WATERDUDE SOLUTIONS

TECHNICAL MEMORANDUM

TO: OESAC – Oregon Environmental Services Advisory Council
FROM: Mark Walter, Operations and Maintenance Specialist – Waterdude Solutions LLC (training sponsor)
DATE: September 16, 2026
RE: Columbia Boulevard WWTP – STEP SOFA SOLO Process and SOP Training Program: program description, outline, and contact hours for CEU approval
REV: Rev 0

PURPOSE AND CEU BASIS

This memorandum describes the STEP SOFA SOLO Process and SOP Training Program, sponsored and delivered by Waterdude Solutions LLC for the City of Portland Bureau of Environmental Services, and presents the program outline and contact hours for training authority review. The program delivers 23.0 hours of contact time; at the OESAC rate of 0.10 CEU per contact hour, it is worth 2.3 CEUs.

Table 1. Program Administrative Data

Item	Description	Item	Description
Program title	STEP SOFA SOLO Process and SOP Training Program	Start / status	Started March 11, 2026; ongoing through startup and commissioning
Sponsor / provider	Waterdude Solutions LLC, with Jacobs (STEP design and commissioning team)	Sessions	12 total: 8 process modules and 4 SOP walkthroughs
Facility / owner	Columbia Boulevard WWTP, Portland, Oregon; City of Portland Bureau of Environmental Services	Contact time	23.0 hours (1,380 minutes), exclusive of breaks, meals, and travel
Systems covered	SOFA and SOLO: odor control and ventilation, polymer, thickening, dewatering, cake conveyance, truck loadout	CEUs	2.3 CEUs at 0.10 CEU per contact hour
Audience	CBWTP operators, solids operations staff, shift supervisors, special operations support; loadout SOP session adds hauling and management staff	Locations	STEP trailer conference room; SOFA polymer classroom; SOFA and SOLO process areas; BES conference room
Session repetition	Each session is presented three times on its date (7:00–9:00, 9:15–11:15, 13:00–15:00) to reach all shifts; a participant attends one presentation and earns the hours once		

PROGRAM DESCRIPTION

SOFA and SOLO are one integrated solids process, not a collection of independent equipment. Sludge from the primary and secondary systems is conditioned with polymer, thickened on gravity belt thickeners, dewatered in centrifuges, conveyed as cake, and loaded to trucks at SOLO, inside a ventilated and odor-controlled envelope. Capacity at each step governs what the operator can do at the step ahead of it, so the program teaches design intent and operating limits first, then system behavior, then supervised operation and walkthrough of the approved procedures at the equipment. Content comes from the STEP Solids Process Manual, the STEP GMP2 control narratives (Volume 5, Divisions 33–40, and Volume 6, Divisions 41–49, dated 24 June 2022), approved SOPs and vendor O&M documentation; where documents differ, the Solids Process Manual governs. Training supports, and does not replace, approved SOPs and safety and confined space procedures.

Table 2. Instructional Method – Illustrate, Demonstrate, Experience (IDE)

Phase	Question answered for the operator	Delivery activities
Illustrate	What was this system designed to do, and within what limits?	Design intent, design criteria and operating envelopes, process flow and control narrative review, constraints
Demonstrate	What happens when we operate the system in different ways?	Live and historical SCADA trends, controlled changes to flow, loading, and chemical feed, stable versus unstable comparison
Experience	How do I apply this when I am operating the system?	Guided field walkdown, hands-on operation under supervision, startup and abnormal condition scenarios
SOP walkthrough	What are the required steps, in order, at the equipment?	Walkthrough of approved startup, operation, and shutdown SOPs at the equipment, with operator comment captured

PROGRAM OUTLINE AND CONTACT HOURS

Sessions are listed in delivery order. Duration is contact time in hours to the tenth of an hour. Sessions dated TBD are scheduled around commissioning milestones; content and duration are fixed.

