A2. DISTRIBUTION LIST

The following personnel will be emailed regarding all aspects of this SAP. Deviations from this SAP must be communicated in writing (e-mail is acceptable) to all individuals identified in Table 1. Notification of the availability of the final reports from the DEQ LEAD will be emailed to the Project Coordinator, Field Operations Coordinator and Laboratory Data Coordinator.

Table 1 – Distribution List

Name	Phone	Email
Jim Coyle	(503)-693-5788	coyle.jim@deq.state.or.us
Allen Hamel	(503)-693-5727	hamel.allen@deq.state.or.us
Shannon Swantek	(503)-693-5784	swantek.shannon@deq.state.or.us
Sarah Rockwell	(503)-693-5775	rockwell.sarah@deq.state.or.us
Chris Redman	(503)-693-5706	redman.chris@deq.state.or.us
Brian Boling	(503)-693-5745	boling.brian@deq.state.or.us
Raeann Haynes	(503)-693-5757	haynes.raeann@deq.state.or.us
Dennis Ades	(503)-693-5736	ades.dennis@deq.state.or.us

A3. PROJECT TASK & ORGANIZATION

Sampling Organization: Oregon DEQ Laboratory and Environmental Assessment Division (LEAD)
Fund Code: 2008 Code: 40116
Subproject Code: 2026

Analytical Organization: Oregon DEQ Laboratory and Environmental Assessment Division
3150 NW 229th Avenue
Suite 150
Hillsboro, Oregon 97124
Ph: 503.693.5700
Contact: Christopher L Redman

Table 2 – Project/Task Responsibilities

Name	Project Title/Responsibility
Jim Coyle	Project Coordinator
Allen Hamel	Field Operations Coordinator
Shannon Swantek	Sample Coordinator
Sarah Rockwell	Data Coordinator
Brian Boling	Organic Section Manager
Raeann Haynes	Inorganic Section Manager

Name	Project Title/Responsibility
Chris Redman	Quality Assurance Officer
Dennis Ades	Water Quality Monitoring Section Manager

A4. QUALITY OBJECTIVES AND CRITERIA

Samples will be analyzed and reported following the procedures in DEQ09-LAB-0029-QAPP.

A5. DOCUMENTATION AND RECORDS

Samples collected from the field will be returned to the analytical laboratory with the Chain of Custody form (DEQ06-LAB-0054-FORM). Final analytical reports generated by the DEQ LEAD will follow standard laboratory practices. A link to the electronic versions of the reports (in pdf format) will be e-mailed to the Project Coordinator, Field Operations Coordinator and the Data Coordinator. An original hard copy of the report with the supporting QC documentation will be kept on file at the DEQ LEAD. Once finalized, an electronic version of the report is also available in LASAR.

SECTION B. DATA GENERATION AND ACQUISITION

B1. SAMPLING DESIGN

Until recently, the State of Oregon lacked a statewide, systematic, toxic pollutant monitoring program to quantify the presence of toxics chemicals in its waters and aquatic biota, identify their sources (where possible) and to guide efforts towards their reduction. This document describes the sampling and analysis protocol for fish toxics under the quality assurance project plan for the Toxics Monitoring Program (TMP) (DE09-LAB-0029-QAP) which was initiated in 2007 to document the status (distribution and intensity), measure trends (changes through time) and inform and guide reduction efforts of toxic pollutants in its surface waters and aquatic biota. A summary of Willamette River Basin waters identified as impaired by elevated levels of contaminants in fish tissue is shown in Table 2.

Table 3 – Current 303(d) Listings from the 2004/2006 Integrated Report Derived from Fish Consumption Advisories

WATERBODY NAME / LLID	RIVER MILE	PARAMETER	SEASON	LISTING STATUS	LIST DATE	RECEIVING WATER BODY
USGS HUC 17090001 Middle Fork Willamette - None						
USGS HUC 17090002 Coast Fork Willamette						
Coast Fork Willamette 1230233440232	31.3 - 38.8	Mercury	Year Round	303(d)	2004	Willamette R, 1227618456580

