Field Audit Summary Report

Pesticide Stewardship Partnership

Spring 2017

Laboratory and Environmental Assessment Program
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DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

State of Oregon
Department of Environmental Quality

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Approvals

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Scott Hoatson
Quality Assurance Officer

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1. Introduction

The report summarizes the findings of audits performed by staff from the Toxics Monitoring Team of the Water Quality Monitoring Section, Oregon Department of Environmental Laboratory and Environmental Assessment Program (the Lab) of sample collection work performed by the 10 partner agencies of the Pesticide Stewardship Partnership (PSP) during the spring of 2017.

The Lab routinely carries out internal audits of all DEQ laboratory operations for two main purposes (DEQ14-LAB-0008-SOP):

- To evaluate and document staff compliance with data integrity procedures,
- To evaluate staff compliance with health and safety policies.

Data integrity is the generation of data of known and documented quality so that the users of the data can have confidence when using data to describe environmental status, trends, making management decisions or other analysis (DEQ14-LAB-0002-SOP).

The audits conducted we conducted are based on internal audits conducted by Water Quality Monitoring Section of the Lab and adapted using the PSP sampling and analysis plan and quality assurance project plan (DEQ05-LAB-0022-QAPP and DEQ11-LAB-0003-SAP).

2. Audit Checklist

The PSP audit check lists completed for each audit and a list of the field staff audited are included in Appendix A. The audit consists of more than 50 items performed by field staff in four broad categories:

1. Pre sampling preparation
2. Safety
3. Field sampling
4. Sample processing and shipping.

The safety section items are included as suggestions or comments to be considered rather than requirements since field staff in this program do not work for DEQ.

3. Methods

We spent a day with each field staff, observed them at work, and reviewed the chain of custody form and bottle labeling. Checklist items were scored either as a “concern” for performed incorrectly performed items, a “suggestion or comment” for safety related items that we felt could be improved, a “√” for correctly performed items, or as a follow-up issue. Follow-up issues are things that came up during the audit but are not part of the checklist. The “concern’ issue type is the only one that requires corrective action.

The complete field audit with notes for each partner are in Appendix A in alphabetical order by project.

Of the 51 audit checklist items and 10 partner agencies we found only eight items to have issues. All the other 43 checklist items were performed correctly by all partners. In addition, we found two other issues are things that came up during the audit that are not part of the checklist but need further discussion or follow up. Those items are listed in Table 1. Items that were performed correctly by all 10 field staff

partners are not included in the summary tables. Item numbers in Table 1 correspond to the checklist item numbers and includes the item status as far as required action.

Table 2 describes the item scorings and Table 3 presents the individual PSP project audit results for the eight issues with concerns and two other items that came up during the audits but are not on the checklist. Refer to the audit checklists in Appendix A for more detail.

4. Further Action

Seven out of the ten items in Table 3 that were issues with a concern or suggested change we discussed with the field staff partners at the time of the audit and they took appropriate corrective action at that time. No further action is required for these items.

Three items do require further follow up.

- Item 2.2. B & C concerns roadside safety. We suggested that field staff wear orange safety vests and deploy three orange traffic cones to increase visibility to oncoming traffic. This change is a suggestion and implementing the additional safety procedures is optional. The cones and vest would cost about $135 per projects, or $810 to equip the six projects where we noted this issue. This equipment was not purchased in 2017 because of concerns about overspending the PSP budget. We should consider purchasing this equipment if the current budget has the capacity. See Appendix B for more information.
- Item 3.1.C deals with collecting a repetitive sample from main flow of the stream and not at the stream margins. Five partners collected samples at the edge of the stream rather than at the center in the main flow because they did not have appropriate equipment to safely and efficiently collect from the middle of the stream. Appropriate equipment could include a sampling pole, waders or boots, or a sampling bucket on a rope. A 12 foot sampling pole would probably be the best option. This equipment was not purchased in 2017 because of concerns about overspending the PSP budget. We should consider purchasing this equipment if the current budget has the capacity. Poles are $182.10 each, or $910.50 for five poles. See Appendix B for more information on this equipment.
- At least one field partner asked about conducting stream flow measurements at the time samples are collected at some sites. An electromagnetic flow meter, a top setting rod and a tape measure cost approximately $5,300. This equipment was not purchased in 2017 because of concerns about overspending the PSP budget. We should consider purchasing this equipment if the current budget has the capacity. See Appendix B.

5. Summary and Future Field Audits

Overall, we are very pleased with the field collection work by the PSP field staff. The audit results show a very high level of compliance with procedures to ensure data integrity and field safety by the PSP sample collectors. The percent of correctly perform checklist items ranged between 98% and 88%, and was 92.4% correct for the 10 projects combined. Six of the eight items of concern were rather minor, were discussed with the field staff during the audit, and corrected at that time. No further follow-up is required.

The two items requiring follow-up (roadside safety and sampling the stream center) involve spending money. We recommend that the PSP program decide to purchase the equipment before the 2018 sampling begins, in addition to possibly purchasing flow measuring equipment.

The auditors recommend that future audit be performed routinely every other year, when new field staff begin, and when problems with sample collection activity are suspected.

Table 1. Checklist items that scored "concern", "suggestion /comment" or "follow-up" issue types.

Checklist Item #	Category	Issue Type	Description	Status
1.0.	Pre Sampling Preparation	Concern	Field staff should be clear on what samples are collected at which sites, and that the sample bottles, labels and forms are correct.	This issue was discussed with field staff at the time of the audit. Corrective action was discussed with field staff at the time of the audit and changes were implemented**.** **No further action required.**
2.2. B & C.	Safety: Cones and vest	Suggestion or Comment	Field staff should consider deploying orange safety cones along the road side and wearing an orange safety vest for increased visibility as safety precautions when working along roads.	This issue was discussed with field staff at the time of the audit. Corrective action is at the discretion of the sampling agency. **Corrective action is optional. See discussion is Section 4**
2.4.E	Safety: Wading	Suggestion or Comment	Field staff should consider extra safety precautions when wading in deep, swiftly flowing water such as wearing a waders belt or using a wading staff.	This issue was discussed with field staff at the time of the audit. Corrective action is at the discretion of the sampling agency. **Corrective action is optional.**
2.4.	Safety: Field partner	Suggestion or Comment	Field staff should consider bringing a partner and not working in the field alone in remote areas.	This issue was discussed with field staff at the time of the audit. Corrective action is at the discretion of the sampling agency. **Corrective action is optional. See discussion is Section 4**
3.1.	Field Sampling: Bottle filling	Concern	Field staff should fill the 950 mL amber glass bottles completely full and the 250 mL amber poly bottles about 80% full.	This issue was discussed with field staff at the time of the audit. Corrective action was discussed with field staff at the time of the audit and changes were implemented. **No further action required.**
3.1.	Field sampling: Gloves	Concern	Field staff should wear a fresh pair of disposable gloves at each site to reduce sample contamination.	This issue was discussed with field staff at the time of the audit. Corrective action was discussed with field staff at the

Checklist Item #	Category	Issue Type	Description	Status
				time of the audit and changes were implemented. **No further action required.**
3.1.C.	Field sampling: Center of stream	Concern	Field staff should collect samples from the main flow of the stream, usually at the center of the channel, and not at the stream margin in order to collect a sample representative of the main flow of the stream.	This issue was discussed with field staff at the time of the audit. Corrective action would involve purchasing equipment: a sampling pole, waders or a sampling bucket and rope depending on the site logistics. This equipment has not yet been purchased because of budget constraints. **Further action required. See discussion is Section 4**.
4.I.	Sample Processing: Forms and labels	Concern	Field staff should take care to fill out the chain of custody forms and field sample bottle labels correctly and completely.	This issue was discussed with field staff at the time of the audit. Corrective action was discussed with field staff at the time of the audit and changes were implemented. **No further action required.**
Other	Access permission	Suggestion or Comment	Field staff crossed privately owned land to access a site. Consider getting written access permission in addition to verbal permission.	This issue was discussed with field staff at the time of the audit. Corrective action is at the discretion of the sampling agency. **Corrective action is optional.**
Other	Stream flow	Other	Field staff asked about adding stream flow measurements.	Adding stream flow would involve purchasing flow meters. This equipment has not yet been purchased because of budget constraints. **Further action required. See discussion is Section 4**

Table 2. Audit checklist scoring and descriptions

Table Code	Issue Type	Description
C	Concern	An issue that has an impact on data integrity and needs to be corrected.
S	Suggestion or Comment	An issue that should be considered. No impact on data integrity. Correction is optional.
√	Performed correctly	An item that was performed correctly. No corrective action needed.
F	Follow-up	An issue that came up during the audit that is related to the project but not part of the checklist. Further follow-up is needed.

