



A3E1746

06/05/2013

Invoice
A313102

Calvin Yang
Central Valley RWQCB
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

Dear Calvin Yang,

Thank you for selecting BSK Associates for your analytical testing needs. We have prepared this report in response to your request for analytical services. Enclosed are the results of analyses for samples received by the laboratory on 05/22/2013 08:15.

If additional clarification of any information is required, please contact your Client Services Representative, Stephane Maupas at (800) 877-8310 or (559) 497-2888.

BSK ASSOCIATES

Stephane Maupas
Project Manager

Case Narrative

Work Order Information

Client Name: Central Valley RWQCB	Submitted by: Calvin Yang
Client Code: centr4730	Shipped by: ONTRAC
Work Order: A3E1746	COC Number:
Project: Evaluation WQ in Ag Dominated Water Bodies	TAT: 10
	PO #: 11-123-555

Sample Receipt Conditions

Cooler:	Cooler #2	Temp. °C:	1.0
Containers Intact			
COC/Labels Agree			
Received On Wet Ice			
Packing Material - Bubble Wrap			
Packing Material - Foam			
Sample(s) were received in temperature range.			
Initial receipt at BSK-SAC			

Cooler:	Default Cooler	Temp. °C:	0.8
Containers Intact			
COC/Labels Agree			
Received On Wet Ice			
Packing Material - Bubble Wrap			
Packing Material - Foam			
Sample(s) were received in temperature range.			
Initial receipt at BSK-SAC			

Report Manager

Calvin Yang

Report Format

Final.rpt



Certificate of Analysis

Calvin Yang
 Central Valley RWQCB
 11020 Sun Center Drive, Suite 200
 Rancho Cordova, CA 95670

Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-01
Sample Date: 05/21/2013 08:05
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 30

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	0.047	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	J
Chloride	EPA 300.0	1.2	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Sulfate as SO4	EPA 300.0	2.7	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	84		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	0.51	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	0.49	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	12	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	54		0.41	mg/L					
Magnesium	EPA 200.7	5.8	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	4.1	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-02
Sample Date: 05/21/2013 08:45
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 31

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	0.40	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	
Chloride	EPA 300.0	2.5	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Sulfate as SO4	EPA 300.0	4.6	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	95		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	1.4	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	1.3	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	11	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	53		0.41	mg/L					
Magnesium	EPA 200.7	6.1	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	4.9	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-03
Sample Date: 05/21/2013 09:00
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Waste Water

Sample Description: CCY130521 - 32

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	8.8	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	
Chloride	EPA 300.0	51	0.89	2.0	mg/L	2	A305514	05/22/13	05/22/13	B2.4
Sulfate as SO4	EPA 300.0	12	0.76	4.0	mg/L	2	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	460		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	3.8	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	3.6	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	43	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	240		0.41	mg/L					
Magnesium	EPA 200.7	33	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	58	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Lab Sample ID: A3E1746-04
Sample Date: 05/21/2013 09:10
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 33

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	0.68	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	
Chloride	EPA 300.0	4.2	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Sulfate as SO4	EPA 300.0	4.8	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	110		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	1.4	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	1.4	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	13	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	62		0.41	mg/L					
Magnesium	EPA 200.7	7.4	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	7.2	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Lab Sample ID: A3E1746-05
Sample Date: 05/21/2013 09:44
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 34

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	0.043	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	J
Chloride	EPA 300.0	3.2	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Sulfate as SO4	EPA 300.0	8.7	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	130		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	1.8	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	1.5	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	17	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	81		0.41	mg/L					
Magnesium	EPA 200.7	9.5	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	8.5	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-06
Sample Date: 05/21/2013 10:12
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 35

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	0.055	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	J
Chloride	EPA 300.0	2.6	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Sulfate as SO4	EPA 300.0	6.9	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	140		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	2.8	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	2.7	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	21	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	110		0.41	mg/L					
Magnesium	EPA 200.7	13	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	8.1	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Received Time: 08:15

Lab Sample ID: A3E1746-07
Sample Date: 05/21/2013 12:28
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 36

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	0.067	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	J
Chloride	EPA 300.0	6.6	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Sulfate as SO4	EPA 300.0	9.4	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	160		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	3.7	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	3.3	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	20	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	100		0.41	mg/L					
Magnesium	EPA 200.7	12	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	13	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-08
Sample Date: 05/21/2013 05:30
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 39

