

INSPECTORATE DIVISION OF MINERALS COMMISSION

DRAFT ENQUIRY REPORT INTO MULTIPLE FATAL ACCIDENT INVOLVING SIX CONSAR LIMITED EMPLOYEES AT THE NEWMONT AHAFO MILL EXPANSION (A.M.E) PROJECT ON 7TH APRIL 2018

MINERALS AND MINING (HEALTH, SAFETY AND TECHNICAL) REGULATIONS, 2012 (L.I.2182) R16 AND R17

TEAM MEMBERS

- | | | |
|------------------------|---|--|
| 1. FREDERICK GYEBI | - | PRINCIPAL INSPECTOR OF MINES |
| 2. JOSHUA QUAYE-SOWAH | - | SNR. PRINCIPAL INSPECTOR OF MINES |
| 3. SAMUEL GYABAAH | - | SENIOR INSPECTOR OF MINES |
| 4. JOE STEVE ANNAN | - | OCCUPATIONAL HEALTH AND SAFETY
MANAGER – PERSEUS MINING GHANA LTD |
| 5. ING. JOSHUA ALLOTEY | - | MGhIE |
| 6. ING. BONNIE-ACQUAH | - | MGhIE |

APRIL 2018

INTRODUCTION

On 7th April 2018, Management of Newmont Ghana Gold Limited, Ahafo Mine, reported a multiple fatal injury to six employees and various injuries to four other employees of Consar Ltd. respectively working under the jurisdiction of DRA Ghana Ltd., an Engineering, Procurement Construction and Management (EPCM) Agent of Newmont Ghana Gold Ltd. (NGGL), in compliance of Regulation 26 of Minerals and Mining (Health Safety and Technical) Regulations, 2012 (L.I. 2182).

The employees were reportedly involved in the pouring of a mixture of concrete at the Reclaim Tunnel under construction as part of the Ahafo Mill Expansion (A.M.E) Project. At about 12.17pm when while pouring the mixture, the two-level formwork structure at the west end of the Reclaim Tunnel failed, fatally injuring the six men and injuring four others.

The employees fatally wounded were:

Kwadwo Asare	Steel Bender
Gideon Amankwah	General Hand
Ebenezer Sarfo	Carpenter
Agyei Wale	Carpenter
Kojo Bismark	Helper
Ben Brako	Carpenter

Other employees who sustained various degrees of injuries were:

Seth Kwame	Helper
Daniel Dzato	Mason
Musah Sulemana	Steel Bender
Iddrisu Adam	Carpenter

Pursuant to Regulation 16 (1c) of the above mentioned Legislative Instrument, (L.I. 2182); the Inspectorate Division of the Minerals Commission is mandated to conduct investigations into the circumstances leading to the accident.

The objectives of the enquiry are:

1. To find out the cause(s) leading to the fatal injury
2. To find out whether there were standard operating procedures, which were complied with in consonance with tenets of the Minerals and Mining (Health, Safety and Technical) Regulations, 2012 (LI 2182).
3. To find out whether any negligence or omission was occasioned.
4. To find out the occasion of lapses leading to the accident
5. To find out the occurrence of any operational challenges leading to the accident
6. To institute corrective and preventive measures to obviate any future occurrence of the incident.
7. To effect appropriate sanctions if any.

GENERAL INFORMATION

Newmont Ghana Gold Limited (NGGL) is a Gold Mining Company which begun commercial operations at the Ahafo Mine in June 2006. The Mine is in the Brong Ahafo Region, approximately 307 kilometers northwest from the national capital, Accra.

Newmont Ghana Gold Limited is currently undertaking a Mill Expansion Project.

DRA Ghana Ltd. had been engaged by NGGL as the Engineering, Procurement, Construction and Management Contractor (EPCM) for the Scalable Ahafo Mill Expansion Project. This involves the expansion of the existing treatment plant which is designed to increase the throughput of the existing operation.

The EPCM Agent is responsible for engaging and managing contractors such as Consar Ltd. etc to execute the respective construction projects on behalf of Newmont Ghana Gold Ltd. DRA Ghana Ltd. commenced activities at the A.M.E Projects site in October, 2016.

