

Sullivan Mine Incident
Kimberley, BC
May 17, 2006

G. Interviews

Process

In an attempt to complete a comprehensive and thorough interview process that also took into account the emotional trauma that was inflicted on the interviewees a unified team approach was utilized.

Whenever possible the unified team included members of the BCAS Investigation Team, Ministry of Energy, Mines and Petroleum Resources (MEMPR), and Teck Cominco.

Interviewees were asked to tell the joint team their story and would not be interrupted. Once this was completed, the committee members then asked questions to solicit clearer answers to questions that may have arisen because of the story that was told. Once the interview was finished, the joint interview team ensured that each interviewee was offered access to Critical Incident Defusing support.

Upon completion of the interview process, the BCAS Investigation Team began to consolidate each team member's notes for the person interviewed, ultimately seeking agreement on the final product which is provided in the following pages.

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Sullivan Mine Incident
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G. Interview

Interviewed May 18, 2006

Tell me your story?

- We were second car responded to page @ 0900 hrs
Dispatch noted in a phone call that “people down, possibly your crew down”. She advised that no information was on the data head
- Met “guy from Cominco in blue truck
- At scene at 0912 hrs
- Noted that the lights on the ambulance were still on. This ambulance was located to the right of building as one faces the entrance
- Advised that the jump bag and the oxygen were located by the building entrance
- She made sure to park ambulance away from the scene. They staged behind the fire department truck
- was also on the scene
- Fire department was on scene. from the Kimberley Fire Department advised that “Kim and Shawn” (BCAS paramedics) were down there. “bob was yelling and yelling to get back, don’t come past me”
- A fire department had left to get “ropes and air stuff“ so that they could initiate rescue
- and partner set up a tarp borrowed from the fire department as a triage area. The triage area was set up behind where the fire was set
- Fire department were back within 5-6 minutes with rescue equipment
-
-
- on Shawn – assisted with
- Booked to Cranbrook hospital. and transported Kim.
-
- noted that had been
-
-

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G. Interview

– BCAS

Interview May 18, 2006

Tell me your story;

- Paged told call and to get to station
- Arrived at station within about 5 minutes
- Dispatched to mine knew where they were to go
- No information on the data head
- Met fire truck coming back down the road
- tells that there are 4 down and 2 people are paramedics
- Dispatched and advised to not go in to wait for the fire department
- Fire department was no yet on the scene when they arrived
- Dispatch advised that it was H₂S, stage at distance
- On scene saw the ETV and saw an ambulance
- Fire truck came and crew got ready (geared up for combined space rescue)
-
-
-
-
-
- Started to load and transport
- was with from Cranbrook drove
-
-
-
- Kim's pants and boots were wet
-
-
-

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G. Interview

Interviewed – May 19, 2006

- Technically the 3rd car in
- Was at the hospital in Cranbrook when they received the call
- Advised it was a mining accident and that there were possibly 4-5 patients and possibly 2 crewmembers. There was some confusion on the part of the crew if there were going to be 6 or 7 patients
- Phoned for clarification from dispatch while enroute. Dispatch advised that it was possibly H₂S and to stay well back
- car from Kimberley was enroute or was on the scene. unsure.
- They were lead into the site by a white pick up truck. They pulled in about 1 km from the scene
- Could see a couple of pick up trucks. Stayed 300-400 feet back from the scene
- Proceeded in to the scene and pulled up beside the tarp
- Looking on 3 patients. Could see 3 Phoned dispatch and advised
- worked on Shawn
-
- 4th patient brought out by fire department
- Waited for another care
- Arrived at the hospital @ ~ 1012 hours
- He didn't smell anything
- No RCMP were in site /view
-
-
-
-
-
- They were the second ambulance to leave the scene carrying Shawn

Recommendations that mentioned to prevent future occurrences

- Better communication with dispatch
- Training what to deal with in mines and confined spaces

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G. Interview

- BCAS

Interviewed – May 18, 2006

Tell me your Story?

- 0904 hours-was at hospital in Cranbrook. Called from hospital for Sullivan mine Kimberley
- Dispatch advised that it might be H₂S. “Might be H₂S poisoning”. Stay well away
- 0930 hrs Arrived on scene
- Did on 2 patients. Patients were
- Triage site was about 30 feet from the building
- He noticed no smell
- The fire department was staged between the shed and the triage area
-
-

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SULLIVAN-MINE-INCIDENT_362

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G. Interview

- BCAS

Interviewed – May 19, 2006

- 0900hrs call. Paged twice-the first time was to the Cranbrook station “Stat.” At the station in 10 minutes
- Next page they were advised to head to Kimberley routine to cross cover
- Dispatch phone them approximately 10 minutes out of Cranbrook advised to head to Sullivan Mine
- On scene @ 0947 hrs
- Met the first ambulance leaving the scene when they arrived
- Noted that a tarp had been sent up. asked to clean up equipment and bring back to the station
- They were on scene for less than 5 minutes
- Headed to the Cranbrook hospital where they were unloading the mine patient and taking him into ER
- No precautionary information was given to the crew at any time from dispatch
- On scene, there were about-10-12 fire department members, mine No RCMP was at the scene at that time
- Smelled something on scene that smelled like diesel or equipment.
-
-
- Fire department asked if they were going to take the deceased patient. told them to contact the RCMP /coroner for body removal
- mentioned that he has been
-
-

When asked for recommendations he noted:

- That he didn’t have any - “Can’t train everyone for every situation.”
- Drilled into us to ensure scene safety
- Know that they would do the same thing in the same situation