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	0.035	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	J



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Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-09
Sample Date: 05/21/2013 08:05
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 40

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Ammonia as N	SM 4500-NH3 G	0.11	0.029	0.10	mg/L	1	A305776	05/30/13	05/30/13	



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Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-10
Sample Date: 05/21/2013 11:12
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Waste Water

Sample Description: CCY130521 - 42

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chloride	EPA 300.0	60	0.89	2.0	mg/L	2	A305514	05/22/13	05/22/13	B2.4
Nitrate as N	EPA 300.0	17	0.18	0.44	mg/L	2	A305514	05/22/13 17:00	05/22/13 17:00	B2.4
Sulfate as SO4	EPA 300.0	41	0.76	4.0	mg/L	2	A305514	05/22/13	05/22/13	B2.4
Total Dissolved Solids	SM 2540C	470		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	19	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	20	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	37	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	240		0.41	mg/L					
Magnesium	EPA 200.7	36	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	64	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-11
Sample Date: 05/21/2013 11:21
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 43

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chloride	EPA 300.0	61	0.89	2.0	mg/L	2	A305514	05/22/13	05/22/13	B2.4
Nitrate as N	EPA 300.0	18	0.18	0.44	mg/L	2	A305514	05/22/13 17:09	05/22/13 17:09	B2.4
Sulfate as SO4	EPA 300.0	42	0.76	4.0	mg/L	2	A305514	05/22/13	05/22/13	B2.4
Total Dissolved Solids	SM 2540C	480		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	20	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	20	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	38	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	250		0.41	mg/L					
Magnesium	EPA 200.7	37	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	65	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Lab Sample ID: A3E1746-12
Sample Date: 05/21/2013 11:32
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 44

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chloride	EPA 300.0	62	0.89	2.0	mg/L	2	A305514	05/22/13	05/22/13	B2.4
Nitrate as N	EPA 300.0	16	0.18	0.44	mg/L	2	A305514	05/22/13 17:19	05/22/13 17:19	B2.4
Sulfate as SO4	EPA 300.0	42	0.76	4.0	mg/L	2	A305514	05/22/13	05/22/13	B2.4
Total Dissolved Solids	SM 2540C	480		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	19	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	19	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	37	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	240		0.41	mg/L					
Magnesium	EPA 200.7	36	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	63	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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Report Issue Date: 06/05/2013 14:39
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Lab Sample ID: A3E1746-13
Sample Date: 05/21/2013 13:54
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 45

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chloride	EPA 300.0	11	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.4
Nitrate as N	EPA 300.0	0.12	0.090	0.22	mg/L	1	A305514	05/22/13 17:48	05/22/13 17:48	B2.2, J
Sulfate as SO4	EPA 300.0	10	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	180		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	4.3	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	3.8	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	21	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	100		0.41	mg/L					
Magnesium	EPA 200.7	13	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	18	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



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 11020 Sun Center Drive, Suite 200
 Rancho Cordova, CA 95670

Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-14
Sample Date: 05/21/2013 14:10
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 46

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chloride	EPA 300.0	2.6	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Nitrate as N	EPA 300.0	0.13	0.090	0.22	mg/L	1	A305514	05/22/13 17:57	05/22/13 17:57	B2.2, J
Sulfate as SO4	EPA 300.0	6.6	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	140		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	3.5	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	3.0	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	18	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	95		0.41	mg/L					
Magnesium	EPA 200.7	12	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	8.7	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



Certificate of Analysis

Calvin Yang
 Central Valley RWQCB
 11020 Sun Center Drive, Suite 200
 Rancho Cordova, CA 95670

Report Issue Date: 06/05/2013 14:39
Received Date: 05/22/2013
Received Time: 08:15

Lab Sample ID: A3E1746-15
Sample Date: 05/21/2013 14:22
Sample Type: Grab

Sampled by: Calvin Yang
Matrix: Surface Water

Sample Description: CCY130521 - 47

General Chemistry

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chloride	EPA 300.0	4.7	0.45	1.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Nitrate as N	EPA 300.0	0.16	0.090	0.22	mg/L	1	A305514	05/22/13 18:07	05/22/13 18:07	B2.2, J
Sulfate as SO4	EPA 300.0	7.3	0.38	2.0	mg/L	1	A305514	05/22/13	05/22/13	B2.3
Total Dissolved Solids	SM 2540C	140		5.0	mg/L	1	A305616	05/24/13	05/30/13	