The scopes of concrete works for the project are as follows:

- Stockpile Reclaim Tunnel and Foundation
- Reclaim Dust Scrubber Foundations
- Clean-up Hopper Foundations
- Lime Silo foundations
- Mill Structure and Foundation
- Pebble Crusher Foundations
- Conveyor Foundations, Plinths and Bunds
- CIL Tank Foundations
- Pipe Rack Foundations
- PFC Yard

Consar Ltd. is a Ghanaian based Building and Civil Engineering Contractor which was founded in 1983. They had been contracted by DRA Projects (Pty) Ltd on behalf of Newmont Ghana Gold Ltd. to undertake the civil works for the Ahafo Mill Expansion Project referred to above. Consar Ltd. commenced construction activities at the A.M.E Project in May, 2017.

DESCRIPTION

On Saturday 7th April 2018, Consar employees were pouring concrete at the west end of the Reclaim Tunnel of the Ahafo Mill Expansion Project. Employees involved in executing this task were made up of masons, carpenters, steel benders and other helpers under the control of Consar Ltd.

Six of the employees working at the Reclaim Tunnel were fatally injured, while four others sustained various degrees of injuries when while the formwork under which they were working collapsed over them while a mixture of concrete was being poured onto the formwork.

The Newmont Emergency Response Team was quickly called to rescue and recover the affected victims. The six bodies were recovered at 16: 40hrs, 16:50hrs, 17:25hrs, 18:30hrs, 19:20hrs (7th April, 2018) and 02:30hrs (8th April, 2018) respectively. The bodies were sent to the St. Elizabeth Hospital Mortuary at Hwedien for autopsy and preservation. The injured were however treated at Newmont's Clinic and discharged.

ACCIDENT NOTIFICATION AND ENQUIRIES

On Saturday 7th April 2018, the Inspectorate Division of the Minerals Commission was notified about the incident at about 16:50hrs. Inspectors of Mines from the Kumasi Office immediately proceeded to the mine. We arrived at the mine site at about between 19:15hrs to 19:30hrs and were received by the Site Response Team (SRT) at the Main Administration Conference Room. They then gave us a briefing of the incident, and reported that five bodies had been recovered. We then proceeded to the scene of the accident.

At the accident scene, we observed that efforts were being made to recover the sixth body. At about 1:00am, we met the Newmont SRT team again, we instructed them to barricade the area and secure it after recovery of the body, to enable us begin investigations.

On Sunday 8th April 2018, we met the following officials at the HR conference room to continue the investigations into the accident and also instructed them to provide some documents (see attachments) to aid us in the accident investigations. The accident scene was visited after the meeting

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|----------------|---|
| • George Awuah | Consar Ltd. Project Manager |
| • J. Schoeman | DRA Safety Health and Environment Manager |
| • J. Goezee | DRA Civil Supervisor |
| • Chuck Burns | Newmont Project Health and Safety Manager |

- Deon KOK Newmont Project Director
- Moses Arthur Newmont Health and Safety Superintendent
- Okyere Yaw Ntrama Mine Manager, NGGL

ENQUIRIES

We then began interviewing the following Consar Ltd. employee:

- Daniel Dzato - Mason
- Kwame Seth - Helper
- Musah Sulemana - Steel Bender
- Iddrisu Adams - Carpenter
- Osei Owusu-Adansi - Supervisor

On Wednesday 11th April, 2018, and further to the accident, we met with the following persons:

- Joshua Mototi GM Operations, Accra
- Okyere Yaw Ntrama Mine Manager, Ahafo Mine
- Derrick Boateng Snr. Manager Sustainability & External Relations
- Paul Sowley Snr. Director S&ER
- Bernard Wessels General Manager NGGL

The programme of activities to be carried out by the investigation team was discussed. The accident scene was revisited.

On Thursday 12th April, the scene of the accident was re-visited.

