

28 May 2012

To: Mr. Brian Fitzpatrick

From: Mr. Peter Louvros

Subject: Toba Montrose Fatal Scaling Incident – February 22, 2009

## INTRODUCTION

The following information provides sound knowledge of the events that occurred prior to and after the fatality of Sam Fitzpatrick on February 22, 2009, at the Toba Hydro Electric Project. The detailed information within this document was developed to assist in recognizing the unsafe act in the work place performed by Kiewit on multiple projects leading up to the 2009 fatality.

Furthermore, the following provides information on my personal experience working for Kiewit from 2006 to 2008, in addition to my experience within the slope stabilization industry, from 1987 to 2012.

## INDUSTRY EXPERIENCE

I have worked within the slope stabilization industry for over 25 years and began my career in rock slope stabilization (rock scaling) in Kamloops, BC with Cougar Rock Contracting in 1987.

Over the years, I have had the opportunity to work on projects for multiple contractors and engineering firms, providing site supervision, training and technical support on rockfall and soil slope mitigation projects throughout Western Canada, United States and Japan.

Through the years I have worked on projects throughout the Transportation, Energy & Mining and Residential sectors of the construction industry and have been challenged by numerous geological rock formations within these industries. Furthermore, I focussed on developing training programs for new scalers, work safe procedures and crew management over the past 15 years.

Some of my notable projects were in the State of Hawaii, from 2002 to 2006, where I was employed to work on high profile projects such as:

- The Lalea Rockfall Project - Oahu: providing site management, training & development of scalers, technical support to Earth Tech Engineering and land owners Kamehameha Schools (Bishop Estates). Upon completion of the project, I received the Pauahi Award from Kamehameha Schools for project excellence and safety. An award that is only received by native Hawaiians.
- Dara Onishi Rackfall Fatality - Oahu: assisting engineers and the Onishi family on the site assessment in locating the origin of a 5ft diameter boulder that struck the Onishi residence, killing Dara Onishi. Was an expert witness in the wrongful death suit and bringing awareness to rockfall hazards within the State of Hawaii.

During my time in Hawaii, I worked on numerous rockfall projects throughout the islands of Oahu, Big Island, Maui and Kauai for land owners, DOT, Hawaiian Homelands, and the Army Corp of Engineers. In addition, I assisted Masa Fujioka & Associates and the Army Corp of Engineers with slope assessments on the U.S Naval Base at Yokosuka, Japan.

In 2005 to 2006, I began the development of a safety training manual for rock scalers which is to assist contractors, engineers and safety organizations in recognizing the important safety requirements related to rock scaling and slope stabilization. The manual, Stabilization Safety Procedures©, was copy write in Canada in 2008, and became a training platform and reference manual for rock scalers. The manual has been presented to Worksafe BC, Engineering Firms, and is adopted by my present company (Abbott Stabilization, a division of Abbott Shoring & Foundation). The Preface to the manual can be found under Appendix A.

In 2006, I returned to Canada to work on the Sea to Sky Project for Kiewit, where I was in charge of the slope stabilization crew for Segment 2. As the superintendent, it was my responsibility to oversee all slope stability operations, to support engineers with site assessments and train new scalers. My responsibilities also branched out to supporting Segment 3. I resigned from my position with Kiewit in 2008.

After resigning from Kiewit, I began providing consulting and technical advising on slope remedial measures to engineers and contractors from 2008 to 2011. In 2011, I joined forces with Abbott Shoring & Foundation, to create and manage their new rock stabilization division, which was established specifically for the WAC Bennett Dam Slope Stabilization Project and continues to operate as a successful component to the company.

My current position is Rock Stabilization Manager of Abbott Stabilization. My responsibilities are to manage all functions within the division, including project bidding, personnel training & development, implementation of site specific work safe procedures, etc. In addition, I provide technical support to engineering firms on project site assessments and safety procedures.