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G. Interview

– BCAS

Interviewed – May 19, 2006

- Dispatch advised to Sullivan mines and to stay well away
- 0947 arrived on site
- on the way out as they went in
- was driving and was attending
- She saw 2 ambulances, the rescue truck and fire truck
- Tarp is on the ground and equipment was everywhere
- She smelled sour gas for approximately 3 seconds while she was pulling in behind the last ambulance. The windows were closed on the ambulance and the A/C was on
- was in the next ambulance ready to depart for the hospital. He yelled. “I need a driver”
- I radioed dispatch leaving with 1 patient
- said take it easy for (driving) as the road was very rough
- Before we got to the pavement, told me that it was Shawn and that Kim was in the other car
-
-
-
-
-
-
- Don't recall what time arrived at the hospital
-
- had no further recommendations as there has never been any problems
-

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G. Interview

– BCAS

Interviewed May 22, 2006

- 0909/0915 hrs paged at home
- Told something was happening at the mine but was not told what it was
- Called dispatch. They were never advised by dispatch to not go into the shed
- Dispatch never mentioned the hazard
- Fire department about 20 feet from the shed. Fire fighters were putting gear away
-
- Grabbed equipment
- Fire department told him that it was Kim and Shawn
- Went to Kimberley station-phone rang didn't answer-was a whole bunch of people going in and out
- He brought unit to hospital for the crew.
- At this time he received a phone call advising

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G. Interview

– BCAS

Interviewed May 22, 2006 - Via Teleconference

- Paged 1st thing asked to cross cover
- just leaving and going to Kimberley
- attending and driving
- Not too many details from dispatch regarding this call
- Responded from the station to the site
- Picked up all the equipment that had been left at the scene
- Drove back to Kimberley
- Drove in straight to the gate and escorted up by a Teck Cominco employee
- Drove up the road off to right and into site itself
- 50 feet from shack there was a triage tarp set up
-
- and all other types of equipment were on the tarp

- Fire fighters were standing around the entrance to the shack by the pick up truck without PPE on. They were approximately 10 feet away
- There was no pre-arrival information given from dispatch regarding the hazard
- advised them about the hazard as they were en-route to the scene
- noted that he was

- advised that he had

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SULLIVAN-MINE-INCIDENT_366

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G. Interview

Interviewed May 18, 2006

-
- 0930 hrs called by Kamloops Dispatch regarding incident at Sullivan mine. He told them he was about 10 minutes from the site
- Told by dispatch that there was a man down in the tunnel and that the crews had gone in after him – now possibly 4 people involved
- Met _____ at the site
- A tarp was laid out at the site _____ He thought that the triage site was about 50 ft. to the building
- Already on scene were _____ the fire department, Teck Cominco
-
-
-
- 4th person dead at the scene
- _____ moved in to assist _____ with Kim
- He did not smell or sense anything at the scene
- He was in the ambulance that transported Kim to Cranbrook hospital. _____ and

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Peter Hecher – Unit Chief 411 – Incident Commander

o Kimberley Fire Department

- from Airevac was in Cranbrook on a call. His partner, was able to carry on with the call alone and went with Peter to the Cranbrook station to assist
- 1330hrs left with to Cranbrook Station
- 1520 hrs left for Kimberley station after dropping off at the airport
- 1605 hrs arrived @ Kimberley station
- 1900hrs-returned to Invermere
- 2030 hrs arrived Invermere

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G. Interview

- BCAS

Interviewed May 22, 2006 - Via Teleconference

- Working (Invermere) In car
- Dispatched x-coverage/Kimberley around Skoocumchuck
- Dispatch advised to go to Kimberley station
- Met crew in station they were
- Cross coverage to Wycliffe
- About 1300 hrs RCMP requested crew to stage a Sullivan Site until about 1800hrs
- Staging area-inside gate. Fire department command post trailer, WCB, 2 RCMP and Teck Cominco workers were stationed there.
- All his time was spent at the main gate at this staging area
- Couldn't see the building form the road

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G. Interview

– Kamloops Dispatch Center –

Interviewed May 19, 2006

- 0745 hrs took original 9-1-1- call
- was the
- received call to the Kimberley Sullivan Mine
- call was for person
- could hear the caller getting into his truck (door opening/dinging). This person was Bob Newcombe.
- He asked the caller if he had an AED available-he said no
- advised that once he heard the entire call, he can shunt to a particular card-went to the
- asked the caller if he had called mine rescue-caller advised no that no mine rescue as mine closed down but that there was a
- It was presumed that the patient
- called the Kimberley Fire Department
- ~ 5-6 minutes later another call came in that there was people down in a confined space
- took a second call that 2 patients were down and 2 paramedics were down
- Notified the fire department, supervisor etc.
- Once the fire department got to the scene-they verified that 4 people were down
- The initial fire crew did not have breathing apparatus on them
- Paged the duty supervisor
- Paged the UC Invermere (Peter Hecher for incident command
- 0830 hrs confirmation that 2 patients pulled from the tunnel. Advised that BCAS

- 0832 hrs-3rd patient pulled from mine
- 0839 hrs-CISD notified
- Invermere UC contacted
- 0856 hrs-CISD responded- responding to Cranbrook
- 0912 hrs- Kimberley fire notified of availability of CISD
- 10-8's and 10-7's were off as the crews split up to treat and drive patients
- initial caller advised he was going to pull patient out-he seemed he seemed

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G. Interview

– Kamloops Dispatch Center –

Interviewed May 19, 2006 via teleconference

- Pre-alert sent by call taker to _____ crew for _____ in Kimberley
- Call came in from crew- _____ talked to them en route-heard nothing more after that

- _____ received no voice contact with crew at the scene. He attempted to call them, was not able to reach them
- Paged out:
 - _____ he advised them that it was hazardous material
 -
 -
 -
- Heard dispatcher next to him saying that the crew might be down (at the mine site)

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G. Interview

– Kamloops Dispatch Centre –

Interviewed May 19, 2006

- shift
- in Kamloops Dispatch. Went to telephones for the day
- A number of crew members were calling in
- Talked to the fire department at the scene
 - First fire crew in did not have breathing equipment with them
 - Second call-removing bodies form the scene
- did not talk to mine workers at the scene. funnelled the information to

