Lessons Learned from Recent Mining Accidents

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Artemis Vamianakis is an attorney with Fabian Clendenin in Salt Lake City, Utah. She focuses her practice on complex litigation in the areas of Energy & Utilities and Natural Resources. In the community, Artemis serves on the Leadership Committee for And Justice For All and on committees for the Women Lawyers of Utah. She is also active in the local Greek community, serving on the boards of several philanthropic non-profit organizations. Artemis received her law degree from the S.J. Quinney College of law where she graduated with honors, won numerous awards and scholarships, held the position of Executive Director of the Global Justice Think Tank and completed an externship with Utah Supreme Court Justice Matthew Durrant. She earned a double-major, honors bachelor’s degree from the University of Utah, graduating summa cum laude.

Artemis and Fabian Clendenin’s other attorneys have represented numerous mine owners, operators and management personnel throughout Utah, Nevada and several other states in a variety of matters against MSHA and OSHA, including contest and civil penalty proceedings before the Federal Mine Safety and Health Review Commission, related appellate proceedings before multiple circuit courts of appeal, special investigations seeking to impose civil and criminal liability on individuals, accident investigations (several involving fatalities), discrimination complaints, and rulemaking. Fabian’s experience includes some of the most significant cases in the past decade, including the Crandall Canyon Mine disaster. Fabian has helped mine operators settle thousands of citations and orders issued by MSHA, and OSHA. And Fabian’s attorneys have taken over 75 contest and civil penalty cases through trial before numerous administrative law judges.
Roadmap

• Two Mining Accidents (Surface Coal, Underground Coal)
  – Description of the Accident
  – Investigation of the Accident
  – MSHA’s Findings and Enforcement Actions
  – Safety Lessons Learned
  – Investigation Lessons Learned
Accident 1: Surface Coal

- Mine located in Wyoming.
- Single Fatality
- Machinery accident
- Mine operator contracted with a construction company to crush scoria, volcanic rock, at various locations of the mine using an Impact Crusher.
  - The Impact Crusher has an upper and a lower frame, and two hydraulic cylinders (one on each side) that raise and lower the upper frame.
  - The Crusher has two safety arms, one on the left and one on the right, to secure the upper frame in open position.
Photograph 1: Scoria Pit Overview
Photograph 2: Crushing Unit, Upper Frame In Raised Position
I. Description of the Accident

• Construction employees were feeding rock into an Impact Crusher when a large rock became lodged in the crusher feeder.
  – Employees used an excavator to remove the rock from the crusher, then one employee moved the excavator to the fuel island to be refueled.
  – In the meantime, the other employee started the motor of the crushing unit, raised the upper frame off of the left safety arm (removing the blocking mechanism) to allow the upper frame to return to its normal position.
• He then, for some unknown reason, positioned his body under the raised upper frame.
• The unblocked upper frame, weighing 10,700 lbs., slowly lowered, fatally crushing him.
I. Description of the Accident (cont.)

Photograph 5: Victim Location
I. Description of the Accident (cont.)

• Employee had been pinched between the upper and lower frame of the crusher.
• No one witnessed the accident.
• The other employee found him and immediately lifted the upper frame, set the safety, shut off and locked the motor and called for help.
• Emergency services were immediately notified.
• MSHA was immediately notified.
II. Investigation of the Accident

• MSHA immediately issued a verbal 103(j) order to secure the accident scene.
• Inspector arrived at 8:15 a.m. and modified the 103(j) to a 103(k) control order.
• Inspector, state mine inspector and personnel travelled to the accident scene.
II. Investigation of the Accident (cont.)

• MSHA lead Accident Investigator arrived at the Mine at 11:30 a.m.

• 26 people participated in the investigation (Mine officials, personnel, state inspectors, attorneys, and four MSHA investigators).

• Investigation team took photos, examined the equipment, machinery and surrounding area.

• Conducted 21 interviews.
  – The onsite portion of the investigation was completed 6 days later.
III. MSHA’s Findings and Enforcement Actions

- MSHA’s Findings:
  - Toxicology indicated victim tested positive for Marijuana, Methamphetamine and Amphetamines.
  - Proper training was not a factor in the accident.
  - The accident occurred because the upper frame of the impact crusher was raised and not secured in place.
  - The right hydraulic cylinder was not maintained, and was leaking oil, allowing the hydraulic pressure to bleed off and the upper frame to lower unintentionally.
  - The right safety arm was not operable because there was an accumulation of rock surrounding the pin of the arm.
III. MSHA’s Findings and Enforcement Actions (cont.)

• Enforcement Actions:
  – 103(j) Order to ensure the safety of all miners modified to 103(k) Order.
  – 104(a) citation for contractor failing to ensure that work was not performed under raised equipment until it was blocked in secure position.
  – 104(a) citation issued to contractor for failure to maintain the Impact Crusher in safe operating condition.
IV. Safety Lessons Learned

- Create clear policies and procedures for clearing plugged material in a feeder or crusher.
- De-energize and lock-out/tag-out all power sources working on equipment.
- Maintain equipment in safe and operable manner.
- Ensure moving machinery is blocked against motion before beginning any maintenance.
- Ensure that miners do not place themselves in a position underneath equipment that is not blocked or secured.
IV. Safety Lessons Learned (cont.)

