Immediate Procedure Change (IPC) Cover		
Section 1 – Originator Request		
Document No.: EP-DIV-SOP-10008	Revision No.: 2	IPC No.: 1
Title: Installing, Setting up, and Operating 3700 ISCO Samplers		
Description of need and requested action (Attach document mark-up and numbered additional sheets, if needed): Attachments 1-6 revised to show updated example of Work Order forms, Attachments 11and 12 added to show electronic example of Work Order form and Configuration and Equipment Traveler spreadsheets. Revisions to text to update "Items" and references to examples of work order forms. Added text discussing work order form formatting changes.		

Originator Name (print): Shannon Smith	Organization: ER-DO	Z#: 184219	Date: 4/27/16

Section 2 – Reviews

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Section 3– Final Approvals

FOD Concurrence Signature	Print Name and Title	Z#	Date
NA	NA	NA	NA
☒ Permanent ☐ Limited Use	Effective Date: 05-25-2016 Expiration Date:		

Comments: Derivative classification: /s/ Billy Turney
may 19, 2016 Unclassified

Responsible Line Manager Signature	Print Name, Title	Z#	Date
/s/ Gerald Fordham	Gerald Fordham	235946	5-24-16

EP-DIV-SOP-10008, R.2 IPC-1

Installing, Setting up, and Operating 3700 ISCO Samplers

Effective Date: 4/19/12

Procedure Owner:	Signature:	Date:
Steven Veenis	/s/Steven Veenis	04/17/12

REVISION HISTORY

Document No./Revision No.	Issue Date	Action	Description
ENV-WQH-SOP-009, R0	10/01	New document	New document
ENV-WQH-SOP-009, R1	8/03		Annual review
ENV-WQH-SOP-009, R2	5/05	Minor revisions	Added safety precautions and excavation permit requirements (issued as ENV-WQH-SOP-009.3)
ENV-WQH-SOP-009, R3	10/05		Removed steps for stormwater sample collection and created new procedure, ENV-WQH-SOP-011, Collection of Stormwater Runoff Samples
EP-DIV-SOP-10008, R0	9/13/10	New document	New document (issued as EP-DIV-SOP-10008, R0) Supersedes ENV-WQH-SOP-009.3; Reformatted and revised document; updated organizations
EP-DIV-SOP-10008, R0 IPC-1	9/27/10	Minor Revision	Added new column in Attachment 3 to reflect “Time Sampling with Multiplex and toggle/Reset”.
EP-DIV-SOP-10008, R1	8/13/11	Revision	Reformatted and revised document to update training prerequisites, equipment and tools, example work order, and ISCO programming and configuration attachments.
EP-DIV-SOP-10008, R2	4/19/12	Major revision	Reformatted document into new template; Revised document throughout; Added Attachments 2 through 6, 10.
EP-DIV-SOP-10008, R2	4/25/16	IPC-1	Updated and added Attachments and text for MainConn hosted and mobile migration.

TABLE OF CONTENTS

1. PURPOSE AND SCOPE

This procedure describes the installation, verification, activation, stand-down, removal and maintenance of Teledyne ISCO model 3700 full-size portable automated samplers used to collect stormwater runoff samples. This procedure applies to the project and contractor personnel conducting sampler operation and maintenance activities within stormwater drainages.

2. BACKGROUND AND PRECAUTIONS

2.1 Background

ISCO samplers are used in a variety of applications across the Laboratory. ISCO samplers coupled with model 1640 sampler actuators can be utilized at NPDES Individual Permit (IP) Site Management Areas (SMAs), Regional PCB Background Study locations, for Consent Order-driven stormwater monitoring, or other monitoring programs where stormwater sampling is triggered by a the presence of discharge at the actuator. ISCO samplers coupled with Sutron data loggers, stage sensors, and optical relay circuits can be utilized at gage stations to monitor stormwater for the Environmental Surveillance (ES) Program, LA/Pueblo Watershed Stabilization (LPWS) Project, or other monitoring programs where stormwater sampling is triggered by a measured discharge.

3. REFERENCES

ISD-101-.017.0**,** *Excavation/Fill/Soil Disturbance Permit Process*
EP-DIV-SOP-10013, *Inspecting Stormwater Runoff Samplers and Retrieving Samples*
SOP-5215, *Processing Stormwater Samples*
EP-ERSS-SOP-5057, *Handling, Packaging, and Transporting Field Samples*
EP-DIR-AP-10003, *Records Management Procedure for ADEP Employees*

4. TRAINING PREREQUISITES

Personnel performing this procedure will be familiar with the most current versions of the following procedures and operation manuals:

- SOP-5215, Processing Stormwater Samples
- EP-DIV-SOP-10013, Inspecting Stormwater Runoff Samplers and Retrieving Samples
- EP-ERSS-SOP-5057, Handling, Packaging, and Transporting Field Samples
- Manual for Sutron datalogger, 5600-0131-1, operation overview
- Manual for ISCO Sampler, operation overview

If the work will require any on-site excavation activities, obtain an Excavation Permit in accordance with ISD-101-.017.0, Excavation/Fill/Soil Disturbance Permit Process.

5. EQUIPMENT AND TOOLS

Ensure the following equipment is available in the field vehicle:

- ISCO 3700
- Distributor arm(s): 12 and 24
- Charged spare battery and battery box
- Bucket
- Distilled water
- Battery voltage tester
- Copy of this procedure
- Copy of Integrated Work Document (IWD)
- Appropriate tools in tool box
- Leather gloves
- Shovels
- Tubing: tygon and Teflon®
- Plastic wire “zip” ties
- Backpacks (if needed)
- Leatherman type tool
- Radio
- Pager
- Cell phone (Government cell phone only in secure areas)
- Necessary access and station keys
- Rebar and rebar caps
- Hose clamps
- 2-3 lbs. sledge hammer

IPC-1

- Government issued iPad (for electronic data collection)

6. STEP-BY-STEP PROCESS DESCRIPTION

6.1 Preparing for Fieldwork

Subcontractor Project Manager

IPC-1

[1] Receipt of a hard copy or electronic copy work order indicates that sampler installation, activation, verification, stand-down, removal or maintenance has been approved by the ADEP Field Team Lead. Schedule work to be completed by the target date appearing on the work order(s).

IPC-1

[2] Example hard copy work order forms are provided in Attachment-1 through 6, for each activity described by this procedure. An example electronic version work order is provided in Attachment 11

NOTE: *The hosted Maintenance Connection database system configuration used to produce work order forms is subject to change. This will affect how hard-coded sections in forms print to hard copy. Sections shown in Attachments 1 through 6 with a red strikeout line indicate that they should be disregarded if printed on a hard-copy form, and should not be used for recording inspection information. For all tasks on the Work Order record a "Yes" answer by choosing "Complete" or a "No" answer by selecting "Failed".*

[3] Distribute work order(s) to Route Lead field personnel.

[4] If conducting electronic data collection,
Then use the iPad to navigate to mcxle.maintenanceconnection.com and log into the Express LE application. Confirm that the work order list displayed in the "My WO's" section contains the expected work order(s). If expected work order(s) are not displayed, click "Sync" to refresh the application. If the work order lists still do not match, contact a Data Management Team member for clarification.

NOTE: *Disconnecting from the internet is necessary for electronic data collection in areas where 4g network coverage on LANL property is not available.*

[5] Disconnect the application from constant internet accessibility by clicking the Menu Button and select the 'Disconnect'. (The time stamp in the upper right hand corner will change to red).

6.1 Preparing for Fieldwork (continued)

[6] Inform the Field Operations designee of the schedule for sampler inspection work and locations up to a week (preferred) before but no later than the day before (for minor changes) to be added to the appropriate plan of the day.

[7] Conduct pre-job briefing with field personnel using the current Integrated Work Document. Obtain worker signatures on new or newly-revised IWDs. Two people are required for field work. Work should only be done during daylight hours. Extended work hours, if needed, must be approved by a supervisor.

[8] For work at sites operated by Weapons Facility Operations or Nuclear Environmental Sites, notify the appropriate access control before traveling to those sites. The IWD Part II will address specific requirements and training for these sites.

Route Lead

[9] Obtain any necessary additional paperwork before conducting this work, including IWD's, and excavation permits (if necessary).

IPC-1

[10] Gather the required equipment (see section 5) for the work to be done.

[11] Set watch(s) to the precise mountain standard time (MST) (not daylight saving time). This time can be found at www.time.gov (select the Mountain Time Zone – Arizona, Non-Navajo, no daylight saving option). This is used to set the ISCO clock to the correct MST

6.2 ISCO Sampler Installation

Route Lead

IPC-1

[1] An example of a hard copy sampler installation work order is provided in Attachment 1 and an example of an electronic version form is provided in Attachment 11. Setup of ISCO samplers is determined at a sampling station based on the approved Sampling and Analysis Plan (SAP).

