Mount Polley Mine Investigation - File Management Report

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I. ABBREVIATIONS

The following abbreviations are used in this report

1) MEM – Ministry of Energy and Mines, Mines and Minerals Division
2) MMS – Mine management Computer System used by MEM
3) TSF – Tailings Storage Facility

II. BACKGROUND

a) Task

I was contracted by the BC Ministry of Energy and Mines to provide advice and recommendations for file management taking into account the following:

- short term and long term requirements,
- existing information systems,
- scope of investigation,
- anticipated volume of documents, notes, witnesses etc,
- anticipated or potential legal actions,
- retention requirements,
- disclosure requirements
- access requirements (by investigative staff and by external parties)
- volume of existing information and need for organization and retrieval

File management includes the following specific areas:

- Tasking of investigators and reporting of outcomes of tasks
- document management (including photographs, emails, and audio & video recordings)
- investigative notes management
- interviews of witnesses

The recommendations and advice would include considerations, resource implications, options and rationale.

b) Understanding of Investigation

It is understood that the Chief Inspector of Mines is conducting an investigation pursuant to the Mines Act to determine the cause of the failure of Tailings Pond Storage Facility at the Polley Lake Mine.

At the time of the completion of this report, it is my understanding that the Chief Inspector's investigation does not relate to an offence under the Mines Act or any other statute but that in the course of the conduct of the existing investigation there is

a possibility of the Chief Inspector becoming aware of an offence. In that event the evidence gathered during the course of the present investigation may be required for investigation of an offence by the Chief Inspector or another agency.

There is also the potential for evidence being gathered by the Chief Inspector to be used in other actions, providing the evidence is compellable and admissible in other legal actions.

c) Complexity of Investigation

I understand that there will be at least 70 interviews of potential witnesses and that those interviews are ongoing at the present time. There are at least several hundred documents that may be relevant to the investigation. The documents include various inspection reports, permit applications, engineering designs, geotechnical reports and other correspondence. There are various personnel within MEM fulfilling varying roles relating to the investigation and ongoing supervision / observations of the Mount Polley Mine. For example there are two MEM inspectors on site at Mount Polley Mine observing the work being done to ameliorate the situation. It is anticipated that there will be expert reports that will be prepared for the purposes of establishing the cause of the failure of the TSF.

d) Comment on Quality of Management of Information within the Investigation

I wish to make it clear that none of the comments within this report should be interpreted as criticism of the Chief Inspector or any of his staff. The failure of the TSF is an event of such magnitude that it surpasses any investigation ever undertaken by the Chief Inspector of Mines. It is my understanding that the main function of the Mines and Mineral Resources Division is to provide permitting and regulatory oversight of Mines for the purposes of ensuring worker safety and preventing accidents and environmental damage and that conducting an investigation of this magnitude and complexity is a new task for many, if not all, of the MEM Staff.

I am impressed with how much progress has been made in identifying relevant documents within the MEM and having the documents scanned and marked for identification. I did not see any evidence handling procedures that would jeopardize the successfulness of the investigation from an evidentiary handling perspective. That is not to minimize the challenges being faced of organizing and reviewing the documents in the possession of MEM.

III. PROCESS FOLLOWED

a) On September 8th and 9th, 2014, I conducted a review of the various document storage (paper and electronic) locations and processes within the offices of MEM in Victoria. My main contact within MEM was Tania Demchuk. I met with Demchuk and made an inventory of the various types of documents within MEM and the current storage and retrieval process for those documents. I also met with other staff and received information regarding documents that they were aware of and work that they have

done that relates to the investigation. I also attended briefings relating to the investigation.

b) I was given access to the "G Drive" within MEM for the purpose of determining quantity and type of documents and current method of organizing information. I have reviewed some of the data contained on the G Drive for the purposes of this report and will refer to my observations in this report.

IV. LIST OF DOCUMENT TYPES / LOCATIONS / SOURCES

The following is a list of document types / locations / sources identified during the course of my review

a) MMS

The MEM uses an electronic interface called MMS to generate and store documents. MMS stores all documents that it generates on the "V Drive" within MEM. The interface can be used to generate documents (primarily inspection reports). When documents are generated using MMS, the filenames are named by MMS and therefore follow a standard format. Other documents can be "dragged and dropped" into MMS and can be in various formats (jpg, docx, pdf etc) and the file names do not have to have a consistent format. Documents are stored within folders and sub folders and are organized by mine number. Therefore there is one folder with all of the Mount Polley documents in it with various sub folders. (Mount Polley mine number is 1101163)

The number of inspection reports within MMS vary from as few as 1 to as many as 22 in 2001. In 2013 there were 15 and in 2014 there were 8. I was told that all inspection reports should be in MMS but there is a possibility that some inspection reports are not in MMS, particularly those from prior to 2000.