Metals

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Arsenic	EPA 200.8 DRC	4.3	0.045	0.10	ug/L	1	A305595	05/24/13	06/03/13	
*Arsenic - Dissolved (1)	EPA 200.8 DRC	3.2	0.045	0.10	ug/L	1	A305733	05/29/13	06/03/13	
Calcium	EPA 200.7	21	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Hardness as CaCO3	SM 2340B	110		0.41	mg/L					
Magnesium	EPA 200.7	13	0.046	0.10	mg/L	1	A305568	05/23/13	05/31/13	
Sodium	EPA 200.7	18	0.45	1.0	mg/L	1	A305568	05/23/13	05/31/13	



General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Date Analyzed	Qual
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Batch: A305514

Analyst: AJT

Prepared: 05/22/2013

Blank (A305514-BLK1) EPA 300.0 - Quality Control

Chloride	0.59	0.45	1.0	mg/L							05/22/13	B2.0, J
Nitrate as N	ND	0.090	0.22	mg/L							05/22/13	
Sulfate as SO4	0.44	0.38	2.0	mg/L							05/22/13	B2.0, J

Blank Spike (A305514-BS1) EPA 300.0 - Quality Control

Chloride	50	0.45	1.0	mg/L	50		101	90-110			05/22/13	
Nitrate as N	11	0.090	0.22	mg/L	11		101	90-110			05/22/13	
Sulfate as SO4	50	0.38	2.0	mg/L	50		101	90-110			05/22/13	

Blank Spike Dup (A305514-BSD1) EPA 300.0 - Quality Control

Chloride	51	0.45	1.0	mg/L	50		101	90-110	1	20	05/22/13	
Nitrate as N	11	0.090	0.22	mg/L	11		101	90-110	0	20	05/22/13	
Sulfate as SO4	50	0.38	2.0	mg/L	50		101	90-110	0	20	05/22/13	

Matrix Spike (A305514-MS1) EPA 300.0 - Quality Control

Source: A3E1746-07

Chloride	110	0.89	2.0	mg/L	100	6.6	100	80-120			05/22/13	
Nitrate as N	23	0.18	0.44	mg/L	23	0.13	99	80-120			05/22/13	
Sulfate as SO4	110	0.76	4.0	mg/L	100	9.4	101	80-120			05/22/13	

Matrix Spike (A305514-MS2) EPA 300.0 - Quality Control

Source: A3E1732-01

Chloride	100	0.89	2.0	mg/L	100	1.8	99	80-120			05/22/13	
Nitrate as N	25	0.18	0.44	mg/L	23	2.5	99	80-120			05/22/13	
Sulfate as SO4	99	0.76	4.0	mg/L	100	0.94	98	80-120			05/22/13	

Matrix Spike Dup (A305514-MSD1) EPA 300.0 - Quality Control

Source: A3E1746-07

Chloride	110	0.89	2.0	mg/L	100	6.6	99	80-120	1	20	05/22/13	
Nitrate as N	22	0.18	0.44	mg/L	23	0.13	98	80-120	1	20	05/22/13	
Sulfate as SO4	110	0.76	4.0	mg/L	100	9.4	99	80-120	1	20	05/22/13	

Matrix Spike Dup (A305514-MSD2) EPA 300.0 - Quality Control

Source: A3E1732-01

Chloride	100	0.89	2.0	mg/L	100	1.8	101	80-120	2	20	05/22/13	
Nitrate as N	26	0.18	0.44	mg/L	23	2.5	102	80-120	2	20	05/22/13	
Sulfate as SO4	100	0.76	4.0	mg/L	100	0.94	101	80-120	2	20	05/22/13	

Batch: A305616

Analyst: DEH

Prepared: 05/24/2013

Blank (A305616-BLK1) SM 2540C - Quality Control

Total Dissolved Solids	ND		5.0	mg/L							05/30/13	
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Blank (A305616-BLK2) SM 2540C - Quality Control

Total Dissolved Solids	ND		5.0	mg/L							05/30/13	
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Duplicate (A305616-DUP1) SM 2540C - Quality Control