[2] Deploy the ISCO sampler and charged battery on level ground above the flood plain, within 26 vertical feet of the channel (the maximum lift of the ISCO 3700 pump). The sampler should be as level as possible to allow effective sample collection.

[3] Install the separate protective battery box for the charged battery (follow manufacturer's instructions).

[4] Record whether a Greenlee box is installed. Greenlee boxes will be available at gage stations for ISCO and battery storage. Often (at locations with public access) large tool/storage boxes (e.g. Greenlee boxes) are used for equipment protection in the field.

IPC-1

[5] Determine the bottle configuration needs from the configuration traveler spreadsheet (see Attachment 12) and install the correct distributor arm (has either "12" or "24" embossed on bottom at outlet), new bottles, and retaining devices in the sampler base assembly. Install new peristaltic pump tubing and check that the end of the pump tubing does not extend below the bottom face of the distributor arm (where it could snag the bottle tops and jam as the arm advances through the bottle sequence).

[6] Remove the bottle caps from the clean bottles and place in a new Ziploc plastic bag. Leave the bag inside the ISCO sampler.

[7] Attach a new length of 3/8-inch diameter Teflon suction line to the sampler intake line and anchor as needed for the site-specific location. Measure and remember (for later configuration steps) the tubing length used. Route the sample tubing downslope from the sampler to the stream intake so that there is a continuous slope with no valleys that could retain water between sample intervals.

[8] For samplers using a 1640 liquid level detector (actuator) to initiate sampling

- For flow in a channel anchor a stake to the channel bottom in the main flow of the stream, not in an eddy, edge of the flow, or ponding area.

- For non-channel settings anchor a stake to capture potential sheet flow.
- Attach the sample intake and the actuator to the stake.
- Adjust the actuator at least ½ inch above the intake tube to ensure there is enough water to submerge the intake when the actuator triggers sampling.
- Connect the sampler actuator to the sampler using the cable provided by the manufacturer.
- Cover the actuator tip to ensure it is protected from splashing water that could inadvertently trigger sampling.
- Confirm the height of the actuator above the channel bottom matches the trip level specification given on the configuration traveler spreadsheet (see Attachment 12) or add the trip level, in decimal feet, to the work order if it is missing, documenting in the "Labor Report" section. (E.g., wide, low-flowing channels may require locating the intake <1 inch above the bottom, while a narrow, high flowing channel may allow placement of the intake higher in the water column.

IPC-1

[9] For samplers co-located at a gauging station, set the Sutron data logger to trigger the ISCO sampler at the specified stage level.

[10] Connect the sampler to the power source (12v deep cycle battery or other power source).

[11] Turn on the sampler and configure and program the sampler to the settings given on the work order according to sections 6.3 and 6.4 below.

IPC-1

[12] Complete all items on the work order using instructions given in Section 6.11 for guidance.

6.3 Configuring ISCO Samplers

Route Lead

[1] When a new ISCO sampler is being installed, configure the sampler in accordance with the steps in this section. Follow the project-specific configuration settings as indicated on the work order and given in Attachment 7.

[2] Turn on the sampler by pressing the "On" button.

[3] Press the "Enter/Program" button.

[4] Select "Configuration".

[5] Set the configuration parameters in accordance with the guidance on Attachment 7, ISCO 3700 Configure Sequence. After each selection is made, press the "Enter" button to allow the next configuration parameter to be displayed on the screen.

[6] Check that the configuration is correct for the location (refer to the "Program" listed on the work order) and that the proper programming was set.

[7] After the configuration is complete, select "Run diagnostics" and press "Enter" to run the system diagnostic test. These include the following:

- RAM and ROM test
- LCD test
- Pump test ("OFF/ON" number should be between 50 and 200 for a successful test)
- Distributor test -- select "YES" to run test. Test will move the distributor to Position 24 and then return it to Position 1.

[8] Following the diagnostic tests, "Reinitialize Controller" will be displayed. Select "No" and press "Enter" (If "Yes" is selected, the sampler will reset a number of configuration and program settings to the factory default values).

[9] Following the diagnostic tests, "Reinitialize Controller" will be displayed. Select "No" and press "Enter" (If "Yes" is selected, the sampler will reset a number of configuration and program settings to the factory default values).

6.4 Programming ISCO Samplers

Route Lead

[1] Follow the steps in this process to program a new ISCO or to confirm the program settings are correct for a specific location or project. Follow the project-specific program settings as indicated on the work order and given in Attachment 8 or Attachment 9.

[2] Turn on the sampler by pressing the "On" button.

[3] Press the "Enter/Program" button.

[4] Select "Program".

[5] Set the program parameters in accordance with the guidance in Attachment 8 or Attachment 9. After each selection is made, press the "Enter" button to allow the next configuration parameter to be displayed on the screen.

[6] Set switch on actuator to "toggle/reset" or "latch" as specified in the "Program" listing of the work order.

[7] Check the configuration and programming that were set are correct for the number and types of bottles specified on the work order and installed in the sampler.

IPC-1

[8] Complete all items on the work order using instructions given in Section 6.11 for guidance. Record any additional information to explain problems encountered, special conditions, etc., as needed in the "Labor Report".

[9] Required after programming new samplers but optional after any program is adjusted: Run a test of the sampler pump to confirm it delivers the correct volume to fill but not overflow a sample bottle. To prevent contamination disconnect the existing pump tubing and intake line from the sampler. Install clean test pump tubing, test intake line, and test sample bottles. Use a clean bucket with distilled water at the intake and run a test to fill one bottle (see ISCO operation manual). Adjust the sample volume, sample line length, or suction head parameter in the configuration and program to adjust the volume delivered. Discard water when done and reconnect the original pump tubing and intake line.

[10] Check battery voltage and electrical connections after all installation steps completed.

[11] Ensure sampler is on upon departure and displays "Bottle 1 of x after 1" or "Sampler Inhibited".

6.5 Verifying Sampler Installation and Activation

Route Lead

[1] Follow the steps in this section when a work order is received to verify a sampler's installation or activation (generally at the beginning of a field season or to assess sampler setup during the sampling season). An example of a hard copy sampler verification work order is provided in Attachment 2, and an example of an electronic version form is provided in Attachment 11.

IPC-1

[2] Document verification tasks as noted in the work order.

[3] Complete all items on the work order using instructions given in Section 6.11 for guidance.

6.6 Activating Samplers

Route Lead

[1] Follow the steps in this section when a work order is received to activate a sampler (generally at the beginning of a field season or after a certain time period after a sample was collected). An example of a sampler activation work order is provided in Attachment 3, and an example of an electronic copy form is provided in Attachment 11.

IPC-1

[2] If not already installed, install and hook up a charged battery.

IPC-1

[3] Use a voltage tester to check the voltage of the battery and record the voltage. Check "Complete" (i.e. "Yes") or "Failed" (i.e. No") to indicate if battery voltage is acceptable upon departure from the station (generally ≥11.7 V but may vary by configuration). Document power supply function on the ISCO 3700 Sampler Activation Form, see Attachments 3 and 11.

- Hard copy: Enter value(s) on the task comment line.
- Electronic copy: Enter *numeric value* (e.g. 12.4 not 12.4v) in the Final Reading field. The value entered in this field should be the final voltage. If a different voltage was taken at start of inspection (e.g. low voltage encountered and battery changed at inspection) enter that *numeric value* in the Initial Reading field.

[4] Perform any necessary maintenance and describe in the task comment line. If more space is needed on the hard copy, continue notes in the "Labor Report" section, citing task # being continued.

If maintenance cannot be completed at the time of activation, then describe the condition and work needed in the task comment line.

[5] Turn on sampler power. "Program halted" will be displayed; press enter/program button to enter program/configure sequence.

[6] Ensure the configuration and programming parameters are correct for the specific installation – follow Sections 6.3 and 6.4 for the steps and see Attachments 7, 8, and 9 for the correct programming parameters.

IPC-1

[7] Document the sample tubing passed a suction test by checking the "Complete" (i.e. "Yes") or "Failed" (i.e. No") box.

IPC-1

Check the condition of sample tubing and pump tubing. If maintenance (e.g., clearing the tube, replacing the tube) is necessary and can be performed at the time of inspection, perform the work and describe in the task comment line. If more space is needed on the hard copy, continue notes in the "Labor Report" section, citing task # being continued.

If maintenance cannot be completed at the time of activation, then describe the condition and work needed in the task comment line.

IPC-1

[8] Verify all cable and electrical connections are attached and secure upon departure from the site by checking the "Complete" (i.e. "Yes") or "Failed" (i.e.No") box.

If maintenance (e.g., tightening connection, replacing cables) is necessary and can be performed at the time of inspection, describe the work performed in the task comment line. If more space is needed on the hard copy, continue notes in the "Labor Report" section, citing task # being continued.