I was informed that there is at least 1 Geotechnical Incident related to Mount Polley Mine that is not on MMS. These files are in geotech incident files in a folder on the G Drive - GRIT file

Other documents in the MMS Database include:

- Notices of work (application for exploration)
- General correspondence to Regional Office
- Dangerous Occurrence Information
- Financial Security
- Annual reclamation reports (there are only 2 annual reclamation reports on MMS; these are generally filed in the M200 folder on the G Drive)

There are 224 folders and sub folders and a total of 935 files within MMS relating to Mount Polley Mine.

b) G Drive

All personnel within MEM have access to "G Drive" which is a storage drive for various documents. The Drive is not organized by mine and therefore documents relating to Mount Polley can be found in various folders and sub folders within the drive.

The following folders have been identified as electronic storage locations for documents relating to the Mount Polley Mine:

Note this list is not exhaustive but is believed that the listed folders contain most of the information that would be relevant to the investigation.

(1) **G:\Mines Operations\Victoria\RECLAMATION\0E - MINING PROJECTS\MINE LIST\2 METAL\M-200 Mt Polley**
This folder contains the most records related to Mount Polley. Includes the folder "File Compilation August 2014" where some post-August 4 information has been compiled for holding until the file organization is sorted out. This includes inspectors photos and notes, initial compilation of digital geotech documents that MEM had digitally, inspector report information from MMS and scanned documents, etc.

There are 338 sub folders under the M200 folder and a total of approximately 3600 files in the M200 folder and sub folders. The 3600 files is approximately 11 GB of data.

(2) **G:\Mines Operations\Victoria\RECLAMATION\0F - PERMITS\0 Metal\M-200 Mt Polley**

G:\Mines Operations\Victoria\RECLAMATION\0D – GEOTECHNICAL –
It is understood that MEM Geo Tech Engineers save their information here

(3) **G:\Mines Operations\Victoria\Chief Inspector\MT POLLEY**
This folder was created subsequent to the failure of the TSF.
(the MP Excel spreadsheet of scanned and numbered files is located in the subfolder Geotechnical, along with all the PDFs – see Scanned Geotechnical documents below)
This folder is being used to store the electronic files:

(a) that were created from scanning the documents from the Off Site Storage (see below)
(b) the documents that have been received electronically from Mount Polley Mine Sharepoint (see below)
(c) documents that were scanned from documents stored on Tania Demchuk's bookshelf

(4) **G:\Mines Operations\Mount Polley Investigations**
This is a limited access folder where some investigation documentation has been placed by the interview team.

(5) **G:\Mines Operations\Kamloops\Mt Polley TSF**
This is a folder that I found that contains 7 photographs taken from a helicopter on 27 May 2014. I have included this information in the event that the photographs are relevant to the investigation and to demonstrate that it will take a thorough search of the electronic records in order to be sure that all relevant information in the possession of MEM has been identified.

Note: There are several ways that information related to the Mount Polley Mine has been stored such as:

- Mt Polley
- Mount Polley
- M200
- 1101163

As well as several types of folders:

- "Permit folders"
- "Metal"
- "Mines List"
- Etc.

Unfortunately documents relating to Mount Polley Mine could be in other locations within the G Drive. For example on August 6 one of the MEM Staff members (Margot Brody) conducted a search of the G Drive using the search string "Mount Polley". That search identified 480 files and folders that contained the phrase "Mount Polley". Many of these files and folders were in folders not listed above.
(source – email from Brody to Al Hoffman 2014-08-06)

c) Off Site Storage of Archived Files

MEM stores older documents in an offsite storage location. A spreadsheet or similar database is maintained by the MEM Admin Staff of all documents that have been stored offsite. A search was conducted of the Off Site Storage to locate **geotechnical documents** related to the Mount Polley TSF (see Scanned Geotechnical Documents below). No search of the Off Site Storage has been conducted for other documents related to the Mount Polley Mine.

d) Sharepoint

Shortly after the failure of the TSF, personnel from MEM were on site and requested documents from Mount Polley Mine staff (Luke Moger – engineer). In order to facilitate providing the documents to MEM staff, Mount Polley set up an internet based electronic file transfer called "Sharepoint". It is my understanding that email requests were made to Mount Polley Mine for documents. Mount Polley Mine would transfer the documents to "Sharepoint" where they could be retrieved electronically

by MEM Staff and Mount Polley would reply to MEM indicating that they had transferred the requested file to "Sharepoint". These documents were checked against documents already in MEM's possession. Those files that were deemed to be new to MEM were given MP numbers. At least some of the documents were printed out by Kim Bellefontaine and were marked with an "MP" number and inventoried on the MP Excel spreadsheet (see Scanned Documents below). The email requests for documents were done as a continuing thread by simply replying to each response. (i.e. initial request for documents, MP reply indicating compliance, reply with additional request, MP reply indicating additional compliance etc.)

e) Emails

As is usual in modern organizations, MEM uses email extensively. I understand that email is frequently used for the following purposes:

- Communicate with industry (eg: staff at Mount Polley Mine)
- Exchange documents (i.e. reports are attached electronically and distributed)
- Internal communications between MEM staff and also staff at other agencies

Emails are sometimes printed out and put into correspondence folders related to each of the mines.