WATERBODY NAME / LLID	RIVER MILE	PARAMETER	SEASON	LISTING STATUS	LIST DATE	RECEIVING WATER BODY
Cottage Grove Res. 1230663436995	28.5 – 31.3	Mercury	Year Round	303(d)	1998	Willamette R, 1227618456580
Coast Fork Willamette 1230233440232	0 – 31.3	Mercury	Year Round	303(d)	1998	Willamette R, 1227618456580
Dorena Reservoir 1229146437703	7.4 – 11.3	Mercury	Year Round	303(d)	1998	CF Willamette 1230233440232
Row River 1230436438208	0 – 7.4	Mercury	Year Round	303(d)	1998	CF Willamette 1230233440232
USGS HUC 17090003 Upper Willamette						
Willamette River 1227618456580	174.5 – 186.4	Mercury	Year Round	303(d)	1998	Columbia River 1240483462464
Willamette River 1227618456580	148.8 – 174.5	Mercury	Year Round	303(d)	1998	Columbia River 1240483462464
Willamette River 1227618456580	119.7 – 148.8	Mercury	Year Round	303(d)	1998	Columbia River 1240483462464
Willamette River 1227618456580	108 – 119.7	Mercury	Year Round	303(d)	1998	Columbia River 1240483462464
USGS HUC 17090004 McKenzie - None						
USGS HUC 17090005 North Santiam - None						
USGS HUC 17090006 South Santiam - None						
USGS HUC 17090007 Middle Willamette						
Willamette River 1227618456580	54.8 – 108	Mercury	Year Round	303(d)	1998	Columbia River 1240483462464
Willamette River 1227618456580	54.8 – 72	Aldrin / Dieldrin	Year Round	303(d)	2002	Columbia River 1240483462464
Willamette River 1227618456580	54.8 – 72	DDT / DDE	Year Round	303(d)	2002	Columbia River 1240483462464
Willamette River 1227618456580	54.8 – 72	PCB	Year Round	303(d)	2002	Columbia River 1240483462464
Willamette River 1227618456580	24.8 – 54.8	Aldrin / Dieldrin	Year Round	303(d)	2002	Columbia River 1240483462464

WATERBODY NAME / LLID	RIVER MILE	PARAMETER	SEASON	LISTING STATUS	LIST DATE	RECEIVING WATER BODY
Willamette River 1227618456580	24.8 – 54.8	DDT / DDE	Year Round	303(d)	2002	Columbia River 1240483462464
Willamette River 1227618456580	24.8 – 54.8	Mercury	Year Round	303(d)	1998	Columbia River 1240483462464
Willamette River 1227618456580	24.8 – 54.8	PCB	Year Round	303(d)	2002	Columbia River 1240483462464
USGS HUC 17090008 Yamhill - None						
USGS HUC 17090009 Molalla / Pudding - None						
USGS HUC 17090010 Tualatin - None						
USGS HUC 17090011 Clackamas - None						
USGS HUC 17090012 Lower Willamette						
Willamette River 1227618456580	0 – 24.8	Aldrin / Dieldrin	Year Round	303(d)	2002	Columbia River 1240483462464
Willamette River 1227618456580	0 – 24.8	DDT / DDE	Year Round	303(d)	2002	Columbia River 1240483462464
Willamette River 1227618456580	0 – 24.8	Mercury	Year Round	303(d)	1998	Columbia River 1240483462464
Willamette River 1227618456580	0 – 24.8	PCB	Year Round	303(d)	2002	Columbia River 1240483462464

Sampling design, collection, methods, and handling will be managed by the sampling organization identified in section A3. The sampling organization will ensure that all samples will be collected in the appropriate sample containers, preserved as identified in the appropriate reference methods, and transported to the analytical organization within the appropriate sample holding times, with the appropriate documentation, and under the appropriate sample transport conditions. The analytical laboratory assumes no responsibility for the quality of data resulting from samples that were collected, shipped, or stored under inappropriate conditions.

The sampling locations and media to be collected are summarized in Table 4. Five fish per site is the target quota for this study. The Upper Willamette Reach between the forks and the mouth of the McKenzie has three established sampling sites. The target number of fish can be collected in the reach at any of the sites.