If maintenance cannot be completed at the time of activation, then describe the condition and work needed in the task comment line.

[9] Remove center section assembly from the base assembly, remove caps from bottles, and seal caps in a resealable bag in the center of the sampler. If bottles are dirty or previously used, replace with new.

[10] Reinstall center section assembly.

[11] To activate the sampler, press "Start sampling" and "Enter" twice.

[12] Reinstall top cover assembly.

IPC-1

[13] Document the ISCO programming displays the following by checking the "Complete" (i.e. "Yes") or "Failed" (i.e. No").

- Samplers at gage stations (Sutron activated) mark "Complete" if the display indicates "Bottle 1 after 1", or Bottle 1 of X after 1"

OR

- Stand-alone samplers (actuator activated) mark "Complete" if the display indicates "Sampler Inhibited"

OR

- Stand-alone samplers (actuator activated with "Start Time Delay") mark "Complete" if the display indicates "Start Storm Program at time…".

If "Failed" document the reason in the task comment line.. Continue any notes in the "Labor Report" section, citing task # being continued.

Follow instructions on sample collection work order, see EP-DIV-SOP-10013 for guidance, regarding whether the sampler should be disabled or enabled with a "Start Time Delay": in some cases, sampler should be disabled immediately after collecting a sample so a

subsequent sample is not collected before the allowed time period (e.g. no sooner than 15 days from prior sample).

If sampler is to be deactivated, ensure sampler is turned off upon departure.

If sampler is to be left activated, press "Start sampling" and "Enter" twice:

- For samplers at a gauging station and thus connected to a Sutron data logger, ensure the sampler indicates "Bottle 1 of X After 1" or "Bottle 1 after 1".
- For samplers activated with an actuator and without a "Start Time Delay", ensure the sampler indicates "Sampler Inhibited".
- If a sampler is to be activated with a "Start Time Delay" enter the appropriate number of minutes into the configuration sequence. Ensure the sampler indicates "Start Storm Program at *time current time*". Record the "Start Time Delay" entered.
- Where applicable, reset the actuator switch to "latch" or "toggle/reset" (see the "Program" listed on the work order for settings).

Confirm sampler equipment, configuration, and programming, if an error occurs.

IPC-1

[14] Document any maintenance completed while on site in the task comment line. Describe the work performed or indicate "none completed" in the task comment line.

Maintenance items may include (but are not limited to) battery replacement, tubing clearing or replacement, site clearing, securing electrical connections, or sampler diagnostics or repair.

Check the physical condition of the sampler including the actuator and intake line for correct location and height in the channel. If maintenance (e.g., clearing debris, resetting line position, etc.) is necessary and can be performed at the time of activation, perform the work and describe in the task comment line. If more space is needed on the hard copy, continue notes in the "Labor Report" section, citing task # being continued.

IPC-1

[15] Document any maintenance needed that could not be completed while on site. Describe the needed maintenance in the task comment line. If more space is needed on the hard copy, continue notes in the "Labor Report" section, citing task # being continued. A separate work order for the station maintenance will be issued by the Data Management and Reporting Team.

IPC-1 If no follow-on maintenance is required, indicate "none required" in the task comment line.

Maintenance items may include (but are not limited to) battery replacement, tubing clearing or replacement, site clearing, securing electrical connections, or sampler diagnostics or repair

IPC-1 [16] Document any additional notes or site information in the "Labor Report" section.

[17] Complete all items on the work order using instructions given in Section 6.11 for guidance.

6.7 Standing Down or Winterizing Samplers

Route Lead

[1] Follow the steps in this section when a work order is received to turn off ("stand down") a sampler (generally at the end of a field season or to disable a sampler for a certain time period after a sample was collected). An example of a hard copy sampler stand-down work order is provided in Attachment 4, and an example of an electronic version form is provided in Attachment 11.

IPC-1

[2] The interval between samples collected for the purposes of IP confirmation monitoring must be at least 15 days. Samplers will be stood down if the first of two required samples for IP confirmation monitoring is retrieved within 7 days of the preceding measurable storm event. See Attachment 10 for recommended actions for each of the 15 days between eligible samples.

[3] Turn off power.

[4] Remove center section assembly and place caps on bottles to keep them clean.

[5] If a sampler will be left in place for the winter, remove the battery and return to storage.

[6] Reinstall center section assembly and top cover assembly.

[7] Complete all items on the work order using instructions given in Section 6.11 for guidance.

6.8 Sampler Reset and Re-Activation after Sample Collection

Route Lead

[1] Document sampler inspection and sample retrieval activities using Form 10013-1. Ensure new bottles are installed so the sampler is ready to collect new samples see EP-DIV-SOP-10013 for guidance.

[2] After collecting samples and resetting the sampler, follow instructions on sample collection work order regarding whether the sampler should be disabled: in many cases, sampler should be disabled immediately after collecting a sample so a subsequent sample is not collected before the allowed time period (no sooner than 15 days for some programs).

If sampler is to be deactivated, ensure sampler is turned off upon departure.

If sampler is to be left activated, press "Start sampling" and "Enter" twice:

- For samplers at a gauging station and thus connected to a Sutron datalogger, ensure the sampler indicates "Bottle 1 after 1".
- For samplers not located at a gauging station, ensure the sampler indicates "Sampler inhibited".

If a sampler is to be activated with a "Start Time Delay" enter the appropriate number of minutes into the configuration sequence. Ensure the sampler indicates "Start Storm Program at *time current time*". Record the "Start Time Delay" entered.

6.9 Removing a Sampler

Route Lead

IPC-1

[1] Follow the steps in this process when a work order is received to physically remove a sampler. An example of a hard copy sampler removal work order is provided in Attachment 5, and an example of an electronic version form is provided in Attachment 11.

[3] Disconnect all equipment and remove from site. Return equipment to storage.

[4] Containerize pending disposal all equipment components that contacted samples (tubing, bottles, etc.) as waste according to applicable waste management procedure.

[5] Complete all items on the work order using instructions given in Section 6.11 for guidance.

6.10 Maintaining Sampling Equipment

Route Lead

IPC-1

[1] An example of a hard copy sampler maintenance work order is provided in Attachment 6, and an example of an electronic copy form is provided in Attachment 11.

[2] Follow the steps in this process when a work order is received to maintain a sampler.

[3] Make repairs stated in the work order.

[4] Document repairs and "On Departure" tasks as noted in the work order.

[5] Complete all items on the work order using instructions given in Section 6.11 for guidance.

6.11 General Steps for Completing Work Order

Route Lead

IPC-1

[1] **Item 1** on work order (see example in Attachments 1 through 6 and 11). Enter the Responded (i.e. arrival) date and time work is initiated:

- Hard copy: on the section provided on the signature page. Also document the names and Z numbers of the field personnel performing the work. List the field lead first. If more than two personnel conduct the work, enter the additional names in the "Labor Report" section.
- Electronic version: Select the appropriate Work Order from the My WOs page and select "Responded" from the Status dropdown. Document the names and Z numbers of field personnel performing the work in the "Labor Report" section. *If you are conducting electronic data collection alongside hard copy data collection, this date/time needs to be identical to the Responded date/time entered on the hard copy form SOP-10008-X*

[2] **Item 2**: Verify and document that the manufacturer, model, and serial number of equipment on site match the equipment traveler spreadsheet (Attachment 12). If serial numbers of deployed equipment are not recorded on the spreadsheet or do not match the equipment listed on the work order, ensure you are at the correct location. If the location is verified update inaccurate or incomplete information in the "Labor Report" section.

IPC-1

[3] **Item 3:** Perform the requested tasks as instructed in the 'Tasks' section of the work order. Verify and document each task by checking "Complete" (i.e. "Yes") or "Failed" (i.e. No"). Document work performed/not performed as needed on the task comment line. If more space is needed, continue notes in the "Labor Report" section, citing the task # being continued.

[4] **Item 4:** (Applies to 10008-3 and 10008-6 only) For questions regarding documenting battery voltages, record voltage by:

- Hard copy: entering value(s) on the task comment line.
- Electronic copy: entering *numeric value* (e.g. 12.4 not 12.4v) in the Final Reading field. The value entered in this field should be the final voltage. If a different voltage was taken at start of inspection (e.g. low voltage encountered and battery changed at inspection) enter that *numeric value* in the Initial Reading field.

[5] **Item 5:** Use the "Labor Report" section for any additional notes or information. If more space is needed on a hard copy form use a blank continuation page.

[6] **Item 6**: Confirm that ***every*** page in the hard copy work order package has been documented with the Work Order ID and page # of total # of pages (for work order task page(s) and continuation page(s), document in the lower right hand corner, and on the lines provided on the signature page).