The following Consar Ltd. employees were interviewed:

- Seth Kwame General Hand
- Daniel Dzato Mason
- Iddrisu Adams Carpenter
- Osei Owusu Adansi Supervisor

Present at the interviews were:

- Frederick Gyebi Principal Inspector of Mines
- Joshua Quaye- Sowah Snr. Principal Inspector of Machinery
- Samuel Gyabaah Senior Inspector of Mines
- Joe Steve Annan Occupational H&S Manager, Perseus Mining Gh. Ltd.
- Alex Kofi Annin Mine Superintendent
- George Awuah Consar Project Manager
- M Abdul-Karim H&S Manager, Akyem

- Brian Day NGGL Engineering Manager

On Friday 13th April 2018, the enquiries continued and the following were interviewed:

- Musah Sulemana Steel Bender, Consar Ltd.
- J. Coezee Civil Supervisor, DRA Ghana Ltd.
- Joseph Mensah Carpenter, Consar Ltd.
- Solomon Boateng Carpenter, Consar Ltd.
- Ernest Mensah Consar Ltd. Safety Manager
- Juan Schoeman DRA Ghana Ltd. SHE
- Vincent Dei Ag. Chief Medical Officer
- Antwi Agyei Collins Safety Rep. Consar Ltd.
- Gilbert Nyarko Newmont Ahafo ERT Captain
- Solomon Forson Snr. Safety Supt. DRA Ghana Ltd.

Present at the interviews were:

- Frederick Gyebi Principal Inspector of Mines
- Joshua Quaye- Sowah Snr. Principal Inspector of Machinery
- Samuel Gyabaah Senior Inspector of Mines
- Joe Steve Annan Occupational H&S Manager, Perseus Mining Gh. Ltd.
- Brian Day Engineering. Manager NGGL
- Mukhtari Abdul-Karim H&S Manager, Newmont Akyem
- Alex Kofi Annin Mine Superintendent

Similarly on Saturday 14th April, 2018 the enquiries continued and the following were interviewed:

- Gabriel Moro Compressor Operator, Consar Ltd.
- Peter Okyere Mason, Consar Ltd.
- Sidique-Gbene Mohammed Safety Rep, Consar Ltd.
- Theophilus Asare-Gyekye Steel Bender, Consar Ltd.
- Onuro Francis Helper Consar Ltd.
- Nkansah Augustine Steel Bender, Consar Ltd.
- Clint Jennings DRA Construction Manager

The accident scene was revisited with the Civil Engineering Team made up of Messrs

- Ing. Joshua Allotey
- Ing. Bonne Acquah

The mine was visited again on Wednesday 18th April 2018 in the company of the Civil Engineering Team to continue with the accident investigation and we continued with the interviews on 19th April, 2018 in which the following were interviewed:

- George Awuah Project Manager, Consar
- Seth Kwame Helper
- Osei Owusu Adansi Foreman
- Iddrisu Adams Carpenter
- Collins Antwi Agyei Safety Rep, Consar

Also on Friday 20th April 2018 the enquiries continued and the following were interviewed:

- Musah Sulemana Steel Bender, Consar Ltd.
- Thomas Wilson Supervisor Batching Plant, Consar Ltd.
- Dominic K. Fosu Batching Plant Operator, Consar Ltd.

On the 30th April 2018, Mr. Osei Owusu Adansi, was again interviewed at the Minerals Commission Office in Kumasi after which, we proceeded to the mine to continue with the investigation. On arrival the following, were interviewed after which the accident scene was revisited

- Deon Kok NGGL Project Manager
- Franco Piovesan Consar Project Manager
- Willen Postma DRA Project Manager

The under listed persons accompanied us to the accident scene:

- Deon Kok NGGL Project Manager
- Franco Piovesan Consar Project Manager
- Willen Postma DRA Project Manager
- Clint Jennings DRA Construction Manager

FINDINGS:

Having visited the scene of the multiple fatal accident and held technical enquiries into the causes thereof, we find that;

OPERATIONAL

- I. The sequence of events, conditions and timelines established is as shown on the events and conditions chart (See Appendix 1).
- II. On Saturday 7th April, 2018, six (6) employees of Consar Ghana Limited when while working at the Ahafo Mill Expansion (AME) Project site, were fatally wounded when the

formwork erected to support the concrete roof of the western section of the Reclaim Tunnel collapsed at about 12:17hrs and thereby trapping the victims.