## **EMPLOYMENT WITH KIEWIT (2006 TO 2008)**

In the spring of 2006, I returned to Canada to work on the Sea to Sky Highway Project as the Slope Stabilization Superintendent for Segment 2. The Sea to Sky Highway Project was a project that was worth returning to Canada for as it was one of the last big highway infrastructure projects on a stretch of highway that I was familiar with, from previous year's rock scaling in BC. In addition, the attachment to the Olympics was exciting.

Upon my arrival to Kiewit, my priorities were to begin to understand the full scope of the work to be completed within the segment, establishing safety procedures and the training and development of scalers for the Segment 2 portion of the work. This included operational requirements and procedures of the Earthworks and Blasting Divisions. One of my responsibilities was to assist in the assessment of slopes above the railway corridor (right of way), directly below upcoming blasts, and ensuring the railway was protected from damage caused by blast rock descending the slope. Part of the assessment included reviewing slope contours to determine the direction of descending blast rock, size of production blast and delay sequence. This information was important to ensure that there was enough ballast to protect the railway and enough scalers to provide support. Prior to my arrival to Kiewit, almost every blast above the railway resulted in significant damage to the tracks and would delay trains.

As my employment continued through 2007, I found myself in a constant battle with our segment management team, company engineers, and general superintendents. After approximately 10 months of my employment, operations began to impact some precarious rock cuts above the existing highway and railway. As we began to impact these critical areas, I realized there was a serious need for increased awareness to the rockfall problems that we are encountering from blasting and excavation operations.

The standard daily procedure was that all superintendents, management, safety, engineers and a few foremen would meet at 6:00am every morning to discuss the daily operations and three week schedules. During these meetings, each operation (earthworks, drill & blast, stabilization, etc.) would discuss their operations for the day and bring up any safety concerns. When it came to the stabilization division, I would express my concerns on the critical path of certain operations and potential rockfall and slope stability issues and what the stabilization crew would do to mitigate any rockfall hazards. The warnings that I presented in these meetings would not be supported by management. This became a constant battle to get the management team to recognize the rockfall safety concerns that impacted all the operations. As I pressured management and the safety department on the safety issues, I found that a true understanding of rock slope stability measures was lacking within the team. But understanding rockfall and the safety issues were not the only concern. The company did not want to spend money on any scaling operations as there was limit funding within the project for scaling due to the stabilization budget being transferred to the earthworks division. This was brought to my attention by senior management on the segment 2 site. As I pressured management on a daily basis, Kiewit would agree to my concerns, until I left the site, where at that time, management and the general superintendent would direct my crew to suspend their operations and direct my crew to complete other tasks. This was an ongoing battle.

Due to the numerous issues and events that took place on the Sea to Sky Project, it is difficult for me to relate every incident that took place. In summary, the following are just a few incidents that occurred:

1. Kiewit management would limit the ability for the stabilization crew to complete their work in a safe environment.
2. Kiewit management and the general superintendent would not support scaling operations. Examples:
  - a. When asked for traffic control support to mitigate a rockfall hazard created from night shift operations, that would impact the travelling public, we would be denied support.
  - b. When scheduled maintenance of slopes (rock scaling after blasts or excavation operations) management and the general superintendents would direct machinery to proceed with work in the safety perimeter of scaling operations being performed, resulting in scaling operations being suspended by myself due to the unsafe environment. This was a normal action on the management's behalf and no notification or planning of equipment operations would ever be reported to me or the site supervisor of the scaling crew. The scaling crew would not be notified of the machinery working above them.