Source: A3E1746-01

Total Dissolved Solids	84		5.0	mg/L	84				0	20	05/30/13	
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Duplicate (A305616-DUP2) SM 2540C - Quality Control

Source: A3E1829-01

Total Dissolved Solids	2100		5.0	mg/L	2000				1	20	05/30/13	
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Environmental Engineering | Geotechnical Engineering | Materials Testing



General Chemistry Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Date Analyzed	Qual
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Batch: A305616

Analyst: DEH

Prepared: 05/24/2013

Batch: A305776

Analyst: LJL

Prepared: 05/30/2013

Blank (A305776-BLK1) SM 4500-NH3 G - Quality Control

Ammonia as N	ND	0.029	0.10	mg/L							05/30/13	
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Blank Spike (A305776-BS1) SM 4500-NH3 G - Quality Control

Ammonia as N	9.9	0.029	0.10	mg/L	10		99	80-120			05/30/13	
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Blank Spike Dup (A305776-BSD1) SM 4500-NH3 G - Quality Control

Ammonia as N	9.7	0.029	0.10	mg/L	10		97	80-120	2	20	05/30/13	
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Matrix Spike (A305776-MS1) SM 4500-NH3 G - Quality Control

Source: A3E1746-02

Ammonia as N	11	0.029	0.10	mg/L	10	0.40	106	80-120			05/30/13	
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Matrix Spike (A305776-MS2) SM 4500-NH3 G - Quality Control

Source: A3E1835-01

Ammonia as N	33	0.15	0.50	mg/L	10	24	89	80-120			05/30/13	
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Matrix Spike Dup (A305776-MSD1) SM 4500-NH3 G - Quality Control

Source: A3E1746-02

Ammonia as N	11	0.029	0.10	mg/L	10	0.40	106	80-120	0	20	05/30/13	
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Matrix Spike Dup (A305776-MSD2) SM 4500-NH3 G - Quality Control

Source: A3E1835-01

Ammonia as N	32	0.15	0.50	mg/L	10	24	87	80-120	1	20	05/30/13	
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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Date Analyzed	Qual
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Batch: A305568

Analyst: NRE

Prepared: 05/23/2013

Blank (A305568-BLK1) EPA 200.7 - Quality Control

Calcium	ND	0.046	0.10	mg/L							05/31/13	
Magnesium	ND	0.046	0.10	mg/L							05/31/13	
Sodium	ND	0.45	1.0	mg/L							05/31/13	

Blank Spike (A305568-BS1) EPA 200.7 - Quality Control

Calcium	9.9	0.046	0.10	mg/L	10		99	85-115			05/31/13	
Magnesium	9.7	0.046	0.10	mg/L	10		97	85-115			05/31/13	
Sodium	9.9	0.45	1.0	mg/L	10		99	85-115			05/31/13	

Blank Spike Dup (A305568-BSD1) EPA 200.7 - Quality Control

Calcium	10	0.046	0.10	mg/L	10		103	85-115	5	20	05/31/13	
Magnesium	10	0.046	0.10	mg/L	10		103	85-115	6	20	05/31/13	
Sodium	10	0.45	1.0	mg/L	10		102	85-115	3	20	05/31/13	

Matrix Spike (A305568-MS1) EPA 200.7 - Quality Control

Source: A3E1642-01

Calcium	30	0.046	0.10	mg/L	10	20	104	70-130			05/31/13	
Magnesium	28	0.046	0.10	mg/L	10	18	99	70-130			05/31/13	
Sodium	110	0.45	1.0	mg/L	10	98	100	70-130			05/31/13	

Matrix Spike (A305568-MS2) EPA 200.7 - Quality Control

Source: A3E1746-07

Calcium	30	0.046	0.10	mg/L	10	20	100	70-130			05/31/13	
Magnesium	22	0.046	0.10	mg/L	10	12	98	70-130			05/31/13	
Sodium	22	0.45	1.0	mg/L	10	13	97	70-130			05/31/13	

Matrix Spike Dup (A305568-MSD1) EPA 200.7 - Quality Control

Source: A3E1642-01

Calcium	29	0.046	0.10	mg/L	10	20	96	70-130	3	20	05/31/13	
Magnesium	27	0.046	0.10	mg/L	10	18	93	70-130	2	20	05/31/13	
Sodium	100	0.45	1.0	mg/L	10	98	66	70-130	3	20	05/31/13	MS02 Low