[7] **Item 7:** Enter the Completed (i.e. departure) date and time:

- Hard copy: on the section provided on the signature page.
- Electronic version: select "Completed" from the Status dropdown. *If you are conducting electronic data collection alongside hard copy data collection, this date/time needs to be identical to the Completed date/time entered on the hard copy form SOP-10008-X.*

[8] **Item 8:** The Lead Inspector will certify that the information submitted is "true, accurate, and complete" by:

- Hard copy: signing and dating the "Lead Signature" line on the signature page.
- Electronic version: Click on the Signature bar to open the signature section. Type your full name and Z# in the "Comments" text field, then capture an electronic signature. *If you are conducting electronic data collection alongside hard copy data collection, the signatory needs to be the same signatory of the hard copy form SOP-10008-X.*

IPC-1

[9] If electronic data collection was performed, navigate back to the "My WO"s page. Using the "Menu dropdown" (see attachment 11 **Item 9)** confirm you are in a 'Connected' state, then select "Sync". All Work Orders placed in Completed status (see **Item 7**) since the last synchronization will be uploaded to the Maintenance Connection database. At the end of field work or work day, Log out of the application.

7. RECORDS PROCESSING

Route Lead

[1] Ensure that documents generated by the performance of this procedure are processed as follows:

Record Identification	Record Type Determination	Protection/Storage Methods	Processing Instructions
Work Orders: 10008-1, 10008-2, 10008-3, 10008-4, 10008-5, 10008-6	Form	N/A	When complete, submit the work order to the Stormwater Information Management and Reporting Team

IPC-1

Data Management and Reporting Team

[1] Initial and date the "Accepted" field in the "LANL PERSONNEL USE ONLY" section of each hard copy work order received from the Route Lead.

[2] Initial and date the "Tech QC" field in the "LANL PERSONNEL USE ONLY" section of each hard copy work order after the record is entered into the computer maintenance management system, Maintenance Connection.

[3] Initial and date the "FTL" field in the "LANL PERSONNEL USE ONLY" section of each hard copy work order as recommended actions from the work order are reviewed and follow-up actions are initiated.

[4] Ensure that documents generated by the performance of this procedure are processed as follows:

Record Identification	Record Type Determination	Protection/Storage Methods	Processing Instructions
Attachment Work Orders: 10008-1, 10008-2, 10008-3, 10008-4, 10008-5, 10008-6	Form	Submit records in accordance with EP-DIR-AP-10003, *Records Management Procedure for ADEP Employees.*	When complete, submit the work order to the Stormwater and Individual Permit Records Management When the records are ready for final disposition, the record is transferred to Records Management in accordance with EP-DIR-AP-10003, *Records Management Procedure for ADEP Employees.*

8. ATTACHMENTS

IPC-1

Attachment 1: Sampler Installation Work Order: Hard Copy Form 10008-1 (Example)

Attachment 2: Sampler Verification Work Order: Hard Copy Form 10008-2 (Example)

Attachment 3: Sampler Activation Work Order: Hard Copy Form 10008-3 (Example)

Attachment 4: Sampler Stand-Down Work Order: Hard Copy Form 10008-4 (Example)

Attachment 5: Sampler Removal Work Order: Hard Copy Form 10008-5 (Example)

Attachment 6: Sampler Maintenance Work Order: Hard Copy Form 10008-6 (Example)

Attachment 7: ISCO 3700 Configure Sequence

Attachment 8: ISCO 3700 Program Sequence

Attachment 9: ISCO 3700 Program Sequences for Storm Sampling with Delay

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Attachment 10: ISCO 3700 Start Time Delay for IP Confirmation Monitoring

Attachment 11: Sampler Activation Work Order: Electronic Version Form10008-3 (Example)

Attachment 12: Configuration and Equipment Traveler Spreadsheet Example

IPC-1

ATTACHMENT 1

Page 1 of 2

Sampler Installation Hard Copy Form

Los Alamos National Lab

Work Order SMPLR-53066

Ind Permit Sampler Insp & Maint
Printed 5/5/2016 - 9:56 AM (Duplicate Copy)

Maintenance Details

Requested: 5/5/2016 9:50:00 AM
Taken By: Smith, Shannon
Procedure: Sampler Installation (EP-DIV-SOP-10008-1 IPC)
Last PM: 3/31/2016
Project: Example Project (P-SMPLR-4686)
Target: 5/27/2016
Priority/Type: / New Installation
Account: TA-08/09 Implementation Unit

IP
RG-TA-06
E007
2M-SMA-1.65
SS093209

Contact:
Phone:

Reason: SOP-10008-1 IPC (Example Sampler installation)

Special Instructions: Route 5

"No" "Yes"

Tasks

#	Description	Rating	Meas.	Initials	Failed	N/A	Complete
Sampler Installation							
10	Install ISCO sampler per SOP-10008, Section 6.2				☐	☐	☐
25	Set ISCO sampler's programming per SOP-10008, Section 6.4				☐	☐	☐
35	Set ISCO sampler's configuration per SOP-10008-, Section 6.3				☐	☐	☐
37	Is sampler physically configured for the types and number of bottles specified in the provided traveler spreadsheet?				☐	☐	☐
39	Replace sample line and pump tubing				☐	☐	☐
40	Is Greenlee box used?				☐	☐	☐
41	Did diagnostics test pass?				☐	☐	☐
42	Are electrical connections secure?				☐	☐	☐
43	Record serial numbers for all equipment installed.				☐	☐	☐

3

Documents

ID	Document Name	Type	Location
B. EM inspection signature	B. EM Inspection Signature	Signature page	View

Labor Report

Completed: Failure: Meter 1: Meter 2:

Report: 2, 5, and task comment continuations

6

EXAMPLE

IPC-1

ATTACHMENT 1
Page 2 of 2
Sampler Installation Hard Copy Form

WO ID:_____ 6 _____ Page_____ 6 _____ of _____

Responded Date:_____ 1 _____ Time:_____ Completed Date:_____ 7 _____ Time:_____

Name/Z#:_____ 1 _____

Name/Z#:_____

Lead Signature:_____ 8 _____

"I confirm the information as recorded is true, accurate and complete."

LANL PERSONNEL USE ONLY (initials and dates)

Accepted_____ Tech QC_____ FTL_____

IPC-1

ATTACHMENT 2

Page 1 of 2

Sampler Verification Hard Copy Form

Los Alamos National Lab

Work Order SMPLR-53066

Ind Permit Sampler Insp & Maint
Printed 5/5/2016 - 10:13 AM (Duplicate Copy)

Maintenance Details

Requested: 5/5/2016 9:50:00 AM
Taken By: Smith, Shannon
Procedure: Sampler Verification (EP-DIV-SOP-10008-2 IPC)
Last PM: 3/31/2016
Project: Example Project (P-SMPLR-4686)

Target: 5/27/2016
Priority/Type: / Make Ready
Account: TA-08/09 Implementation Unit

IP
RG-TA-06
E007
2M-SMA-1.65
SS093209

Contact:
Phone:

Reason: SOP-10008-2 IPC (Example Sampler verification)

Special Instructions: Route 5

"No" "Yes"

Tasks

#	Description	Rating	Meas.	Initials	Failed	N/A	Complete
	Sampler Verification. Note: if "Failed" provide correct information.						
10	Are equipment serial #s verified?				☐	☐	☐
20	Are equipment model numbers verified?				☐	☐	☐
30	Are equipment manufacturers verified?				☐	☐	☐
40	Is listed bottle set configuration present?				☐	☐	☐
50	Is charged battery installation verified?				☐	☐	☐
60	Is the correct sampler programming verified?				☐	☐	☐
70	Record height of actuator above channel bottom in decimal feet.				☐	☐	☐
80	Were GPS coordinates taken?				☐	☐	☐
					☐	☐	☐

3

Documents

ID	Document Name	Type	Location
B. EM inspection signature	B. EM Inspection Signature	Signature page	view

Labor Report

Completed: Failure: Meter 1: Meter 2:

Report: 2, 5, and task comment continuations

6

IPC-1

ATTACHMENT 2
Page 2 of 2
Sampler Verification Hard Copy Form

WO ID:_____ 6 _____ Page_____ 6 _____ of _____

Responded Date:_____ 1 _____ Time:_____ Completed Date:_____ 7 _____ Time:_____

Name/Z#:_____ 1 _____

Name/Z#:_____

Lead Signature:_____ 8 _____

"I confirm the information as recorded is true, accurate and complete."