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SULLIVAN-MINE-INCIDENT_374

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G. Interview

Al Collinson – Kimberley Fire Department – Acting Fire Chief

Interviewed May 19, 2006

- 0850 call on fire department emergency for assist for @ Tech Cominco @ #1 dumpsite at the top mine
- 0900 asked for clarification once he reached the fire department. Rec'd clarification from dispatch
- I had the command vehicle and had engine respond with 3 people.
- Proceeded to the top mine road off Tadanac as directed by BCAS dispatcher
- 0900 had contacted BCAS dispatcher for more directions when the Teck Cominco was coming up the road. I thought I knew where the site was but was going to the wrong location
- I called engine to proceed to my location and that I would take his firefighters and respond to the call as it was off the main road
- I picked up the 2 firefighters, and told engine to return to the station as it was a call for
- On the road to the top mine we noticed the Comino on a road to the right of us. said that was the # 1 Dump site
- Ran into on the road to the site. said don't go into the building, there is 4 down
- Realized that this was now a confined space call
- Radioed engine to respond to the call and the location
- Radioed to activate confined space team and requested additional firefighters
- 0900 parked approx. ~ 100 meters form the building. Saw only Tech Cominco
- Told the Teck Cominco to stay out of the building
- I noticed an ambulance, Teck Cominco truck, and a pick up truck
- 0915 Engine was on scene. Crew geared up and entered building
- 0915-confined space crew arrives. Equipment donned and seals etc checked. Al made them check that their seals were tight as they didn't know what they were dealing with
- Second ambulance was already on the scene. Al noted that the paramedics were extremely professional and controlled in this difficult situation
- 0922 first ambulance attendant was extricated (female)
- 0929 the second ambulance attendant was extricated

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G. Interview

Al Collinson – Kimberley Fire Department – Acting Fire Chief

- 1440 returned to safe zone

- 1450 perimeter set safe zone established at 20 ft.
- 1455 flag crew back at safe zone
- 1452 1C notified that safe zone established. RCMP & coroner to return to site
- 1455 readings at building normal
- 1500 Perimeter tested 4 ppm H₂S
- 1510 continuous monitoring no changes in readings all normal
- 1523 testing interior of building & hole from exterior of building will not enter building
- 1528 readings from inside of the building
 - 4 inches down from platform in hole
 - O₂ 0.7%
 - LEL 5 ppm
 - H₂S 0 ppm
 - CO 0 ppm
- 1528 return to station

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G. Interview

– Kimberley Fire Department Fire Fighters

Interviewed May 19, 2006

- Called out for _____ -was switched over to a confined space Stopped at the edge of the creek as they first thought it was _____ and they could not see the ambulance anyway
- _____ said to go and put on the packs (SCBA)
- Whole event seemed surreal-thought that it might be a practice session for a confined space
- Collinson said make sure everyone is masked up and check to ensure
- _____ went down into the shack hole when _____ low pressure bell went off (of his SCBA)
- _____
- _____ came in after I left
- _____ stood outside of the triage area for several minutes
- _____
- _____ When _____ took his mask off he could taste a sulphur taste(mask removed once out of building)
- _____ boot got wet in the shack hole but he didn't feel burning sensation
- Helped load the stretchers on to the ambulance
- _____
- Called in as _____ -they were on the first rescue team
- Followed Teck Comincc
- Were told at scene" don't go in, 4 down, possible H2S down"
- Yelled from just outside the door to see if there was any response
- Could see the jump bag, flashlight etc. on the platform inside the building
- _____
- Once masked up went in
- _____
- 3rd patient –
- _____ extricated Kim
- When his low pressure bells went off he left the hole

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G. Interview

- Kimberley Fire Department - Fire Fighter

Interviewed May 19, 2006

- I live
- I thought something was up
- I responded down to the Fire Hall
- At the hall I was told this was _____ I drove the engine up
- Enroute, I was advised that there were four people down
- When I arrived at the scene, I put on my SCBA.
- I noted the 2nd ambulance crew on scene setting up a triage area
- The crew that I was with set up and entered the building
- _____ was on the ladder and _____ was on the back side on the floor level
- _____
- _____ entered the space and pulled Kim out 1st
- _____ entered the hole and I took the life line
- Shawn was removed next
- I went down the ladder next with _____ we got Bob out and assisted with taking him to the triage area
- I was at ½ of a tank and stopped
- _____ and _____ entered and removed Doug
- Put Doug
- We assisted with moving cars around and loading the cars
- _____
- I helped clean up at the scene
- I was at the station at 10:30

Q How many ambulances were at the site?

A Not sure, 2 and

Q Where did you park the Fire Truck?

A Up hill, on the side

Q Could you smell anything?

A No

Q When you put the SCBA mask on where were you?

A At the Command Truck, I couldn't smell anything

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G. Interview

– Kimberley Fire Department - Fire Fighter

Q I heard say he felt like he tasted something?
A said, "I tasted it before up north"

Q Any sensations after you entered the building?
A

Q Was there water in the hole?
A Yes, 6-8 inches, the water was muddy

Q
A

Q
A

Q Was the
A Yes

Q What was the wind direction?
A There was a light breeze, fairly still, but shifting

