFINITIONS

A.1 Definitions

- A.1.1 Capitalized terms used in this Appendix 18G have the meanings given in Schedule 18 – Technical Requirements or as defined in this Schedule 18G.
- (a) **“Certificate of Training Completion”** has the meaning set out in Section C.2.1;
 - (b) **“Course Lesson Plan”** has the meaning set out in Section B.3;
 - (c) **“Training Schedule”** has the meaning set out in Section B.2;
 - (d) **“Training Lead”** has the meaning set out in Section B.4;
 - (e) **“Training Material”** has the meaning set out in Section B.8;
 - (f) **“Training Participant”** is a person who attends a training program as indicated in this Schedule 18G;
 - (g) **“Training Participant Group”** has the meaning set out in B.5.2;
 - (h) **“Training Participant Register”** has the meaning set out in Section B.10.1(a);
 - (i) **“Participant Evaluation Results”** has the meaning set out in Section B.10.1(b);
 - (j) **“Operations Personnel”** has the meaning set out in Section B.5.2(a);
 - (k) **“Maintenance Personnel”** has the meaning set out in Section B.5.2(b)

SECTION B. TRAINING PROGRAM

B.1 General Requirements

- B.1.1 Design Builder shall develop, implement, and continuously update a training program.
- B.1.2 The training program shall:
- (a) be designed to comprehensively train plant staff and external contractors using the Infrastructure to competently operate and maintain it in accordance with Good Industry Practice;
 - (b) be tailored for the specific audience in each course;
 - (c) ensure each course is scheduled and coordinated with operation and maintenance leads' input that accommodates plant operation and maintenance, and staff shift schedules by providing multiple sessions covering the same content if necessary;

- (d) be focused on field training, organized in a format to most effectively train plant staff using the Infrastructure;
- (e) if classroom training is required it should comprise no more than 20 percent of the training time and the field portion at least 80 percent of the training time and both will be completed within the same week;
- (f) include ample opportunities for Training Participants to ask questions and have their questions answered;
- (g) be based upon the Operation and Maintenance Manuals with complete consistency between the training and the Operation and Maintenance Manuals, including Standard Operating Procedures, Safe Work Procedures, Alarm Response Procedures and LOTO;
- (h) include the provision of the services of factory trained specialists and equipment manufacturers to instruct plant staff in the operation and maintenance of all equipment and system components during field and classroom training;
- (i) ensure that training courses are evaluated for the possibility of gaining continuing education credits (CEUs) for wastewater treatment operators' certification;
- (j) ensure that operations personnel can observe any Performance Testing and Commissioning;
- (k) ensure that all plant staff have completed the required training not later than Substantial Completion;
- (l) ensure training covers all aspects of the Infrastructure needed by operations or maintenance staff (such as operating the system locally, operating the system remotely, operating the system during fault or upset, returning the system to normal operating condition, etc.);
- (m) ensure training covers all aspects of the Process Control System including screens and graphics, screen navigation, pre-configured and custom trending, pop-up dialog boxes, alarm management, remote/local and manual/automatic operating modes, and any programmed sequences.
- (n) ensure training for the City's Automation and Industrial Control maintenance group includes review of the programmed logic of all controllers, including all important area specific requirements (such as interlocks, PID loop parameters, etc). Allow for a live Question and Answer session after the programming training at least 20% the length of the programming session, with a minimum length of 1 hour;
- (o) ensure training covers ancillary systems such as the Public Announcement (PA) system, the security camera system, the building access system, the electrical power distribution systems, etc.;

- (p) ensure training identifies applicable resources and other supporting information; and
- (q) develop e-learning modules to be used for future training.

B.1.3 In addition to the requirements of this Section, include and integrate training requirements identified in Schedule 18 – Technical Requirements – Appendix 18E – Standardized Goods.

B.2 Training Schedule

B.2.1 Design Builder shall prepare, continuously update, and provide to the City a Training Schedule of all training activities (the “**Training Schedule**”).