- c. Management and the general superintendent would pressure me to have all scaling operations performed at night. When I would deny their request, management and the general superintendent would attempt to have my scalers perform their work at night by ordering my crews to do so. I would have to constantly intercept management from ordering my crews. This is an unacceptable practice as scaling is an operation that can only be performed during daylight hours for safety reasons.
- d. During an early morning operation being performed by the scalers, the general superintendent denied the scaling crew from receiving traffic control support to remove a large boulder (6 feet in diameter) from a rock cut impacted by blasting, during the blasting of the Doodson Corner through cut, which was a threat to the travelling public and Kiewit personnel. 18 hours later, at approximately 1:00 am, the 6 foot diameter boulder descended the cut and impacted a car travelling in the north bound lane. I came around Doodsons corner only to see the car sitting in the south bound lane. The car was a right off and the driver was lucky to survive. If the driver had a passenger, the passenger would have been seriously injured. The incident was broadcasted on TV.
- e. During night shift operations, on multiple occasions, the night shift general superintendent would order my scalers, which were drilling on night shift, to cease their operation and scale slopes impacted by rocks from the night shift excavation operations. The crew would be ordered to remove the rocks, in the dark, before any trains past through. The scalers would deny the request and I would receive a phone call, normally at 2:00 am, from my crew supervisor informing me of the incident. I would have to go to the site and settle the incident.

The above is just a small list of examples of the events that took place on the project. Though the incidents were reported to senior management, no reprimands or suspensions were ever issued.

In the spring of 2008, I finally resigned from Kiewit due to Kiewit's lack of support for the division. When I walked into the manager's office and personally handed him my resignation, I stated to him "you will one day kill someone if you keep operating in this manner". I was told to take four days off and think about it. I stated "there is no way I'm coming back".

## **WORKING AS A CONSULTANT FOR KIEWIT – CUT 9/SEGMENT 1**

Upon my resignation, I was asked by several engineers and contractors to consult on their projects so I decided in March 2008 to start my own consulting company. In the summer of 2008, I was contacted by Kiewit again, to assist on one of the most unstable cuts within the Sea to Sky Corridor, Cut 9 in Segment 1. The cut was over 300 feet high with major instabilities. Prior to being contacted by Kiewit, there was a 500 cubic meter rock slide that had occurred and machinery was hit. I informed Kiewit that I would come out and help only under one condition. That condition was that I had full control of the site.

I was to provide a group of scalers to complete the remedial measures on Cut 9, which included installation of the drapery mesh, application of shotcrete on the weaker zones on the cut and scaling. The first priority was to inspect the rock bolts on the cut that were installed by Kiewit. When we inspected the cut, we found that there was a major issue with the installed bolts. They were as follows:

1. Over 23 of the rock bolts were not fully encapsulated with grout to ensure proper bonding.
2. The majority of rock bolts did not have nuts or plates on the anchors
3. Nearly all the anchors were not tensioned to apply tension on the slope to prevent movement of the rock
4. A majority of the anchors were not even grouted.

**See Figures 1 and 2.**



**Figure 1. Anchors with no plates or grout on Cut 9, Segment 1. These anchors are to be tensioned rock bolts.**



**Figure 2. Anchors on Cut 9/Segment 1. Anchors not properly installed. Limited or no grout and anchors not tensioned.**

We reported the issues to Kiewit management and the issues were ignored. When I had questioned Kiewit personnel on the site about the quality of the bolt installations, they were not surprised; as the scaling crew for Segment 1 was not given ample time to correctly install the rock bolts. I was informed that the excavation operation was given priority over the scalers. I took photos of the rock bolts during the inspection of the cut to provide to Kiewit and nothing was ever done to repair the bolts.

Two weeks into the one month that we were working on the site, management was removed from the project and the Segment 2 management team took over. I then went to the new management team and explained the issues again. Once again, nothing was ever done to repair the bolts.

After 2 weeks on the site, we had Kiewit personnel enter the site above the cut without prior approval from myself. I remind you that I had total control of the site. The personnel entered the site, ignoring the posted safety signs that indicated to radio the scaling supervisor prior to entering the site. The personnel walked across the top of the cut, above our scalers drilling 100 feet below on the rock face. Two drillers were drilling and installing dowels in preparation for shotcrete. Each scaler took turns operating the 60 lb rock drill while the other spotted for potential rock fall. The three Kiewit personnel past over the top of the scalers and knocked a 1 foot diameter boulder down from the flat crest (brow) above.