Table 3. Summary of PSP partner audits.

PSP Project	1. Pre Sampling Prep	2.2. B & C: Safety: cones and vest	2.4.E Safety: Wading	2.4. Safety: Field partner	3.1: Field Sampling: bottle filling	3.1: Field sampling: Gloves	3.1.C: Field sampling: Center of stream	4.I: Sample Processing: Forms & labels	Other: Access permission	Other: stream flow
Amazon	√	S	S	S	C	C	√	√		
Clackamas	C	S	√	√	C	C	C	C	S	F
Hood	√	S	√	S	C	C	√	√		
Mid Deschutes	√	S	√	√	C	√	√	C	S	
Mid Rogue	√	√	√	√	C	√	√	√		
Pudding	√	S	√	√	C	√	√	√	S	
South Umpqua	√	S	√	S	C	√	C	C		
Walla Walla	√	√	√	S	C	C	C	√		
Wasco	√	√	√	S	C	C	C	√		
Yamhill	√	√	√	S	C	C	C	√		

6. References

Hoatson, Scott. 2014. Internal Audit Process-LEAP. DEQ14-LAB-0008-SOP. Oregon Department of Environmental Quality. Portland, Oregon. Available at \\deqlab1\QA_Documents\SOP\DEQ14-LAB-0008-SOP.PDF. Accessed November 28, 2017.

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Masterson, Kevin. 2012. Quality Assurance Project Plan: Pesticide Stewardship Partnerships. DEQ05-LAB-0022-QAPP. Oregon Department of Environmental Quality. Portland, Oregon. Available at \\deqlab1\QA_Documents\QAPP\12-WQ-024.PDF. Accessed November 25, 2017.

Masterson, Kevin. 2014. Sampling and Analysis Plan: Pesticide Stewardship Partnership-Surface Waters. DEQ11-LAB-0003-SAP. Oregon Department of Environmental Quality. Portland, Oregon. Available at \\deqlab1\QA_Documents\SAP\DEQ11-LAB-0003-SAP.PDF. Accessed November 25, 2017.

7. Revision History

Revision	Date	Changes	Editor
1.0	January 25, 2018	Original document	MM

Appendix A Project Contacts

Contacts List, Pesticide Stewardship Partnership. Updated ___11/30/2017

Project	Organization
Mid Deschutes	Mark Goodwin Jefferson SWCD 625 SE Salmon Ave. Suite 6 Redmond, OR 97756 541.923.4358 x128 Mark.Goodwin@or.nacdnet.net
Yamhill	Luke Westphal Executive Director Greater Yamhill Watershed Council P.O. Box 1517 237 NE Ford Street, Suite 9 McMinnville, OR 97128 luke@gywc.org Phone: 503.474.1047
Mid Rogue	Clint Nichols Jenna Sanford Jackson Soil Water Conservation District 89 Alder Street Central Point, OR 97502 (541) 423-6180 (Clint) (541) 423-6181 (Jenna) clint.nichlols@jswcd.org jenna.sanford@jswcd.org
South Umpqua	Sandy Lyon and Joe Carnes Monitoring Coordinator and Specialist (respectively) Partnership for the Umpqua Rivers 1758 N.E. Airport Road Roseburg, Oregon 97470 (541) 673-5756 x149 sandy@umpquarivers.org joe@umpquarivers.org www.umpquarivers.org
Amazon	Amanda Reinholtz Long Tom Watershed Council 751 S. Danebo Avenue Eugene, OR 97402 Ph. 541-338-7060 Amanda@longtom.org www.longtom.org
Hood	Megan Saunders Hood River Soil and Water Conservation District 3007 Experiment Station Road Hood River, OR 97031

Project	Organization
	Office: 541-386-6063 megan@hoodriverswcd.org
Clackamas Basin	Suzi Cloutier Outreach and Stewardship Coordinator Clackamas River Basin Council P.O Box 1869Clackamas, OR 97015 Ph. 503.303.4372 x105 suzi@clackamasriver.org www.clackamasriver.org
Walla Walla	Troy Baker Walla Walla Basin Watershed Council P.O. Box 68, Milton Freewater, OR 97862 office: 541-938-2170 troy.baker@wwbwc.org wwbwc.org
Wasco	Karen Lamson Wasco Soil and Water Conservation District 2325 River Road, Suite 3 The Dalles, OR 97058 office: 541-296-6178 x 119 Karen.lamon@or.nacdnet.net
Pudding	Anna Rankin Council Coordinator Pudding River Watershed Council c/o Woodburn Public Works Building Hood WC 190 Garfield St Woodburn, OR 97071 cleanpuddingriver@gmail.com 503.548.7159
Analytical Organization	Oregon Department of Environmental Quality Laboratory and Environmental Assessment Program 7202 NE Evergreen Parkway Suite 150 Hillsboro, Oregon 97124 503-693-5700 Allen Hamel: 503-693-5730 Michael Mulvey: 503-693-5732

Appendix B: Monitoring Equipment Information

Sampling Pole

http://shop.sciencefirst.com/wildco/wastewater-samplers/6278-swing-samplers-12ft.html.

Swing Sampler 12Ft.(Oversize).

This sampler is designed to collect liquids from a horizontal flowing stream or river. The end of the sampler swings, allowing collection from different angles, including 90°. The unit comes with a 960 mL polyethylene bottle and cover with a vinyl liner for leak-proof protection. The bottle is held in place with a plastic snapper ring that has an adjustable locking device.

The 6-ft. fiberglass pole extends to 12 ft., making this sampler extremely versatile.

This item ships oversize. Oversize fees will be added to your shipping.

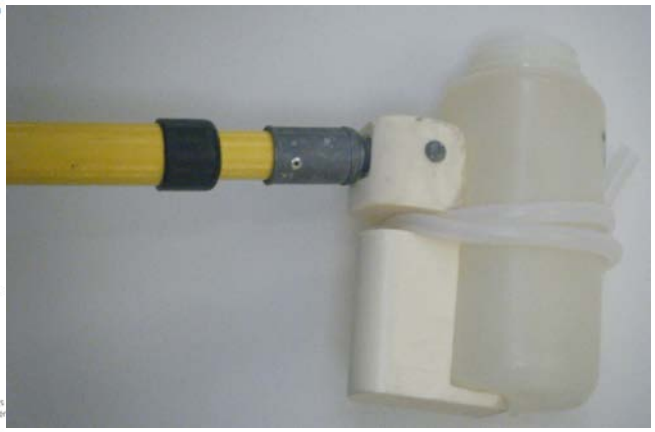
Part # 3-165-C10

$182.10 Quantity: − 1 + ADD TO CART

Sampling pole in use

Flow meter

Sampling pole bottle attachment



Roadside safety  Traffic Cones $20	 https://www.grainger.com/. $75

Appendix C Audit Checklists 2017

Checklists

1) Amazon
2) Clackamas
3) Hood
4) Mid-Deschutes
5) Mid-Rogue
6) Pudding
7) South Umpqua
8) Walla Walla
9) Wasco
10) Yamhill

PSP field crew audit checklist

Project: ____Amazon / Long Tom Watershed Council_____

Field Crew: _____Amanda Reinholtz_____

DEQ Staff: _____Paige Evans_____

Date: _____5/30/2017_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form

B. 1 bottle set per site:

(1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)

(1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)

C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)

D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)

(3– 950ml AG for normal week)

(3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)

E. Site labels for bottles

F. Cooler Bags (2 per cooler)

G. Zip ties for cooler bags (2 per cooler, 1 per bag)

H. Temperature QC bottle

I. UPS return service shipping label

All equipment was in cooler

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.

B. Avoid driving while fatigued.

C. Share driving with partner, as necessary.

D. Obey speed limits, road signs, signals and rules.

E. Drive in safe manner and be respectful of other drivers.

Safe driving was observed.

Consider having a safety vest and orange cones for when traffic is busy or visability is low.

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.

B. Deploy safety cones, amber lights, signs, etc., if necessary

C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.

STAY ALERT FOR TRAFFIC HAZARDS

Safe parking behavior was observed. see comments above.

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone. awareness of general Safety was observed

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

No risky wading was applicable during audit.

Awareness of surroundings was observed.

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water. consider a hip belt
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC.** (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler) yes
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site) yes
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments. yes
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged. yes, where able to.
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC. yes.