- III. The six (6) fatally wounded were reportedly among eight employees cleaning fluidized concrete mixture that had reportedly leaked onto the first platform of the two stage formwork whilst four others sustained various degrees of injuries.
- IV. The locations of the bodies of the six (fatally) wounded employees of Consar in the Reclaim Tunnel are shown in Appendix 2.
- V. The proposed slab to be cast measured 7.5m in the width; 9.0m in the length and had tapering depth of 0.75m at the southern and 1.36m at the northern ends respectively.
- VI. A similar but a bigger slab had already been cast a few days prior to the accident, and measured 7.5m in the width, 12.95m in the length and a tapering depth of 0.75m at the northern and 1.36m at the southern ends respectively. (Appendix 3: Structural Engineering Report).
- VII. We again find that during the pouring of the first truck of concrete mixture, some of the shutters of the formwork opened at the South Eastern section of the concrete roof resulting in the spillage of about five cubic meters (5m³) in volume of concrete mixture onto the first platform (See Fig. 5 Appendix 3: Structural Integrity Report and Statements from Witnesses).
- VIII. It appears that the weight of the spilled concrete on the wooden platform may have had a bearing load or weight implications on the structure.
- IX. The opened shutter was reportedly repaired and additional props were reportedly added to enable the pouring of the concrete mixture to be continued.
- X. We find that the design of the chamfer was inclined.
- XI. We also find that the design and construction of the formwork appeared to have failed to consider the horizontal forces which were likely to act on the chamfer at the edges of the slab, apparently due to the inclination of the chamfer/haunch.
- XII. This appears to have indicated that there were no provisions made by the design in the construction of the formwork and its support for lateral bracings, even in the haunch.
- XIII. This appears to have made the support of the chamfer/haunch area weak and likely prone to failure and opening (Refer to Structural Integrity Report).
- XIV. Again the artisans comprising of general hands, carpenters and steel benders were instructed by Mr Osei Owusu Adansi (Supervisor of Consar Ltd.) to clean the spilled concrete mixture while the pouring continued without any subsequent instructions to the

pouring crew to stop further pouring of the concrete mixture, from the concrete mixing truck. (See witness statements and enquiry notes).

- XV. Thus pouring was not stopped to enable the workers to clean the spilled concrete mixture.
- XVI. Furthermore, there appeared to be an initial attempt to recycle the spilled concrete mixture onto the formwork with the aid of head pans.
- XVII. Meanwhile the spilled concrete mixture was rapidly curing and this appeared to have compelled them to shovel the spilled concrete mixture onto the ground floor whilst those at the ground floor disposed the mixture via wheel barrows (See Appendix 4)
- XVIII. We also find that an eighth loaded truck with a volume of ten cubic meters (10m³) and strength of 30Mpa was delivered by the batching plant to augment the spilled concrete mixture at the Reclaim Tunnel.
- XIX. However the waybill for the eighth truck could not be traced when it was demanded.
- XX. The Pre-Pour Plan for the western end of the Reclaim Tunnel dated 7th April, 2018 (Appendix 5) had been completed by Consar and approved by DRA on behalf of Newmont.
- XXI. We again find that DRA Civil Supervisor and Safety Officer were not present at the site during the pouring. The Civil Supervisor was attending a meeting when while the pouring of the concrete mixture was taking place. Meanwhile the Poor Plan required that the Civil Supervisor be present during the pour.
- XXII. It came to the fore that the sequence of construction project plan as submitted by Consar Ltd. was changed by DRA Ghana Ltd.
- XXIII. Consar Ltd. had originally planned to cast the mid section before the ends of the Reclaim Tunnel as had been done at similar sites and Reclaim Tunnels cast by Consar Ltd. (See Item 318 Appendix 6).
- XXIV. DRA however, requested Consar to cast the ends before the mid section and thus compelling Consar Ltd. to amend their sequence of construction plan (See Item 386-403 Appendix 7 and Item 12.2 Appendix 8) with approval of DRA Ghana Ltd amidst Consar's protest.
- XXV. DRA Ghana Ltd. had already mounted feeders and chutes at the mid section prior to the construction of the formwork to support the pouring of concrete at the western end, and this according to DRA Ghana Ltd., was convenient and safer than installing the equipment after casting of the mid section.