The rock descended the face of the cut, approximately 100 feet. The spotter spotted the rock descending the cut. He grabbed a hold of the scaler drilling, but due to the speed of the decent of the boulder, the boulder impacted the scaler drilling, in the forehead. The scaler received a laceration above the left eye. He was able to move out of the way enough to prevent a direct impact. The scalers descended the cut and I was contacted on the radio. I got to site to find the injured scaler going after the Kiewit personnel that unlawfully entered the site. The three Kiewit personnel left the site and never asked how the scaler was. In addition, we never knew who they were.

After reporting the incident to Kiewit and requesting the names of the individuals, along with complaining of the lack of support to our safety protocol, we refused to continue our work on the site and left. To this date, we do not believe the rock bolts on Cut 9 were ever repaired. See Figure 3.



**Figure 3. Cut 9/Segment 1. Photo taken one hour prior to the scalers being struck by rock.**

## THE TOBA HYDROELECTRIC PROJECT – 2009

On Saturday morning, at approximately 11:30 am, February 21, 2009, I was contacted by Jim McBride who was the Kiewit Blasting Superintendent on the Toba Hydroelectric Project. At the time of the call, Mr. McBride was not onsite as he was on his rotation.

Mr. McBride contacted me to ask if I could put together a group of scalers to go up to the Toba project. I was informed during the conversation that a large boulder had descended the 400 meter Montrose cut and hit one of his drills at the base (toe) of the slope. He was requesting help as they didn't have enough scalers to stabilize the slope. I informed Mr. McBride that I was currently working on another project and when we completed the job we could come up by Wednesday, February 25<sup>th</sup>. Mr. McBride was quite urgent with his request and informed me that he needed me up there sooner, if possible. He wanted someone there that had extensive experience with rock slope stabilization and we had worked closely together on the Sea to Sky Project in Segment 2. Mr. McBride was an enormously talented superintendent and understood the industry better than anybody. He was also a major supporter of safety for the scaling crew. I informed Mr. McBride that I will go to the site by no later than Thursday, February 26<sup>th</sup>. We agreed on a date to view the site.

On Monday, February 23, 2009, at approximately 7:30 am, I had heard on the radio of the fatality at the Toba project, which occurred on February 22<sup>nd</sup>. That morning at 9:30 am I received another call from Mr. McBride, who was heading back to site. He was quite upset and informed me of the incident and requested my assistance immediately. I told him that I will come up and review the site. He informed me at that time that Tim Rule was going to contact me and when I'm available he was going to schedule the flight. At this time, there was not a major rush as the Toba Project was shut down. I received a call from Tim Rule at approximately 11:00 am but missed the call. He left me a message to call him as soon as possible. I contacted Tim Rule back at approximately 3:00 pm that day. We briefly talked about getting a scaling crew up to the site and to help Kiewit in implementing work safe procedures for the project. I was asked to fly up to the site immediately to meet with the Kiewit Area Manager, Superintendents, and management team.

On Thursday, February 26<sup>th</sup>, I flew up to the Toba Project to meet with the Kiewit team. We discussed briefly what had occurred on February 21 & 22. I was informed (mislabeled) that a rock had displaced from the cut from within the tree line at the Montrose cut and struck the machine at the base of the cut on February 21<sup>st</sup>, and that the same thing occurred on the 22<sup>nd</sup> of February. I was getting the impression at the time that there was finger pointing taking place, as the management team seem to focus on the Kiewit scalers ability to successfully mitigate the slope instabilities. Mr. McBride, who was present at the time, seemed very concerned and upset with the comments.

Upon listening to their (Kiewit) comments, I informed Kiewit that if I were to commit a team of scalers to the site, I will have to have total and absolute control of the scaling operations, and any and all other works will be required to go through Jim McBride and Myself prior to proceeding. Kiewit agreed with the terms that I set forth and I agreed to move forward with bringing in scalers.

