Adani Carmichael Coal Mine Project

Groundwater Quality data _Bore-Servicing

December 2019-January 2020

Adani Carmicahel Coal Mine

Water quality data

Matrix:	Sample Type:	REG	REG	REG	REG	REG	REG	REG	REG
Project name/number:	Sample Date:	09/12/2019	06/12/2019	06/12/2019	06/12/2019	06/12/2019	06/12/2019	06/12/2019	06/12/2019
	Client sample ID (1st):	C14013SP	C14012SP	C018P3	C018P2	C555P1	C558P1	C9553P1R	C022P1
	Hydro-Stratigraphic unit	Clematis Sst	Clematis Sst	Colinlea SSt	Bandanna	Rewan	Tertiary	Rewan	Dunda Beds
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	**5.26**	**7.13**	**7.2**	**7.59**	**7.41**	**6.78**	**6.4**	**5.87**
Electrical Conductivity @ 25°C	µS/cm	**388**	**456**	**944**	**1660**	**774**	**9410**	**388**	**263**
Total Dissolved Solids @180°C	mg/L	**217**	**241**	**502**	**906**	**426**	**5420**	**228**	**156**
Total Alkalinity as CaCO3	mg/L	**10**	**167**	**233**	**342**	**178**	**313**	**76**	**21**
Sulfate as SO4 - Turbidimetric	mg/L	**11**	**6**	**15**	**7**	<1	**271**	**23**	**6**
Chloride	mg/L	**106**	**62**	**207**	**429**	**178**	**2960**	**69**	**61**
Calcium	mg/L	**1**	**3**	**23**	**46**	**7**	**80**	**2**	**1**
Magnesium	mg/L	**9**	**2**	**6**	**25**	**7**	**225**	**6**	**3**
Sodium	mg/L	**54**	**98**	**175**	**271**	**156**	**1680**	**72**	**46**
Potassium	mg/L	**6**	**8**	**9**	**17**	**7**	**28**	**3**	**2**
Aluminium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	**0.004**	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001	**0.025**
Copper	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.068**	<0.001	**0.012**
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	**0.017**	**0.005**	**0.045**	**0.069**	**0.234**	**0.038**	**0.149**	**0.007**
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001
Nickel	mg/L	**0.009**	<0.001	<0.001	<0.001	<0.001	**0.058**	<0.001	**0.003**
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.003**	<0.001	<0.001
Vanadium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	**0.02**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.006**
Boron	mg/L	**0.1**	**0.11**	**0.31**	**0.49**	**0.26**	**0.82**	**0.12**	**0.13**
Iron	mg/L	<0.05	<0.05	**0.86**	**0.52**	**1.74**	<0.05	**2.87**	<0.05
Chromium	mg/L	<0.001	**0.004**	<0.001	<0.001	<0.001	**0.007**	<0.001	<0.001
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	<0.1	**0.4**	**1.2**	**0.5**	**0.6**	**0.4**	<0.1	**0.2**
Ammonia as N	mg/L	**0.06**	**0.04**	**0.17**	**0.07**	**0.1**	**0.04**	**0.17**	**0.06**
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	**0.63**	**0.07**	<0.01	<0.01	<0.01	<0.01	**0.01**	**0.22**
Total Phosphorus as P	mg/L	<0.01	**0.13**	**0.03**	**0.06**	**0.07**	**0.01**	**0.26**	<0.01
Sulfide as S2-	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.7**	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	<100	<100	<100	<100	<100	<100	**210**	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

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Matrix:	**Sample Type:**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**
Project name/number:	**Sample Date:**	07/12/2019	07/12/2019	07/12/2019	08/12/2019	08/12/2019	07/12/2019	07/12/2019	07/12/2019