B.2.2 The Training Schedule shall:

- (a) include:
 - (i) course name,
 - (ii) Course Lesson Plan submittal dates,
 - (iii) planned session dates and durations, and
 - (iv) planned Training Participant Groups;
- (b) group training topics as necessary to ensure training sessions are a minimum of 1 hour in duration;
- (c) limit the maximum duration of a training session to 4 hours per day; and
- (d) limit training to Business Days within the following windows of time:
 - (i) 8:00 am to 12:00 pm, with a 15 minute coffee break; and
 - (ii) 12:45 pm to 3:15 pm, with a 15 minute coffee break.

B.2.3 Design Builder shall, in accordance with Schedule 5 – Review Procedure, submit the Training Schedule and have received an endorsement of “Received” a minimum of 60 Calendar Days prior to the scheduled start of training.

B.2.4 Design Builder shall submit the Training Schedule and incorporate changes to accommodate the schedule of plant staff. The Training Schedule shall be regularly updated such that the City continuously has the latest revision.

B.3 Course Lesson Plans

B.3.1 Design Builder shall develop, for each training course, a detailed description and plan of the training (the “**Course Lesson Plan**”).

B.3.2 Each Course Lesson Plan shall be consistent with the training program and include:

- (a) the instructor(s), including qualifications;
- (b) recommended and minimum number of training sessions;
- (c) recommended and maximum number of Training Participants within each session; and
- (d) a detailed description of the training.

B.3.3 For each training course, Design Builder shall, in accordance with Schedule 5 – Review Procedure, submit the Course Lesson Plan and have received an endorsement of “Received” a minimum of 60 Calendar Days prior to the scheduled start of training.

B.3.4 Design Builder shall not proceed with a training course until the corresponding Course Lesson Plan has been endorsed as “Received” in accordance with Schedule 5 – Review Procedure.

B.3.5 Design Builder shall update each Course Lesson Plan based upon the completed training and incorporate any changes made to the training. The revised Course Lesson Plan shall be included with the Training Deliverables.

B.3.6 Payment Adjustment

B.3.6.1 Failure by Design Builder to submit the Training Schedule and all associated Course Lesson Plans, in accordance with Schedule 5 – Review Procedure, and achieve an endorsement of “Received” on them a minimum of 365 Calendar Days prior to Substantial Completion, shall result in a Payment Adjustment in accordance with Schedule 14 – Payment Adjustments.

B.4 Training Lead

B.4.1 Design Builder shall designate a person (the “**Training Lead**”) who shall:

- (a) be responsible for updating the:
 - (i) Training Schedule, and
 - (ii) Course Lesson Plans;
- (b) be the primary contact for the City Representative and coordinate with the City.

B.5 Training Participant Groups

B.5.1 Design Builder shall provide and implement the training program for the plant staff who will or may be required to operate and maintain the Infrastructure.

B.5.2 The training participants will include the following groups of plant staff (the “**Training Participant Groups**”):

- (a) the plant staff responsible for operation of the NEWPCC facility wastewater treatment process and the associated building mechanical systems (the **“Operations Personnel”**);
- (b) the plant staff responsible for maintenance of the NEWPCC facility (the **“Maintenance Personnel”**), who are further grouped as follows;
 - (i) Mechanical Maintenance;
 - (ii) Electrical and Instrumentation; and
 - (iii) Automation and Industrial Controls Group;
- (c) external contractors using the infrastructure.

B.5.3 In addition to the Training Participant Groups, other City staff may attend and observe the training.

B.5.4 Training for each session shall be focused and target for the group in attendance and cover all information required for their work.

B.6 Instructor Qualification

B.6.1 Design Builder shall provide instructor(s) for each course who:

- (a) are experienced and qualified for the specific training course;
- (b) have demonstrated prior experience in performing similar training; and
- (c) have the appropriate instructional and articulate public speaking skills to communicate clearly to the Training Participants.