One of the requests by Kiewit was that I help with implementing new work safe procedures for slope stabilization and earthworks. I explained to Kiewit that I would prepare all worksafe procedures for all rope access work (scaling, bolting, etc.). In addition, I prepared a rockfall awareness & recognition plan for all other operations on the site to assist workers in recognizing rockfall hazards. Furthermore, my manual, Stabilization Safety Procedures© was adopted into Kiewits overall slope stabilization safety plan.



After our meeting, Mr. McBride took me to the Montrose site to review the slope condition and site, to assist in preparation of the worksafe procedures, and inspect the incident location. I began by reviewing the cut from the base of the slope to determine the contour of the slope and significance of the Montrose site. After briefly reviewing the site from below, and Mr. McBride providing me with a detailed scope of the work being performed on the cut, we continued to the top.

We entered the site at bench 4, where the drill rigs were sitting. Nothing on the site had been moved or touched since the February 22<sup>nd</sup> fatality. Mr. McBride explained to me that the rock had supposedly descended from the tree line upslope from where the drills were sitting. I looked up and never made any comments at that time. He also showed me the three fragments of rock that were resting at the base of the drills and informed me that the three rocks were the pieces that are left of the rock that struck Sam Fitzpatrick on February 22<sup>nd</sup>. I reviewed the three rock pieces and looked for scarring from impacts as the rock descended the slope and found multiple scars. It was evident that the three pieces were previously blasted rock fragments.

After visually assessing the upslope site from bench 4, (looking at the slope contour, vegetation, any surface rock debris, location of where Sam was drilling), we moved up to the excavator located to the right of the location where Sam was struck. We drove from bench 4 to the top of the cut. Jim McBride and I walked over to the top of the cut, above the accident site. Where we stood was in a natural draw that directed material to descend, from the left and right of the draw, towards a “shoot” that exited the cut directly above the location of the incident. I walked up the slope towards the tree line, scanning the ground for impacts and disturbance within the soil/ground. At the tree line, there was loose vegetation, root systems and soil that was overhanging the rock cut. The rock was stained from the soil and was weathered from years of isolation under the roots and soil. There was no evidence indicating that there was a previous presence of a boulder similar to the rock that struck Sam. I began to walk back down the slope, from the tree line to within 10 ft of the brow (edge of cut). Approximately, three quarters of the way down the slope laid a 20 foot long un-used DCP (Double Corrosion Protection) anchor. The anchor had been impacted with such force that the rock had bent the 20 foot anchor in the middle. There was also evidence of scarring and rock debris on the anchor. The anchor was able to bend due to the contour of the draw, as the anchor did not lay flat on the surface. In addition, the anchor laid across the draw and showed evidence that it had been pushed into the soil on the left side of the draw.

I scanned the ground towards the excavator to the right, while standing alongside the DCP. I noticed fine indentations in the ground, but it was difficult to ascertain if the impacts were from rock due to the rain fall. As I walked towards the excavator, out of the draw, I began to see small rock fragments that were averaging 3 inch minus. When I got to the excavator, there was a large boulder in front of it with a scarred surface on top that was almost flat. Around the large boulder, was smaller diameter rock averaging 2 feet in diameter. This indicated to me that the excavator was lifting large rock fragments from a blast and dropping them onto the bigger boulder to break the fragments into smaller more manageable pieces. I turned to view the downslope, into the draw, and scanned the slope contour. In my opinion, I realized at that point, there was no way the boulder had descended the cut from the tree line. The boulder looked to have come from the area around the excavator.

The reasons that brought me to this decision are as follows:

1. The three rock fragments that lay at the base of the drills on bench 4 were fresh granite rock fragments that matched the rock at the location of the excavator. Though the rock matched a couple surface rocks between the tree line and the brow (edge) of the draw, above the accident site, there was no evidence indicating that a rock came from within or around the tree line. No impressions in the ground. Furthermore, the slope angle and existing debris on the slope would have prevented any rock from gaining momentum. Nevertheless, the debris within this area was still a potential threat to any workers working below.
2. The impact on the DCP anchor and the way it had dug into the soil on the left shows that when it was struck, the force had to have come from the right of the draw. If the DCP was struck from a rock descending from the tree line, the anchor would have rolled. In addition, the anchor was in the draw directly below the excavators' location.
3. The direction of the drill, the bent drill steel, location of where Sam was drilling, along with the location of the rock at the base of the drills indicates that the rock had to have descended the cut on an angle.
4. In addition, the concerns the scalers had with the excavator working above them and the previous incident with the operator on February 21<sup>st</sup>.