	Client sample ID (1st):	C025P2	C007P2	C014P2	C9838SPR	C14006SP	C14011SP	C14002SP	C914001SPR
	Hydro-Stratigraphic unit	Tertiary	Bandanna	Bandanna	Rewan	Joe-Joe	Clematis Sst	Joe-Joe	Joe-Joe
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	**6.94**	**7.21**	**8.05**	**5.88**	**6.73**	**6.44**	**7.17**	**6.58**
Electrical Conductivity @ 25°C	µS/cm	**14100**	**14200**	**1970**	**404**	**8450**	**311**	**11500**	**21400**
Total Dissolved Solids @180°C	mg/L	**8100**	**8520**	**1100**	**232**	**5110**	**176**	**7290**	**15000**
Total Alkalinity as CaCO3	mg/L	**404**	**269**	**541**	**16**	**122**	**43**	**145**	**193**
Sulfate as SO4 - Turbidimetric	mg/L	**420**	**341**	<1	**7**	**191**	**5**	**367**	**1500**
Chloride	mg/L	**4740**	**4740**	**468**	**105**	**2740**	**59**	**3850**	**7180**
Calcium	mg/L	**115**	**299**	**14**	**2**	**179**	**8**	**288**	**878**
Magnesium	mg/L	**113**	**254**	**4**	**6**	**82**	**6**	**110**	**425**
Sodium	mg/L	**2890**	**2430**	**431**	**66**	**1490**	**37**	**2100**	**3500**
Potassium	mg/L	**61**	**41**	**12**	**3**	**23**	**3**	**31**	**72**
Aluminium	mg/L	<0.01	<0.01	**0.03**	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	**0.003**	<0.001	<0.001	<0.001	**0.002**	<0.001	**0.002**	**0.002**
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001	**0.002**	<0.001	<0.001
Copper	mg/L	<0.001	<0.001	<0.001	**0.005**	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	**1.7**	**0.199**	**0.006**	**0.002**	**0.366**	**0.011**	**1.04**	**0.944**
Molybdenum	mg/L	**0.002**	<0.001	**0.006**	<0.001	<0.001	<0.001	**0.002**	<0.001
Nickel	mg/L	**0.002**	<0.001	<0.001	**0.002**	<0.001	**0.003**	**0.003**	**0.002**
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.003**
Vanadium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	**0.076**	<0.005	<0.005	<0.005
Boron	mg/L	**1.15**	**0.52**	**0.28**	**0.1**	**0.41**	**0.08**	**0.79**	**1.49**
Iron	mg/L	**7.01**	**1.51**	<0.05	<0.05	**7.72**	<0.05	**2.84**	**7.38**
Chromium	mg/L	**0.002**	<0.001	**0.012**	<0.001	<0.001	<0.001	<0.001	**0.001**
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	**0.6**	**0.7**	**1.2**	<0.1	**0.8**	<0.1	**0.2**	**0.3**
Ammonia as N	mg/L	**2.41**	**0.42**	**0.9**	**0.03**	**0.59**	**0.04**	**0.32**	**0.31**
Nitrite as N	mg/L	**0.02**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	<0.01	<0.01	<0.01	**0.21**	<0.01	0.44	<0.01	<0.01
Total Phosphorus as P	mg/L	**0.15**	<0.05	**0.16**	<0.01	<0.01	<0.01	<0.05	<0.05
Sulfide as S2-	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	**130**	<100	<100	<100	<100	<100	<100	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	**3**

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Matrix:	**Sample Type:**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**
Project name/number:	**Sample Date:**	07/12/2019	08/12/2019	08/12/2019	08/12/2019	08/12/2019	08/12/2019	09/12/2019	09/12/2019
	Client sample ID (1st):	C14028SP	C029P1	C029P2	C027P2	C027P1	C556P1	C14023SP	C14021SP
	Hydro-Stratigraphic unit	Alluvium	Alluvium	Tertiary	Dunda Beds	Alluvium	Rewan	Dunda Beds	Clematis SSt
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	**7.09**	**6.59**	**7.12**	**6.68**	**7.86**	**5.83**	**8.02**	**6.12**