Q
A

Q Did you see any sampling equipment in the hole?
A Not that I saw

Q Did you see any personal equipment in the hole?
A Not that I saw

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SULLIVAN-MINE-INCIDENT_380

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G. Interview

- Kimberley Fire Department - Fire Fighter

Interviewed May 19, 2006

-
- Shortly after 0900 hrs, call came in
- Marshalled at the fire hall
- Riding with _____ on
- Call came in as a confined space entry
- 4 person got on to the rescue truck
- 0911 hrs left fire hall
- met _____ on a side road-let the fire truck go by
- Chief Collinson advised to park 50 metres back from the ambulance
- He wanted all confined space rescue equipment brought to shack
- The other crew (fire) had already brought the first person out
- _____ put on safety harness and confined space equipment and roped up
- During the time they were waiting, _____ helped to carry the second paramedic to triage
- Assisted with carrying other 2 patients (sic) to triage tarp
-
- Assisted loading the (3) patients into the ambulances
- RCMP arrived at scene. They took photos and spoke with Al Collinson
-
- Cleaned up and took all equipment back to the hall
- Call came in that mines folks some air monitoring done at the site
- Took samples
- Staged a the top of the hill above building
- Started with 100 metre perimeter-worked way in
- Around the foundation of the building ~ 19 % O₂
- 10 % O₂ @ doorway
- there was no H₂S smell
-
-
- _____ go within 2 feet of the doorway without SCBA
-
- Didn't see how patients were in the building
- There was no smell of any type on the firefighter's clothes

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G. Interview

- Kimberley Fire Department - Fire Fighter

Interviewed May 23, 2006

- 0900 hrs pager confined space teams engine
- Got to Marysville Hall. were already on scene
- Bob (Newcombe's) truck was on scene, 2 ambulances, Doug's Truck also on scene and engine (fire truck)
- was standing in the doorway
-

- Working to get Shawn Currier out along with
- Set up about 150-200 ft. from building
- Masked up 50 feet before shed-removed mask 50 feet from building
-

-
- Found at the bottom of the hole
-

- He noticed only water coming out of the discharge pipe –nothing else
- Did not notice any percolation or foaming coming out of the rock or gravel
- Didn't notice any following the rescue-even
though his skin was wet from the water in the rescue hole
- Didn't notice any wind-didn't think that it was windy
- Went in ambulance to hospital with Shawn
- There were no sample or water bottles that he noticed in the shed or hole

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G. Interview

- Kimberley Fire Department - Fire Fighter

Interviewed May 23, 2006

- Heard call
- Went to fire hall, on Engine with
- Initially reported as and became a confined space rescue
- En route to the scene, got our harness on and discussed how we would execute the rescue
- agreed to go in and investigate on arrival at scene. Tied a lifeline to him. was in hole and I was on platform
- There was a back up RIT (Rapid Intervention Team) in place
- Wooden rail was intact when we went into the building
-
-
- and I became low on air, we pulled out of the building, changed bottles and went back to assist the new crew that were in the hole
- The second team in had confined space rescue equipment, did not use SCBA bottles, use hose and mask system
- Most confined space equipment is kept on Engine in Marysville
- The second team was who pulled Doug up out of the hole
- took control of took very good control of the triage site, did a very good job
- Did notice that the pipe in the bottom of the hole was a third full of water
- After the event, the closest that the firefighters came to the building without SCBA was 10-20 metres
- removed hand railing inside the shack
-

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G. Interview

– Kimberley Fire Department –

Interviewed May 23, 2006

- for Kimberley Fire Department
- Was at downtown fire hall when the call was received
- 911 Dispatch Centre for Kimberley Fire Department is in Cranbrook. The call came in directly to the Kimberley Fire Hall and not through the Cranbrook 911 Dispatch Centre
- was with
- Call was for on Tadanac Boulevard, which is the entrance to the mine property
- Arrived in area of call, confusion to where the call was. Considered Mark Creek or the Upper Dam – call was for
- Could not see any vehicles
- Al Collinson (Acting Chief) had continued up the road, must have met a mine employee, came back to pick up two firefighters off the engine
- went with Al in Command Vehicle because it was a dirt road; I proceeded to the hall with Engine
- Called the Swift Water Team on the way down the hill with Engine
- Swift Water Team was on another call (SAR), and was eventually cancelled before they arrived at scene. They were cancelled when we figured out it was a confined space rescue and not a
- As I returned to the fire hall, received call from Al on the radio to contact the city's confined space rescue team through the
- Asked another firefighter to page out additional firefighters
- We responded to the mine site with Engine

- En route we were informed that SCBA was required
- We use 30-minute SCBA bottles and 45 minute confine space bottles
- Firefighters got into protective gear, harness and SCBA
- Use coveralls, gloves and helmet for confined space rescues
- Safety check was done on the firefighters
- No odour detected. Came within 2-3 feet of door with no SCBA
- An ambulance arrived, started to set up a triage area
- There was no air monitoring prior to Engine entry
- was first into the building. on Safety
-
-
-

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G. Interview

– Kimberley Fire Department –

- Second Engine, Engine arrived
- pulled the third victim out – Bob Newcombe. He was taken to the triage area
- The fourth victim was
- Once victims were removed, our crews went to the command truck for rehab and I assisted with the movement of stretchers and ambulances
- assisted BCAS Crews to the hospital
- Air monitoring equipment on Engine can test for H₂S and CO Levels

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- Kimberley Fire Department – Fire Fighter

Interviewed May 23, 2006

- Paged, went to fire hall, 4 on the truck, confine space rescue call. Thought it was a drill
- Was instructed to put on SCBA en route to the scene
- Assisted with the removal of Shawn and Bob from building
- Light quality in the hole was 3/10
- Light quality on the platform was 8/10. Someone on the platform would have been able to see Doug from the platform
-
- The water in the hole was clear
-
- Did not notice any smells. Was within 10 feet of the front door with no SCBA – no smells
-
- I was completely soaked,
- Did not see any water sample bottle(s) in the hole
- Measured Oxygen level in hole - 0.7%
- No decon of staff, patients or equipment at scene – deconned equipment back at the hall
-

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G. Interview

– Teck Cominco

Interviewed May 18, 2006

-
- Call from _____ just before 8 am that “Doug” was missing. Doug was scheduled to do the high frequency sampling
- Discussed where Doug might be sampling
- _____ advised _____ that he had seen Doug @ noon on May 16, 2006
- _____ searched the upper search area and I search the lower search area.
- _____ called _____ to say that he had found Doug _____ in #1 shaft waste site.
- _____ meets the ambulance at the main gate and directs them down the road
- The lady (Kim) goes into the shack and starts to climb down the ladder.