Table 4 – Summary of the sampling locations, media, and expected number of samples

LASAR # [i]	Site Name	RM	Latitude	Longitude	No. of Samples
2008 Fish Collection Sites Target Species – Primary (Smallmouth bass) or Secondary (Northern Pike Minnow)					
USGS HUC 17090001 Middle Fork Willamette - None					
USGS HUC 17090002 Coast Fork Willamette - None					
USGS HUC 17090003 Upper Willamette					
	Willamette Reach DS of forks, US McKenzie				5
10359	Willamette River at Springfield	185	44.0456	-123.0267	x
29044	Willamette River at Greenway bridge	180	44.0674	-123.1119	x
12784	Willamette River above McKenzie	177	44.1096	-123.0976	x
	Willamette Reach DS McKenzie, US Santiam				
10355	Willamette River at Harrisburg	161	44.2672	-123.1737	5
29043	Willamette River at Corvallis	134	44.5518	-123.2519	5
10350	Willamette River at Albany	119	44.6397	-123.1058	5
USGS HUC 17090004 McKenzie					
10376	McKenzie River at Coburg Road	7	44.1127	-123.0462	5
USGS HUC 17090005 North Santiam					
10774	Santiam River at Mouth	1	44.7503	-123.1404	5
USGS HUC 17090006 South Santiam - None					
USGS HUC 17090007 Middle Willamette					
10344	Willamette River at Wheatland Ferry	72	45.0906	-123.0443	5
26339	Willamette River at Newburg	50	45.2857	-122.9658	5
USGS HUC 17090008 Yamhill					
10363	Yamhill River at Dayton	5	45.2236	-123.0716	5
USGS HUC 17090009 Molalla / Pudding - None					
USGS HUC 17090010 Tualatin					
10456	Tualatin River at Boones Ferry Road	9	45.3861	-122.7563	5
USGS HUC 17090011 Clackamas					
11233	Clackamas River at High Rocks	2	45.3787	-122.5831	5
USGS HUC 17090012 Lower Willamette					
10549	Willamette River at SP&S RR Bridge	6	45.5779	-122.7475	5
10549	Multnomah Channel at St. Helens	1	45.8458	-122.7986	5

*

[i] If a LASAR station number is not available, the DEQ Laboratory will generate the unique identifier at the time of sample receipt.

B2. SAMPLING METHODS, SAMPLE HANDLING, AND CUSTODY

Fish samples will be collected by electrofishing or hook and line. The fish will be either filleted in the field or shipped on ice to the DEQ lab to be filleted. Fillet surfaces will be covered with hexane-washed aluminum foil and procedures derived from EPA/600/R-92/111 to minimize possible organic contamination. Fish scales will be collected for analysis during the fillet procedure. The mercury sample will be collected by stainless steel biopsy punch during the fillet procedure. The fillets will be stored frozen in hexane-washed aluminum foil until homogenized. The individual homogenates will be stored in muffled TraceClean glass jars. Equal weights of the each site's homogenates will be combined to produce the site's composite sample. Target weight of composite is at least 200 grams. A summary of the sampling containers, preservation requirements, and holding times is presented in Table 5.

Table 5 – Sample Preservation and Holding Times

Parameter	Holding Time	Container	Volume	Sample Preservation
Electro-fishing Conditions				
Temperature	Immediately	in-stream	NA	none
Conductivity	Immediately	in-stream	NA	none
Physical Fish Characteristics – EPA/600/R-92/111				
Fish Total Length	Immediately	on-site	NA	none
Fish Weight	Immediately	on-site	NA	none
Fish Gender	Immediately	on-site	NA	none
Fish Age performed by ODFW				
Fish Age	NA	V	5 scales	none
Aggregate Constituents				
Percent Solids	1 year	Z, H	200 g	N, F
Percent Lipids	1 year	Z, H	5 g	N, F
Metals				
Mercury	28 days	Z, L	5 plugs	N, F
Chlorinated Pesticides	1 year	Z, H	30 g	N, F
PCB Congeners	1 year	Z, H	50 g	N, F
PBDE Congeners	1 year	Z, H	50 g	N, F
Dioxin / Furan Congeners	1 year	Z, H	50 g	N, F

Parameter	Holding Time	Container	Volume	Sample Preservation
CONTAINER / PRESERVATION CODES N = Wrap in fillet in hexane-washed foil and freeze (-20°C) F = Freeze (-20°C) H = Store homogenate in muffled TraceClean glass jar and freeze (-20°C) L = Store biopsy plugs in muffled TraceClean glass jar and freeze (-20°C) V = Paper voucher envelope Z = Hexane-washed aluminum foil				

B3. ANALYTICAL PARAMETERS, METHODS, AND QUALITY CONTROL

A summary of the requested analytical parameters and methods is provided in Table 6. A summary of the data quality indicators is provided in Table 7. The shaded cells in Table 7 indicate the target value is less than the lab's LOQ. Results will be reported to the LOQ. Standard DEQ LEAD operating procedures will be following during the analyses of the samples, including analytical Quality Control measures and equipment inspection/maintenance.