Electrical Conductivity @ 25°C	µS/cm	**45400**	**6780**	**12100**	**621**	**31400**	**228**	**681**	**572**
Total Dissolved Solids @180°C	mg/L	**32500**	**3960**	**6660**	**429**	**20500**	**173**	**405**	**328**
Total Alkalinity as CaCO3	mg/L	**396**	**172**	**258**	**48**	**2190**	**25**	**140**	**38**
Sulfate as SO4 - Turbidimetric	mg/L	**2000**	**530**	**256**	**10**	**894**	**11**	**3**	**20**
Chloride	mg/L	**16200**	**1820**	**3890**	**156**	**9980**	**50**	**152**	**146**
Calcium	mg/L	**902**	**25**	**90**	**2**	**61**	**1**	**4**	**5**
Magnesium	mg/L	**1150**	**124**	**118**	**3**	**384**	**1**	**1**	**12**
Sodium	mg/L	**9110**	**1240**	**2400**	**120**	**7470**	**44**	**155**	**91**
Potassium	mg/L	**138**	**68**	**64**	**7**	**235**	**2**	**8**	**16**
Aluminium	mg/L	<0.05	<0.01	<0.01	**0.07**	<0.05	<0.01	<0.01	<0.01
Arsenic	mg/L	<0.005	**0.011**	**0.005**	**0.003**	**0.013**	<0.001	<0.001	<0.001
Cadmium	mg/L	<0.0005	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.005	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001
Cobalt	mg/L	**0.012**	**0.005**	<0.001	<0.001	<0.005	**0.006**	<0.001	<0.001
Copper	mg/L	<0.005	**0.002**	<0.001	**0.002**	<0.005	**0.051**	<0.001	<0.001
Lead	mg/L	<0.005	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001
Manganese	mg/L	**3.27**	**2.6**	**0.184**	**0.152**	**0.193**	**0.034**	**0.052**	<0.001
Molybdenum	mg/L	<0.005	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001
Nickel	mg/L	**0.005**	**0.003**	<0.001	<0.001	<0.005	**0.002**	<0.001	<0.001
Selenium	mg/L	<0.05	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01
Silver	mg/L	<0.005	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001
Uranium	mg/L	**0.053**	<0.001	<0.001	<0.001	**0.156**	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.05	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01
Zinc	mg/L	<0.025	**0.01**	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005
Boron	mg/L	**2.76**	**0.64**	**0.93**	**0.16**	**4.08**	**0.1**	**0.07**	**0.13**
Iron	mg/L	**2.08**	**5.2**	**1.03**	**4.07**	**0.33**	<0.05	<0.05	<0.05
Chromium	mg/L	<0.001	**0.007**	**0.005**	**0.004**	**0.016**	**0.001**	<0.001	<0.001
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	**0.3**	**0.4**	**0.5**	**0.2**	**1.4**	**0.2**	**0.5**	**0.1**
Ammonia as N	mg/L	**0.12**	**0.39**	**0.41**	**0.13**	**0.2**	**0.08**	**0.18**	**0.02**
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	**0.04**	<0.01	**0.16**
Total Phosphorus as P	mg/L	<0.05	**0.06**	**0.11**	**0.14**	**0.17**	**0.02**	<0.01	<0.01
Sulfide as S2-	mg/L	<0.1	<0.1	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	<100	**690**	**290**	<100	**140**	<100	<100	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

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Matrix:	**Sample Type:**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**
Project name/number:	**Sample Date:**	09/12/2019	09/12/2019	09/12/2019	10/12/2019	10/12/2019	11/12/2019	11/12/2019	11/12/2019
	Client sample ID (1st):	C180117SP	C008P1	C18005SP	HD03B	HD03A	C035P1	C035P2	C847SP
	Hydro-Stratigraphic unit	Dunda Beds	Rewan	Alluvium	Alluvium	Clematis SSt	Rewan	Bandanna	Bandanna
