Appendix D EA Follow Up Monitoring Registry

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Appendix D: EA Follow-Up

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.1	RRR expects that it will be responsible to carry out the Follow-up Monitoring Plan (FMP); and further, that the involved Federal and Provincial agencies and authorities will have a review and monitoring role regarding the implementation of the FMP by RRR and will require RRR to take corrective action for non-compliance as appropriate. Local Aboriginal groups are considered by RRP to be involved parties for the purposes of the FMP, and accordingly, local First Nations and Métis will be provided the results of the FMP.	During the course of construction of the water and tailings management facilities, deformations were identified at one of the dams associated with such facilities. As a result, work on those facilities was paused in February 2016. Additional geotechnical testing and follow up monitoring were conducted. After receiving feedback from New Gold's Independent Tailings Review Board (a panel of independent experts was established by New Gold in line with best practices in Canada) and MNRF, the water management structures on the site were redesigned. The redesign, together with enhanced construction procedures (including an enhanced QCV/QA program, were approved by MNRF in November 2016 following which construction was recommenced. New Gold RRP is still awaiting approvals under the LRIA for various other structures, which are expected to be received in early 2017.	Ongoing

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13.2.2	For fugitive dust from roads, stockpiles and open pit operations, RRR will assess the effectiveness of planned dust control measures both visually by plume assessment, and using dust fall jars and high-volume samplers for total particulate and PM2.5. Dust fall samples will be collected monthly during the non-winter period for the construction, operation and active reclamation project phases. Select filter samples will be assessed for metals (comprised of a full metal scan - including mercury, arsenic, cadmium and lead). Two monitoring stations will be set up at the approximate property boundary locations shown in Figure 13-1 subject to power availability and location specific constraints. Equipment siting, operations, auditing and reporting will follow all appropriate MOE requirements as provided in the Operations Manual for Air Quality Monitoring in Ontario (MOE 2008).	Monitoring has been on going at the RRP since May 2015. Two air quality sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. Dust fall jars were also established along with passive filters to analyze for SO2 and NO2. There were three air quality exceedances in 2016. One exceedance was of TSP at the Tait Road site on April 30, 2016. The Notice of Exceedance can be found in SD 5.2c. This exceedance was attributed to road traffic travelling on the newly graveled Highway 600 realignment. The second and third exceedances were of PM _{2.5} and both occurred on May 6, 2016 at both the Gallinger Road station (Notice of Exceedance in SD 5.2d) and the Tait Road station (Notice of Exceedance in SD 5.2e). These exceedances were attributed to smoke in the area from forest fires to the north. Aboriginal groups were not notified of these exceedance. In late 2016, RRP initiated a notification system to advise Aboriginal groups of exceedances and going forward Aboriginal groups will be notified.	Ongoing



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13.3.2	 Subject to consultation and support from area residents and the regulatory agencies, RRR plans to measure sound levels at (or near) residences positioned around the RRP site (Figure 13-1). These would include: One residence to the south of the mine site in Black Hawk; One residence to the east of the mine site on Gallinger Road; One residence to the southeast of the mine site on south Gallinger Road; One residence to the west of the mine site in Dearlock; and One residence to the northwest of the mine site on Highway 600. A dedicated remote monitoring system may be used to provide a real time access system. All sound monitors will conform to MOE NPC-103 measurement protocols. As per MOE protocols, sound level measurements are to be taken at each measurement location. Hourly Leq, L10, L90 and Lmax will be recorded. Audio samples based on trigger levels will also be recorded. Trigger levels, with automated alerts will be developed for addressing exceedances.	Sound was measured at the listed locations (residences) and as related to ESA permit requirements. A dedicated remote monitoring system was not established during 2016.	Ongoing

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13.4.2	 In addition, RRR will carry out the following geochemical monitoring program: As part of the ongoing mine rock management plan, collect and analyze blast hole drill cuttings for analysis of total inorganic carbon and total sulphur, using a Leco furnace, as a means of segregating PAG and NPAG materials for optimal management of PAG mine rock; Submit a subset of Leco furnace samples, collected as part of the ongoing mine rock management plan, for acid base accounting static testing and metals analysis; Collect and analyze mill composite tailings samples, on an approximate monthly basis, for acid base accounting static testing on an as required basis to provide further information on Project specific aspects, such as any conditions of note evolving out of developing trend analyses. 	A Geochemical Monitoring Plan for the Construction and Operation Phases was issued in accordance with MOECC ECA 5178-9TUPD9 requirements, and has been implemented at the RRP site. The monitoring plan was implemented during 2016 and was on going in 2016. The monitoring plan included analyzing blast hole drill cuttings using a Leco furnace and submission of a subset for ABA and metals analysis, per the commitment.	Ongoing



Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.5.2	 The following surface water system monitoring is proposed. A. Collect and analyze samples, and measure rates of flow, as appropriate, from site discharges, and runoff and seepage collection facilities, at the start of their respective operations, including: TMA discharges to the Pinewood River both directly by pipeline discharge and through the constructed wetland; Sedimentation Pond #1 and #2 discharges to West Creek; Aggregate operation(s), discharges (if any); Sewage effluent discharge; and Runoff and seepage collected from site operations areas (TMA, overburden and mine rock stockpiles, plant site area and haul roads) in accordance with MMER and Environmental Compliance Approval requirements. 	 This monitoring program was put in place during 2015 and is ongoing. In 2016 surface water was monitored on and off site as per the monitoring program. Discharges met the environmental approval requirements, with the exception of: Ten instances of elevated total suspended solids concentration, Five unionized ammonia exceedances in mine water from the Open Pit, One instance of Dyno Totan 1000 Emulsion spilled to ground due to a procedural error, and One instance of MMER acute toxicity of rainbow trout where a causation analysis was completed and determined inconclusive. More information can be found in Appendix A Condition 3. 	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.5.2	B. For each of the above, where there is a discharge to a receiver (West Creek or Pinewood River) monitor on a monthly basis (commencing at least three months before the first anticipated discharge / release) the quality of waters upstream and downstream of discharge and runoff / seepage releases at proposed monitoring locations shown in Figure 13-2, inclusive of three stations on West Creek and five stations on the Pinewood River (including Pinewood River baseline monitoring stations SW10, SW3 and SW15. The two current baseline monitoring stations on the Rainy River (SW16 and SW17) would also be maintained for monthly monitoring. Quarterly samples from selected water quality sampling stations will be collected for trace analysis of total and methyl mercury in discussion with the MOE.	The receiver monitoring was conducted on a monthly and quarterly basis as per the commitment. All samples collected from the receivers met the environmental approval requirements. In 2016, no quarterly samples were collected for trace analysis of total or methyl mercury. More information can be found in Appendix A Condition 3.	Ongoing
13.5.2	 C. Monitor flows as shown in Figure 13-2 commencing as soon as construction is completed on the West Creek pond and the West Creek diversion at: West Creek at the West Creek pond outflow; West Creek diversion; and Pinewood River at Highway 617 (Water Survey of Canada Station; WSC 05PC023). Flows are already being measured for the Pinewood River at WSC Station 05PC023. Note that given the importance of the WSC station to overall site water management as per Section 4.12, RRR will need to enter into an agreement with WSC to ensure that the station will be maintained throughout the RRP mine life, and that data will be made available to RRR on a daily basis, and that RRR would be immediately informed of any maintenance activities which could influence its operations. 	Construction of the West Creek diversion was not completed during 2016. Pumped flows, as part of the various Permits to take Water, were measured. No flows through or discharges from West Creek diversion were present during 2016. The WSC remains active; however, New Gold RRP installed a dedicated flow monitoring station on the Pinewood River during 2015 to supplement this data source and continued to monitor it in 2016.	Ongoing



Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.5.2	 D. As data availability permits, develop annual updated statistical flow estimates for local watercourses based on flow data derived through monitoring, with such estimates to include: Monthly averages; Annual averages Extreme low flow statistics corresponding to 2, 5, 10 and 20 year return period conditions; and Extreme high flow statistics corresponding to 2, 5, 10 and 20 year return period conditions. 	Instream measurements were on going during 2016 in the Pinewood River. Updated statistical flow estimates were not derived during 2016. Instream flow monitoring in other watercourses is planned for 2018, when water management structures are commissioned.	Ongoing
13.5.2	 E. Carry out an environmental effects monitoring (EEM) program in accordance with the Metal Mining Guidance Document for Aquatic Environmental Effects Monitoring (EC 2012d) to assess the character and quality of aquatic resources at the following locations: West Creek diversion; and Pinewood River upstream and downstream of the RRP site area. 	As a discharge of surface runoff water was released in Sept 2015, the MMER were triggered and during 2016 an EEM program was initiated. The West Creek Diversion was not completed during 2016.	Ongoing
13.5.2	 F. Except as provided for in Item E, above, carry out commencing one year after the date of commercial production and at three year intervals thereafter, fish habitat and fisheries assessments, including sediment and benthos investigations for: West Creek; Clark Creek (upstream of the east mine rock stockpile); and Pinewood River. 	Commercial production was not attained during 2016.	Ongoing