Table 6– Summary of analytical parameters and methods

Sample Type	Analytical Parameters	Reference Method
Tissue, individual	Physical Fish Characteristics	EPA/600/R-92/111
Tissue, individual	Fish Tissue preparation	EPA/600/R-92/111
Tissue, individual	Fish Age performed by ODFW	ODFW
Tissue, individual	Total Mercury	EPA Method 7473
Tissue, composite	Percent Solids	2540 G
Tissue, composite	Percent Lipids	DEQ98-LAB-0002-SOP
Tissue, composite	Pesticide Compounds by HRGC/HRMS	EPA Method 1699
Tissue, composite	PCB Congeners Compounds by HRGC/HRMS	EPA Method 1668B
Tissue, composite	PBDE Congener Compounds by HRGC/HRMS	EPA Method 1614
Tissue, composite	Dioxin and Furans by HRGC/MS	EPA Method 1613

Table 7 – Data Quality Indicators

(Parameters in Bold Italic are selected in the 2008 work plan)

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
Field Measurements **Methods from EPA /600/R-92/111**						
Fish Total Length Units - mm	1	≤ ± 3	N/A	N/A	N/A	N/A
Fish Weight Units - g	10	≤ ± 5	N/A	N/A	N/A	N/A

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii] MS	LCS	CCV	ICV
Fish Gender Units – M / F / Unknown	N/A	N/A	N/A	N/A	N/A	N/A
Physical Characteristics Age by ODFW	**Units yr**					
Fish Age	1	N/A	N/A	N/A	N/A	N/A
Inorganic: Aggregate Constituents Method – 2540 G DEQ97-LAB-0010-SOP	**Units %**					
Percent Solids	N/A	N/A	N/A	N/A	N/A	N/A
Organic: Aggregate Constituents DEQ98-LAB-0002-SOP	**Units %**					
Percent Fats and Lipids	N/A	N/A	N/A	N/A	N/A	N/A
Total Mercury Method – EPA 7473 DEQ07-LAB-0015-SOP	**Units mg/Kg wet wt**					
Mercury, Total	LOQ (0.03)	≤ ± 20%	N/A	Ranges High ≤ ± 10% Low ≤ ± 20%	≤ ± 20%	ICV = LCS
Pesticides by HRGC/HRMS Method 1699	**Units ng/Kg wet wt**					
2,4`-DDD	***50 (37.5)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
2,4`-DDE	***50 (37.5)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
2,4`-DDT	***50 (37.5)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
4,4`-DDD	***50 (75)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
4,4`-DDE	***50 (75)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
4,4`-DDT	***50 (300)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
Aldrin	***50 (75)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
alpha Chlordane	***50 (75)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
alpha-BHC	LOQ (75)	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	***[iv]***	***[iv]***
beta-BHC	LOQ (75)	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	***[iv]***	***[iv]***
cis-Nonachlor	***50 (37.5)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
delta-BHC	LOQ (150)	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	***[iv]***	***[iv]***
Dieldrin	***50 (75)***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***≤ ± 30%[iv]***	***[iv]***	***[iv]***
Endosulfan I	LOQ (75)	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	***[iv]***	***[iv]***
Endosulfan II	LOQ (75)	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	***[iv]***	***[iv]***
Endosulfan sulfate	LOQ (300)	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	***[iv]***	***[iv]***
Endrin	LOQ (75)	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	***[iv]***	***[iv]***
Endrin Aldehyde	LOQ (37.5)	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	*≤ ± 30%[iv]*	***[iv]***	***[iv]***