• Monitor personnel and encourage them to always work in pairs.
• Promote a culture of safety in the workplace, emphasizing training, overseeing, and watching out for newer miners.
• Have a zero tolerance policy for drugs in the workplace and implement drug testing to ensure that personnel are fit for duty.
Accident 2: Underground Coal Mine

- Fairly large underground coal mine
- Single fatality
- Powered haulage accident
- Longwall extraction in progress (i.e., a longwall panel recently had been mined)
- Fairly complex evolution
  - Involves more personnel than usually on section
  - Moving and relocating large amount of massive equipment
I. Description of the Accident

• Individual miner was operating a Wagner 2DS can-setter
  – Large mobile equipment
  – Contained forks on front for moving pallets (at that time)
  – Turns by articulating around point in the middle of the machine
  – Operator compartment adjacent to articulation point

• Experienced miner working the midnight shift
• Three other miners found the can-setter idling in the middle of entry
• The can-setter was articulated fully to the left
• The equipment operator was pinched in the articulation point
I. Description of the Accident (cont.)
I. Description of Accident (cont)

• Miners immediately freed the can-setter operator
• Can-setter operator was deceased – from crushing injuries
• No one witnessed the accident
• Paramedics were immediately notified
• MSHA was immediately notified at approximately 2:14 a.m.
II. Investigation of the Accident

- Two MSHA inspectors arrived at the mine at 5:30 a.m.
- By the end of the day, 6 MSHA inspectors/investigators would be on-site, along with a representative of the State
- Overall, MSHA spent:
  - 171.25 hours on the mine site
  - 469.5 hours in total on the investigation
II. Investigation of the Accident (cont.)

• Inspectors interviewed numerous personnel
  – Mine operator had attorney on-site and available to participate in interviews as requested by personnel being interviewed

• Inspectors requested, examined and copied many documents
  – Training records
  – Maintenance records
  – Tracking
  – P&Ds
  – Examination records
II. Investigation of the Accident (cont.)

• Inspectors examined the accident scene
  – Took numerous photos and measurements
  – Accompanied by mine operator representatives
• Can-setter was removed from the mine – pulled out
• Inspectors examined the can-setter (and other similar equipment) for many hours
• Investigation took several days
• Mine operator fully cooperated
III. MSHA’s Findings and Enforcement Actions

• Toxicology did not show anything abnormal
• “It is not known why the victim was partially outside of the operator’s compartment.”
• Inspectors articulated the can-setter multiple times to simulate the condition of the accident and found that it took an average of 28 seconds to close the machine to the stops
  – A fairly slow process
II. MSHA’s Findings and Enforcement Actions

• MSHA found an alleged defect with the steering control mechanism
  – A joystick/lever that moves up to articulate to the right and down to articulate to the left
  – The original plastic knob was gone
  – An extension had been added to the steering control mechanism
  – Threads apparently did not match perfectly, and electrical tape had been added to secure the extension
III. MSHA’s Findings and Enforcement Actions
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• MSHA claims:
  – That the electrical tape created a friction point with the lower part of the mechanism
  – That the mechanism must have gotten stuck in the down, left articulating position

• MSHA concluded this was a “major steering defect”

• MSHA concluded that the mine operator failed to conduct adequate equipment examinations
III. MSHA’s Findings and Enforcement Actions

• Enforcement actions:
  – 103(k) order following the accident covering entire mine
    • The order was not modified to limit it only to the affected equipment, and was not modified to allow the resumption of mining until the day after the accident occurred.
  – Safeguard
    • Requiring a means to constrain equipment operators to confines of operator’s cab
    • No one can enter/exit equipment cab when pump motors are running
III. MSHA’s Findings and Enforcement Actions

• Enforcement actions (cont.):
  – 104(d)(1) citation – unwarrantable failure
    • 30 CFR 75.1914(a)
    • Diesel can-setter steering mechanism was not maintained in approved and safe condition
  – 104(d)(1) order
    • 30 CFR 75.1914(f)(1)
    • Diesel can-setter was not examined and tested weekly in accordance with approved checklists and manufacturer’s manual
IV. Safety Lessons Learned

• Strange, unexplainable accidents can occur even to experienced miners
  – Not known why he was halfway out of cab
  – Miners must always be vigilant and on the lookout for hazards
  – Create a culture of safety

• Although several questions remain unanswered about the steering mechanism modification, best practices would be to:
  – Have manufacturer or an OEM approved mechanic perform any modifications to equipment, or
  – Replace broken parts with OEM equipment or OEM approved equipment
V. Investigation Lessons Learned

• Contact MSHA immediately following an accident – 15 minute rule

• Have experienced attorney present during accident investigation
  – In-house (if available) or private practitioner (on speed dial)
    • Here, one of our attorneys was on site before MSHA arrived at 5:30 a.m.
  – Attorney is able to participate in MSHA’s interviews of personnel when requested
    • Personnel not required to participate in interviews
  – Attorney can assist with document and info requests
V. Investigation Lessons Learned (cont.)

• Attorney can help ensure red-herring issues are resolved before resulting in clearly erroneous enforcement action / citation
  – In this instance, for example, mine operator could not locate victim’s task training records for the can-setter
  – Inspectors were very concerned and immediately questioned victim’s experience level
  – Located task training records in archived files and produced morning after accident
V. Investigation Lessons Learned (cont.)

• Even when a mine operator fully cooperates with MSHA during an accident investigation, may receive severe enforcement actions
• Not yet known whether mine operator will contest all or portion of violations issued here
Thank you

Questions?