- XXVI. It appears the presence of the conveyor system and chutes at the mid section of the Reclaim Tunnel posed a challenge to Consar Ltd. in supporting the thickest end of the concrete slab (about 1.36m) due to the limited space between the formwork and the equipment.
- XXVII. We again find that the proper supporting beams for such formwork were compromised by DRA Ghana Ltd consultant installing the chute components prior to casting the slab.
- XXVIII. It appears DRA Ghana Ltd. did not consider supporting the thickest edge of the slab with beams nor deem it appropriate to ensure the safety and stability for the weight exerted on the edge during casting of the slab.
- XXIX. The formwork support for the edge of the concrete slab was not part of the formwork design submitted by Consar Ltd., to DRA Ghana Ltd for their approval.
- XXX. It appears DRA Ghana Ltd. allowed Consar Ltd. to support the edge of the concrete slab as they deem fit without any design to guide them.
- XXXI. We further find that Consar Ltd. had raised objections to DRA Ghana Ltd. installing the conveyor system and chutes at the mid section prior to the pouring of the concrete.
- XXXII. We find that casting of the concrete according to the original construction sequence submitted by Consar Ltd. was the best practice.
- XXXIII. However DRA Ghana Ltd. compelled Consar Ltd. to follow their sequence which was not part of the design and constructional norm and therefore liable for the consequences of any resultant adverse impact and hence liable to sanctions under Regulation 550 L.I.2182 of 2012, (See Item 12.2 Appendix 8).

2. FORMWORK DESIGN

- I. The formwork design had been authenticated and certified by Ing. Bright Anokye Asiamah, Civil Engineer and a Member of Ghana Institution of Engineers (See Appendix 9).
- II. The client representative DRA Ghana Limited had approved and given Consar Ltd. authorization to erect the formwork based on the approved design without any designed formwork for the edge support.
- III. There was poor Engineering Design and implementation (from the formwork design, struts spacing of 600mm is unsafe for the edge formwork). However, props spacing of 600mm is relatively safe for props of diameter 76.1mm and 5mm thick.

- IV. When the spillage occurred, workers were instructed by the supervisor to go to the upper formwork and the lower formwork to clean-up the spilled concrete mixture.
- V. It came to the fore that workers were with shovels and similar tools at that area to do the clean-up in spite of the limited spacing (400mm) as measured at the eastern section among the props and which is consistent with safety requirements of the Reclaim Tunnel Design.
- VI. We again find that it appears some of the props were displaced by the workers assigned to do the cleaning as the spaces which appeared to have been created by the workers were more than the allowable prop centers and hence reduced the carrying capacity of the props to below the safe carrying capacity.
- VII. Again, the tight space between the props (300mm) could easily have caused any or more of the workers to accidentally lean or push against the props, and hence destabilising the vertical supports of the formwork. In such a situation, the lack of horizontal and diagonal bracing would definitely destabilise the props and formwork.
- VIII. The close knit of props appears to have hindered the escape of the workers on the first platform.
- IX. We also find that there was inadequate horizontal bracing and no diagonal or cross bracing and thus it appears lateral forces on supporting props may have led to the displacement of some of the supporting props.
- X. The formwork support structure had a lot of the props not truly aligned vertically at the eastern section which we had noted to be intact and therefore appears that the same was done for the failed area (western end of the Reclaim Tunnel).
- XI. The non-verticality of the props appears to have led to concrete load acting eccentrically on props and thereby leading to the bending or buckling of the props which may have caused the successive failure of the entire formwork.
- XII. There appears to be inadequate inspection, no architectural or engineering inspection done by the person who designed the formwork prior to pouring the concrete.

3. MANAGEMENT

- I. The concrete was initially planned to be poured on Friday, 6th April, 2018, however, Consar Ltd. employees embarked on a sit down strike due to four (4) weeks unpaid overtime.
- II. Consar Ltd. is alleged to have partially resolved the overtime payment in the afternoon of Friday, 6th April, 2018, and had intended to resume work on Monday, 9th April 2018.
- III. However, DRA Ghana Ltd. reportedly compelled Consar Ltd. to commence work on the Saturday 7th April, 2018 as against the emotional disturbance of the workers.