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	**6.12**	**6.69**	**6.57**	**7.23**	**7.16**	**6.84**	**6.74**	**5.86**
Electrical Conductivity @ 25°C	µS/cm	**229**	**18800**	**49600**	**686**	**606**	**3210**	**1300**	**297**
Total Dissolved Solids @180°C	mg/L	**164**	**14100**	**40900**	**400**	**375**	**2050**	**770**	**225**
Total Alkalinity as CaCO3	mg/L	**36**	**301**	**202**	**139**	**120**	**161**	**115**	**22**
Sulfate as SO4 - Turbidimetric	mg/L	**15**	**186**	**2530**	**10**	**11**	**52**	**19**	**7**
Chloride	mg/L	**37**	**7800**	**20100**	**159**	**143**	**1050**	**412**	**85**
Calcium	mg/L	**4**	**492**	**2660**	**2**	**4**	**16**	**12**	<1
Magnesium	mg/L	**2**	**392**	**1210**	**2**	**2**	**16**	**7**	**2**
Sodium	mg/L	**41**	**4150**	**8760**	**165**	**141**	**791**	**298**	**67**
Potassium	mg/L	**2**	**93**	**16**	**16**	**15**	**5**	**6**	**2**
Aluminium	mg/L	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	<0.001	**0.004**	<0.005	<0.001	<0.001	**0.002**	<0.001	<0.001
Cadmium	mg/L	<0.0001	**0.0002**	**0.0015**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	<0.001	**0.01**	**0.015**	<0.001	<0.001	**0.001**	<0.001	<0.001
Copper	mg/L	**0.414**	**0.697**	**0.15**	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	<0.001	<0.001	**0.005**	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	**0.013**	**2.18**	**1.82**	**0.135**	**0.381**	**0.102**	**0.093**	**0.002**
Molybdenum	mg/L	<0.001	**0.002**	**0.007**	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	mg/L	**0.01**	**0.068**	**0.017**	<0.001	<0.001	**0.001**	<0.001	<0.001
Selenium	mg/L	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	mg/L	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	<0.001	**0.015**	**0.092**	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	**0.018**	**0.031**	**0.215**	<0.005	**0.023**	**0.006**	<0.005	<0.005
Boron	mg/L	**0.07**	**1.38**	**4.5**	**0.15**	**0.11**	**0.64**	**0.25**	**0.11**
Iron	mg/L	<0.05	<0.05	**0.06**	**0.43**	**0.61**	**0.17**	**0.37**	<0.05
Chromium	mg/L	**0.002**	**0.003**	**0.004**	<0.001	<0.001	**0.004**	<0.001	<0.001
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	**0.3**	**0.5**	<0.1	**0.4**	**0.2**	**0.6**	**0.2**	**0.1**
Ammonia as N	mg/L	**0.06**	**1.45**	**0.07**	**0.57**	**0.28**	**0.11**	**0.08**	**0.03**
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**0.12**
Total Phosphorus as P	mg/L	**0.02**	**0.34**	**0.33**	**0.18**	**0.08**	**0.06**	**0.02**	<0.01
Sulfide as S2-	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	<100	**320**	<100	<100	<100	<100	<100	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

Matrix:	**Sample Type:**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**
Project name/number:	**Sample Date:**	11/12/2019	11/12/2019	10/12/2019	10/12/2019	10/12/2019	11/12/2019	11/12/2019	11/12/2019
	Client sample ID (1st):	C848SP	C14008SP	C14033SP	C14020SP	C016P2	C032P2	C9845SPR	C914030SPR
	Hydro-Stratigraphic unit	Colinlea SSt	Joe-Joe	Clematis Sst	Moolayemb	Bandanna	Bandanna	Tertiary	Joe-Joe
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	**6.56**	**6.09**	**5.53**	**6.05**	**7.67**	**8.01**	**6.33**	**6.15**