LANL PERSONNEL USE ONLY (initials and dates)

Accepted_____ Tech QC_____ FTL_____

IPC-1

ATTACHMENT 3

Page 1 of 2

Sampler Activation Hard Copy Form

Los Alamos National Lab

Work Order SMPLR-53066

Ind Permit Sampler Insp & Maint
Printed 5/5/2016 - 10:25 AM (Duplicate Copy)

Maintenance Details

Requested: 5/5/2016 9:50:00 AM
Taken By: Smith, Shannon
Procedure: Sampler Activation (EP-DIV-SOP-10008-3 IPC)
Last PM: 3/31/2016
Project: Example Project (P-SMPLR-4686)

Target: 5/27/2016
Priority/Type: / Make Ready
Account: TA-08/09 Implementation Unit

IP
RG-TA-06
E007
2M-SMA-1.65
SS093209

Contact:
Phone:

Reason: SOP-10008-3 IPC (Example Sampler activation)

Special Instructions: Route 5

"No" "Yes"

Tasks

#	Description	Rating	Meas.	Initials	Failed	N/A	Complete
	Sampler Activation. Note: If "failed" provide correct information or explanatio						
10	**ISCO 3700 Sampler [198H01002]** Confirm the ISCO sampler's installation per SOP-10008, Section 6.2				☐	☐	☐
20	**ISCO 3700 Sampler [198H01002]** Confirm the ISCO sampler's configuration per SOP-10008, Section 6.3				☐	☐	☐
30	**ISCO 3700 Sampler [198H01002]** Confirm the ISCO sampler's programming per SOP-10008, Section 6.4				☐	☐	☐
31	Is time delta < 1 min (MST)? If no record adjustment.				☐	☐	☐
32	**ISCO 3700 Sampler [198H01002]** Has recommended test of sampler setup been performed using DI water per SOP-10008, Section 6.4.9				☐	☐	☐
45	Was battery installed? (Range: 0 - 0)				☐	☐	☐
50	Record battery voltage. Is voltage acc...ble? (Range: 0 - 0)				☐	☐	☐
60	Does sample tubing pass suctio... test?				☐	☐	☐
70	Does ISCO display either "Bottle... of X at... 1", "Sampler Inhibited" or "St... Progra...at..."?				☐	☐	☐
80	If any maintenance co...pleted, ch...Describe. (Range: 0 - 0)				☐	☐	☐
90	If any follow-on main...e is req...red, check Yes: Describe. (Range: 0 - 0)				☐	☐	☐
					☐	☐	☐

3

4

EXAMPLE

Documents

ID	Document Name	Type	Location
B. EM inspection signature	B. EM Inspection Signature	Signature page	View

Labor Report

Completed: _____ Failure: _____ Meter 1: _____ Meter 2: _____

Report: 2, 5, and task comment continuations

6

IPC-1

ATTACHMENT 3
Page 2 of 2
Sampler Activation Hard Copy Form

WO ID:_____ 6 _____ Page_____ 6 _____ of _____

Responded Date:_____ 1 _____ Time:_____ Completed Date:_____ 7 _____ Time:_____

Name/Z#:_____ 1 _____

Name/Z#:_____

Lead Signature:_____ 8 _____

"I confirm the information as recorded is true, accurate and complete."

LANL PERSONNEL USE ONLY (initials and dates)

Accepted_____ Tech QC_____ FTL_____

IPC-1

ATTACHMENT 4
Page 1 of 2
Sampler Shut-Down Hard Copy Form

Los Alamos National Lab

Work Order SMPLR-53066
Ind Permit Sampler Insp & Maint
Printed 5/5/2016 - 10:52 AM (Duplicate Copy)

Maintenance Details

Requested: 5/5/2016 9:50:00 AM
Taken By: Smith, Shannon
Procedure: Sampler Shut-down (EP-DIV-SOP-10008-4 IPC)
Last PM: 3/31/2016
Project: Example Project (P-SMPLR-4686)
Target: 5/27/2016
Priority/Type: / New Installation
Account: TA-08/09 Implementation Unit

IP
RG-TA-06
E007
2M-SMA-1.65
SS093209

Contact:
Phone:

Reason: SOP-10008-5 IPC (Example Sampler Shut-down)

Special Instructions: Route 5

"No" "Yes"

Tasks

#	Description	Rating	Meas.	Initials	Failed	N/A	Complete
	Sampler Shut-Down. Note: If "Failed" provide explanation						
7	Is sampler ON and functioning properly upon arrival?				☐	☐	☐
8	Does ISCO display either "Bottle 1 of X after 1" or "Samper Inhibited"? If No, record specific message(s) in additional notes section.				☐	☐	☐
9	Is water present on arrival. *** If yes, call in for further instructions *** (Range: 0 - 0)				☐	☐	☐
10	Turn ISCO unit "OFF."				☐	☐	☐
20	Place caps securely on bottles in the sample carousel.				☐	☐	☐
	Actuator Triggered ISCOs						
30	Disconnect and remove battery. Transport battery to designated area for maintenance and storage.				☐	☐	☐
40	Place battery cables securely inside Greenlee box or ISCO casing.				☐	☐	☐
50	Pull up actuator and store in Greenlee box or ISCO casing.				☐	☐	☐
					☐	☐	☐

3

3

EXAMPLE

Documents

ID	Document Name	Type	Location
B. EM inspection signature	B. EM Inspection Signature	Signature page	View

Labor Report

Completed: Failure: Meter 1: Meter 2:

Report: 2, 5, and task comment continuations

6

IPC-1

ATTACHMENT 4
Page 2 of 2
Sampler Shut-Down Hard Copy Form

WO ID:_____ 6 _____ Page_____ 6 _____ of _____

Responded Date:_____ 1 _____ Time:_____ Completed Date:_____ 7 _____ Time:_____

Name/Z#:_____ 1 _____

Name/Z#:_____

Lead Signature:_____ 8 _____

"I confirm the information as recorded is true, accurate and complete."

LANL PERSONNEL USE ONLY (initials and dates)

Accepted_____ Tech QC_____ FTL_____

IPC-1

ATTACHMENT 5

Page 1 of 2

Sampler Removal Hard Copy Form

Los Alamos National Lab

Work Order SMPLR-53066

Ind Permit Sampler Insp & Maint
Printed 5/5/2016 - 11:03 AM (Duplicate Copy)

Maintenance Details

Requested: 5/5/2016 9:50:00 AM
Taken By: Smith, Shannon
Procedure: Sampler Removal (EP-DIV-SOP-10008-5 IPC)
Last PM: 3/31/2016
Project: Example Project (P-SMPLR-4686)
Reason: SOP-10008-5 IPC (Example Sampler removal)
Special Instructions: Route 5

Target: 5/27/2016
Priority/Type: / New Installation
Account: TA-08/09 Implementation Unit

IP
RG-TA-06
E007
2M-SMA-1.65
SS093209

Contact:
Phone:

"No" "Yes"

Tasks

#	Description	Rating	Meas.	Initials	Failed	N/A	Complete
Sampler Removal. Note: If "Failed" provide explanation							
10	Is sampler removed?				☐	☐	☐
20	Is battery removed?				☐	☐	☐
30	Is sample tubing removed?				☐	☐	☐
40	Is Greenlee box removed?				☐	☐	☐
50	Are bottle sets removed?				☐	☐	☐
60	Is sampler cleaned and ready to be deployed to new location?				☐	☐	☐
70	Was equipment placed in storage? If YES, provide location(s).				☐	☐	☐

3

Documents

ID	Document Name	Type	Location
B. EM inspection signature	B. EM Inspection Signature	Signature page	View

Labor Report

Completed: Failure: Meter 1: Meter 2:

Report: 2, 5, and task comment continuations

6

EXAMPLE

IPC-1

ATTACHMENT 5
Page 2 of 2
Sampler Removal Hard Copy Form

WO ID:_____ 6 _____ Page_____ 6 _____ of _____

Responded Date:_____ 1 _____ Time:_____ Completed Date:_____ 7 _____ Time:_____

Name/Z#:_____ 1 _____

Name/Z#:_____

Lead Signature:_____ 8 _____

"I confirm the information as recorded is true, accurate and complete."