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
Endrin Ketone	LOQ (150)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
gamma-BHC (Lindane)	LOQ (300)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
gamma-Chlordane	LOQ (75)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Heptachlor	***50 (300)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
Heptachlor epoxide	LOQ (75)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Hexachlorobenzene	LOQ (750)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Methoxychlor	NA	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Mirex	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Oxychlordane	***50 (37.5)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
trans-Nonachlor	***50 (150)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PCBs as Congeners by HRGC/HRMS Method 1668	**Units ng/Kg wet wt**					
BZ-1	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-2	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-3	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-5	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-6	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-8	***50 (150)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-9/BZ-7	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-10/BZ-4	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-11	LOQ (75)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-12	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-13	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-14	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-15	LOQ (150)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-16	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-17	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-18	***50 (37.5)***	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-19	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-22	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-23	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-24	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-25	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-26	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-27	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-28	***50 (75)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
BZ-29	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-30	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-31	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-32	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-34	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-35	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-36	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-37	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-38	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-39	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-40	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-41/BZ-72	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-42	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-44	***50 (37.5)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-45	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-46	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-47	LOQ (150)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-48	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-49	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-50	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-51	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-52 coelutes w / BZ-43	***50 (75)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-53	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-54	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-55	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-56	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-57	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-59	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-60	LOQ (18.8)	≤ ± 30%[iv]	**≤ ± 30%[iv]**	≤ ± 30%[iv]	[iv]	[iv]
BZ-61	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-62	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-63	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-64	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-66	***50 (37.5)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-67/BZ-58	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-68	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
BZ-69	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-70	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-71	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-73	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-74	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-75/BZ-65	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-76	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-77	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-78	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-79	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-80	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-81	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-82	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-83	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-84	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-85	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-88/BZ-91	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-89	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-90	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-92	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-93	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-94	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-95	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-96	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-97	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-98	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-99	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-100	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-101 coelutes w / BZ-113	***50 (75)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-102	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-103	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-104	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-105	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-106	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-107	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-108	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
BZ-109/BZ-123	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-110	***50 (75)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-114	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-115/BZ-111	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-116	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-117/BZ-87	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-118	***50 (75)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-119/BZ-112	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-120	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-121	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-122	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-124	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-125/BZ-86	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-126	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-127	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-128 coelutes w/ BZ-162	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-129	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-130	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-132	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-133/BZ-131/BZ-142	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-134	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-135	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-136	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-137	**LOQ (18.8)**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-138 coelutes w/ BZ-163	***50 (37.5)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-139	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-140	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-141	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-143	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-144	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-145	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-146	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-147	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-148	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-149	LOQ (75)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-150	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
BZ-151	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-152	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-153	***50 (37.5)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-154	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-155	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-156	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-157	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-158	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-159	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-160	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-161	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-164	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-165	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-166	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-167	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-168	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-169	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-170	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-171	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-172	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-173	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-174	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-175	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-176	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-177	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-178	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-179	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-180 coelutes w / BZ-193	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-181	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-182	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-183	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-184	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-185	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-186	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-187	***50 (37.5)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-188	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
BZ-189	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-190	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-191	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-192	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-194	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-195	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-196	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-197	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-198	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-199	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-20/BZ-21/BZ-33	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-200	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-201	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-202	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-203	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-204	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-205	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-206	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
BZ-207	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-208	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BZ-209	***50 (18.8)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
Total Mono PCBs (BZ 1 – 3)	(93.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Di PCBs (BZ 4 – 15)	(545)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Tri PCBs (BZ 16 – 39)	(585)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Tetra PCBs (BZ 40 – 81)	(975)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Penta PCBs (BZ 82 – 127)	(975)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Hexa PCBs (BZ 128 – 169)	(825)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Hepta PCBs (BZ 170 – 193)	(450)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Octa PCBs (BZ 194 – 205)	(225)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Nona PCBs (BZ 206 – 208)	(56.3)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total Deca PCBs (BZ 209)	(18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Total PCB	(4750)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDEs as Congeners by HRGC/HRMS Method 1614	**Units ng/Kg wet wt**					
BB 153	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
BTBPE	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
DBDPE	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
Hexabromobenzene	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-1	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-2	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-3	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-7	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-10	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-15	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-47	***50 (150)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PBDE-49	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-66	***50 (15)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PBDE-71	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-77	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-85	***50 (15)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PBDE-99	***50 (150)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PBDE-100	***50 (37.5)***	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-119	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-126	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-138	***50 (15)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PBDE-139	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-140	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-153	***50 (37.5)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PBDE-154	***50 (37.5)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PBDE-156/169	LOQ (30)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-171	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-180	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-183	***50 (15)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
PBDE-184	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-191	LOQ (15)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-196	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-197	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-201	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-203	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-204	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-205	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-206	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]