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap. yes

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD) yes
B. Label Field Primary bottles with FP, date and time N/A
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary) N/A
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP N/A
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time) N/A
F. Label Transfer Blank bottles with date and time before filling bottles. N/A
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC N/A
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles. YES
I. Fill out COC with date, time and number of each bottle type collected yes
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags) yes

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie) yes
B. Prepare samples, cooler, COC forms, and shipping documentation yes
C. Sign sample custody release at bottom of COC form yes
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). N/A
<u>Do not tape down cooler handles</u>
I. Final cooler check:
    a Do the COC forms sites, dates and times match the bottle labels? yes
    b Is there one temperature control blank per cooler? yes
    c Are the sample bottles protected from breaking with foam and/bubble wrap? yes
    d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties? yes
    e Are the COC forms in a zip lock bag taped to the inside cooler lid? yes
D. Ship cooler to arrive next day at lab N/A

5. Notes

Very attentive, well done!
Field prep was organized, all materials present, double checking details, safe behavior, accurate sampling location and handling of sampling bottles.

Note: Less head space in the 950mL AG bottles means a lower reporting limit. The entire volume of that sample is extracted and concentrated down to 2mL, so the greater the volume to begin with means a better sample in the end.

Also, when possible, make an attempt to fill glyphosate (250 mL amber poly) only 85% full so that they can be frozen.

* Consider safety when sampling alone. Whenever possible, bring a buddy when sampling under overpasses.

* When/If applicable, take care when using sunscreen and handling exterior of gloves w/ bare hands.

* Consider wading safety during high flow events. Ask about other sampling options such as bucket sampling?

Great visiting with you Amanda!
Don't hesitate to call with any questions
971-806-2288
—Paige Evans—

PSP field crew audit checklist

Project: _____Clackamas-Clackamas River Basin Council_____

Field Crew: ____Suzi Coutier_____

DEQ Staff: _____Michael Mulvey_____

Date: _____June 2, 2017_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form
B. 1 bottle set per site:
   (1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)
   (1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)
C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)
D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)
   (3– 950ml AG for normal week)
   (3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)
E. Site labels for bottles
F. Cooler Bags (2 per cooler)
G. Zip ties for cooler bags (2 per cooler, 1 per bag)
H. Temperature QC bottle
I. UPS return service shipping label

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.
B. Avoid driving while fatigued.
C. Share driving with partner, as necessary.
D. Obey speed limits, road signs, signals and rules.
E. Drive in safe manner and be respectful of other drivers.

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.
B. Deploy safety cones, amber lights, signs, etc., if necessary
C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.
   STAY ALERT FOR TRAFFIC HAZARDS

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone.

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC**. (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler)
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site)
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments.
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged.
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC.

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap.

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD)
B. Label Field Primary bottles with FP, date and time
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary)
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time)
F. Label Transfer Blank bottles with date and time before filling bottles**.**
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles**.**
I. Fill out COC with date, time and number of each bottle type collected
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags)

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie)
B. Prepare samples, cooler, COC forms, and shipping documentation
C. Sign sample custody release at bottom of COC form
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). <u>Do not tape down cooler handles</u>
I. Final cooler check:
    a Do the COC forms sites, dates and times match the bottle labels?
    b Is there one temperature control blank per cooler?
    c Are the sample bottles protected from breaking with foam and/bubble wrap?
    d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties?
    e Are the COC forms in a zip lock bag taped to the inside cooler lid?
D. Ship cooler to arrive next day at lab

5. Audit Notes

Suzi,

Generally, you did very well. I observed concerns you should look out for, some suggestions, and a few suggestions or comments.

Please call me or Allen with any questions or concerns.

Mike

1. Pre Sampling Preparation:
   - Concern: You should review the contents of the cooler and the sampling for the day, which varies week to week, so you are familiar with what work gets done at which sites and that you have the necessary bottles, labels, etc. You were short sample labels and was not clear on what samples needed to be collected. As a result we had to back track to collect the duplicate sample at the first site.
2. Safety considerations:
   - Comment: All your driving, road side work, and instream work were performed safely.
   - Suggestion: You might consider getting orange cones and orange vest for the North Fork Deep Creek site for extra visibility
3. Field Sampling:
   - Concern: At some sites you collect samples from the bank at the stream edge, not from the stream center. Using a sampling pole would probably enable you to easily sample from the stream center from the bank. The North Fork Deep Creek site is especially difficult to sample in the center from the bank. A sampling pole would be useful at that site. The other sites could probably be sampled for most stream flow conditions at the center by wading. The sampling and analysis plan for this work specifies sampling near the center of the stream channel in a well-mixed area in the main flow in order to collect a water sample representative of main flow of the stream. We talked about using a sampling pole. We should talk to Kevin Masterson about getting you a pole.
   - Concern: Remember to wear a fresh pair of disposable gloves at each site. You forgot at one site.
   - Concern: Remember to fill the 950 mL amber glass bottles as full as practical and the 250 mL amber plastic bottle partially full with about an inch of airspace. We freeze these samples and that allows for expansion.
4. Sample Processing and Shipping:
   - Concerns: There were several problems with the chain of custody forms and bottle labeling. A copy of the forms are attached. One bottle almost went into the cooler unlabeled, some sample bottles were labeled with the wrong site, there were two different dates on sample bottle labels and the forms, and the date was left blank on the chain of custody form. These sort of paperwork problems cause a lot of confusion in sample receiving at the lab. I talked to Allen and the sample receiving clerk about your past shipments. They said your samples are usually in much better shape. I checked your paperwork for the shipments following the audit and they were also in good shape. Your paperwork for this week was an anomaly. You might have been not at you best from the stress of being up all night with a sick pig followed by a field audit with me first thing the next

morning. Slow down a little and take more time checking that the sample bottles are correctly labeled and that the chain of custody forms are correctly filled out.

Other comments:

- Suggestion: You cross private property for one site. You may consider getting written permission for that site. If DEQ staff was collecting the sample at that site we would probably get written permission. We get written permission for all sites we cannot access from a public road crossing or publically owned land. I can send you a copy of the access permission form we use for you to modify if you would like it. However, you probably have a different sort of relationship with the local community than DEQ staff would have so you may feel this is unnecessary. It is up to you.
- You asked about measuring stream flow and having a staff gage at the NF Deep Creek site. Let's talk to Kevin Masterson about getting you flow measuring equipment.
- Overall, you are doing a great job and important work to improve the environment. I enjoyed visiting with you and seeing the sites. Thank you for the work you are doing.
- Please call me or Allen with any questions or concerns.

Oregon Department of Environmental Quality Chain of Custody Record [1]

Page 1 of 1

1706134

Client[2]: *Pesticide Stewardship Partnership*

Project[3]: *Clackamas* QAPP or SAP#[4]: *DEQ05-LAB-0022-QAPP / DEQ11-LAB-0003-SAP*

Survey[5]: *2017 Spring* Survey Batch[6]:

Sampling Event Collector (s)[9]: S. CLOUTIER Sampling Agency[8]: *ODEQ* QTime Code 7: *43489* TAT[11]: *60 days*

Project Manager and Contact #[10]: *Allen Hamel, 503-699-5730* Report Recipients[8]: *Kevin Masterson, Allen Hamel*

Sample Information * Collection Date[16]: 6-26-17

Item ID	LASAR ID # [13]	Station Name [14]	Time[17]	QC Type [15]	Report Matrix [18]	AG, 1000mL	Poly 500mL	AG, 125ml								
1	32066	Sieben Creek at Hwy 212 (Clackamas)	16:00	GS	RS	1	1									
2	32074	Rock Creek at 172nd, Stony Brook Court (Clackamas)	15:30	GS	RS	1	1									
3	32068	Noyer Creek at Hwy 212, St. Paul Lutheran Church	15:00	GS	RS	1	1									
4	10868	North Fork Deep Creek at Hwy 212 (Upstream of Boring)	13:40	FP	RS	1	1	1								
5	~~10868~~ 32066	Field Duplicate Sieben Crk	16:00	FD	RS	1	1	1								
	CRS 6-27-17	AJH **														

Event Comments: * TAKEN FROM BOTTLES
** SEE ATTACHED E-MAIL

Chain of Custody [20]

Relinquished By:	Agency/Company	Date/Time	Received by:	Agency/Company	Date/Time
S. CLOUTIER	ORBO	6/26/17 16:30	CRS	ODEQ	6-27-17 @1100

Pesticide Stewardship Partnership Field Checklist — 2017
Oregon Department of Environmental Quality Laboratory, Water Quality Monitoring