-

- _____ told Shawn that he didn’t know what was going on, that she just _____ and Shawn rushed in and _____
-

- Called 9-1-1. On phone with dispatcher. Told him that 4 people are down the hole and there must be gas or something. Dispatch told him that the fire department had been dispatched
- _____ on scene. _____ warns him not to go down the hole
- _____ went and met fire department on road, told them not to go down the hole as there must be gas or something
- Fire department advises they were dispatched for _____ and did not have the right equipment. On the radio immediately calling for SCBA
- _____ went to the main gate to wait for the next ambulance. He tells him that there is some sort of gas and don’t go in
- Went back and forth escorting ambulances, police etc. to the shack
- Cell phone was only able to call 9-1-1 for some reason
- _____ (Teck Cominco employee) arrived and stayed at gate
- Bruce Donald contacted and told to contact Bruce Dawson
- 3 ambulances left
- Advised Bruce (Dawson) of 4 fatalities

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G. Interview

– Teck Cominco

- Awaiting RCMP. When police arrived one CPL sat in
cruiser recording details
- Coroner arrived. Requested to ID body but was unable to do so
- Wrote up the document and related story to the fire department
- Did not notice any smell that he could detect, he knows the smell (H₂O)
- Stated Doug (

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G. Interview

– Teck Cominco

Interviewed May 18, 2006

- 0848 Bob Newcombe phoned and advised that there was an emergency at # 1 site. His words were “hurry, we need you now!”
- Bob said that the ambulance is on its way
- 0905 hrs ran into Al the deputy fire chief (Kimberley) on the road and directed him back to the correct road
- Met up with further up the road. stopped him and said “I don’t know what is going on-could be gas don’t go into the shack”
- Got to the site. He noted that the ambulance was still running, no paramedics visible
- He went to the door of the shed and hollered in through the opening. He saw the paramedic oxygen and jump kit on platform in the shed. He did not hear or smell anything
- Fire department guy yelled and leaned into the doorway. Said “I think that I might be able to reach them” Pulls fire fighter from the door
- Al (deputy chief) told him not to attempt and to radio confined space rescue
- Fire department truck showed up with breathing equipment
- Second ambulance arrived and they set up triage
- Fire department donned equipment and went into the shed
- assisted
-
-
- Went to Cranbrook – assisting with
- Could hear water running but had no unusual sensations or smells of anything.
- He could see the top of the ladder form the doorway but he could not see down the hole
- Bob Newcombe never told when he called him if he could see anyone in the hole
- No sign of life at anytime

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H. Discussion and Analysis

For the purposes of the investigation, the incident at the Sullivan Mine was divided into two distinct events: the initial response of the _____ crew from Kimberley; and the subsequent response by all of the emergency services.

The Investigation Team reviewed and considered the following data sources: personal interviews, formal statements, dispatch recordings and transcriptions, sampling data, informal discussions with other investigating bodies and a physical viewing of the mine site. Based on its analyses, the Investigation Team made the following determinations.

The initial response from the _____ crew was for _____. The information that this crew received provided no indication that they were likely to encounter a hazardous environment. Upon arrival at the mine site, nothing in the initial appearance of the sampling shack or surrounding area would have provided the crew with clues to the hazardous conditions within the shack.

All four individuals who entered the sampling shack encountered an oxygen deficient environment that resulted in their death by asphyxiation.

All secondary responders including BCAS paramedics, Kimberley Fire Department fire fighters, and Teck Cominco staff were operating under the assumption there was a hazardous gas present, possibly H₂S present. Given that there was a hazardous environment, procedures and protocols were inadequate to provide the necessary protection for all of the responders.

Several areas of focus emerged for the Investigation Team during their collection and analyses of the facts concerning the incident. Primary Causes, Contributing Factors, Recommended Corrective Actions and Investigation Team Recommendations centred on the following topics:

- A) Communications
- B) Hazard Recognition and Risk Assessment
- C) Incident Command System and Mass Casualty Incident Plans
- D) Current and Readily Available Individual Personnel Station Files
- E) Patient and Worker Decontamination
- F) Staff Scheduling Practices

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I. Primary Causes

Primary Causes are the conditions, acts, practices, or behaviours that preceded the incident.

Conditions

Response

- The sampling shack had an oxygen deficient environment
- Poor ventilation of the sampling shack
- Prolonged hot weather and it's potential to create the environment within the sampling shack
- Reclaimed mining area
- Silt cap creating a barrier over the mine tailings

Secondary BCAS Response

- Unknown hazard
 - Some crews were advised of a possible H₂S Gas "Use Precaution"

Acts, Practices or Behaviours

Response

- Pryzm Environmental employees did not comply with their company's Working In Isolation Policy
- Incomplete Call assessment in Kamloops dispatch
 - Call Taker did not complete AMPDS Case Entry Questions (Case Entry Question #6)
 - PDI (Post Dispatch Instruction) to _____ lacked known follow up information prior to arriving on scene
 - Unique mine terminology was used by the initial caller, a mine employee, and key words were not recognized by the call taker on the original call.
- The initial caller did not provide complete details of situation
 - The initial person was missing two days
 - The search had been underway for 43 minutes prior to calling BCAS
 - The victim was found
- Risk Assessment Process
 - 1st Paramedic at the scene did not appear to complete the risk assessment process, asking about gases once inside of the shack and descending down the ladder into the pit
 - The original call was for one person who may have _____ and then became two persons _____ prior to the time of BCAS arrival

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I. Primary Causes

- 2nd Paramedic at the scene may not have considered all available information
- The original call was for one person who may have _____ and has now turned into three persons _____ The second paramedic's partner had _____ seconds after entering the building.
- Hazardous Material / Environmental Awareness education and training was either not followed or comprehended

Secondary BCAS Response

- The call re-assessment by the Kamloops Communication Centre did not follow the AMPDS protocol for this type of event to its conclusion
- Emergency Response Guide (CANUTEC Response)
 - Hazardous Environment information was not passed on to every responding crew by Kamloops Communications Center
 - Crews who were notified did not act upon the information given by the Kamloops Communications Center
- Hazardous Material / Environmental Awareness education and training was either not followed or comprehended
 - Crews entered a potential "hot zone" with the knowledge that H₂S may be involved

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J. Contributing Factors

Contributing Factors are the elements that make up the reason the acts / practices / behaviours or conditions occurred.