Electrical Conductivity @ 25°C	µS/cm	**2520**	**575**	**314**	**1290**	**2520**	**1110**	**1720**	**520**
Total Dissolved Solids @180°C	mg/L	**1450**	**338**	**202**	**794**	**1540**	**694**	**1060**	**297**
Total Alkalinity as CaCO3	mg/L	**215**	**32**	**15**	**37**	**236**	**378**	**61**	**32**
Sulfate as SO4 - Turbidimetric	mg/L	**18**	**14**	**3**	**55**	**39**	<1	**59**	**10**
Chloride	mg/L	**816**	**170**	**91**	**429**	**794**	**206**	**557**	**144**
Calcium	mg/L	**27**	**7**	**2**	**7**	**104**	**11**	**6**	**6**
Magnesium	mg/L	**25**	**6**	**9**	**42**	**19**	**4**	**16**	**5**
Sodium	mg/L	**558**	**110**	**46**	**210**	**475**	**292**	**380**	**95**
Potassium	mg/L	**16**	**5**	**9**	**24**	**9**	**4**	**7**	**4**
Aluminium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.006**	<0.001	<0.001
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	**0.0001**	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001
Cobalt	mg/L	<0.001	**0.01**	**0.002**	**0.001**	<0.001	<0.001	<0.001	**0.007**
Copper	mg/L	<0.001	<0.001	**0.004**	**0.005**	<0.001	<0.001	**0.197**	<0.001
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	**0.27**	**0.084**	**0.003**	**0.001**	**0.085**	**0.053**	**0.002**	**0.188**
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.008**	<0.001	<0.001
Nickel	mg/L	<0.001	**0.011**	**0.002**	**0.006**	<0.001	<0.001	**0.001**	**0.01**
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	<0.005	**0.045**	**0.009**	**0.022**	<0.005	<0.005	<0.005	**0.109**
Boron	mg/L	**0.16**	**0.08**	**0.07**	**0.31**	**0.36**	**0.33**	**0.21**	**0.08**
Iron	mg/L	**1.79**	**1.61**	<0.05	<0.05	**0.07**	**0.12**	<0.05	**0.63**
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	**0.068**	**0.002**	**0.002**	<0.001
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	**0.3**	**0.2**	<0.1	**0.2**	**0.2**	**1**	**0.2**	**0.2**
Ammonia as N	mg/L	**0.1**	**0.06**	**0.07**	**0.04**	**0.49**	**0.38**	**0.04**	**0.06**
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	<0.01	<0.01	**0.62**	**0.08**	**0.02**	<0.01	**0.13**	<0.01
Total Phosphorus as P	mg/L	**0.01**	<0.01	<0.01	<0.01	**0.44**	**0.06**	**0.28**	<0.01
Sulfide as S2-	mg/L	**0.2**	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

Matrix:	**Sample Type:**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**
Project name/number:	**Sample Date:**	11/12/2019	12/12/2019	12/12/2019	12/12/2019	04/12/2019	05/12/2019	05/12/2019	04/12/2019
	Client sample ID (1st):	C14029SP	C14016sp	C034P3	C14024SP	C14032SP	C012P1	C012P2	C14031SP
	Hydro-Stratigraphic unit	Composite b	Joe-Joe	Colinlea SSt	Composite b	Joe-Joe	Joe-Joe	Joe-Joe	Composite b
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	**6.07**	**9.2**	**6.42**	**6.29**	**5.89**	**6.18**	**7.24**	**5.82**
Electrical Conductivity @ 25°C	µS/cm	**8960**	**2430**	**1640**	**497**	**2120**	**1990**	**2570**	**5530**
Total Dissolved Solids @180°C	mg/L	**6700**	**1650**	**1000**	**302**	**1180**	**1110**	**1430**	**3240**
Total Alkalinity as CaCO3	mg/L	**58**	**92**	**97**	**69**	**39**	**81**	**279**	**29**
Sulfate as SO4 - Turbidimetric	mg/L	**541**	**64**	**17**	**9**	**30**	**47**	**44**	**87**