- IV. The Job Hazard Analysis (JHA) of Consar Ltd., attached to the Daily Safety Task Instruction (DSTI) sheet had no responsibilities and accountabilities assigned (See Appendix 10).
- V. Neither Consar Ltd. nor DRA Ghana Ltd. had any logbook at the site as per Regulation 47, LI 2182 of 2012.
- VI. DRA Ghana Ltd. and Consar Ltd. did not have site specific Emergency Response Plans, yet depended solely on the NGGL Emergency Response plan, however , DRA Ghana Ltd. does not report to the General Manager, of NGGL Ahafo Mine and therefore in breach of L.I. 2182 of 2012, Regulations 35.
- VII. We find also that, the Projects Director of Ahafo Mill Expansion (A.M.E) Projects (See Appendix 11) reports directly to Regional Projects Director, Africa, and the General Manager has no oversight responsibility over any of them, a breach of Regulation 40, L.I 2182 of 2012.
- VIII. NGGL Functional Managers have no control and oversight responsibilities over the operational activities of the A.M.E Project.
- IX. The Newmont organizational structure is inconsistent with operational responsibilities of the statutorily appointed managers. (Refer to the existing Newmont organizational. Appendix 11), and therefore in breach of the requirements under the responsibilities of the Manager (Regulation 35, LI 2182, of 2012).
- X. The risk assessment completed for the task by Consar Ltd and DRA Ghana had inadequate controls. (Eg. failure to secure shutters prior to pouring of concrete is controlled by shutter oil being kept in flammable stores (See Appendix 12).
- XI. There was inadequate monitoring of construction by the Engineering Procurement Construction and Management Agent, (DRA Ghana Ltd.) on behalf of Newmont Ghana Gold Ltd.
- XII. We again find that there is absolutely no monitoring, inspection, enforcement of compliance of the tenets of the Regulations of the activities of DRA Ghana Ltd. by the General Manager of NGGL, Ahafo Mine, a breach of Regulation 35 (LI 2182) of 2012.
- XIII. The DRA Ghana Ltd. Project Manager appears to be oblivious of the dictates of LI 2182 and therefore deemed negligent for not reporting the activities at the A.M.E Project to the NGGL General Manager as per the Mining Regulations.
- XIV. There was inadequate Leadership and Supervision by DRA and Consar. The DRA Civil Supervisor responsible for the Reclaim Tunnel construction was absent at the site throughout the pouring till the incident took place.

- XV. There appears to be lack of managerial delegation by the DRA Ghana Limited Projects Manager. The Manager was off site, and the two (2) field Civil Supervisors were all attending meetings, hence absent from the field during the pour (Refer to the events and conditions chat, Appendix 1).
- XVI. There was no designated Safety Supervisor from DRA Ghana Ltd. for the task on site.
- XVII. **DRA Ghana Limited had no Mining Services Operating Permit a breach of Regulation 8(4 and 5) L.I. 2182 of 2012.**
- XVIII. It also came to fore that Consar Ghana Ltd. worked under the instructions of NGGL's EPCM Agent, DRA Ghana Ltd.
- XIX. We further find that there had been a series of events and near misses at Construction Sites under the supervision of DRA Ghana Ltd (See Appendix 13)

Arising out of these findings we wish to instruct that:

- I. Newmont Ghana Gold Limited Ahafo Mine shall suspend DRA Ghana Limited from all their activities at NGGL Ahafo Mine for failure to ensure the absolute health, safety and security of their contractor employees and therefore in breach of Regulation 553, LI 2182 of 2012.
- II. DRA Ghana Ltd. shall be dismissed from undertaking any construction project management on any mining site in Ghana for their blunt disregard for safety.
- III. DRA Ghana Limited shall be fined US\$10, 000 for operating at the Ahafo site without Mining Services Operating Permit (breach of Regulation 8(4 and 5) LI 2182 of 2012) and for each day that the Company had operated without the Mining Services Operating Permit, an additional fine of US\$200 shall be imposed.
- IV. Newmont Ghana Gold Limited shall also be fined US\$10, 000 for failure to ensure that DRA Ghana Ltd obtains a Mining Services Operating Permit prior to commencing operations at the Ahafo Site (breach of Regulation 8(4 and 5) LI 2182 of 2012) and for each day that the Company had operated without the Mine Support Operating Permit, an additional fine of US\$200 shall be imposed.
- V. Newmont Ghana Gold Ltd. for failure to ensure the safety of contractor employees working at the Ahafo Mine Site shall pay the fatally wounded employees the appropriate workmen

compensation. In addition, they should be compensated for their traumatic death, loss of their life and jettisoning of their livelihood.