Oregon Department of Environmental Quality Chain of Custody Record [1]

Page 1 of 1

1706135

Client[2]: *Pesticide Stewardship Partnership*

Project[3]: *Clackamas - Glyphosate* QAPP or SAP#[4]: *DEQ05-LAB-0022-QAPP / DEQ11-LAB-0003-SAP*

Survey[5]: *2017 Spring* Survey Batch[6]:

Sampling Event Collector (s) [9]: S. Clontier Sampling Agency [8]: *ODEQ* QTime Code 7: *43489* TAT [11]: *90 days*

Project Manager and Contact #[10]: *Allen Hamel, 503-693-5730* Report Recipients [8]: *Kevin Masterson,Allen Hamel*

Sample Information						Bottle Types [19]										
Item [12]	LASAR ID # [13]	Collection Date [16]: 6-26-17 Station Name [14]	Time [17]	QC Type [15]	Report Matrix [18]	Amber Poly 250ml										
1	10868	North Fork Deep Creek at Hwy 212 (Upstream of Boring)	13:40	FP	RS	1										
2	10868	Field Duplicate North Fork Deep Creek at Hwy 212	13:40	FD	RS	1										

Event Comments: * TAKEN FROM BOTTLE

Chain of Custody [20]

Relinquished By:	Agency/Company	Date/Time	Received by:	Agency/Company	Date/Time
S. Clontier	CRBG	16:30	CS	ODEQ	6-27-17@1100

HAMEL Allen

From: Suzi Cloutier <suzi@clackamasriver.org>
Sent: Wednesday, June 28, 2017 12:49 PM
To: HAMEL Allen
Subject: Re: 06/26/2017 Sample Event

Yes, this is correct.
Was the 3 sample field dupe supposed to be taken at Deep?

Suzi Cloutier
Outreach and Stewardship Coordinator
Clackamas River Basin Council
PO Box 1869, Clackamas OR 97015
503.303.4372 x105
Fax 503.303.5176
www.clackamasriver.org

On Wed, Jun 28, 2017 at 10:28 AM, HAMEL Allen <allen.hamel@state.or.us> wrote:

> We received the samples for the 06/26/2017 Clackamas PSP event.
>
> We are having trouble determining the field duplicate samples.
>
> Was the 950 ml Amber, 125 ml Amber and 500 ml poly field duplicate collected at Sieben Creek at 1600?
>
> And a field duplicate sample for glyphosate at the NF Deep Creek site at 1340?
>
> Let me know,
>
> Allen
>
> 503-693-5730

PSP field crew audit checklist

Project: ____Hood River PSP_____

Field Crew: _____Megan Saunders_____

DEQ Staff: _____Paige Evans_____

Date: _____June 5th 2017_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form

B. 1 bottle set per site:

(1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)

(1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)

C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)

D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)

(3– 950ml AG for normal week)

(3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)

E. Site labels for bottles

F. Cooler Bags (2 per cooler)

G. Zip ties for cooler bags (2 per cooler, 1 per bag)

H. Temperature QC bottle

I. UPS return service shipping label

All equipment was in the cooler

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.

B. Avoid driving while fatigued.

C. Share driving with partner, as necessary.

D. Obey speed limits, road signs, signals and rules.

E. Drive in safe manner and be respectful of other drivers.

Safe driving was observed

Consider having a safety vest and orange cones for when traffic is busy or visibility is low

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.

B. Deploy safety cones, amber lights, signs, etc., if necessary

C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.

STAY ALERT FOR TRAFFIC HAZARDS

Safe parking behavior was observed. Sites are not in high traffic areas.

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone. awareness of general safety was observed. car doors locked

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

No risky wading was applicable during audit

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.

awareness of surroundings was observed

E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC.** (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler) yes
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site) yes
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments. yes
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged. yes
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC. yes

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap. yes

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD) yes
B. Label Field Primary bottles with FP, date and time N/A
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary) N/A
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP N/A
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time) N/A
F. Label Transfer Blank bottles with date and time before filling bottles. yes
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC yes
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles. N/A
I. Fill out COC with date, time and number of each bottle type collected N/A
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags) yes

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie) yes
B. Prepare samples, cooler, COC forms, and shipping documentation yes
C. Sign sample custody release at bottom of COC form yes
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). N/A
<u>Do not tape down cooler handles</u>
I. Final cooler check:
   a Do the COC forms sites, dates and times match the bottle labels? yes
   b Is there one temperature control blank per cooler? yes
   c Are the sample bottles protected from breaking with foam and/bubble wrap? yes
   d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties? yes
   e Are the COC forms in a zip lock bag taped to the inside cooler lid? yes
D. Ship cooler to arrive next day at lab N/A

5. Notes

Very well done, attentive, and professional Megan!
Field prep was organized, all materials present, double checking details, safe behavior, accurate sampling location and handling of sample bottles.

Note: less head space in the 950 mL AG bottles means a lower reporting limit. The entire volume of that sample is extracted and concentrated down to 2 mL, so the greater the initial volume means a better final sample.

Also, when possible make an attempt to fill the glyphosate (250 mL Amberpoly) only 85% full so that it can be frozen.

* consider safety when sampling alone. whenever possible, bring a buddy when sampling under overpasses.

* When/if applicable, take care when using sunscreen and handling exterior of gloves w/ bare hands.

* Consider wading safety during high flow events.
ask about other sampling options such as bucket or pole sampling?

Great visit with you Megan!
Don't hesitate to call w/ any questions!

-Paige Evans
971-806-2288

* also, great relationships w/ landowners and personnel on the property.

PSP field crew audit checklist

Project: _____Mid Deschutes_____

Field Crew: _____Mark Goodwin _____

DEQ Staff: _____Michael Mulvey_____

Date: _____May 24, 2017_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form
B. 1 bottle set per site:
   (1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)
   (1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)
C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)
D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)
   (3– 950ml AG for normal week)
   (3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)
E. Site labels for bottles
F. Cooler Bags (2 per cooler)
G. Zip ties for cooler bags (2 per cooler, 1 per bag)
H. Temperature QC bottle
I. UPS return service shipping label

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.
B. Avoid driving while fatigued.
C. Share driving with partner, as necessary.
D. Obey speed limits, road signs, signals and rules.
E. Drive in safe manner and be respectful of other drivers.

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.
B. Deploy safety cones, amber lights, signs, etc., if necessary
C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.
   STAY ALERT FOR TRAFFIC HAZARDS

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone.

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC**. (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler)
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site)
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments.
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged.
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC.
F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap.

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD)
B. Label Field Primary bottles with FP, date and time
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary)
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time)
F. Label Transfer Blank bottles with date and time before filling bottles**.**
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles**.**
I. Fill out COC with date, time and number of each bottle type collected
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags)

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie)
B. Prepare samples, cooler, COC forms, and shipping documentation
C. Sign sample custody release at bottom of COC form
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). <u>Do not tape down cooler handles</u>
I. Final cooler check:
    a Do the COC forms sites, dates and times match the bottle labels?
    b Is there one temperature control blank per cooler?
    c Are the sample bottles protected from breaking with foam and/bubble wrap?
    d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties?
    e Are the COC forms in a zip lock bag taped to the inside cooler lid?
D. Ship cooler to arrive next day at lab

5. Audit Notes

Hi Mark.

Here are my notes from the field audit. Overall, you did very well. I have a few concerns and comments, all pretty minor. I think most of these we already talked about. I enjoyed meeting you and seeing the sites.

Please call me or Allen with any questions or concerns.

Thank you for the great job you are doing.