Matrix Spike Dup (A305568-MSD2) EPA 200.7 - Quality Control

Source: A3E1746-07

Calcium	30	0.046	0.10	mg/L	10	20	102	70-130	1	20	05/31/13	
Magnesium	22	0.046	0.10	mg/L	10	12	99	70-130	0	20	05/31/13	
Sodium	23	0.45	1.0	mg/L	10	13	100	70-130	1	20	05/31/13	

Batch: A305595

Analyst: PSK

Prepared: 05/24/2013

Blank (A305595-BLK2) EPA 200.8 DRC - Quality Control

Arsenic	ND	0.045	0.10	ug/L							06/03/13	
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Blank Spike (A305595-BS2) EPA 200.8 DRC - Quality Control

Arsenic	45	0.045	0.10	ug/L	50		89	85-115			06/03/13	
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Blank Spike Dup (A305595-BSD2) EPA 200.8 DRC - Quality Control

Arsenic	46	0.045	0.10	ug/L	50		91	85-115	2	20	06/03/13	
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Matrix Spike (A305595-MS2) EPA 200.8 DRC - Quality Control

Source: A3E1746-13

Arsenic	47	0.045	0.10	ug/L	50	4.3	85	70-130			06/03/13	
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A3E1746 FINAL 06052013 1439

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Metals Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Date Analyzed	Qual
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Batch: A305595

Analyst: PSK

Prepared: 05/24/2013

Matrix Spike (A305595-MS3) EPA 200.8 DRC - Quality Control

Source: A3E1746-01

Arsenic	45	0.045	0.10	ug/L	50	0.51	89	70-130			06/03/13	
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Matrix Spike Dup (A305595-MSD2) EPA 200.8 DRC - Quality Control

Source: A3E1746-13

Arsenic	47	0.045	0.10	ug/L	50	4.3	85	70-130	0	20	06/03/13	
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Matrix Spike Dup (A305595-MSD3) EPA 200.8 DRC - Quality Control

Source: A3E1746-01

Arsenic	45	0.045	0.10	ug/L	50	0.51	89	70-130	0	20	06/03/13	
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Batch: A305733

Analyst: PSK

Prepared: 05/29/2013

Blank (A305733-BLK1) EPA 200.8 DRC - Quality Control

Arsenic - Dissolved (1)	ND	0.045	0.10	ug/L							06/03/13	
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Blank Spike (A305733-BS1) EPA 200.8 DRC - Quality Control

Arsenic - Dissolved (1)	44	0.045	0.10	ug/L	50		89	85-115			06/03/13	
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Blank Spike Dup (A305733-BSD1) EPA 200.8 DRC - Quality Control

Arsenic - Dissolved (1)	43	0.045	0.10	ug/L	50		87	85-115	2	20	06/03/13	
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Matrix Spike (A305733-MS1) EPA 200.8 DRC - Quality Control

Source: A3E1746-01

Arsenic - Dissolved (1)	44	0.045	0.10	ug/L	50	0.49	88	70-130			06/03/13	
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Matrix Spike (A305733-MS2) EPA 200.8 DRC - Quality Control

Source: A3E1746-13

Arsenic - Dissolved (1)	47	0.045	0.10	ug/L	50	3.8	87	70-130			06/03/13	
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Matrix Spike Dup (A305733-MSD1) EPA 200.8 DRC - Quality Control

Source: A3E1746-01

Arsenic - Dissolved (1)	44	0.045	0.10	ug/L	50	0.49	87	70-130	1	20	06/03/13	
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Matrix Spike Dup (A305733-MSD2) EPA 200.8 DRC - Quality Control

Source: A3E1746-13

Arsenic - Dissolved (1)	49	0.045	0.10	ug/L	50	3.8	91	70-130	4	20	06/03/13	
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Certificate of Analysis

06/05/2013

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
- Sample(s) received, prepared, and analyzed within the method specified criteria unless otherwise noted within this report.
- The results relate only to the samples analyzed in accordance with test(s) requested by the client on the Chain of Custody document. Any analytical quality control exceptions to method criteria that are to be considered when evaluating these results have been flagged and are defined in the data qualifiers section.
- All results are expressed on wet weight basis unless otherwise specified.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Results contained in this analytical report must be reproduced in its entirety.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- BSK Analytical Laboratories certifies that the test results contained in this report meet all requirements of the NELAC Standards for applicable certified drinking water chemistry analyses unless qualified or noted in the Case Narrative.
- Analytical data contained in this report may be used for regulatory purposes to meet the requirements of the Federal or State drinking water, wastewater, and hazardous waste programs.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- * - This is not a NELAP accredited analyte.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing for each certification.