Parameter	Target [i] (LOQ)	Precision [ii]	Accuracy [iii]			
			MS	LCS	CCV	ICV
PBDE-207	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-208	LOQ (NA)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
PBDE-209	***50 (NA)***	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	**≤ ± 30%[iv]**	[iv]	[iv]
Dioxins / Furans by HRGC / HRMS Method 1613	**Units ng/Kg wet wt**					
1,2,3,4,6,7,8-Heptachlordibenzofuran	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,4,7,8,9-Heptachlorodibenzofuran	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,4,7,8-Hexachlorodibenzodioxin	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,4,7,8-Hexachlorodibenzofuran	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,6,7,8-Hexachlorodibenzodioxin	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,6,7,8-Hexachlorodibenzofuran	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,7,8,9-Hexachlorodibenzodioxin	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,7,8,9-Hexachlorodibenzofuran	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,7,8-Pentachlorodibenzodioxin	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
1,2,3,7,8-Pentachlorodibenzofuran	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
2,3,4,6,7,8-Hexachlorodibenzofuran	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
2,3,4,7,8-Pentachlorodibenzofuran	LOQ (18.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
2,3,7,8-Tetrachlorodibenzodioxin (TCDD)	LOQ (3.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
2,3,7,8-Tetrachlorodibenzofuran	LOQ (3.8)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
OCDD	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
OCDF	LOQ (37.5)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]
TEQ	LOQ (37.6)	≤ ± 30%[iv]	≤ ± 30%[iv]	≤ ± 30%[iv]	[iv]	[iv]

[i] The target level is the anticipated reporting level for this project. A target level of "LOQ" means the laboratory will use its current LOQ. If the requested target level is less than the laboratories LOQ, the laboratory will report the result down to the laboratory's LOQ

[ii] The precision control limit is to be used to evaluate both field duplicate and laboratory duplicate samples. Use the laboratory's current duplicate control limits, unless specified otherwise.

[iii] Actual laboratory control limits may vary, since laboratories are expected to revise control limits over time. Some QC measures are not applicable (NA) to the test method. Use the laboratory's current accuracy control limits, unless specified otherwise.

[iv] Laboratory control limits vary within each compound and method. Use the laboratory's current method description for specific limits. All data is reviewed against current method criteria

B4. DATA MANAGEMENT

Analytical data generated by the laboratory will be sent to the Project Coordinator as a link to the pdf report in an email. The DEQ LEAD will maintain hard copies of the analytical reports,

including all analytical QC measurements. Unless otherwise arranged, data generated by the DEQ LEAD will be moved to the Laboratory Analytical Storage and Retrieval Database (LASAR) following release to the Project Coordinator. Data in LASAR is publicly available through the DEQ website at http://deq12.deq.state.or.us/lasar2/default.aspx.

SECTION C. ASSESSMENT AND OVERSIGHT

Overall project assessment and oversight, including field activities, will be the responsibility of the Project Coordinator. Laboratory assessment and oversight will be provided by DEQ LEAD management and Quality Assurance Officers as defined in the Laboratory's Quality Manual or for cause. Any analytical anomalies or delays encountered during laboratory operations will be communicated to the Project Coordinator in writing (e-mail is acceptable). The Project Coordinator will also be notified in writing of any data quality limitations that may be the result of laboratory operations.

SECTION D. DATA VALIDATION AND USABILITY

The DEQ LEAD will provide standard data review, verification, and validation on all analytical data generated by this project. The extent of the data review, verification, and validation is limited to the analytical processes only. However, in the best judgment of the DEQ QAO, any data that may be inaccurate, misleading, or otherwise fails the DEQ LEAD's quality standards due to field or sampling activities will be identified in the final analytical report. Moreover, this data will be appropriately qualified when transferred to the Laboratory Analytical Storage and Retrieval Database (LASAR). All data verification, validation, and assessment activities for project purposes is the responsibility of the Project Coordinator.

Appendix A - Revision History

The plan author must increment the revision number with each approved revision. A new document is assigned a revision number of 1.0. The revision number of a plan that receives routine or minor editing is updated by incrementing the minor number by one (i.e., 1.0 becomes 1.1) The revision number of a document that has undergone major revisions is updated by incrementing the major number by one and setting the minor number to zero (i.e., 1.1 becomes 2.0). Revisions to documents should be clearly identified in a "Revision History" section of the document. The Revision History documents the specific changes made to the controlled document, who made the changes, and the date (month and year) the changes were made.

Table 8 – Revision History

Revision	Date	Changes	Editor
1.0	7 Jan 10	New document.	Rockwell, Hamel, Redman