Mike Mulvey

1. Pre Sampling Preparation:
    - You had all the supplies and labels he needed with him, you was well organized, and knew what sites and samples he was collecting.
2. Safety considerations:
    - All your driving, road side work, and instream work were performed safely.
    - Comment: You might consider using three orange safety cones at the Trout Creek site to alert drivers, but this is an optional recommendation as the traffic was very slow and light at that site. You may also consider wearing an orange safety vest when working near road sides, but traffic was generally very light and slow at all locations. All other sites access was easy and safe.
3. Field Sampling:
    - You performed all field sample collections according to the protocols and efficiently. The windy conditions added challenges. I had a few minor concerns, listed below.
    - Concern: We prefer that you use numbers for the number of bottles, not tally marks on the chain of custody forms. You should enter “3” not “III”. Also, you left the collection date blank on the chain of custody form.
    - Concern: Remember to use a water proof pen on the labels, like a fine point black Sharpie.
    - Concern: Remember to fill the 250 mL amber brown plastic bottle with about 1 inch of air space. We freeze these samples and that allows for expansion.
    - Concern: Remember to fill the 950 mL amber glass bottles completely full leaving as possible leaving little or no air space.
4. Sample Processing and Shipping:
    - You followed all processing and shipping procedures.
5. Other comments:
    - You may consider getting written permission for the one site where you walk a short distance across a privately owned field to access the site. I forget which site it was but it was really windy when we were collecting the sample. If DEQ staff was collecting the sample at that site we would get written permission. We get written permission for all sites we cannot access from a public road crossing or publically owned land. I can send you a copy of the access permission form we use for you to modify if you would like it. However, you probably have a different sort of relationship with the local community than DEQ staff would have so this may not be necessary. It is up to you.
    - Overall, you did a great job, Mark. I enjoyed visiting with him and seeing the sites. Thank you.
    - Please call me or Allen with any questions or concerns.

Pesticide Stewardship Partnership Field Checklist — 2017
Oregon Department of Environmental Quality Laboratory, Water Quality Monitoring

Oregon Department of Environmental Quality Chain of Custody Record [1]

Page 1 of 1

1705120

Client[2]: *Middle Deschutes - Pesticide Stewarship Partnerships*

Project[3]: *Middle Deschutes* QAPP or SAP#[4]: *DEQ05-LAB-0022-QAPP*

Survey[5]: *2017 Spring* Survey Batch[6]:

Sampling Event Collector (s) [9]: Mark Goodwin Sampling Agency [8]: *Jefferson County SWCD* QTime Code 7: *43489* TAT [11]: *60 days*

Project Manager and Contact #[10]: *Allen Hamel, 503-693-5730* Report Recipients [8]: *Kevin Masterson, Allen Hamel*

Sample Information						Bottle Types [19]										
		Collection Date[16]: 5-24-17														
Item [12]	LASAR ID # [13]	Station Name [14]	Time[17]	QC Type [15]	Report Matrix [13]	AG, 1000mL	Poly 500mL	AG, 125mL								
1	37635	Campbell Creek at Mouth (below Pelton Dam Rd)	10:35	GS	RS	1	1									
2	36776	Trout Creek D/S of Mud Spring Creek	9:20	GS	RS	1	1									
3	35226	Campbell Creek at Hwy 26	10:10	GS	RS	1	1									
4	34797	Mud Springs Creek at U/S side of bridge at Gateway, OR	9:40	GS	RS	111	1	111								

Event Comments: Sunny - low water at Hwy 26
* TAKEN From Bottle

Chain of Custody [20]

Relinquished By:	Agency/Company	Date/Time	Received by:	Agency/Company	Date/Time
[signature]	JCSWCD	5/24/17 10:40	M. Hawley	DEQ-Lab	5/24/17 1000
M. Hawley	DEQ-Lab	5/25/17 8:00	[signature]	ODEQ	5-25-17 0815

Rev. 3.0 1-Feb-13 DEQ06-LAB-0054-FORM \ COC - Generic

PSP field crew audit checklist

Project: _____Mid Rogue PSP –Jackson Soil and Water Conservation District_____

Field Crew: ____Jenna Sanford and Clint Nichols_____

DEQ Staff: _____Michael Mulvey_____

Date: _____June 12, 2017_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form
B. 1 bottle set per site:
   (1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)
   (1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)
C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)
D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)
   (3– 950ml AG for normal week)
   (3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)
E. Site labels for bottles
F. Cooler Bags (2 per cooler)
G. Zip ties for cooler bags (2 per cooler, 1 per bag)
H. Temperature QC bottle
I. UPS return service shipping label

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.
B. Avoid driving while fatigued.
C. Share driving with partner, as necessary.
D. Obey speed limits, road signs, signals and rules.
E. Drive in safe manner and be respectful of other drivers.

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.
B. Deploy safety cones, amber lights, signs, etc., if necessary
C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.
   STAY ALERT FOR TRAFFIC HAZARDS

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone.

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC**. (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler)
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site)
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments.
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged.
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC.

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap.

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD)
B. Label Field Primary bottles with FP, date and time
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary)
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time)
F. Label Transfer Blank bottles with date and time before filling bottles**.**
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles**.**
I. Fill out COC with date, time and number of each bottle type collected
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags)

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie)
B. Prepare samples, cooler, COC forms, and shipping documentation
C. Sign sample custody release at bottom of COC form
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). <u>Do not tape down cooler handles</u>
I. Final cooler check:
    a Do the COC forms sites, dates and times match the bottle labels?
    b Is there one temperature control blank per cooler?
    c Are the sample bottles protected from breaking with foam and/bubble wrap?
    d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties?
    e Are the COC forms in a zip lock bag taped to the inside cooler lid?
D. Ship cooler to arrive next day at lab

5. Audit Notes

Jenna and Clint.

Here are my notes from the field audit. Overall, you did very well. I have a few minor concerns and comments. I think most of these we already talked about. I enjoyed meeting you and seeing the sites.

Please call me or Allen with any questions or concerns.

Thank you for the great job you are doing.

Mike Mulvey

1. Pre Sampling Preparation:
   - You had all the supplies and labels she needed with you, you were well organized, and knew what sites and samples you were collecting.
2. Safety considerations:
   - All your driving and instream work were performed safely. I was glad to see you wearing orange vests where appropriate. You performed the field work with two people which is safer than working alone.
3. Field Sampling:
   - You performed all field sample collections according to the protocols and efficiently with only a few minor concerns, listed below. I was glad to see you use a sampling pole to sample from the center of the streams.
   - Concern: Remember to fill in the date on the chain of custody form. You left this blank. The form is attached.
   - Concern: Remember to fill the 250 mL amber brown plastic bottle with about 1 inch of air space. We freeze these samples and that allows for expansion.
   - Concern: Remember to fill the 950 mL amber glass bottles completely full leaving as possible leaving little or no air space.
   - Concern: If you make a mistake on the chain of custody form, please cross out the mistake with a single line and write in the correction next to it rather than simply writing over the mistake. See the time for item #1 on the attached COC form.
4. Sample Processing and Shipping:
   - You followed all processing and shipping procedures.

Overall, you is doing a great job and important work to improve the environment. Thank you.

Pesticide Stewardship Partnership Field Checklist — 2017
Oregon Department of Environmental Quality Laboratory, Water Quality Monitoring

Oregon Department of Environmental Quality Chain of Custody Record [1]

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1 7 0 6 0 0 1

Client[2]: *Pesticide Stewarship Partnerships*

Project[3]: *Middle Rogue* QAPP or SAP#[4]: *DEQ05-LAB-0022-QAPP*

Survey[5]: *2017 Spring* Survey Batch[6]:

Sampling Event Collector (s) [7]: Mousseaux, R, Sanford, J Sampling Agency [8]: *Jackson SWCD* QTime Code [9]: *43489* TAT [10]: *60 days*

Project Manager and Contact #[11]: *Allen Hamel, 503-693-5730* Report Recipients [12]: *Kevin Masterson, Allen Hamel*

Sample Information						Bottle Types [17]										
		Collection Date[13]: 5/31/2017														
Item [9]	LASAR ID # [10]	Station Name [11]	Time[14]	QC Type [12]	Report Matrix [16]	AG, 1000mL	Poly 500mL	AG, 125 ml								
1	23074	Wagner Creek at mouth (truckstop)	09:15	GS	RS	1	1									
2	38282	Wagner Creek at Wagner Creek Trail	08:50	GS	RS	1	1									
3	38280	Jackson Creek at Bramson Lane	08:15	GS	RS	1	1									
4	38829	Payne Creek at Fern Valley Rd, E of pond	09:30	GS	RS	1	1									
5	10000	Transfer Blank	08:55	TfB	RW	1	1									

Event Comments: Irrigation looks like it has been turned on at Payne and Jackson locations.