LANL PERSONNEL USE ONLY (initials and dates)

Accepted_____ Tech QC_____ FTL_____

IPC-1

ATTACHMENT 6

Page 1 of 2

Sampler Maintenance Hard Copy Form

Los Alamos National Lab

Work Order SMPLR-53066

Ind Permit Sampler Insp & Maint
Printed 5/5/2016 - 11:10 AM (Duplicate Copy)

Maintenance Details

Requested: 5/5/2016 9:50:00 AM
Taken By: Smith, Shannon
Procedure: Sampler Maintenance (EP-DIV-SOP-10008-6 IPC)
Last PM: 3/31/2016
Project: Example Project (P-SMPLR-4686)

Target: 5/27/2016
Priority/Type: / New Installation
Account: TA-08/09 Implementation Unit

IP
RG-TA-06
E007
2M-SMA-1.65
SS093209

Contact:
Phone:

Reason: SOP-10008-6 IPC (Example Sampler maintenance)

Special Instructions: Route 5

"No" "Yes"

Tasks

EXAMPLE

#	Description	Rating	Meas.	Initials	Failed	N/A	Complete
	Sampler Maintenance. Note: If "Failed" provide explanation.						
10	Change existing bottle set configuration from 24c- 24 1L poly wedge to 12c- 6 glass / 6 poly				☐	☐	☐
	ON DEPARTURE. Note: If "Failed" provide explanation.						
20	**ISCO 3700 Sampler [198H01002]** Record battery voltage. Is voltage acceptable?				☐	☐	☐
30	**ISCO 3700 Sampler [198H01002]** Does sample tubing pass suction test?				☐	☐	☐
40	**ISCO 3700 Sampler [198H01002]** Are electrical connections secure?				☐	☐	☐
50	**ISCO 3700 Sampler [198H01002]** Does ISCO display either "Bottle 1 of X after 1" or "Sampler Inhibited"?				☐	☐	☐
60	If any follow-on maintenance is required, check YES: Describe. (Range: 0 - 0)				☐	☐	☐
70	**ISCO 3700 Sampler [198H01002]** Is sampler ON upon departure?				☐	☐	☐

3 3 4

~~**Documents**~~

ID	Document Name	Type	Location
~~B. EM inspection signature~~	~~B. EM Inspection Signature~~	~~Signature page~~	~~View~~

Labor Report

~~Completed: ______ Failure: ______ Meter 1: ______ Meter 2: ______~~

Report: 2, 5, and task comment continuations

6

IPC-1

ATTACHMENT 6
Page 2 of 2
Sampler Maintenance Hard Copy Form

WO ID:_____ 6 _____ Page_____ 6 _____ of _____

Responded Date:_____ 1 _____ Time:_____ Completed Date:_____ 7 _____ Time:_____

Name/Z#:_____ 1 _____

Name/Z#:_____

Lead Signature:_____ 8 _____

"I confirm the information as recorded is true, accurate and complete."

LANL PERSONNEL USE ONLY (initials and dates)

Accepted_____ Tech QC_____ FTL_____

ATTACHMENT 7
Page 1 of 1
ISCO 3700 Configure Sequence

Select Option	**Parameter**	**Storm Sampling**	**Time Sampling**	**Flow Sampling**
Set Clock	Time/ Date	[Set to MST]	[Set to MST]	[Set to MST]
Bottles and Sizes	(Portable, Refrig) Sampler	Portable	Portable	Portable
	(1,4,12,24) Bottles	12 or 24	12 or 24	12 or 24
	Bottle Volume Is	950 ml	950 ml	950 ml
Suction Line	Suction Line I.D. Is	3/8 inch	3/8 inch	3/8 inch
	Suction Line Is (Vinyl, Teflon)	Teflon	Teflon	Teflon
	Suction Line Length Is	X feet	X feet	X feet
Liquid Detector	(Enable, Disable) Liquid Detector	Enable	Enable	Enable
	Rinse Cycles	1	1	1
	Enter Head Manually?	Yes	Yes	Yes
	Retry Up To X Times When Sampling	1	1	1
Programming Mode	(Basic, Extended) Program Mode	Extended	Basic	Basic
Load Stored Program	Load Program	None	n/a	n/a
Save Current Program	Save Program As	None	n/a	n/a
Flow Mode Sampling	Take Sample At Start Time?	No	n/a	n/a
	Take Sample At Time Switch?	No	n/a	n/a
Nonuniform Time	Enter Intervals In (Clock Time, Minutes)	Minutes	n/a	n/a
Calibrate Sampler	(Enable, Disable) Calibrate Sampler	Disable	Disable	Disable
Sampling Stop/Resume	(Enable, Disable) Sampling Stop/Resume	Disable	n/a	n/a
Start Time Delay	X Minute Delay To Start	(0-9999)	(0-9999)	(0-9999)
Enable Pin	Master/Slave Mode?	No	No	No
	Sample Upon Disable?	No	No	No
	Sample Upon Enable?	No	Yes	Yes
	Reset Sample Interval?	Yes	Yes	Yes
Event Mark	(Continuous Signal, Pulse)	Pulse	Pulse	Pulse
	At The Beginning Of (Purge, Fwd Pumping)	Purge	Purge	Purge
Purge Counts	Pre-Sample Counts	100	100	100
	Post Sample Counts	300	300	300
Tubing Life	# Pump Counts, Warning at #	(enter)	(enter)	(enter)
	Reset Pump Counter?	No	No	No
	X Pump Counts To Warning	500,000	500,000	500,000
Program Lock	(Enable, Disable) Program Lock	Disable	Disable	Disable
Sampler ID	Sampler ID Number Is	[leave blank]	[leave blank]	[leave blank]
Run Diagnostics (Software Revision 4.6)	Run Diagnostics	Yes	Yes	Yes
	Test distributor	Yes	Yes	Yes
	Re-initialize	No	No	No
Exit Configuration	(enter)	…Standby…	…Standby…	…Standby…

n/a = not applicable

ATTACHMENT 8
Page 1 of 1

ISCO 3700 Program Sequence

Parameter	Storm Sampling with 12 of 24	Storm Sampling with Delay
[Switch on liquid actuator]	Reset to "Latch"	"Toggle/Reset" if applicable
Paced Sampling	Storm	Storm
Time Mode First Bottle Group	0-minute	(X)-minute
Take X Timed Sample Events	12	1 to (# Bottles - 1)
Sample Intervals of X Minutes (1-999)	1	1
X Bottles Per Sample Event (1-23)	1	1
X Samples Per Bottle (1-12)	1	1
Sample Volumes Of	950 ml	950 ml
Bottles Available	12	# Bottles
Second Bottle Group	Flow	Time
X Minute Delay To Second Group Samples	n/a	(X) minutes
Sample Intervals Of	n/a	(X) minutes
X Bottles Per Sample Event (1-18)	n/a	18
X Samples Per Bottle	n/a	1
Sample Volumes Of	n/a	950 ml
[During, After] First Group	After	n/a
Sample Every X Pulses (1-9999)	10	n/a
Max Flow Interval of:	1 Hours, 0 Minutes	n/a
X Bottles Per Sample Event (1-18)	1	n/a
X Samples Per Bottle	1	n/a
Sample Volumes of X ml (10-1000):	200	n/a
Suction Head of X Feet	1	n/a
Enter Start Time	No	No
[Programming Sequence complete]	…Standby…	…Standby…

Parameter	Time Sampling	Flow Sampling
[Switch on liquid actuator]	Reset to "Toggle/Reset"	NA
Paced Sampling	Time	Flow
Sample Every	0 Hours, 1 Min	1 Pulse
Multiplex Samples?*	Yes	Yes
(Bottles Per Sample, Samples Per Bottle)*	Bottles Per Sample	Bottles Per Sample
X Bottles Per Sample Event	1	1 or 12 or 24
Sample Volumes Of	950 ml	950 ml
Enter Start Time	No	No
[Programming Sequence Complete]	…Standby…	…Standby…

* The Program sequence defaults back to "Multiplex Samples" "No" and "Samples Per Bottle" every time the Program is reviewed. Adjustment is required to restore the correct settings.

ATTACHMENT 9
Page 1 of 1
ISCO 3700 Program Sequences for Storm Sampling with Delay

	Example Work Order "Storm Program" Identification			
Parameter	Storm/Delay 0-1x1@1min/ Delay 1-1x11@1min	Storm/Delay 0-6x1@1min/ Delay 60-3x2@45min	Storm/Delay 0-15x1@2min/ Delay 30-9x1@20min	Storm/Delay 0-6x1@5min/ Delay 30-19x1@20min
(Time, Flow, Storm) Paced Sampling	Storm	Storm	Storm	Storm
Time Mode First Bottle Group	0-minute delay to first group sample	0-minute delay to first group sample	0-minute delay to first group sample	0-minute delay to first group sample
Take X Timed Sample Events (1-50)	1	6	15	6
Sample Intervals of X Minutes (1-999)	1 min	1 min	2 min	5min
X Bottles Per Sample Event	1	1	1	1
X Samples Per Bottle	1	1	1	1
Sample Volumes Of	950 ml	950 ml	950 ml	950 ml
Bottles Available	11 Bottles	6 Bottles	9 Bottles	18 Bottles
(Time, Flow) Second Bottle Group	Time	Time	Time	Time
X Minute Delay To Second Group Samples	1 min	60 min	30 min	30 min
Sample Intervals Of	1 min	45 min	20 min	20 min
X Bottles Per Sample Event	11	2	1	1
X Samples Per Bottle (1-50)	1	1	1	1
Sample Volumes Of (10-1000)	950 ml	950 ml	950 ml	950 ml
If Configuration "Enter Head Manually" is "Yes", Suction Head of X feet	(X) feet (up to length of sample tube)	(X) feet (up to length of sample tube)	(X) feet (up to length of sample tube)	(X) feet (up to length of sample tube)
If Configuration "Calibrate Sampler" is "Enable", Calibrate Sample Volume?	Yes or No	Yes or No	Yes or No	Yes or No
Enter Start Time	No	No	No	No
[Programming Sequence complete]	…Standby…	…Standby…	…Standby…	…Standby…