State of California - ELAP	1180	State of Nevada	CA000792009A
State of California - ELAP (Rancho Cordova)	2435	State of Hawaii	04227CA
State of California - NELAP	04227CA	State of Oregon	4017
State of Washington	C997	State of Oregon - NWTPH	4021

Definitions and Flags for Data Qualifiers

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable				

MS02 Matrix spike recovery was low; the associated blank spike recovery was acceptable.

Certificate of Analysis

06/05/2013

- J DNQ (Detected, not quantified) or trace value. Analyte was detected between MDL and laboratory reporting limit (estimated value).
- B2.4 Analyte detected in associated method blank below the reporting limit. Sample concentration exceeds 10x the amount present and is not materially impacted by this condition.
- B2.3 Analyte detected in associated method blank below the reporting limit. Sample result may be, in part, attributable to ambient laboratory background.
- B2.2 Analyte detected in associated method blank below the reporting limit. Sample result may be attributable to ambient laboratory background.
- B2.0 Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).

A3E1746



Central Valley RWQCB

centr4730



05222013

Turnaround: Standard
Due Date: 6/6/2013

BSK Associates

Engineering Laboratories

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 www.bskassociates.com

*Required Fields

Temp: 0.8/10

9 1 of 2



A3E1746
cent4730

05/22/2013
10

Company/Client Name: Central Valley Regional Water Quality Control Board
 Report Attention: Calvin Yang
 Address: 11020 Sun Center Dr #200 Rancho Cordova CA 95670
 State: CA Zip: 95670
 Project: Eval WQ in Ag Dominated Water Bodies
 Project #:
 Reporting Options: Trace (J-Fig) Swamp EDD Type: _____
 How would you like your completed results sent? E-Mail Fax Mail
 Sampler Name (Printed/Signature): Calvin Yang
 TAT Standard - 10 Business Days Rush - Date Needed: _____
 Invoice To: Joseph C. McGahan
 PO#: 11-123-555
 Regulatory Carbon Copies: CDPH Fresno Co Tulare Co
 Method Co: Madera Co Other: _____
 Regulatory Compliance: EDT to California DPH
 System Number: _____
 Geotracker #: _____
 Phone: 916-464-4730 Fax: _____
 E-mail: ccyang@waterboards.ca.gov; jmcgahan@summerseng.com

#	Sample Description*	Sampled		Matrix*	Comments / Station Code / WTRAX	Na, TDS, Chloride	Sulfate, Hardness	Total and Dissolved: As	Ammonia as N	Nitrate as N
		Date	Time							
1	CCY130521 - 30	5/21/13	0805	SW		X	X	X	X	X
2	CCY130521 - 31	5/21/13	0845	SW		X	X	X	X	X
3	CCY130521 - 32	5/21/13	0900	WW		X	X	X	X	X
4	CCY130521 - 33	5/21/13	0910	SW		X	X	X	X	X
5	CCY130521 - 34	5/21/13	0944	SW		X	X	X	X	X
6	CCY130521 - 35	5/21/13	1012	SW		X	X	X	X	X
7	CCY130521 - 36	5/21/13	1228	SW		X	X	X	X	X
8	CCY130521 - 39	5/21/13	0530	SW		X	X	X	X	X
9	CCY130521 - 40	5/21/13	0805	SW		X	X	X	X	X
10	CCY130521 - 42	5/21/13	1112	WW		X	X	X	X	X
11	CCY130521 - 43	5/21/13	1121	SW		X	X	X	X	X
12	CCY130521 - 44	5/21/13	1132	SW		X	X	X	X	X
13	CCY130521 - 45	5/21/13	1354	SW		X	X	X	X	X
14	CCY130521 - 46	5/21/13	1410	SW		X	X	X	X	X