Response

- Unknown risk within the mining industry
 - This hazard, the oxygen deficient atmosphere, has never been encountered in this type of structure or application.
 - This hazard is precedent setting for the industry in British Columbia, Canada and possibly Internationally
- Shawn Currier had
- Poor lighting within the sampling shack
- BCAS follow up ability to determine if hazard awareness knowledge transfer has been achieved or retained is not clearly evident

Secondary BCAS Response

- Poor or inconsistent adherence to BCAS standard:
 - Posted policies
 - Emergency Response Guide (CANUTEC)
 - Response and Scene Risk Assessment
 - Incident Command System
- Absence of “local area hazard inventory” that identifies known hazards within the normal possible response area
- Inconsistent understanding of how to treat a patient/worker who has been exposed to an unknown topical or inhaled substance
- Lack of decontamination by the Kimberley Fire Department of patients fatally exposed to an unknown substance, presumed to be H₂S
- Insufficient adequate resources on scene in a timely manner
 - Incident command not initiated by BCAS staff due to limited BCAS staff on scene (initially 2 paramedics) and overwhelming patient load (4 patients all in cardiac arrest).
 - Dispatch staged or sent routinely ambulances to the site when they understood there were four victims --- a significant change in the initial request for medical assistance.
- Insufficient supervisory training for

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J. Contributing Factors

- Lack of a local and provincial hazard inventory
- BCAS employees were placed at risk when the Kimberley Fire Department began rescue operations without the use of air quality and gas monitoring equipment. All of the BCAS staff were, therefore, at potential risk for exposure to a hazardous environment (H₂S)
- workers on this call were culturally predisposed to working with a rescue mindset (patient care overshadowed personal safety)
- Responding agencies employees on the scene were emotionally driven to aid fallen co-workers. The ability to rationally and calmly follow best practices for the response may have been compromised.

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K. Factors

Factors are the elements that could not be validated as directly contributing to the reason the acts / practices / behaviours or conditions occurred.

- In the period leading to May 17th Kim Weitzel :

- Above Average Call Volume (approximately 25 % higher during this period) in the Kamloops Communication Centre prior to the incident

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L. Recommended Corrective Actions

Recommended Corrective Actions are the steps or actions that should be taken as a prevent similar occurrences from reoccurring. They are based on an analysis of the facts concerning the Sullivan Mine Incident of May 17, 2006. The Recommended Corrective Actions are grouped by category and are as follows:

Communication Centres/Dispatch, First Responder Communication

- The BCAS ensure the Kamloops Communications Centre complies with the most recent standards of the National Academy of Emergency Medical Dispatching
- The BCAS ensure that call assessment models and training should be consistent throughout all four BCAS Communications Centres
- The BCAS ensure that a review of the operations within the Kamloops Communication Centre be completed and that the BCAS follows the recommendations outlined by an appropriately credentialed consultant
- The BCAS adopt a best practice to ensure adequate staffing of all BCAS Communications Centres.
- The BCAS review the role of the Charge Dispatcher within the Kamloops Communication Centre be completed and acted upon
- The BCAS ensure that the inability to communicate with other 1st responder agencies is addressed by considering the Police Fire Ambulance (PFA) or Combined Events model currently used in the Greater Vancouver Area
- The BCAS Telecommunications Section conduct a system review with the purpose of creating a taped Tactical Channel for all regions using VHF radios
- The BCAS begins live tracking of all BCAS Units through some form of communications signal
- The BCAS Dispatch Centres ensure that they send adequate resources in a timely fashion allowing for the creation of a BCAS Incident Commander at multi unit responses.

Hazard Recognition, Response and Scene Risk Assessment, Pre-Alerts

- The BCAS develop a hazard recognition and risk assessment model that considers the Provincial Hazard and Risk Assessment model utilized by the Provincial Emergency Program or Region 2 Hazard and Risk Assessment Spread Sheet
- The BCAS ensure the development of a training program to instruct Unit Chiefs and Station Occupational Safety and Health Committee members on how to prepare a “local hazard inventory”
- The BCAS ensure that local hazard inventories are completed at the station level, and reviewed, updated and distributed on a yearly basis
- The BCAS ensure that local hazard inventories are submitted to the four Communication Centers to be added to dispatch ticket information on known addresses

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L. Recommended Corrective Actions

- The BCAS ensure that a Hazard Recognition and Response & Scene Assessment Training Program is provided to all BCAS employees
- The BCAS ensure that BCAS employees understand the meaning of a “Pre Alert” and the fact that additional information needed to be received prior to arrival at the scene.
- The BCAS ensures that Dispatch employees understand the meaning of a “Pre Alert” and the fact that additional information will need to be provided to crew prior to their expected arrival at the scene
- The BCAS ensure that a current Emergency Response Guidebook and the CANUTEC Emergency Response Telephone Number are provided in every vehicle
- The BCAS ensure that a current Emergency Response Guidebook and the CANUTEC Emergency Response Telephone Number are accessible in every Dispatch Centre as well as being made available on all computer terminals

Incident Command System

- The BCAS ensure that the BCAS’s Multi Casualty Incident Command System be taught to all operational ambulance service staff
- The BCAS ensures that the Incident Command System is used on all multi-ambulance responses
- That the BCAS review and re-issue on a provincial scale the current BCAS Multi-Casualty Incident Plan

Personnel Files (Station level)

- The BCAS ensure that Station Human Resources Files are complete with:
 - Emergency Personal Contact Information
 - Driver’s License
 - Immunization History
 - Orientation Package
 - EMA License Board History
 - Other Qualifications

Decontamination of patients and workers

- The BCAS ensure that a Safe Work Procedure and/or policy are in place that address the decontamination of patient and workers (prior to treatment) at the scene and transportation to a medical facility

Safe Scheduling

- The BCAS ensure a review of the Safe Scheduling Parameter policy regarding the maximum number of back-to-back shifts (PP Vol. 2. Sec.4.1.2),

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M. Investigation Team Recommendations

Investigation Team Recommendations are additional and important recommendations that the members of the BCAS Incident Investigation Team strongly believe required attention.