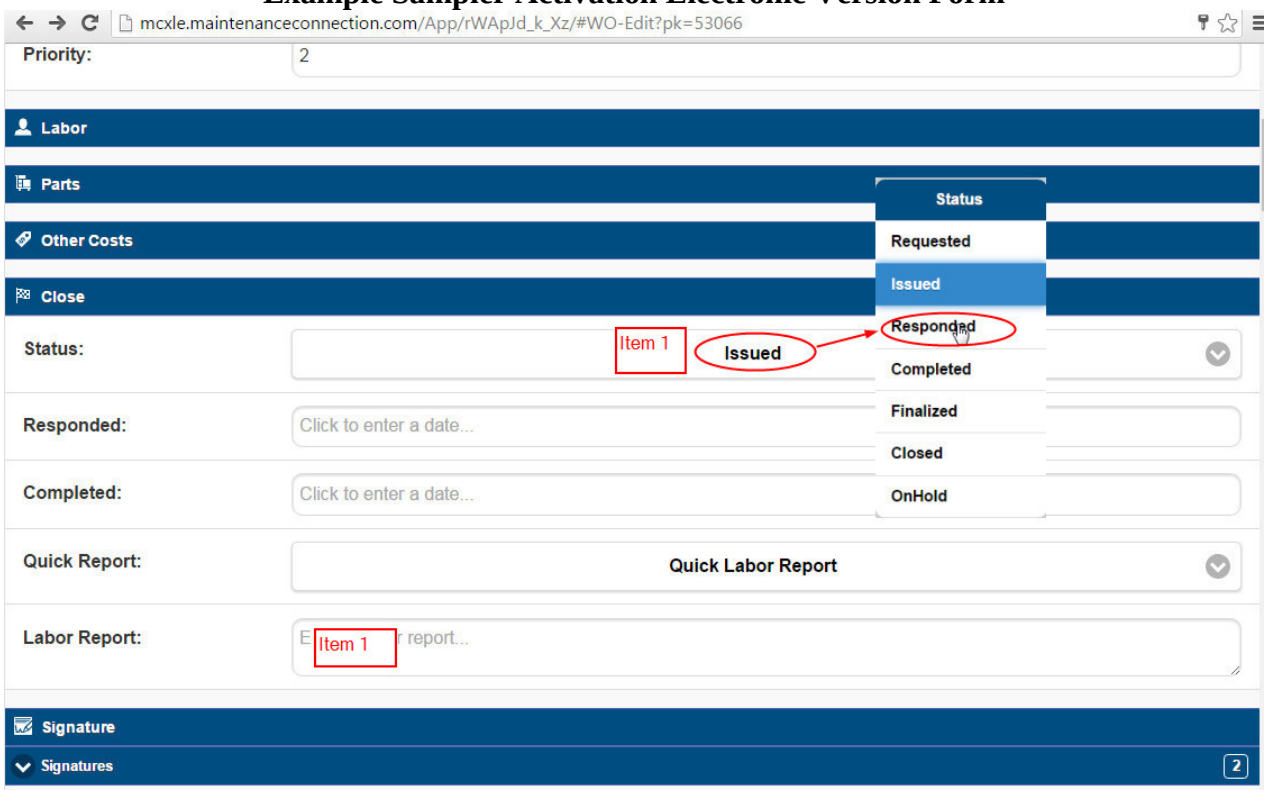
ATTACHMENT 10
Page 1 of 1
ISCO 3700 Start Time Delay for IP Confirmation Monitoring

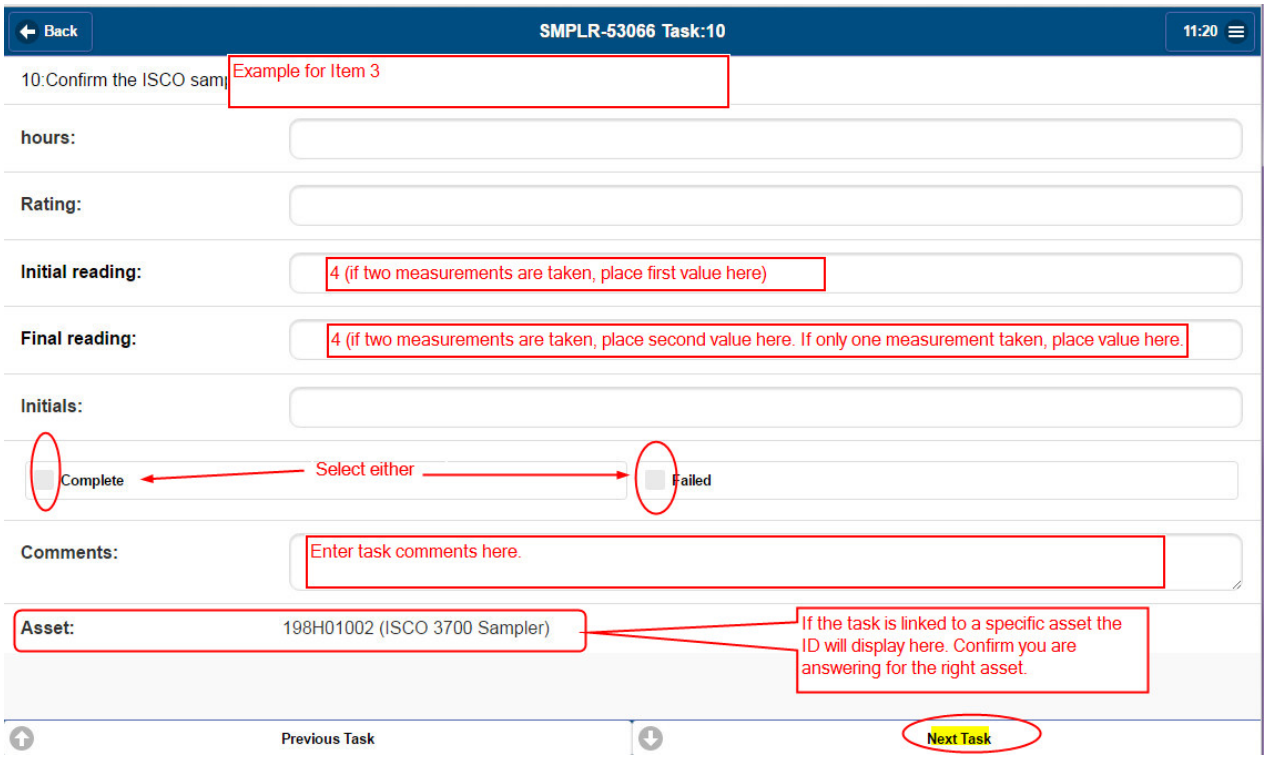
ISCO 3700 Start Time Delay for IP Confirmation Monitoring			
Week #	**Interval in days since the preceding sampled storm event**	**Days to next eligible storm event**	**Action after retrieval of sample for IP confirmation monitoring**
1	0	15	stand-down sampler
	1	14	stand-down sampler
	2	13	stand-down sampler
	3	12	stand-down sampler
	4	11	stand-down sampler
	5	10	stand-down sampler
	6	9	stand-down sampler
2	7	8	stand-down sampler
	8	7	Set 9999 Minute Delay to Start
	9	6	Set 8640 Minute Delay to Start
	10	5	Set 7200 Minute Delay to Start
	11	4	Set 5760 Minute Delay to Start
	12	3	Set 4320 Minute Delay to Start
	13	2	Set 2880 Minute Delay to Start
3	14	1	Set 1440 Minute Delay to Start
	15	0	Set 0 Minute Delay to Start