B.6.2 Design Builder shall ensure that instructors are familiar with the Works, including the Area, and Operation and Maintenance Manuals.

B.7 Training Coordination with the City

B.7.1 Design Builder shall:

- (a) provide all requests to schedule a training session a minimum of 25 Business Days prior to the planned session along with the course name and proposed Training Participant Groups;
- (b) hold all training sessions at the NEWPCC facility;
- (c) repeat the training session(s) for each group to allow for training of all plant staff. The minimum estimated number of sessions for each group of City staff and associated constraints are identified in Table 1; and
- (d) coordinate external contractor training with the wastewater contracts officer.

Table 1 : Training Requirements

Training Participant Groups	Approximate Number of Personnel	Est. Minimum Number of Sessions	Constraints
Operations Personnel	40	7	Crew and shift schedules
Maintenance Personnel			
Mechanical Maintenance	20	3	
Electrical and Instrumentation Maintenance	20	3	
Automation and Industrial Controls Group	10	2	

B.8 Training Material

- B.8.1 Design Builder shall provide all material (“**Training Material**”) used in the training to the City.
- B.8.2 The Training Material shall be provided in electronic native, editable file format;
 - (a) Training Material shall be organized by course, with all material used and collected from Participant Groups during training systematically arranged in a consistent manner.

B.9 E-Learning Deliverables

- B.9.1 Design Builder shall develop e-learning modules for inclusion on the learning management system (LMS).
 - B.9.1.1 Design Building shall provide shareable content object reference model (SCORM) Training Materials to be used for future City training;
 - (a) SCORM is a collection of standards and specifications for web-based electronic educational technology (also called e-learning). By using software like Adobe Captivate, Articulate etc. to create training modules which incorporate slide content information, edited videos, etc. and contain module quizzes to test employees’ knowledge in a single e-learning package for upload to a learning management system (LMS).
 - (b) SCORM courses should include presentation slides from classroom training, embedded and edited videos and an end of module quiz including a minimum of 5 questions specific to the learning objectives with a minimum 70% pass mark for employees. Each course should be customized for the specific training participants.

B.9.1.2 Design Builder shall provide videos to augment the SCORM. When training videos are embedded in the SCORM, they shall:

- (a) be in a SCORM-compatible format;
- (b) have high definition audio (48 kHz, 16 bit) or better;
- (c) limit clips/segments on each topic to approximately 15 minutes;
- (d) be recorded with sufficient technical skill and recording quality to clearly illustrate the subject matter;
- (e) replace or amend videos as required in the event that the training content for a course is amended after recording a training session.

B.9.1.3 Design Builder shall structure modules to provide a logical sequence of learning;

B.10 Training Records

B.10.1 The Training Records shall include for each session:

- (a) all Training Participants for each training session on a register (the “**Training Participant Register**”).
 - (i) the Training Participant Registers shall be based upon the template included in this Appendix 18G as Template A.
- (b) results of evaluations by individual and summarized by course (the “**Participant Evaluation Results**”).

B.10.2 Design Builder shall provide all Training Records in pdf file format.

B.10.3 Design Builder shall submit all Training Records not later than 60 Calendar Days prior to Substantial Completion.

B.11 Participant Evaluation Requirements

B.11.1 As part of each training session, Design Builder shall provide and execute an evaluation method consisting of written evaluation for classroom training or practical demonstration components for field training to test each training participant in their understanding of the learning objectives, and shall be based upon the template included in this Appendix 18G as Template B.

B.11.2 Approximately 180 Calendar Days after Substantial Completion, the Training Participants shall be re-evaluated by the instructor to determine if the Training Participants are carrying out tasks in accordance with the training received. If Training Participants fail the evaluation or have additional questions, Design Builder shall provide additional training in those topics, in accordance with this Appendix 18G.