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	G. Monitor contaminants of potential concern in fish tissues from game fish harvested from the Pinewood River coincident with monitoring carried out pursuant to Item F. above.	Baseline Fish Tissue studies were completed in 2015 and 2016.	
13.5.2	H. As a component of the RRP stormwater management plan, collect and analyze late winter snow pack samples for pH and metals to help determine the effects of dustfall accumulated within the snow pack during spring melt.	Winter snow was measured as part of the surface water monitoring program with runoff being collected, sampled and tested prior to release to environment in 2016.	Ongoing
		Discharges met the environmental approval requirements, with the exception of discharges mentioned in 13.5.2 D.	
13.6.2	RRR will carry out groundwater system monitoring as per the following:	A site wide groundwater monitoring system was established including the following aspects:	Ongoing
	A. Collect and analyze samples, and measure pumping rates for mine water from the open pit and underground transferred to the mine rock pond (or to the TMA during construction);	A. Samples are collected and analyzed and pump rates are measured from mine water pumped from the open pit and transferred to the treatment sumps. No water was sent to the TMA during 2016.	
	B. Establish a groundwater well (piezometer) network around the open pit area to monitor groundwater levels throughout the area on a continuous basis using water level transducers, with transducer downloads to be completed twice per year, commencing at least six months prior to the start of pumping, all as shown in Figure 13-3;	 B. A groundwater well program was established in late 2015 and early 2016 that extended around the entire site. The piezometers / wells included water level transducers with downloads completed. 	



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13.6.2 cont	C. Collect groundwater samples from the groundwater well / piezometer network quarterly except where prevented by freezing conditions, and analyze the samples for applicable parameters as provided for in Provincial approvals; and	C. Groundwater well samples were taken from the piezometer / well network quarterly during 2016 however during the fourth quarter due to freezing conditions some wells were not able to be sampled	
	D. Review groundwater monitoring data annually and update the groundwater model on three year intervals, with the first such update to be based on data obtained from the first three full years of pumping; and with the model updates to be completed within nine months of the end of the data collection period.	 D. The groundwater samples were analyzed for the parameters in the Provincial approvals and the data was reviewed during 2016. The groundwater model was not scheduled to be updated in 2016. The first scheduled update of the groundwater model is to be in 2019, based on the data collected from 2016, 2017 and 2018. 	
13.7.1	A wildlife monitoring plan will be implemented to ensure that effects on wildlife are properly mitigated. FMP monitoring will be based where possible, on standard survey protocols used during baseline studies so that any changes in local mammal, area-sensitive breeding bird or amphibian populations may be detected.	The comprehensive Wildlife Monitoring Plan was issued May 25, 2016, Version 5.	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.7.2	 Methods for determining adverse RRP-induced effects on mammals following the implementation of proposed mitigation measures will include: Bat acoustic monitoring at representative locations; Aerial helicopter survey in late winter to document numbers and distributions of White-tailed Deer, Moose and Wolves at locations representing suitable habitat directly adjacent to the RRP site; and control sites. Such surveys to be conducted during the first winter of the construction phase, the winter following the completion of construction, and at three year intervals thereafter until the end of the active mine reclamation phase; Working with any Aboriginal hunters to document White-tailed Deer, Moose, Wolf and Black Bear harvesting activities in the RRP site area; Implementation of a wildlife log (including collisions) of general mammal observations made by employees on the RRP site including White-tailed Deer, Moose, Black Bear and any other larger furbearers; and Monitoring of Black Bear activity related to waste disposal (if applicable) and general site activities. 	Monitoring of potential adverse effects on mammals did not occur during 2016. MNRF has requested that the study be aligned with their regional monitoring. Due to limited snow pack in 2016, aerial surveys did not take place. The MNRF aerial surveys are to take place in January and/or February 2017 and will cover the District with transect lines spread out much wider than just the RRP. Bat acoustic monitoring was completed as part of the baseline program for the Environmental Assessment. No suitable bat habitat was identified on the RRP site therefore bat acoustic monitoring was not carried out in 2016. The need for bat acoustic monitoring will be reassessed in the future. New Gold RRP implemented a wildlife log at the site during 2015, and continued documenting wildlife sightings and interactions through 2016. The wildlife logs for 2016 included documented Black Bear activity related to site activities, including waste management.	Ongoing



Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.7.3	 Methods for determining adverse effects to breeding birds following the implementation of proposed mitigation measures will include: Targeted point count surveys for diurnal SAR including Golden-winged Warbler, Barn Swallow and Bobolink and for woodland area-sensitive breeding birds in suitable habitat. Point counts will be based on standardized survey protocols described for the Ontario Breeding Bird Atlas Guide for Participants (OBBA 2001) so as to be consistent with baselines study methodology (Section 5.2.12); Incidental data collection for SAR and Provincially rare species which are currently present at lower abundance including: Canada Warbler, Olive-sided Flycatcher, Short-eared Owl, American Pelican, Bald Eagle and Black-billed Magpie; Targeted twilight surveys for Eastern Whip-poor-will in suitable habitat. Whip-poor-will monitoring efforts will follow standardized survey participant's Guide (BSC 2012); Concurrent data collection for Common Nighthawk to be undertaken during targeted Eastern Whip-poor-will surveys as described above as no standardized survey protocols have been developed specifically for this species; Annual monitoring of active Bald Eagle nests which occur in close proximity the RRP site. Monitoring will attempt to establish fledging success; Implementation of a wildlife log of general breeding bird observations at the RRP site by employees (focused on raptors and raptor nests, and SAR species); and Any additional monitoring defined in ESA permits. 	Monitoring of breeding birds during 2016 followed the requirements of the Provincial ESA Permit and included the listed aspects.	Ongoing

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13.7.4	 Effects on amphibians after implementation of proposed mitigation measures will include: Implementation of a wildlife log of general amphibian observations by employees. 	The wildlife log implemented during 2015 was continually updated during 2016 and includes tracking general amphibian observations.	Ongoing
13.8.2	 This section considers the potential for traffic accidents on public roads related to the construction and operation of the RRP. Roads of specific interest are: Highways 71 and 11, west of Fort Frances and south of Kenora; Highway 600; Teeple Road west of Highway 71; and East Access Road. Methods for assessing traffic accidents along public roads will include: Monitoring road surface conditions for the identified roads of interest during the winter months and working with the MTO and the local municipalities, to ensure that roads are properly cleared, salted and sanded, as appropriate to maintain safe driving conditions; Maintaining a record of any accidents involving RRR employees and contractors related to the RRP; and Maintaining a record of any near misses related to potential traffic accidents along the roads of interest involving RRR employees and contractors related to the RRP. 	Records of any reported traffic accidents and near misses are maintained. Security conduct road inspections on site each night shift, with New Gold RRP self-performed crew addressing identified issues/hazards. Teeple Road, East Access Road and Highway 600 are included in these inspections. Reports of road hazards are communicated during the HSE Communication broadcast over all radio channels at shift start.	Ongoing



Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.9.2	 To assess potential changes to Tradition Land Use (TLU) that could potentially derive from implementation of the RRP, RRR will carry out, or provide financial support for, the following activities: Subject to any terms of agreement with the local First Nations and Métis, periodically update Traditional Knowledge (TK) studies conducted for the RRP beginning five years after mine operations initiate, to determine if there have been any changes to resource harvesting patterns by local Aboriginal peoples as a result of the RRP, and the reasons for any such changes; Conduct reviews at five year intervals, of the activities of a subset of RRR Aboriginal employees (representative cross section) to determine the effects of employment on their traditional activities; and Confirm any expected changes in the availability of fisheries and wildlife resources to local harvesters, based on data derived from biological monitoring programs. 	No updates etc. were conducted in 2016.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.10.2	 RRR will carry out the following monitoring program to ensure the protection of cultural heritage resources Maintain a record of all cultural heritage resources known to occur in the vicinity of planned RRP developments, such that intrusion or damage to such resources can be avoided during construction, recognizing and respecting confidentiality limitations; Maintain an active dialogue with local residents and Aboriginal group representatives, having knowledge of specific areas prior to and during major construction activities, to provide guidance to supervisory staff on the likely or possible occurrence of as yet undocumented cultural heritage sites; Enlist the services of a trained archaeologist during the conduct of major construction works to support RRR as needed, where there is a reasonable potential for encountering as yet undocumented cultural heritage sites; Enlist the services of Elders or other cultural advisors in the event that cultural heritage resources are encountered (in addition to meeting all Regulatory requirements); and Conduct a post-construction assessment of the state of known cultural heritage sites in the vicinity of RRP activities / structures to confirm the integrity of such resources. 	New Gold RRP engaged qualified Archaeologists and Built Heritage Specialists to record all resources prior to construction commencing. New Gold RRP continues to actively engage local residents and Aboriginal groups through meetings and visits and public events such as 2015 Archaeology Day. A New Gold RRP employee is a qualified Archaeologist and has engaged Woodland Heritage Services to conduct ongoing investigations. New Gold RRP agrees to enlist the services of Elders should Cultural Heritage resources be discovered. New Gold RRP will conduct post construction assessment of the state of known Cultural Heritage sites.	N/A



Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.11.2	 RRR will carry out the following monitoring program to ensure the documentation of cultural heritage landscapes and built heritage resources as appropriate: Develop an initial record of all cultural heritage landscapes and built heritage resources known to occur near the planned RRP developments, such that intrusion or damage to such resources can be documented; and Conduct a post-construction assessment of the state of known cultural heritage landscapes and built heritage resources in the vicinity of RRP activities / structures to confirm the status of such resources. 	The initial record was completed by Untermann McPhail Associates. New Gold RRP will complete a post- construction assessment of the state of known cultural heritage resources.	N/A
13.12.2	 Traffic flow on local roads with more limited capacity is of greater interest, notably: Highway 600; Teeple Road west of Highway 71; and The East Access Road. The intent is to document that these local roads are able to continue to function adequately, and within safe limits for both project and local traffic. Methods for measuring traffic use along local roads will include: Periodic traffic count surveys using automated traffic counters; Employee surveys to determine transport routes to and from the mine site; and Ongoing discussions with MTO and the Township of Chapple to support additional traffic volume monitoring studies if appropriate. 	Any reports of traffic issues on local roads are addressed immediately. The use of buses to transport workers to/from site assists in reducing traffic loads.	N/A

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.13.2	Methods for documenting accommodations use in association with the RRP will include conducting contractor and employee surveys to determine:	As New Gold RRP is a residential operation, New Gold RRP employees do not fly-in/fly-out of the community.	Ongoing
	 Community or nearest community of local residence; Type of residence (rental or ownership); Type of accommodation (existing or new); Type of occupancy (single, shared or family); and Whether or not the employee / contractor is an existing local resident, or new to the area. 	New Gold RRP tracks all New Gold RRP employees to identify local hires, which gives a good representation on local impacts on the housing market. As of December 31 st 2016, 80% of operations employees were from the local districts.	



Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.14	It is anticipated the Environmental Management System (EMS) will consider the following areas as significant environmental aspects of the RRP (although they may not be represented by individual management plans depending on the final environmental management system framework): Recycling and waste reduction program; Mine rock (PAG / NPAG) management; Water management; Water management; Hazardous materials management; Hazardous materials management; Fuel handling and storage; Fugitive dust management; Sound management; Wildlife management; Wildlife management; Cultural awareness; Heritage management; Emergency response; and Response to malfunctions and accidents.	 During 2016, the EMS continued to be developed and will be ongoing through 2017. The EMS system continues to be developed using the ISO 14001 Standards and will enable the New Gold RRP the option of becoming ISO Certified. Both New Gold Corporate and the RRP have some policies and procedures in place and in draft form. The aspects listed will be fully considered in the final system. During 2016 reviews of the following were completed Recycling and waste reduction program; General waste management; Hazardous materials management; Water management; Fuel handling and storage; Fugitive dust management; Wildlife management; Traffic management; Emergency response; and Response to malfunctions and accidents. 	Ongoing

Condition / Tracking #	Description	Status 2016	Date Completed (where applicable) 2016
13.14	 Environmental management system maintenance and effectiveness will be monitored through a variety of programs, such as: Formal and informal audits; Environmental monitoring; Non-conformance incidents, status of corrective actions; and Stakeholder feedback. Periodic management reviews will completed to consider changing circumstances which could affect the continued suitability and adequacy of the plans, and to support continual improvement in overall effectiveness.	The EMS was not fully in place and development was still on going in 2016. As such, no monitoring of the EMS was completed in 2016. Reviews of the implemented New Gold RRP EMS will be completed once the EMS is finalized.	N/A