Chain of Custody [19]

Relinquished By:	Agency/Company	Date/Time	Received by:	Agency/Company	Date/Time
Rosa Mousseaux	JSWCD	10:10 am 5/31/17	CTS	ODEQ	6-1-17 1050

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Oregon Department of Environmental Quality Chain of Custody Record [1]

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1 7 0 6 0 6 1

Client[2]: *Pesticide Stewardship Partnerships*

Project[3]: *South Umpqua - Glyphosate* QAPP or SAP#[4]: *DEQ05-LAB-0022-QAPP*

Survey[5]: *2017 Spring* Survey Batch[6]:

Sampling Event Collector (s) [7]: Sampling Agency [8]: QTime Code [9]: *43489* TAT [10]: *90 days*

Project Manager and Contact #[11]: *Allen Hamel, 503-693-5730* Report Recipients [12]: *Kevin Masterson, Allen Hamel*

Sample Information						Bottle Types [17]										
		Collection Date[13]: 6-13-17 *														
Item [9]	LASAR ID # [10]	Station Name [11]	Time[14]	QC Type [12]	Report Matrix [16]	Amber Poly 250mL										
1	38831	NF Myrtle Creek D/S of Bilger Creek Confluence	9:35	GS	RS	1										
2	38831	Field Duplicate NF Myrtle Creek D/S of Bilger Creek	9:36	FD	RS	1										

Event Comments: S Steel at 30163, 122248, Additional Anaylsis - Glyphosate / phenoxy herbicides
*TAKEN FROM BOTTLE 38828

Chain of Custody [19]

Relinquished By:	Agency/Company	Date/Time	Received by:	Agency/Company	Date/Time
Joe Carnes	RUR	6/13/17 10:40	Michael Lively	DEQ/LAB	6/13/17 1080
			CTRS	ODEQ	6/14/17 0928

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PSP field crew audit checklist

Project: _____Pudding Pesticide Stewardship Partnership_____

Field Crew: ____Anna Rankin_____

DEQ Staff: _____Michael Mulvey_____

Date: _____May 17, 2017_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form
B. 1 bottle set per site:
   (1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)
   (1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)
C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)
D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)
   (3– 950ml AG for normal week)
   (3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)
E. Site labels for bottles
F. Cooler Bags (2 per cooler)
G. Zip ties for cooler bags (2 per cooler, 1 per bag)
H. Temperature QC bottle
I. UPS return service shipping label

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.
B. Avoid driving while fatigued.
C. Share driving with partner, as necessary.
D. Obey speed limits, road signs, signals and rules.
E. Drive in safe manner and be respectful of other drivers.

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.
B. Deploy safety cones, amber lights, signs, etc., if necessary
C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.
   STAY ALERT FOR TRAFFIC HAZARDS

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone.

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC**. (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler)
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site)
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments.
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged.
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC.

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap.

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD)
B. Label Field Primary bottles with FP, date and time
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary)
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time)
F. Label Transfer Blank bottles with date and time before filling bottles**.**
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles**.**
I. Fill out COC with date, time and number of each bottle type collected
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags)

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie)
B. Prepare samples, cooler, COC forms, and shipping documentation
C. Sign sample custody release at bottom of COC form
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). <u>Do not tape down cooler handles</u>
I. Final cooler check:
    a Do the COC forms sites, dates and times match the bottle labels?
    b Is there one temperature control blank per cooler?
    c Are the sample bottles protected from breaking with foam and/bubble wrap?
    d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties?
    e Are the COC forms in a zip lock bag taped to the inside cooler lid?
D. Ship cooler to arrive next day at lab

5. Audit Notes

Anna.

Here are my notes from the field audit. Overall, you did very well. I have a few concerns and comments, all pretty minor. I think most of these we already talked about. I enjoyed meeting you and seeing the sites.

Please call me or Allen with any questions or concerns.

Thank you for the great job you are doing.

Mike Mulvey

1. Pre Sampling Preparation:
    - You had all the supplies and labels she needed with you, you were well organized, and knew what sites and samples you were collecting.
2. Safety considerations:
    - All your driving, road side work, and instream work were performed safely with one concern, below.
    - Concern: You might consider using a diagonal line of three orange safety cones at the Little Pudding River and Zollner Creek sites to alert drivers. The Little Pudding River site had a wide shoulder but was on a bend, and the Zollner Creek site also had no shoulder area. Deploying a diagonal line of three orange road cones would alert and slow oncoming traffic. However, the traffic was very slow and light at both sites. Actually, I don't think any cars passes us during sampling. I was glad to see you wore an orange safety vest.
3. Field Sampling:
    - You performed all field sample collections according to the protocols and efficiently with only a few minor concerns, listed below.
    - Concern: Remember to fill the 250 mL amber brown plastic bottle with about 1 inch of air space. We freeze these samples and that allows for expansion.
    - Concern: Remember to fill the 950 mL amber glass bottles completely full leaving as possible leaving little or no air space.
4. Sample Processing and Shipping:
    - You followed all processing and shipping procedures.

Other comments:

- You may consider getting written permission for the Little Pudding River site as it isn't access from publically owned bridge crossing. If DEQ staff was collecting the sample at that site we would get written permission. We get written permission for all sites we cannot access from a public road crossing or publically owned land. I can send you a copy of the access permission form we use for you to modify if you would like it. However, you probably has a different sort of relationship with the local community than DEQ staff would have so you may not feel this is necessary. It is up to you.
- Overall, you is doing a great job and important work to improve the environment.

PSP field crew audit checklist

Project: _____South Umpqua PSP –Partnership for the Umpqua Rivers_____

Field Crew: ____Joe Carnes_____

DEQ Staff: _____Michael Mulvey_____

Date: _____June 13, 2017_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form
B. 1 bottle set per site:
   (1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)
   (1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)
C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)
D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)
   (3– 950ml AG for normal week)
   (3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)
E. Site labels for bottles
F. Cooler Bags (2 per cooler)
G. Zip ties for cooler bags (2 per cooler, 1 per bag)
H. Temperature QC bottle
I. UPS return service shipping label

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.
B. Avoid driving while fatigued.
C. Share driving with partner, as necessary.
D. Obey speed limits, road signs, signals and rules.
E. Drive in safe manner and be respectful of other drivers.

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.
B. Deploy safety cones, amber lights, signs, etc., if necessary
C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.
   STAY ALERT FOR TRAFFIC HAZARDS

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone.

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC**. (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler)
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site)
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments.
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged.
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC.

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap.

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD)
B. Label Field Primary bottles with FP, date and time
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary)
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time)
F. Label Transfer Blank bottles with date and time before filling bottles**.**
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles**.**
I. Fill out COC with date, time and number of each bottle type collected
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags)

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie)
B. Prepare samples, cooler, COC forms, and shipping documentation
C. Sign sample custody release at bottom of COC form
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). <u>Do not tape down cooler handles</u>
I. Final cooler check:
    a Do the COC forms sites, dates and times match the bottle labels?
    b Is there one temperature control blank per cooler?
    c Are the sample bottles protected from breaking with foam and/bubble wrap?
    d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties?
    e Are the COC forms in a zip lock bag taped to the inside cooler lid?
D. Ship cooler to arrive next day at lab

5. Audit Notes

Joe.

Here are my notes from the field audit. Overall, you did very well. I have a few concerns and comments, all pretty minor. I think most of these we already talked about. I enjoyed meeting you and seeing the sites.

Please call me or Allen with any questions or concerns.

Thank you for the great job you are doing.

Mike Mulvey

1. Pre Sampling Preparation:
   - You had all the supplies and labels she needed with you, you were well organized, and knew what sites and samples you were collecting.
2. Safety considerations:
   - All your driving and instream work were performed safely. I was glad to see you wearing an orange vest and used a GPS tracking device in case you got into trouble while working alone.
   - Suggestion: There were a few sites where putting out orange traffic cones along the road side would have warned traffic that you were working from the bridge, increased your visibility and slowed traffic. The cones should be placed in a diagonal row of three cones up-traffic from the area you are working in. The Looking Glass Creek site seemed especially hazardous because it was a narrow bridge and vegetation blocked visibility for oncoming traffic. Otherwise you performed the road side work safely.
   - Suggestion: I think it would be safer for you to fill the sample bottles back at your truck rather than at the bridge. The less time you spend in the narrow road shoulder the better.
3. Field Sampling:
   - You performed all field sample collections according to the protocols and efficiently with only a few minor concerns, listed below.
   - Concern: Remember to fill in the date on the chain of custody form. You left this blank.
   - Concern: Remember to fill the 250 mL amber brown plastic bottle with about 1 inch of air space. We freeze these samples and that allows for expansion.
   - Concern: Remember to fill the 950 mL amber glass bottles completely full leaving as possible leaving little or no air space.
   - Concern: You should collect the sample from the center of the stream in the main flow, not at the edge close to the shore. A sampling pole would be helpful at some sites. We should talk to Kevin Masterson about getting you a sampling pole.
4. Sample Processing and Shipping:
   - Concern: You forgot to write down the sampling date on the chain of custody form (see attached).