Chloride	mg/L	**3170**	**687**	**466**	**102**	**697**	**608**	**710**	**1900**
Calcium	mg/L	**217**	**22**	**22**	**4**	**28**	**28**	**81**	**76**
Magnesium	mg/L	**163**	**2**	**9**	**6**	**31**	**33**	**29**	**93**
Sodium	mg/L	**1880**	**464**	**287**	**82**	**353**	**329**	**415**	**976**
Potassium	mg/L	**11**	**7**	**11**	**8**	**13**	**11**	**15**	**13**
Aluminium	mg/L	<0.01	**0.02**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	<0.001	**0.008**	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	**0.004**	<0.001	<0.001	<0.001	**0.003**	<0.001	<0.001	<0.001
Copper	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	**0.11**	**0.012**	**0.225**	**0.039**	**0.187**	**0.01**	**0.196**	**0.034**
Molybdenum	mg/L	<0.001	**0.01**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	mg/L	**0.009**	**0.009**	<0.001	**0.005**	**0.002**	<0.001	<0.001	**0.002**
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	**0.2**	**0.005**	**0.114**	**0.02**	**0.273**	<0.005	<0.005	**0.122**
Boron	mg/L	**1.49**	**0.32**	**0.2**	**0.12**	**0.14**	**0.39**	**0.46**	**0.43**
Iron	mg/L	**1.29**	<0.05	**2.93**	**0.16**	**2.21**	<0.05	**0.25**	**0.59**
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	<0.1	**1.3**	**0.2**	**0.2**	**0.3**	**0.2**	**0.3**	**0.1**
Ammonia as N	mg/L	**0.11**	**0.8**	**0.11**	**0.02**	**0.09**	**0.06**	**0.07**	**0.08**
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	<0.01	<0.01	**0.03**	<0.01	<0.01	**0.04**	<0.01	<0.01
Total Phosphorus as P	mg/L	**0.76**	**0.03**	<0.01	<0.01	**0.02**	<0.01	<0.01	<0.01
Sulfide as S2-	mg/L	<0.1	**0.2**	<0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	<100	<100	<100	<100	<100	<100	**370**	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

Matrix:	**Sample Type:**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**	**REG**
Project name/number:	**Sample Date:**	04/12/2019	05/12/2019	05/12/2019	05/12/2019	12/01/2020	14/01/2020	14/01/2020	14/01/2020
	Client sample ID (1st):	C180123SP	C011P3	C024P3	C975SP	C18009SP	C18004SP	C18006SP	C006P3R
	Hydro-Stratigraphic unit	Joe-Joe	Colinlea SSt	Colinlea SSt	Colinlea SSt	Alluvium	Alluvium	Alluvium	Colinlea SSt
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	**8.05**	**7.52**	**6.38**	**6.01**	**8.7**	**7.07**	**6.63**	**8.3**
Electrical Conductivity @ 25°C	µS/cm	**809**	**911**	**1400**	**587**	**25300**	**38500**	**57500**	**989**
Total Dissolved Solids @180°C	mg/L	**522**	**508**	**818**	**341**	**18300**	**31400**	**49000**	**558**
Total Alkalinity as CaCO3	mg/L	**250**	**225**	**118**	**40**	**31**	**207**	**9**	**434**
Sulfate as SO4 - Turbidimetric	mg/L	**24**	<1	**20**	**25**	**908**	**759**	**3050**	**2**
Chloride	mg/L	**108**	**178**	**405**	**154**	**8470**	**14300**	**21800**	**67**
Calcium	mg/L	**7**	**22**	**13**	**2**	**2030**	**2970**	**2060**	**11**
Magnesium	mg/L	**4**	**5**	**26**	**6**	**277**	**1170**	**1400**	**3**
Sodium	mg/L	**179**	**166**	**227**	**108**	**3240**	**5060**	**11800**	**228**
Potassium	mg/L	**3**	**9**	**10**	**5**	**24**	**20**	**29**	**5**
Aluminium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01
Arsenic	mg/L	**0.003**	<0.001	**0.012**	<0.001	<0.001	<0.005	<0.005	<0.001