After reviewing the site, Mr. McBride and I returned to camp. We briefly discussed the plan to mitigate all the critical areas of slope instability at the Montrose and East Toba sites and prepared a list of requirements for the safety procedures. At this time, I was also informed by Mr. McBride, and other Kiewit personnel, that the general superintendent, Mr. Karjala, was removed from the site and returned to the U.S within 48 hours after the incident. Mr. McBride then transported me back to the docks so I may catch my flight back to Vancouver, where I would prepare all the work safe procedures, gear up the scaling crew and mobilize equipment and trucks to the docks to be shipped to Toba.

Upon my return to Toba, with the scaling crew, I had implemented safety procedures for the scaling operations and all other operations on the project. The safety procedures were extremely in-depth, as they are to be for this type of rope access work, and covered:

- Site specific photos.
- Site specific Scaling Procedures and remedial measures
- Geotechnical Reports and recommendations
- Rope Rescue Plan & HETS Evac Plan. This included landing areas for Heli Evac, first aid staging areas, rope rescue response times to each site location, Location of Rope Rescue Equipment & Litters, etc. Rope Rescue gear and Litter was always located within 200 feet of any scaling operation.
- Equipment Operating Safety Procedures
- Required Daily Safety Meetings and Site Evaluations. This took place prior to beginning every shift, at lunch break and at shift end.
- Environmental Controls
- Site closure procedures/Perimeter safety zone. This was to eliminate any access of equipment or other personnel during any rope access work.

Our work safe procedures would be modified as site conditions changed.

Our scaling crew consisted of the following:

1. Rock Scalers with 6 years experience: 4 (one with Rope Rescue Ops Certification and Level 3 First Aid)
2. Rock Scalers with 10+ years experience: 8 (5 scalers were Rope Rescue Ops Cert. and 2 of the 5 held Level 3 First)
3. Operations Manager with 22 years experience: 1

On the approval of Plutonic Power Corp and Worksafe BC, we were permitted to begin scaling at the Montrose and East Toba sites. Our first priority was to stabilize the Montrose cut. Our first objective was to remove all equipment and personal belongings from the accident site, including Arlens personal belongings. It took over an hour before the scalers would enter the site. We stood at the site and mourned for an hour. For the first 30 minutes, we stood at the site in silence, some of us pacing back and forth. I don't believe there was a dry eye in the entire crew. We discussed amongst ourselves how the events took place and what should have been done to avoid such an incident. We did not know Sam personally, but Sam was a scaler. He was one of us.

For the first three months on site, we had control of all our sites, which eliminated other equipment or other personnel within our safety zone, whether above or below our work zones. We were able to focus on stabilizing the rock cuts that posed a serious threat of rock fall.

Approximately three months into the work (June), we started to receive pressure from Kiewit management as they needed to get their excavators back onto the Montrose cut by June. We would show up on site in the morning and find excavators working at the top of the Montrose cut. On several occasions this would occur, and would normally occur when I left the site. I would receive calls from my foreman and scalers only to tell me that Kiewit is pushing to get their machines onto the cut. I would have to turn around and return to Toba, usually 38 hours after returning to Vancouver. I would be required to return to Toba and sit down with the management team and explain to them the critical safety issues that my crew are raising. In some cases, Kiewit would not listen and I would turn to the Plutonic Power Corp Representative and Engineer and inform them of what was happening. Plutonic Power Corp took the matter into their hands and directed Kiewit to stay out of our way.