Overall, you is doing a great job and important work to improve the environment. Thank you.

Oregon Department of Environmental Quality Chain of Custody Record [1]

Page 1 of 1

1 7 0 6 0 6 0

Client[2]: *Pesticide Stewarship Partnerships*

Project[3]: *South Umpqua* QAPP or SAP#[4]: *DEQ05-LAB-0022-QAPP*

Survey[5]: *2017 Spring* Survey Batch[6]:

Sampling Event Collector (s) [7]: Joe Carnes/Mike Molvey Sampling Agency [8]: PUR / DEQ QTime Code [9]: *43489* TAT [10]: *60 days*

Project Manager and Contact #[11]: *Allen Hamel, 503-693-5730* Report Recipients [12]: *Kevin Masterson, Allen Hamel*

Sample Information						Bottle Types [17]										
		Collection Date[13]: 6-13-17														
Item [9]	LASAR ID # [10]	Station Name [11]	Time[14]	QC Type [12]	Report Matrix [16]	AG, 1000mL	Poly 500mL	AG, 125ml								
1	30163	South Umpqua River above Mouth	8:30	GS	RS	1	1									
2	25950	Deer Creek at Fowler Bridge, Roseburg (South Umpqua, Umpqua)	9:00	GS	RS	1	1									
3	12248	Lookingglass Creek at Hwy. 42 at Winston, OR	10:35	GS	RS	1	1									
4	38828	Lookingglass Creek at Hwy. 42 at bridge near Happy Valley	10:15	GS	RS	1	1									
5	38831	NF Myrtle Creek D/S of Bilger Creek Confluence	9:35	FP	RS	1	1	1								
6	38831	Field Duplicate NF Myrtle Creek D/S of Bilger Creek	9:36	FD	RS	1	1	1								

Event Comments: S Steel at 30163, 12248, 38828
*TAKEN FROM BOTTLE

Chain of Custody [19]

Relinquished By:	Agency/Company	Date/Time	Received by:	Agency/Company	Date/Time
Joe Carnes	PUR	6/13/17 10:40	[illegible]	DEQ/Lab	6/13/17 10:40
			CPS	ODEQ	6/14/17 0928

Oregon Department of Environmental Quality Chain of Custody Record [1]

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1 7 0 6 0 6 1

Client[2]: *Pesticide Stewardship Partnerships*

Project[3]: *South Umpqua - Glyphosate* QAPP or SAP#[4]: *DEQ05-LAB-0022-QAPP*

Survey[5]: *2017 Spring* Survey Batch[6]:

Sampling Event Collector (s) [7]: Sampling Agency [8]: QTime Code [9]: *43489* TAT [10]: *90 days*

Project Manager and Contact #[11]: *Allen Hamel, 503-693-5730* Report Recipients [12]: *Kevin Masterson, Allen Hamel*

Sample Information						Bottle Types [17]										
		Collection Date[13]: 6-13-17														
Item [9]	LASAR ID # [10]	Station Name [11]	Time[14]	QC Type [12]	Report Matrix [16]	Amber Poly 250mL										
1	38831	NF Myrtle Creek D/S of Bilger Creek Confluence	9:35	GS	RS	1										
2	38831	Field Duplicate NF Myrtle Creek D/S of Bilger Creek	9:36	FD	RS	1										

Event Comments: S Steel at 30163, 122248, Additional Anaylsis - Glyphosate / phenoxy herbicides
*TAKEN FROM BOTTLE 38828

Chain of Custody [19]

Relinquished By:	Agency/Company	Date/Time	Received by:	Agency/Company	Date/Time
Joe Carnes	RUR	6/13/17 10:40	Michael Lively	DEQ/LAB	6/13/17 1080
			CTRS	ODEQ	6/14/17 0928

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PSP field crew audit checklist

Project: ____**Walla Walla PSP**_____

Field Crew: _____**Troy Baker**_____

DEQ Staff: _____**Paige Evans**_____

Date: _____**June 29th 2017**_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form

B. 1 bottle set per site:

(1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)

(1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)

C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)

D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)

(3– 950ml AG for normal week)

(3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)

E. Site labels for bottles

F. Cooler Bags (2 per cooler)

G. Zip ties for cooler bags (2 per cooler, 1 per bag)

H. Temperature QC bottle

I. UPS return service shipping label

all equipment was in coolers.

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.

B. Avoid driving while fatigued.

C. Share driving with partner, as necessary.

D. Obey speed limits, road signs, signals and rules.

E. Drive in safe manner and be respectful of other drivers.

Safety equipment was present and safe driving was observed.

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.

B. Deploy safety cones, amber lights, signs, etc., if necessary

C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.
STAY ALERT FOR TRAFFIC HAZARDS

Safe parking was observed

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone. awareness of safety was observed.

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

No risky wading was applicable during audit. awareness of surroundings was observed

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC.** (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler) yes
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site) yes
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments. yes
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged. yes when able to.
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC. yes

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap. yes

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD) yes
B. Label Field Primary bottles with FP, date and time N/A
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary) N/A
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP N/A
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time) N/A
F. Label Transfer Blank bottles with date and time before filling bottles. yes
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC yes
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles. N/A
I. Fill out COC with date, time and number of each bottle type collected N/A
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags) yes

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie) yes
B. Prepare samples, cooler, COC forms, and shipping documentation yes
C. Sign sample custody release at bottom of COC form yes
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). N/A
<u>Do not tape down cooler handles</u>
I. Final cooler check:
   a Do the COC forms sites, dates and times match the bottle labels? yes
   b Is there one temperature control blank per cooler? yes
   c Are the sample bottles protected from breaking with foam and/bubble wrap? yes
   d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties? yes
   e Are the COC forms in a zip lock bag taped to the inside cooler lid? N/A
D. Ship cooler to arrive next day at lab N/A

5. Notes

Well done and very attentive!

Field prep was organized, all materials present, double checking details, safe behavior, accurate sampling and handling of sample bottles.

Reminder: less headspace in the 950 mL amber glass bottles means a lower reporting limit. The entire volume of that sample is extracted and concentrated down to 2mL, so the greater the volume to begin with means a better sample in the end.

Also, when possible, make an attempt to fill glyphosate (250 mL amber poly) only 85% full so that it can be frozen.

Coolers were well packed w/ ice.

Consider safety when sampling alone. whenever possible, bring a buddy when sampling under overpasses

When/IF applicable, take care when using sunscreen and handling exterior of gloves w/ bare hands.

Consider wading safety during high flow events. Ask about other sampling options such as bucket or pole sampling so that you can still reach mid-flow.

Great visiting with you Troy!

Don't hesitate to call with any questions

971-806-2288

- Paige Evans

PSP field crew audit checklist

Project: ____Wasco PSP_____

Field Crew: _____Karen Lamson_____

DEQ Staff: _____Paige Evans_____

Date: _____June 28th 2017_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form

B. 1 bottle set per site:

(1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)

(1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)

C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)

D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)

(3– 950ml AG for normal week)

(3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)

E. Site labels for bottles

F. Cooler Bags (2 per cooler)

G. Zip ties for cooler bags (2 per cooler, 1 per bag)

H. Temperature QC bottle

I. UPS return service shipping label

All equipment was in cooler except for temp blank.

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.

B. Avoid driving while fatigued.

C. Share driving with partner, as necessary.

D. Obey speed limits, road signs, signals and rules.

E. Drive in safe manner and be respectful of other drivers.

Safety equipment was present and safe driving was observed.

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.

B. Deploy safety cones, amber lights, signs, etc., if necessary

C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.
STAY ALERT FOR TRAFFIC HAZARDS

Safe parking was observed.

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone. awareness of safety was observed; car doors locked.

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

No risky wading was applicable during audit. awareness of surroundings was observed.

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC.** (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler) yes
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site) yes
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments. yes
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged. yes, where able to
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC. yes

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap. yes

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD) yes
B. Label Field Primary bottles with FP, date and time N/A
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary) N/A
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP N/A
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time) N/A
F. Label Transfer Blank bottles with date and time before filling bottles. N/A
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC N/A
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles. yes
I. Fill out COC with date, time and number of each bottle type collected yes
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags) yes

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie) yes
B. Prepare samples, cooler, COC forms, and shipping documentation yes
C. Sign sample custody release at bottom of COC form yes
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). yes
<u>Do not tape down cooler handles</u>
I. Final cooler check:
   a Do the COC forms sites, dates and times match the bottle labels? yes
   b Is there one temperature control blank per cooler? yes
   c Are the sample bottles protected from breaking with foam and/bubble wrap? yes
   d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties? yes
   e Are the COC forms in a zip lock bag taped to the inside cooler lid? yes
D. Ship cooler to arrive next day at lab yes

5. Notes

Great Job! Detail oriented and well done.
Field prep was organized, all materials present, double checking details, safe behavior, accurate sampling and handling of sampl~~ing~~e bottles.
Reminder: less head space on the 950mL amber glass bottles means a lower reporting limit. The entire volume of that sample is extracted and concentrated down to 2mL, so the greater volume to begen with means a better sample in the end.
Also, when possible, make an attempt to fill glyphosate (250mL Amber poly) only 85% full so that it can be frozen.