Table 3. Program Outline, Module Content, and Duration

No.	Date	Session and content	Hours
1	Mar 11, 2026	Module 1 – SOFA and SOLO Design Overview. Drivers for the STEP solids program; solids routing from primary and secondary treatment through polymer, thickening, dewatering, and loadout; facility interdependence and redundancy; odor control as an enabling system; the operator role.	1.0
2	Apr 1, 2026	Module 2 – Odor Control, Ventilation, and Go/No-Go: Design and Function. Ventilation design intent for space declassification and negative pressure; foul air capture and treatment; airflow switches and LEL monitoring with horns, beacons, and SCADA interface; readiness verification before solids processing. Hands-on and SCADA; Odor Control SOP.	2.0
3	Apr 8, 2026	Module 3 – Polymer Systems: Design and Function. Dry polymer delivery and storage, volumetric feed, wetting, mixing, aging, and feed pumping; design criteria and dosing envelope; effect of dose on capture, solids concentration, and filtrate quality; over- and under-conditioning. Hands-on and SCADA; Polymer Ops SOP.	2.0
4	Apr 15, 2026	Module 4 – Thickening: Design and Function. Gravity belt thickener design criteria and operating envelope; hydraulic and solids loading limits; drainage behavior, belt speed, and washwater; thickened solids and filtrate quality indicators; feed tank and thickened solids pumping interfaces. Hands-on and SCADA.	2.0
5	May 6, 2026	SOP Walkthrough 1 – Thickening Train. Walkthrough at the equipment of approved procedures for gravity feed tank operation, gravity belt thickener operation, thickened solids pumping, and filtrate pumping, covering startup, normal operation, and shutdown.	2.0
6	May 13, 2026	Module 5 – Thickening Operating Strategies. Matching thickening capacity to upstream solids production; unit selection and staging; dry weather, wet weather, and shoulder season strategy; coordinating polymer with loading; correcting loss of drainage and capture before downstream instability.	2.0
7	Jun 10, 2026	Module 6 – Dewatering: Design and Function. Centrifuge design criteria and operating envelope; coordination of feed rate, polymer, and machine setpoints; torque, differential speed, and pool depth response; cake solids and centrate quality indicators. Hands-on and SCADA.	2.0
8	Jun 17, 2026	Module 7 – SOLO: Design and Function. Dewatered cake conveyance, hopper storage, gates and loadout controls, and the odor-controlled enclosure; how SOLO buffers continuous dewatering against batch hauling; conditions that force dewatering to stop. Hands-on and SCADA.	2.0
9	Jun 18, 2026	SOLO Loadout SOP Walkthrough – hauling and management staff. Loadout sequence at the equipment, truck positioning, gate and conveyor controls, hold points, housekeeping, and communication with plant operations.	2.0
10	Jun 24, 2026	SOP Walkthrough 2 – Dewatering Train. Walkthrough at the equipment of approved procedures for polymer operations supporting dewatering, centrifuge operation, and centrate pumping, covering startup, normal operation, and shutdown.	2.0
11	TBD	SOP Walkthrough 3 – Cake Conveyance and Loadout. Walkthrough at the equipment of approved procedures for dewatered cake conveyance and solids loadout, covering startup, normal operation, shutdown, and recovery from a loadout interruption.	2.0
12	TBD	Module 8 – Dewatering and SOLO Operating Strategies. Coordinating dewatering rate with hopper capacity, loadout availability, and the hauling schedule; centrifuge staging and run planning; strategy for equipment downtime and abnormal conditions.	2.0
		Total contact time (2.3 CEUs at 0.10 CEU per contact hour)	**23.0**

PARTICIPANT OUTCOME, ATTENDANCE, AND RECORDS

On completion, a participant can describe the design intent and operating envelope of each SOFA and SOLO system, verify enabling systems are ready before solids processing begins, select an operating strategy that matches upstream production to downstream capacity, recognize early indicators of process instability, and execute the approved startup, operation, and shutdown SOPs for each solids train.

Table 4. Attendance and Record Keeping

Item	Method
Attendance	Sign-in sheet for each session presentation, retained by Waterdude Solutions and BES
Contact hour credit	Credited once per participant per session; credit is given only for full sessions attended
Materials retained	Module handouts, process manual and control narrative excerpts, SCADA screen captures, and the SOPs walked in each session
Completion record	Roster of sessions attended and hours earned, issued to each participant for CEU submittal