After complaining to Plutonic Power Corp Representative, I was requested by Tim Rule to meet him in his office, where I was lectured on who I was allowed to talk to. I quote Tim Rule saying: "You work for Kiewit not for Plutonic Power Corp. You are not allowed to confront Plutonic with any issues or complaints. Remember who you work for and pays your bills".

After this conversation, I had a meeting with my scaling crew and informed them that if there is any attempt to bring equipment onto the site, within our set safety zone, or there is pressure from Kiewit, they were to shut down the operation and contact Kiewit management immediately. Should Kiewit management not act on the scalers concerns, they were to call me immediately, if I'm not on site, and report the incident to the Plutonic Rep on site.

Two days after this conversation I received a call from Tim Rule at approximately 11:00 am, asking me to return to site and informed me that my foreman had shut down the scaling operations at the Montrose cut and that my he walked into Mr. Rules office and ripped into him about machinery working within the safety zone and Kiewit's superintendents were ordering the scalers on how to perform their job. My foreman also complained to the Plutonic Rep on site.

Immediately after Tim Rules call, I received a call from my foreman who was quite upset and concerned. He had explained to me what had happened and I agreed with his decision. I returned to Toba, in the afternoon, on the day I received the call. This event took place in June.

Upon my return, I had found out that Kiewit had pushed the envelope by putting their excavators' right up to the safety zone perimeter which worried the scalers below. At the time of the incident, the safety zone was 100ft to either side of the scaling operations. We pushed the safety zone back by an additional 100ft making the safety zone 200ft. Kiewit dismantled the 200 foot perimeter safety zone.

I was informed by my crew that Kiewit personnel would constantly enter the site from above and never provided radio communication prior to entry, as specified on our Safety signs, which were located on all access roads and paths to the site. I confronted Kiewit management of the situation and stated how important the work safe procedures are and re-addressed the reason why we were called upon by Kiewit. I needed to remind management that there has been a fatality.

Upon returning to the site, from camp, the following day, we found that the excavators had moved our equipment and moved their machines in to begin excavation work on bench 4. They used the excavators to haul our equipment out of their way and damaged our spider cage, which is a system to haul drills and drill steel up and down the rock face on an anchored cable system. I walked up to the machines working on bench 4 and shut them down. I contact Plutonics' rep and Kiewit management and enforced the safety protocol. Plutonic agreed 100% and Kiewit once again agreed.

Two weeks into July, the pressure started again. The incidents kept occurring and our concerns were brought to management's attention almost on a daily basis. In July, I was reluctant to continue working for Kiewit on the project due to the following events in July:

1. An engineer entered the site on bench 4, above the scalers working below, and accidentally knocked a 1.5 ft diameter rock down on one of my scalers, nearly striking him. The rock descended 40 ft, but me and the scaler, Josh Veres, saw it coming and I was able to warn him. The engineer offered him a bottle of alcohol for his mistake. We completed a near miss report with Kiewit. Kiewit never documented the incident.
2. A superintendent entered the site on bench 4, above the scalers working below, without radio contact. Our scaling foreman noticed him above the scalers. The foreman confronted the superintendent, asking him to leave as he was within the safety zone. The superintendent state "I work for Kiewit and this is our site. You cannot tell me where I can go on the site. If I want to come onto the site, I will. The superintendent was Keith Decoss.
3. A surveyor entered the Montrose cut, on bench 4, when our scalers were scaling above the penstock further up the valley from the Montrose cut. The surveyor entered a narrow bench and became stuck as he could not get back to a safe area. Our rope rescue personnel were called to rescue the surveyor. The surveyor was standing on a 3ft ledge above a 200 meter. He was not tied off.

4. Kiewit began using their personnel to complete our work with our equipment on the Montrose cut, when our scalers were scaling in East Toba. Kiewit had disbanded their scaling crew after the fatality. This occurred as Kiewit was getting upset due to our complaints about site safety.
5. Myself and my foreman had expressed our concerns on several occasions of a major buildup of blast rock on the slope below the entrance onto Bench 4, which was a 300 ft slope between Bench 4 and the access road below. We had stated that the slope needed to be scaled due to the buildup of rock and we were told that the slope was fine and to focus on the penstock right of way, down the Montrose cut. We kept pressuring Kiewit, but nothing was ever done to mitigate the problem.