- VI. NGGL shall be fined US\$ 10, 000 for breach of Regulation 23(1), L.I. 2182 of 2012.
- VII. Mr Osei Owusu Adansi (Supervisor of Consar Ltd.) shall be dismissed from working as a supervisor at the A.M.E Project site, for not ensuring the safety of his workmen (breaches of Regulations 550 and 553, L.I. 2182 of 2012).
- VIII. In the event of a major spill of concrete mixture during pouring, Consar Ltd. shall ensure that pouring of concrete mixture into formworks shall be halted, and a report should be made to the Project Managers for assessment and decision making.
- IX. There shall be no work underneath any erected formworks during the pouring of concrete mixtures. Work can only take place after the concrete mixture had been certified to be cured by a competent person.
- X. Consar Ltd. in continuing their work shall develop and implement controls to prevent workers from working beneath suspended load across the entire site with immediate effect.
- XI. The designs and construction of all formworks at the A.M.E Project shall be reviewed immediately to take into consideration the horizontal forces on the haunch/chamfer at the edges of slabs.
- XII. Provisions shall be made in all designs and construction of formworks for diagonal or cross and horizontal bracings for all Projects on the Mine.
- XIII. Newmont shall immediately review all organograms to ensure that The General Manager has oversight responsibilities over all projects pursuant to Regulation 40 and 55, LI. 2182 of 2012. For this breach NGGL shall be fined US\$10,000
- XIV. Further, NGGL shall ensure that Functional Managers have control and oversight responsibilities over the operational activities of all Projects on the Mine.
- XV. NGGL shall immediately review its organizational structure to be consistent with operational responsibilities of the statutorily appointed managers to remedy the breach of the requirements under Regulation 35, LI 2182, of 2012. For this breach NGGL shall be fined US\$10,000
- XVI. General Manager of NGGL, Ahafo Mine shall ensure absolute responsibility of all the activities of Contractors over the life of the A.M.E Project.
- XVII. There shall be a Civil Supervisor and Safety Officer always present at the site during all operations by all contractors.

- XVIII. All props shall be aligned vertically and braced appropriately during all such installations of formwork and supports.
- XIX. All formworks designed by a Certified Engineer shall be inspected and approved by same after installation.
- XX. All Job Hazard Analysis (JHA) of all activities at the A.M.E Project shall specify responsible and accountable persons for each task.
- XXI. Consar Ltd. shall provide logbooks on site to record instructions, activities etc.
- XXII. Consar Ltd. shall provide details of their Emergency Response Plans to the Inspectorate Division of the Minerals Commission by May 30, 2018. Consar Ltd shall be fined US\$10,000 each for failure to have site specific emergency responds plan.
- XXIII. NGGL shall be fined US\$10,000 for not ensuring that DRA Ghana Ltd and Consar Ltd had emergency responds plan
- XXIV. Newmont shall review its Emergency Response Plan to include construction related scenarios by May 30, 2018.
- XXV. Consar Ltd. shall immediately ensure that risk assessment completed for the tasks have adequate controls.
- XXVI. All concrete mixing trucks for Consar Ltd. shall have waybills in them.
- XXVII. Consar Ltd. shall ensure careful supervision and continuous inspection of formwork during erection, concrete placement, and removal of formwork.
- XXVIII. NGGL shall ensure that all agents and contractors working at the Ahafo Mine site identify, label and communicate exclusive zones to workers each day prior to commencement of task.
- XXIX. NGGL shall ensure that all contractors on the Mine have Mine Support Services Operating Permits.
- XXX. There shall be counterpart Ghanaian Consulting Engineers and Architects for all EPCM at the A.M.E Project in fulfillment of Local Content requirements.

ACKNOWLEDGEMENTS

Respectively Submitted

APPENDIX

1. Event and Conditions Chart
2. Location of Bodies at the Reclaim Tunnel
3. Structural Engineering Report
4. Wheel Barrow at the accident site
5. Pre-Pour Plan
6. Consar Ltd. Gant Chart
7. Amendment of Sequence of Construction
8. Minutes of Meeting – Civil
9. Formwork Design
10. JHA/DSTI
11. Organogram NGGL Projects
12. Risk Assessment – Consar Ltd and DRA Ghana Ltd.