These recommendations were identified during the course of the Team's deliberations. When implemented, the Team submits that these recommendations will enhance both the capacity of the BCAS to respond to such incidents and the efficiency and effectiveness of future BCAS Incident Investigations.

As a complement to the Recommended Corrective Actions and on the advice of the BCAS Sullivan Mine Incident Investigation Team it is also recommended that:

Employee Assistance, Peer de-briefing

- The BCAS activate its peer debriefing group early in a major event enabling the Communication Centre to focus on the immediate needs at the scene
- A party other than the Communication/Dispatch centre be charged with the responsibility of contacting the BCAS's Employee Assistance Program provider

Communications, Information and Notification

- BCAS crews use Fleet vehicle numbers rather than radio call signs during the BCAS response to a major incident responses
- BCAS Fleet Management review the location of fleet vehicle numbers in the driver area to ensure they are easily visible
- Communication Centre/Dispatch employees do not give out information to any other persons unless they are known to be directly involved in the incident
- The BCAS develop a major incident fan-out procedure within each region that will include, but not limited to, notification of the Regional Executive Director or designate, the Superintendent responsible for the district, the Regional Safety Advisor, the Director of Client Relations and the Union
- The BCAS Chief Operating Officer develop a pre-scripted message that would advise BCAS that: a) an major investigation is underway; b) a team has been established and deployed to the area; and c) BCAS senior management expects the cooperation of all of BCAS staff during the challenging time
- The BCAS develop a common electronic collection point for incoming investigative information. An email address similar to _____ should be established and managed by Organizational Health and Development Branch. Each Investigation Kit would contain stick-on labels with an address for placement onto existing business cards
- The BCAS develop with the assistance of the Ministry of the Solicitor General a joint procedure regarding the Notification of Next of Kin for deceased employees of the Service

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M. Investigation Team Recommendations

Tools for Investigations and Investigators

- Each Regional Safety Advisor and Field Superintendent be issued with an Investigation Kit that includes bag, clerical supplies, tape measure, flash light, digital tape deck, camera and down-loading cable, etc.
- Each BCAS Manager who may be tasked to response to an incident (without delay) develops a Personal Response Kit that will allow him or her to work comfortably for at least four days. This should include toiletries, medications, clothing and footwear. This should be stored at the worksite as part of our disaster response kit

Training and Education

- The BCAS ensure that employee training is tracked
- The BCAS develop an approach to determine knowledge retention through safety and health training initiatives
- The BCAS work with the Emergency Medical Assistants Licensing Board to enable refresher training credits for course in Incident Command System, Awareness of Hazardous Materials and Awareness of Chemical, Biological, Reactive and Nuclear hazards.
- The BCAS review and revise its Incident Investigation Training Program based on the investigative experiences learned from the Translink Bus Incident and Sullivan Mine Incident
- The BCAS ensure that all designated members of the MIIC are trained in this new training program

Major Incident Investigation Committee

- The BCAS establish a Pre-designated Major Incident Investigation Committee (MIIC):
 - Manager from the BCAS Organizational Health and Development Branch (provincial)
 - Provincial Director of Safety (CUPE)
 - Regional Safety Advisor
 - The alternate Regional Superintendent for the area involved
 - Dispatch Supervisor Charge Dispatcher from another Region
 - Operational Superintendent from another Region
 - Subject matter expert – optional (e.g., Fleet, Chemical Biological, Radioactive and Nuclear Hazards, Search & Rescue, Airevac)
- The BCAS develop and approve a template/framework for the conduct of Major Incident Investigations

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N. Summary and Conclusions

To summarize and conclude, the BCAS investigation of the Sullivan Mine Incident, the BCAS Incident Investigation Team submits that:

- A) The incident of May 17th, 2006 at the Sullivan Mine Site involved an unknown and unexpected hazard that resulted in the loss of four lives, two of whom were BCAS employees
- B) The loss of the paramedics Kim Weitzel and Shawn Currier may have been avoided through better communications with the initial caller to 911 and through a more thorough hazard recognition and risk assessment process by both the Kamloops Communications Center and crew members
- C) There was a significant potential for loss of life in the secondary response due to inadequate incident command procedures and a cross contamination of responders
- D) There were operational issues related to Communications, Hazard Recognition, Incident Command and Mass Casualty Incidents, Scheduling Practices, and Decontamination
- E) The Investigation Team has made a set of Recommended Corrective Actions and Team Recommendations based on its findings, review and analyses of this incident

It is difficult to determine with any certainty if the May 17 2006 incident at the Sullivan Mine site could have been prevented. However, it is critical that all parties learn as much as possible from the tragedy and then take actions to prevent similar incidents in the future.

In conclusion, the BCAS Incident Investigation Team recommends that a member of the BCAS Executive Management Team member be tasked to ensure that the Recommended Corrective Actions and Investigation Team Recommendations are reviewed and considered, and acted upon in a timely fashion.