B.12 Declaration of Course Completion

- B.12.1 Upon completion of the requirements for each course in the Training Schedule, Design Builder shall provide a completed and signed Declaration of Course Completion form, included in this Appendix 18G as Template C.

SECTION C. CERTIFICATES

C.1 General

- C.1.1 Design Builder shall perform the training in accordance with the training program and to the satisfaction of the City Representative. The City Representative may provide feedback, which shall be incorporated into subsequent training sessions or require repeat of one or more training sessions to address training quality issues.
- C.1.2 All training criteria shall be interpreted in accordance with the Design Build Agreement and as determined by the City Representative.

C.2 Certificate of Training Completion

- C.2.1 If the City Representative, or designated representative, determines that the Design Builder has met the requirements listed below, the City Representative shall issue to Design Builder a certificate certifying that the training has been completed (the "**Certificate of Training Completion**").
- (a) plant staff have been fully trained, and such training is in accordance with the Course Lesson Plans and this Appendix 18G;
 - (b) Design Builder has submitted all associated Training Material, e-Learning Deliverables, and Training Records to the City; and
 - (c) a Declaration of Course Completion has been issued by the Design Builder for each corresponding course component within the Training Schedule.

TEMPLATE A
TRAINING PARTICIPANT TEMPLATE

The existing template is attached as an image on the following page.

The City reserves the right to update the template at any time, including up until the time the template is required for training purposes.

The Microsoft Word format template will be made available after the Effective Date at the request of the Design Builder.

Training Participant Register		Document Code:	
		Date: yyyy-mm-dd	
Project:	NEWPCC Upgrade	Location:	Indicate facility and room name
Topic:	Description of topic		
Organization:	Name of organization providing the training		
Trainer(s):	First and last names of all trainers		

Name	Signature	Organization / Group					
		Eng.	Ops.	Mech. Maint.	E&I	AICG	Other

TEMPLATE B
PARTICIPANT EVALUATION TEMPLATE

The template is attached as an image on the following.

The City reserves the right to update the template at any time, including up until the time the template is required for training purposes.

The Microsoft Word format template will be made available after the Effective Date at request of Design Builder.



Division: Wastewater Services Division		Facility NEWPCC	Area
Creation Date	Revision Date	Revision Number	
Tasks			

Evaluation: *Evaluator will observe each task and assess the operator as 1) Fully Competent (completed task perfectly), or 2) Competent (completed task fully), or 3) Coaching required to complete task, or 4) Re-training and re-evaluation is required before operator can perform procedure.*

# Task	LOCATION	TASK DESCRIPTION	EVIDENCE TASK COMPLETED PROPERLY	EVALUATED AS...
1				1) _____ 2) _____ 3) _____ 4) _____

Date: _____

Comments: _____

Trainee (print): _____

Trainee (sign): _____

Trainer(print): _____


Trainer(sign): _____

TEMPLATE B
DECLARATION OF COURSE COMPLETION

The template is attached as an image on the following.

The City reserves the right to update the template at any time, including up until the time the template is required for training purposes.

The Microsoft Word format template will be made available after the Effective Date at the request of the Design Builder.

	<h2>Declaration Of Course Completion</h2>	Document Code:
		Date: yyyy-mm-dd
Project:	NEWPCC Upgrade	
Course:	Name of course	
Organization:	Name of organization providing the training	
Trainer(s):	First and last names of all trainers	

Session	Supporting Documents (Provide Document Numbers)		
	Attendance Register	Attendee Evaluation (Quizzes, etc.)	Post-Course Evaluation Feedback Forms
1			
2			
3			
4			

We have completed the indicated course and the attendees have been adequately trained in the operation and maintenance of the specific Infrastructure, in accordance with the Training Plan, the specific Course Lesson Plan and Appendix 18G of the Design Build Agreement.

Print Name (Trainer)	Signature	Date (yyyy/mm/dd)
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Print Name (Authorized Representative of Design Builder)	Signature	Date (yyyy/mm/dd)
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