Requested by: (Signature and Printed Name) Calvin Yang
 Requisitioned by: (Signature and Printed Name) Calvin Yang
 Company: CVWB
 Date: 5/21/13
 Time: 1600
 Received by: (Signature and Printed Name) [Signature]
 Date: 5/21/13
 Time: 1600
 Payment Received at Delivery: [Signature]
 Date: 5/21/13
 Shipping Method: CONTRAC Blue UPS None GSO WALK-IN FED EX Courier
 Amount: \$1,000
 Check # [Signature]
 Cash [Signature]

Payment for services rendered is based on terms and conditions set forth in the contract. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent for the Client, that the Client agrees to be responsible for payment for the services on the Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

SR-FI-0012-05 An Official Chain of Custody

Sample Integrity



BSK Bottles: Yes No Page 1 of 1

COC Info	Was temperature within range? Chemistry $\leq 6^{\circ}\text{C}$ Micro $< 10^{\circ}\text{C}$ <u>0.5/1.0</u>			Yes	No	NA	Were correct containers and preservatives received for the tests requested?			Yes	No	NA
	If samples were taken today, is there evidence that chilling has begun?			Yes	No	NA	Were there bubbles in the VOA vials? (Volatiles Only)			Yes	No	NA
	Did all bottles arrive unbroken and intact?			Yes	No		Was a sufficient amount of sample received?			Yes	No	
	Did all bottle labels agree with COC?			Yes	No		Do samples have a hold time <72 hours?			Yes	No	
	Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?			Yes	No	NA	Was PM notified of discrepancies? PM: _____ By/Time: _____			Yes	No	NA
Bottles Received <small>— means preservation/chlorine checks are either N/A or are performed in the lab</small>	250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?				1-7	8-9	10-15			
	Bacti $\text{Na}_2\text{S}_2\text{O}_3$	—	—									
	None (P) ^{White Cap}	—	—				1C		1C			
	Cr6 Buffer (P) ^{Blue Cap}	pH 9-9.5	Y	N								
	HNO_3 (P) ^{Red Cap}	—	—				1B		1B			
	H_2SO_4 (P) ^{Yellow Cap}	pH ≤ 2	Y	N			1A	1A	1A			
	NaOH (P) ^{Green Cap}	Cl. pH ≥ 12	Y	N								
	$\text{NaOH} + \text{ZnAc}$ (P)	pH ≥ 9	Y	N								
	Dissolved Oxygen 300ml (g)	—	—									
	None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—									
	H_2SO_4 (AG) ^{Yellow Label} O&G, Diesel	—	—									
	$\text{Na}_2\text{S}_2\text{O}_3$ 1 Liter (Brown P) 549	—	—									
	$\text{Na}_2\text{S}_2\text{O}_3$ (AG) ^{Blue Label} 547, 515, 525, 548	—	—									
	$\text{Na}_2\text{S}_2\text{O}_3$ (AG) ^{Blue Label} THMs 524.2 or 524.3	—	—									
	$\text{Na}_2\text{S}_2\text{O}_3$ (CG) ^{Blue Label} 504, 505	—	—									
	$\text{Na}_2\text{S}_2\text{O}_3 + \text{MCAA}$ (CG) ^{Orange Label} 531	pH = 3	Y	N								
	NH_4Cl (AG) ^{Purple Label} 552	—	—									
	EDA (AG) ^{Brown Label} DBPs	—	—									
	Ascorbic + Maleic (AG) ^{LI Green Label} 524.3	—	—									
	HCL (CG) 524.2, BTEX, Gas, MTBE, 8260/624	—	—									
Buffer pH 4 (CG)	—	—										
None (CG)	—	—										
H_3PO_4 (CG) ^{Salmon Label}	—	—										
Other:												
Asbestos 1Liter Plastic w/ Foil	—	—										
Low Level Hg / Metals Double Baggie	—	—										
Bottled Water	—	—										
Clear Glass Jar: 250 / 500 / 1 Liter	—	—										
Soil Tube Brass / Steel / Plastic	—	—										
Tedlar Bag / Plastic Bag	—	—										
Split	Container	Preservative	Date/Time/Initials			Container	Preservative	Date/Time/Initials				
	S P					S P						
	S P					S P						
Comments												