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	**0.034**	<0.005	<0.005	<0.001
Cobalt	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	**0.014**	<0.001
Copper	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.001
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.001
Manganese	mg/L	**0.032**	**0.03**	**0.131**	**0.066**	**0.006**	**0.097**	**1.07**	**0.022**
Molybdenum	mg/L	**0.004**	<0.001	<0.001	<0.001	**0.039**	<0.005	**0.008**	<0.001
Nickel	mg/L	<0.001	<0.001	**0.006**	<0.001	<0.001	**0.011**	**0.019**	<0.001
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.001
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	**0.002**	**0.032**	**0.056**	<0.001
Vanadium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01
Zinc	mg/L	**0.006**	<0.005	<0.005	**0.005**	**0.009**	<0.025	<0.025	<0.005
Boron	mg/L	**0.33**	**0.43**	**0.33**	**0.13**	**0.9**	**0.82**	**4.67**	**0.14**
Iron	mg/L	<0.05	**0.47**	**16**	**0.08**	<0.05	<0.05	<0.05	**0.13**
Chromium	mg/L	<0.001	**0.001**	**0.001**	<0.001	**0.048**	<0.005	**0.026**	<0.001
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	**0.6**	**1.2**	**0.4**	**0.2**	**0.2**	**0.2**	**0.2**	**2.1**
Ammonia as N	mg/L	**0.09**	**0.25**	**0.43**	**0.06**	**0.09**	**0.42**	**0.18**	**0.3**
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	**0.01**	<0.01	<0.01	<0.01
Nitrate as N	mg/L	<0.01	**0.08**	**0.07**	**0.07**	**0.18**	<0.01	<0.01	<0.01
Total Phosphorus as P	mg/L	**0.02**	**0.05**	**0.29**	<0.01	<0.05	<0.10	<0.10	**0.02**
Sulfide as S2-	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	<100	**120**	**130**	<100	<100	**190**	**160**	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	**3**	<1

Matrix:	**Sample Type:**	REG	REG	REG	REG	REG	REG	REG	REG
Project name/number:	**Sample Date:**	11/01/2020	11/01/2020	12/01/2020	12/01/2020	13/01/2020	13/01/2020	13/01/2020	13/01/2020
	Client sample ID (1st):	C914108PTR	C9180124SP	C180122SP	C180119SP	HD02	C18002SP	C18003SP	C18001SP
	Hydro-Stratigraphic unit	Joe-Joe	Joe-Joe	Composite B	Joe-Joe	Clematis Sst	Clematis SSt	Moolayemb	Clematis SSt
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	6.33	6.11	5.94	6.6	7.59	8.07	7.55	7.1
Electrical Conductivity @ 25°C	µS/cm	507	459	7030	759	551	368	426	639
Total Dissolved Solids @180°C	mg/L	284	263	4100	432	313	215	268	353
Total Alkalinity as CaCO3	mg/L	30	20	15	58	117	147	162	107
Sulfate as SO4 - Turbidimetric	mg/L	139	137	79	8	3	<1	8	8
Chloride	mg/L	6	2	2620	219	102	31	35	137
Calcium	mg/L	4	4	109	6	2	2	5	4
Magnesium	mg/L	93	87	126	5	1	<1	2	1
Sodium	mg/L	5	4	1170	146	114	81	87	124
Potassium	mg/L	<0.01	<0.01	31	4	13	12	15	17
Aluminium	mg/L	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	0.0002	<0.0001	<0.001	0.001	0.008	<0.001	<0.001	0.001
Cadmium	mg/L	<0.001	0.003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.01	0.002	0.003	<0.001	0.002	<0.001	<0.001	<0.001
Copper	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
Lead	mg/L	0.074	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	<0.001	<0.001	0.23	0.019	0.304	0.13	0.073	0.016
Molybdenum	mg/L	0.006	0.003	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
Nickel	mg/L	<0.01	<0.01	0.004	<0.001	<0.001	<0.001	0.004	0.001