I had brought our complaints to Kiewit's site management team, the superintendents, the area sponsor and the Plutonic Site Rep. Kiewit did not like the complaints as the reports could threaten their project. Further to this, we found that Kiewit would not document all the incidents.

In late July, Kiewit began re-organizing their scaling crew and we had decided that it was in our best interest to withdraw from continuing any work for Kiewit. I had forwarded Kiewit a letter, stating that we were suspending our work for Kiewit and would be de-mobilizing from Toba within 5 days. The reasons stated in the letter were as follows:

1. Kiewit's non-compliance to our work safe procedures
2. Multiple Near Miss Incidents
3. Kiewit's lack of support to the scaling operations
4. Damage to our equipment

Approximately one month after our departure from the Toba Project (August), Kiewit had a rock slide at the location that we had expressed our concerns, between the Bench 4 and the access road. The rock slide volume was 300 cubic meters. The slide nearly struck a Kiewit truck transporting workers back to camp.

## CONCLUSION

My experience and firsthand knowledge of the procedures in which Kiewit followed, has caused me some great concern for the safety of workers within the Kiewit organization. There is a serious reluctance on present Kiewit personnel to step forward and express their concerns as the threat of being dismissed from their jobs would be inevitable. In addition, Kiewit will "coach" their employees on what to say when it comes to reporting incidents in the work place. I was one of them that they attempted to coach. Normally, if you did not follow their direct orders, Kiewit would pressure the workers to quit. One of the most common methods for Kiewit to get rid of workers that complained about safety was to lay them off at Christmas and never bring them back. It was standard practice to lay off all the trade workers on a project in December and review which workers presented the most problems. The group of workers that posed a problem for management would not return after the Christmas holidays.

Rock slope stabilization work requires skilled and experienced scalers with strong knowledge of rock slope instabilities. Engineers within British Columbia and throughout North America use qualified scalers to assist in the assessment process of their field investigations due to the scalers ability to read the rock formation and their rope access abilities. While working on the Toba Project and the Sea to Sky Highway Project, we would provide such support to engineers to assist in implementing recommendations for remedial measures.

There is a serious problem, when Kiewit's inexperienced managers and general superintendents are given the authority to overrule experienced and highly qualified superintendents and trades workers in the field. This type of control will always seriously impact the quality of work performed and place the workers in a very precarious and unsafe position on the job. In addition, Kiewit's ability to import inexperienced workers from the United States, that do not understand the laws within Canada or British Columbia, threaten the safety of all Canadian employees on Kiewit projects. The majority of imported workers that come from the United States come with an attitude that Canadian workers are far more inferior to American workers. I have witnessed, firsthand, how imported workers act and downplay a workers legitimate safety concerns, which resulted in my resignation in 2008 and suspending operations while working for Kiewit as a sub contractor. I have been requested by Kiewit to work on current project, such as the Gateway project, and have refused to support their operations due to the lack of support from the management team and general superintendents.

If I were to rate the management support for worker and public safety, with 1 being poor and 10 being excellent, I would be required to rate their support as 1. With the number of highly skilled contractors within BC performing slope stabilization work, it is difficult to grasp why on earth Kiewit would perform this type of work. The skills within the Kiewit scaling crews are positive, but the management and general superintendents will not recognize their ability to assess a slope problem. Rock scalers that quit Kiewit and move onto work for legitimate scaling companies end up being retrained to a certain extent due to their resumes showing that they started out working as a scaler with Kiewit.

The rock stabilization industry went without a single fatality in over 12 years prior to this incident. If Kiewit continues to perform this form of work, there will be more fatalities.

Sincerely,

Peter Louvros  
Rock Stabilization  
Consultant & Technical Advisor