Coolers were well packed w/ ice.
Always check for temp blank.
Consider safety when sampling alone. whenever possible, bring a buddy when sampling under overpasses.
when/if applicable, take care when using sunscreen and handling exterior of gloves w/ bare hands.

Consider wading safety during high flow events.
Ask about other sampling options such as bucket or pole sampling so that you can still reach midstream.
Great visiting with you Karen!
Don't hesitate to call with any questions.
971-806-2288 -Paige Evans

PSP field crew audit checklist

Project: _____Yamhill _____

Field Crew: _____Luke Westphal_____

DEQ Staff: _____Paige Evans_____

Date: ___5/8/17_____

1. Pre-Sampling Preparation

1.1. Inspect contents of PSP cooler

(Check to ensure necessary equipment and supplies are packed)

A. Chain Of Custody (COC) form

B. 1 bottle set per site:

(1 – 950ml Amber Glass (AG) and 1 – 500ml poly for normal week)

(1 – 950ml AG, 1- 500ml poly, 1 – 125ml AG, and 1- 250ml Amber poly for glyphosate week)

C. 1 extra bottle set for transfer blank (Tfb) and/or field duplicate (FD)

D. 2 extra of each amber container for MS/MSD sample (Total of 3 for MS/MSD site)

(3– 950ml AG for normal week)

(3 – 950ml AG, 3 – 125ml AG, 1 - 250ml Amber poly for glyphosate week)

E. Site labels for bottles

F. Cooler Bags (2 per cooler)

G. Zip ties for cooler bags (2 per cooler, 1 per bag)

H. Temperature QC bottle

I. UPS return service shipping label

All equipment was on cooler

2. Safety Considerations

2.1. Driving

A. Inspect vehicle for sampling equipment, safety equipment and general condition.

B. Avoid driving while fatigued.

C. Share driving with partner, as necessary.

D. Obey speed limits, road signs, signals and rules.

E. Drive in safe manner and be respectful of other drivers.

Safety equipment was present and safe driving was observed

2.2. Road shoulder work

A. Park in a safe location. Be aware of line of sight to oncoming traffic.

B. Deploy safety cones, amber lights, signs, etc., if necessary

C. Consider wearing a brightly colored and reflective safety vest if parking conditions warrant it.

STAY ALERT FOR TRAFFIC HAZARDS

Safe parking behavior was observed

2.3. Other general consideration

A. Look for any other potential safety hazards before getting out of your vehicle such as aggressive dogs, or people, especially if you are alone. awareness of general Safety was observed

2.4. Wading

No sample is worth endangering yourself or co-workers. When wading always work with a partner and follow these guidelines.

No risky wading was applicable during audit awareness of surroundings was observed

A. Consider if conditions call for wearing a personal device (life jacket). Wear personal flotation devices when wading in streams with depths over your chest or fast velocities.
B. Wear appropriate foot wear and waders.
C. Move slowly checking for unstable substrate or unexpected holes. A wading rod can be used to help assess streambed conditions.
D. Use caution when wading in streams with swift current. As you get deeper your ability to keep a grip on slick substrate will be reduced and you may be pushed off your feet by slower velocities. Even shallow water at high velocities with unstable walking surfaces can be dangerous. Do not attempt to wade a stream for which values of depth multiplied by velocity equal or exceed 10 ft2/sec.
E. Avoid hip boots that are tight around the ankles and waders that are tight around the chest—these may be difficult to remove in an emergency situation. Be aware of the possibility of slipping and going underwater (feet up, head down) while wearing them. Wear a hip belt with waders to help prevent filling the waders with water.
F. Watch for changes in river stage, especially when working downstream from a control structure. If working directly below a dam, contact the gate operator before entering the stream.
G. **BE AWARE OF SITE HAZARDS, CURRENTS, DEBRIS, ETC.** (IF unsafe, don't sample)

3. Field Sampling

3.1. Site Sampling

A. Obtain ice for cooler/s before sampling first site (typically two bags per cooler) yes
B. Label sample bottle with date and time before sampling site using permanent ink e.g. sharpee pen (use the same time on all bottles at site) yes
C. Collect a representative sample: Wade into the water with caution. Walk upstream and collect sample facing upstream. Look for areas where the water is well mixed, usually in the stream center. Be aware how tributaries and other discharges will affect the representativeness of the sample. Avoid sampling just downstream of tributaries and discharges, or far enough downstream to assure thorough mixing. Avoid disturbing and suspending bottom sediments. yes
D. Invert one bottle at a time, place each under the surface about 18 inches or half way to the bottom and gently rotate the bottle to fill. Cap the bottle while still submerged. yes, where able to.
E. Fill out COC with date and time sampled and number of each bottle type collected. Make notes of unusual site conditions on COC. yes.

F. Store the bottles in cooler with ice and temperature QC bottle. All items should be contained within two cooler bags and be protected from breaking with foam and/or bubble wrap. yes

3.2. QA Sampling (Field Duplicate, Blank Sample, MS/MSD)

A. Collect needed QA sample as specified on COC (Transfer Blank, Field Duplicate or MS/MSD) yes
B. Label Field Primary bottles with FP, date and time ~~yes~~ N/A
C. Label Field Duplicate bottles with FD, date and time (add one minute from Field Primary) ~~yes~~ N/A
D. Fill out COC for Field Primary, date and time and number of each bottle type collected. Change QC type from GS to FP ~~yes~~ N/A
E. Fill out COC for Field Duplicate with site, date, time and number of each bottle type collected (add one minute from Field Primary collection time) ~~yes~~ N/A
F. Label Transfer Blank bottles with date and time before filling bottles. N/A
G. Fill out COC with date and time sampled and number of each bottle type collected, note site where Transfer Blank is done on COC ~~yes~~ N/A
H. For MS/MSD sample, label 3 of each amber bottle type with date and time before filling bottles. yes
I. Fill out COC with date, time and number of each bottle type collected yes
G. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags) yes

4. Sample Processing and Shipping

A. Store the bottles in cooler with ice and temperature QC bottle (all items should be contained within two cooler bags, each cooler bag should be sealed individually with a zip-tie) yes
B. Prepare samples, cooler, COC forms, and shipping documentation yes
C. Sign sample custody release at bottom of COC form yes
H. Tape cooler closed (1 strip around cooler lengthwise, then 2 strips sealing the cooler closed). N/A
<u>Do not tape down cooler handles</u>
I. Final cooler check:
   a Do the COC forms sites, dates and times match the bottle labels? yes
   b Is there one temperature control blank per cooler? yes
   c Are the sample bottles protected from breaking with foam and/bubble wrap? yes
   d Is there adequate ice to keep the samples cold and the cooler liner bags sealed with cable ties? yes
   e Are the COC forms in a zip lock bag taped to the inside cooler lid? yes
D. Ship cooler to arrive next day at lab ~~yes~~ N/A

5. Notes

Very attentive, well done!
Field prep was organized, all materials present, double checking details, safe behavior, accurate sampling location and handling of sample bottles...

Suggestion: less head space in the 950ml amberglass bottles means a lower reporting limit. The entire volume of that sample is extracted and concentrated down to 2 mL, so the greater volume to begin with means a better sample in the end.

Suggestion: when possible, make an attempt to fill glyphosate (250mL Amber poly) only 85% full so that they can be frozen

Coolers were well packed with ice and foam spacers.

Great relationship with landowners and respectful of land access.

Great job while training Linfield student.
Suggestion would be to ① emphasize sampling upstream of where you are standing, reaching far enough away from any disturbed sediment.
② Take care while using sunscreen and handling exterior of gloves with bare hands.
③ Emphasize safety and using a buddy when sampling under overpasses.

(4) Emphasize wading safety during high flow events.

Great visiting with you Luke!

Don't hesitate to call with any questions!

971-806-2288

Paige Evans