



September 23, 2013

Authorization Number: 105017

REGISTERED MAIL

Red Chris Development Company Ltd.
200-580 Hornby ST
Vancouver, BC V6C 3B6

Dear Permittee:

RE: Approval of the Discharge and Receiving Environment Monitoring Program

Pursuant to section 4.1 of *Environmental Management Act* Permit 105017, issued on Sept. 23, 2013, the attached monitoring program is hereby approved.

The Director may amend the monitoring requirements based on the data submitted and any other data gathered in connection with the discharges. If you have any questions regarding this monitoring program, please contact Jeanien Carmody-Fallows or Lisa Torunski at 250-847-7260.

Yours truly,

Mark Love, P.Ag.
for Director, *Environmental Management Act*
Northern Region - Skeena

Enclosure

cc: Environment Canada
Ministry of Energy and Mines, Smithers
Tahltan Central Council
Red Chris Monitoring Committee

| Location/Site I.D. | Parameter (mg/L unless noted) | Frequency |
|---|--|---|
| DISCHARGE MONITORING | | |
| SP1-E288789 SP2-E294089 SP3-E294090 SP4-E294109 SP5-E288790 SP6-E294110 SP7-E293390 SP8-E294111 SDD-E294129 NRDD-E293389 | Field Turbidity (NTU) (Internal Analysis) | Daily ^① |
| | Level Monitoring – reported as Daily Flow (m ³ /day) | Continuous ^② |
| | TSS and Turbidity(External Analysis) | Weekly ^③ |
| | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| | Toxicity - Rainbow Trout 96 hr LT ₅₀ | Quarterly ^④ |
| RECEIVING ENVIRONMENT MONITORING | | |
| W1 Coyote Creek E295149 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Quarterly |
| W2 Whiterock Canyon E295150 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| | Level Monitoring ^⑤ | Continuous water level recording (1 hour intervals minimum) |
| W3 Quarry Creek E295151 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| | Level Monitoring ^⑤ | Continuous water level recording (1 hour intervals minimum) |
| W4 Trail Creek E 288850 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| | Level Monitoring ^⑤ | Continuous water level recording (1 hour intervals minimum) |
| W5 Redrock Canyon E295152 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Quarterly |
| W7 Coyote Creek E295153 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| W8 Thurston's Trickle E295154 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| W9 Camp Creek E295155 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Quarterly |
| W10 Lost Creek E295156 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Quarterly |

| Location/Site I.D. | Parameter (mg/L unless noted) | Frequency |
|---|--|---|
| W12 Klappan River E295157 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄) | Quarterly |
| W13 Klappan River E295158 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Quarterly |
| W15 Kluea – Todagin Creek E295159 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Quarterly |
| W17 NEA Creek E295160 | Future monitoring point | |
| W19 Quarry Creek E295161 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| W20 Quarry Creek E288852 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| | Level Monitoring ⁶ | Continuous water level recording (1 hour intervals minimum) |
| W21 Lost Creek East Trib ⁵ E288853 | Field Turbidity (NTU) (Internal Analysis) | Daily ² |
| | TSS and Turbidity (External Analysis) | Weekly ³ |
| W25 West Quarry Creek ⁵ E295163 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) ,NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Quarterly (only if Sediment pond 6 is built) |
| W26 Lost Creek West Lower ⁵ E295164 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) ,NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| W27 Lost Creek East Lower Trib ⁵ E288854 | TSS and Turbidity(External Analysis) | Weekly ³ |
| W27 Lost Creek East Lower Trib ⁵ E288854 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) ,NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| W 28 Trench Creek Upper ⁵ E295165 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) ,NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| W29 Trench Creek lower ⁵ E295166 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) ,NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| W30 Thurston's Trickle ⁵ E295167 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) ,NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |
| W40 Klappan River E295168 | Total and Dissolved Metals (multi-elemental ICP/ICPMS) ,NH ₃ , NO ₂ , NO ₃ , pH, Hardness, Conductivity, Alkalinity, TSS, TDS, and SO ₄ | Monthly |

NOTES:

SP – Sediment Control Pond

SDD – South Dam Diversion

NRDD – North Reclaim Dam Discharge

***Sediment Control Ponds 6, 7 and/or 8 may not be constructed based on operational needs.**

- ① Daily sampling is required when sediment control ponds are discharging to surface waters. Should turbidity results indicate TSS concentration is greater than 30 mg/L a sample shall be collected for external TSS analysis. Daily TSS (external) sampling shall continue until two consecutive water quality samples produce results that are below 30 mg/L TSS.
- ② Continuous flow monitoring shall consist of a pressure transducer and rated structure. Pond levels shall be recorded at 15 minute intervals. Flows shall be determined from stage discharge curves based on a rated structure. Total 24 hour volumes discharged shall be included in monthly reports. Pond level data shall be maintained by the Approval Holder for inspection.
- ③ External TSS and Turbidity analysis is required weekly when discharge from the sediment control pond(s) is occurring.
- ④ Quarterly – First sample shall be collected within the first week of a discharge from sediment ponds, and thereafter, once every three months.
- ⑤ Ephemeral stream channels may be dry at the time of sampling, and shall be documented in the monitoring report for that monitoring period.
- ⑥ Level monitoring data and flow calculations shall be maintained by the Permittee for inspection. Calibration of the stage-discharge curves shall be submitted with the monthly report when calibration occurs.