Selenium	mg/L	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	0.532	0.294	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	0.13	0.09	0.204	0.758	<0.005	<0.005	0.075	0.05
Boron	mg/L	0.6	0.09	0.5	0.14	0.1	0.06	0.11	0.12
Iron	mg/L	<0.001	0.002	1.25	1.34	0.41	<0.05	<0.05	1.62
Chromium	mg/L	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001
Mercury	mg/L	0.2	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	0.02	0.01	<0.1	0.1	0.2	0.4	0.5	0.2
Ammonia as N	mg/L	<0.01	<0.01	0.07	0.1	0.13	0.1	0.02	0.2
Nitrite as N	mg/L	0.06	0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Total Phosphorus as P	mg/L	<0.1	<0.1	<0.01	<0.01	0.12	0.16	0.08	0.02
Sulfide as S2-	mg/L	<20	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<100	<100	<20	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	<1	<1	<100	<100	<100	<100	<100	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

Matrix:	**Sample Type:**	REG	REG	REG	REG	REG			
Project name/number:	**Sample Date:**	12/01/2020	12/01/2020	12/01/2020	12/01/2020	13/01/2020			
	Client sample ID (1st):	C180120SP	C14015SP	C9180121SP	C14017SP	C008P2			
	Hydro-Stratigraphic unit	Composite B	Joe-Joe	Tertiary	Joe-Joe	Bandanna			
Analyte grouping/Analyte	**Unit**								
pH Value	pH Unit	5.88	6.96	6.11	7.5	7.99			
Electrical Conductivity @ 25°C	µS/cm	8120	2450	3510	4940	2610			
Total Dissolved Solids @180°C	mg/L	4620	1370	2080	2950	1450			
Total Alkalinity as CaCO3	mg/L	13	135	31	289	445			
Sulfate as SO4 - Turbidimetric	mg/L	174	65	88	34	82			
Chloride	mg/L	2730	685	1100	1420	578			
Calcium	mg/L	99	16	32	103	28			
Magnesium	mg/L	146	15	50	52	15			
Sodium	mg/L	1420	469	642	902	544			
Potassium	mg/L	29	10	10	15	8			
Aluminium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01			
Arsenic	mg/L	<0.001	<0.001	<0.001	0.002	<0.001			
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.002	<0.001	<0.001	<0.001	<0.001			
Copper	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001			
Lead	mg/L	0.002	<0.001	<0.001	<0.001	<0.001			
Manganese	mg/L	0.012	0.283	0.013	0.615	0.051			
Molybdenum	mg/L	<0.001	<0.001	<0.001	0.003	0.001			
Nickel	mg/L	0.006	<0.001	<0.001	<0.001	<0.001			
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01			
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001			
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001			
Vanadium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01			
Zinc	mg/L	0.346	0.08	0.811	0.037	<0.005			
Boron	mg/L	0.48	0.4	0.3	0.79	0.24			
Iron	mg/L	1.5	0.64	0.68	0.34	<0.05			
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001			
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Fluoride	mg/L	0.1	0.5	1.1	0.3	0.5			
Ammonia as N	mg/L	0.05	0.04	<0.01	0.14	1.3			
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01			
Nitrate as N	mg/L	0.18	<0.01	0.31	<0.01	<0.01			
Total Phosphorus as P	mg/L	<0.01	0.02	<0.01	0.01	0.02			
Sulfide as S2-	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1			
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20			
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20			
>C10 - C40 Fraction (sum)	µg/L	<100	<100	<100	<100	<100			
Sum of BTEX	µg/L	<1	<1	<1	<1	<1			