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O. Glossary

Term	Descriptor
10 - 7	At the scene
10 - 8	En route to the scene
Asphyxiation	To kill or make unconscious through inadequate oxygen, presence of noxious agents, or other obstruction to normal breathing
	is a shift pattern, a 11 hr Shift that runs 7 days a week
CAD	Computer Aided Dispatch
CAD Head	The Data Terminal in the Ambulance
Cardiac Arrest	A term used when the Heart Stops
	Responding to an ambulance call without the use of lights and sirens. Also known as a routine response.
	Use of lights and sirens to respond to and from and emergency
	Used in reference to the deceased
Contributing Factors	The elements that make up the reason the acts / practices/ behaviours or conditions occurred.
	is a shift pattern, a 10 hr Shift that run 4 days a week
ETV	Emergency Transport Vehicle
Factor	The element that could not be validated which make up the reason the acts / practices/ behaviours or conditions occurred.
Shift Pattern	is a Stand By Shift. Paramedics are paid a standby fee to be at the station ready to respond.
Hydrogen sulphide	A flammable poisonous gas H ₂ S that has an odour suggestive of rotten eggs and is found especially in many mineral waters and in putrefying matter
IDLH	Immediately Dangerous to life and Health
Investigation Team Recommendations	Are items that during the course of the investigation the committee members feel that should be implemented to assist in enhancing either the investigation or the Ambulance Services capabilities to respond to such incidents.
Shift Pattern	an on call shift pattern. Paramedics are not required to be at the ambulance station but available on pager.
Nitrogen	A common non-metallic element that in the free form is normally a colorless odourless tasteless insoluble inert diatomic gas comprising 78 percent of the atmosphere by

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O. Glossary

Term	Descriptor
	volume and that in the combined form is a constituent of biologically important compounds (as proteins, nucleic acids, and alkaloids) and hence of all living cells as well as of industrially important substances (as cyanides, fertilizers, dyes, and antibiotics)
PAACC	Provincial Air Ambulance Coordination Center (BCAS)
Pre-Alert	Moving resources towards a call before all the call information is completely obtained.
Primary Cause	The substandard acts, practices or conditions that preceded the incident. These are symptoms of a larger problem and the visible and obvious cause. Substandard means a practice or condition that is not the optimum for safe work.
Respiratory Arrest	Temporary or permanent cessation of respiration
Recommended Corrective Actions	Are the steps or actions that should be taken as a direct result of the incident to prevent similar occurrences from reoccurring.
SCBA	Self Contained Breathing Apparatus.
Shaft Waste Dump. Also Referred to as Flow intake building and water sampling shack	Small wooden building over the sampling area used to prevent water in the sampling area from freezing. Also installed to prevent tampering of water in sampling shed. Water is sampled and tested as part of the mine reclamation process to ensure that water from the site entering the water system is not contaminated
	Cranbrook Station
	Fernie Station
	Invermere Station
	Kimberly Station

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P. Appendix

A BC Ambulance Service Statements

- A.1 Kimberley
- A.2 Kimberley
- A.3 Cranbrook
- A.4 Cranbrook
- A.5 Cranbrook
- A.6 Cranbrook
- A.7 Cranbrook
- A.8 Cranbrook
- A.9 - Invermere 411 Unit Chief
- A.10 - Invermere

B Kimberley Fire Department Statements

- B.1 Al Collinson – Deputy Chief
- B.1.2 Al Collinson – Deputy Chief - Field Notes
- B.2
- B.3 Firefighter
- B.5 Firefighter
- B.6 - Firefighter
- B.7 Firefighter
- B.8 - Firefighter
- B.9 Firefighter

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B Kimberley Fire Department Statements Cont.

B.10 Firefighter

B.11 - Firefighter

C Teck Cominco Statements

C.1 - Teck Cominco

C.2 Bruce Donald - Teck Cominco

C.3 - Teck Cominco

C.4 Bruce Dawson - Teck Cominco

D Royal Canadian Mounted Police Witness Statements

D.1

D.2

E Pryzm Environmental Consulting Statement

E.1 Pryzm Environmental

F Laboratory Results

F.1 Kimberley Fire Department - May 17, 2006

F.2 Cantest Laboratory Reports - May 18, 2006

F.3 ALS Laboratory Results - May 19, 2006

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G BC Ambulance Service Tachograph Timeline

G.1 Black Box – Unit

H CANUTEC

H.1 Hydrogen Sulfide

H.2 Carbon Monoxide

H.3 Nitrogen

I Material Safety Data Sheets

I.1 Hydrogen Sulfide

I.2 Carbon Monoxide

I.3 Nitrogen

J BC Ambulance Service Policies, Procedures and Training Documents

J.1 Scope of Practice - General

J.2 Scope of Practice – Paramedics

J.3 Scope of Practice – Emergency Medical Dispatchers

J.4 Scope of Practice – Unit Chiefs

J.5 Scope of Practice – Charge Dispatchers

J.6 OHS Policy – General

J.7 OHS Policy – Crew Safety - Ground and Air

J.8 OHS Policy – Exposure to Toxic or Hazardous Materials

J.9 OHS Policy – Search and Rescue Situations

J.10 Safety Bulletin 04:1999 – Search and Rescue Situations

J.11 EMD Policy – General

J.12 EMD Policy – Resource Allocation Plan

J.13 EMD Policy - Relaying Information Standards

J.14 EMD Policy – Safety at the Scene

J.15 EMD Policy – Search and Rescue / Road Rescue Situations

J.16 EMD Policy – Responding to Hazardous Material Incidents

J.17 AMPDS Training - EMD Scene Safety

J.18 OSH Training – OSH Level 1, 2 and Exposure Control Plan

J.19 BCAS Orientation - Scene Evaluation

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K Kimberley Mine Incident Scene Photos

- H.1 Photo 1
- H.2 Photo 2
- H.3 Photo 3
- H.4 Photo 4
- H.5 Photo 5
- H.6 Photo 6

L Kimberley Mine Incident PowerPoint Presentation

- I.1 Sullivan Mine Aerial PowerPoint
- I.2 Kimberley Investigation PowerPoint

M Employee File Synopsis

- M.1 Kim Weitzel
- M.2 Shawn Currier

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