ATTACHMENT 11
Page 1 of 3

IPC-1

Example Sampler Activation Electronic Version Form

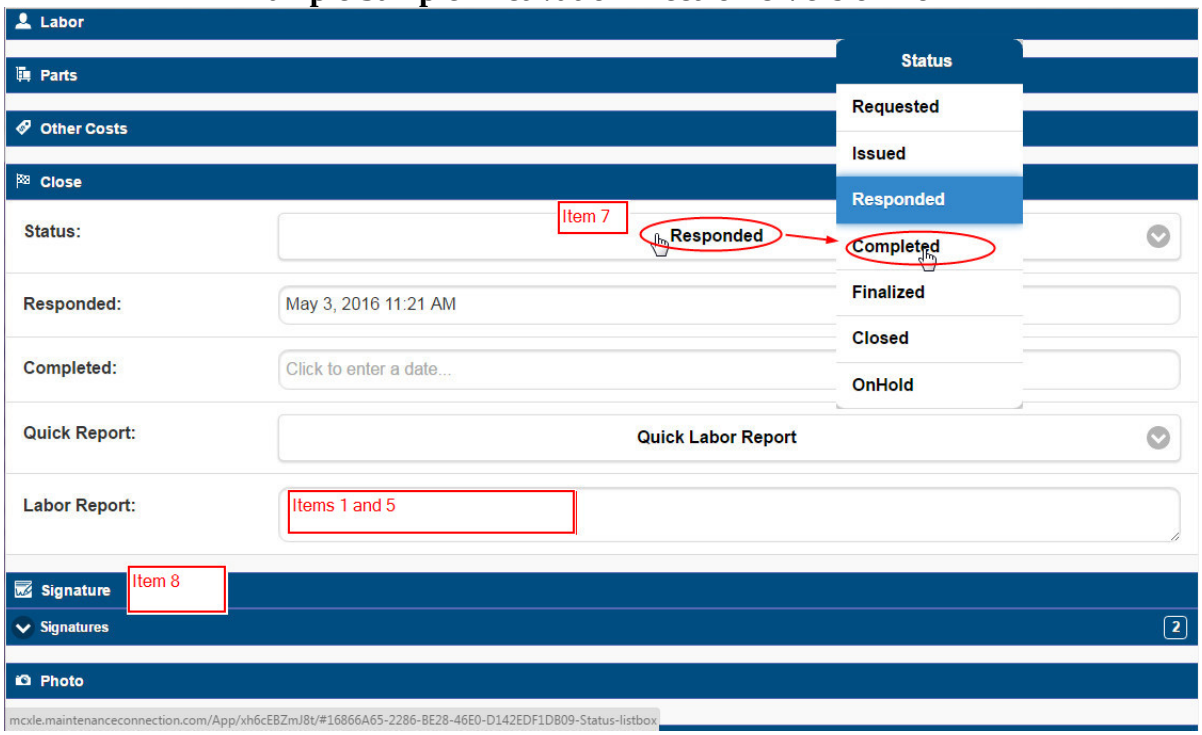


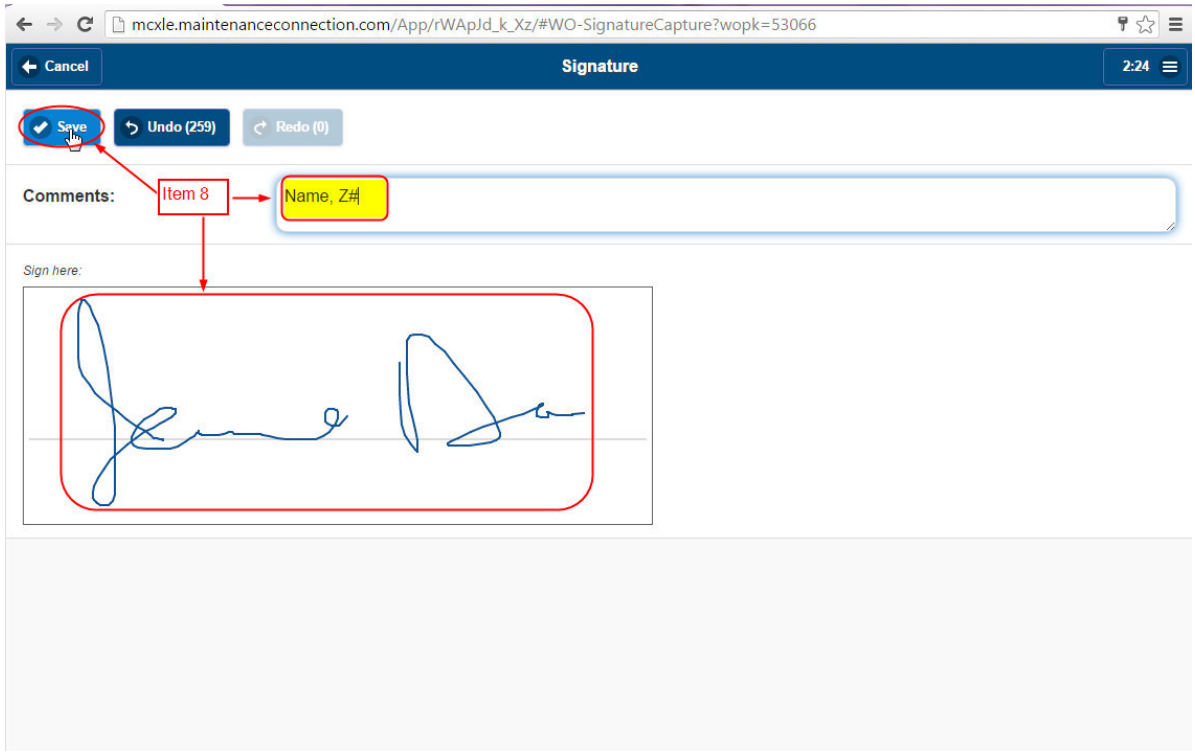


ATTACHMENT 11
Page 2 of 3

IPC-1

Example Sampler Activation Electronic Version Form



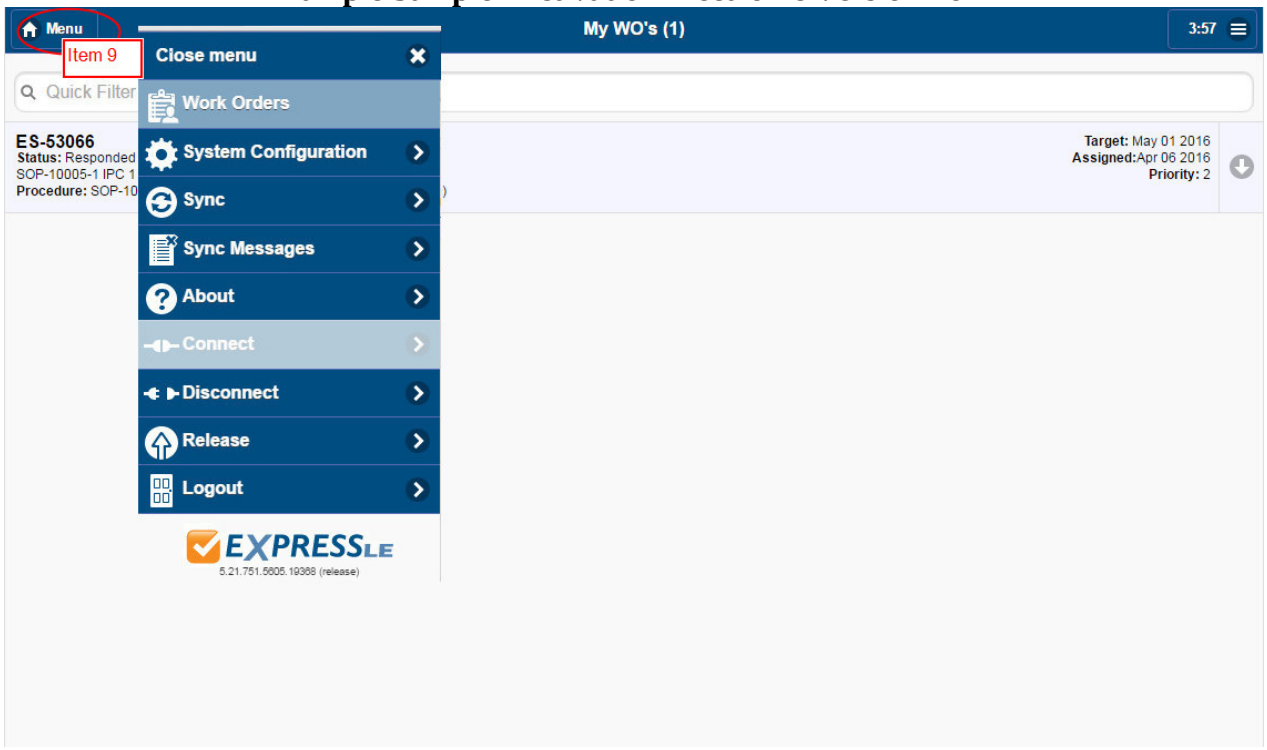


ATTACHMENT 11

Page 3 of 3

IPC-1

Example Sampler Activation Electronic Version Form



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ATTACHMENT 12
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Example Traveler Spreadsheet(s)

Sampler Inspection Configuration Traveler
Run Date 4_25_16

Route	SMA	Station ID	Trip Level	Program	Bottle set configuration	G Min	G Max	P Min	P Max
Route 5	2M-SMA-1.65	SS093209	0.08 FT	Time with Toggle and Reset	24c- 24 1L poly wedge	0	0	1	2

Sampler Inspection Equipment Traveler
Run date 4_25_16

Item 2

Route	SMA	Station ID	ISCO Serial #	Actuator Serial #	Solar Panel Serial #	Additional Equipment
5	2M-SMA-1.65	SS093209	198H01002	207J00266	12073740	