Emails can be electronically "dragged and dropped" into MMS and are stored as a separate file on the "V Drive" accessible by MMS.

Emails can be saved electronically by MEM Staff and stored in various folders on the G Drive.

f) Scanned Geotechnical documents & spreadsheet

Shortly after the failure of the TSF Kim Bellefontaine conducted an extensive search to locate all geotechnical documents related to the Mount Polley TSF. Kim referred primarily to the GRIT file (spreadsheet) to identify geotechnical documents that should be in the possession of MEM and also cross referenced to a list of documents that she generated by reviewing geotechnical Mines Act permit/permit amendments for Mount Polley.

Kim made a list of the documents that she was searching for and assigned a unique number to each document as she located them. The convention that was used for numbering the geotechnical documents consisted of the letters MP followed by 5 digits. i.e. MP12345. The documents that were in MEM's possession (file, room, offsite storage or electronically) were numbered starting with MP00001 and were consecutively numbered but not necessarily in date order. Each document (note that 1 document could be multi pages) that was scanned was marked with the MP number that it was assigned (usually in red pen). Off site scanning was conducted by Island Blue print for larger reports. All other files were scanned in-house by Eva Armstrong or Kim Bellefontaine.

Some documents that were received from Mount Polley Mine were also given an MP number (see Sharepoint above.) Documents received from Mount Polley were assigned an MP number commencing with MP10001 and are numbered consecutively. There are currently 37 Sharepoint documents on the MP Excel list (numbered MP10000 to MP100036).

All documents that have been located have been entered on an Excel Spreadsheet (I refer to it as the MP Excel Spreadsheet). The spreadsheet has multiple columns that track the source and type of document, description, handling, author etc. The spreadsheet was developed to track the documents that were provided to the External Panel.

Kim located documents in the following locations:
i) MEM file room (see Other Documents in Tania's Possession below)
ii) Off Site Storage of Archived Files (see below)
iii) Digital records on MEM computer system

MEM File Room

Kim Bellefontaine conducted a search of the MEM file room (on-site files) to locate geotechnical documents related to the Mount Polley Mine TSF (i.e. documents that were in possession of MEM prior to the breach on Aug 4th). The on-site files were reviewed to locate inspections, permits and relevant geotechnical correspondence. The relevant documents that were contained in the correspondence files have been numbered, scanned (in house) and included in the MP # excel spreadsheet. The original paper documents have been placed back in the correspondence files but can be identified by the MP # that was written on them by Kim Bellefontaine. The on-site reports and correspondence files that were retrieved and reviewed by Kim are on two bookshelves in Tania Demchuk's office. The larger on-site reports that were scanned have been placed in the 6 new boxes in Tania Demchuk's office.

Off Site Storage

The Off Site Storage search was conducted by the Admin Staff who conducted an electronic search of their offsite storage list (presumably a spreadsheet) to locate documents relating to Mount Polley Mine. It is not known what search string was used to conduct the search of the spreadsheet. (the person –
Kim instructed them to look for boxes that may contain the documents that Kim was looking for. As boxes were retrieved from the Off Site Storage, Kim went through the boxes to locate the documents she was looking for and checked them off on her list. She had to instruct the Admin Staff to continue looking for more boxes on more than one occasion because the boxes that were retrieved didn't contain the documents she was looking for. Eventually there were 16 boxes of archived files retrieved. Those 16 boxes are currently in Tania Demchuk's possession. Kim was able to locate all but 2 documents that she was searching for. Kim believes that she has located the "vast majority" of Mount Polley geotechnical documents that MEM is in possession of.

Each box that was retrieved from the Off Site Storage contained a photocopy of a spreadsheet indicating which files were in each box. Geotechnical files were removed from the boxes and sent for scanning into pdf format.

The files that were removed from the 16 boxes and scanned, were placed in new boxes and the new boxes have been labeled indicating which MP numbered files are contained in that box. The new boxes are being kept with the original 16 boxes in Tania's office.

Digital Records on MEM Computer System

Kim Bellefontaine also conducted a search of the MEM Computer System to locate digital copies of the documents that she was searching for. The electronic documents that she located were copied to the folder were the scanned documents were stored **(Z:\Mines Operations\Victoria\Chief Inspector\MT POLLEY\Geotechnical)** and she renamed them with their assigned MP number.

Summary

There were approximately 200 documents scanned from both off-site and on-site sources.

The process that has been followed provides the following capability:

- It can be determined which offsite storage box a file was retrieved from, by referring to the list in each offsite storage box
- It can be determined which files have been scanned because they are entered on a new spreadsheet, they are marked with an MP number in red pen, and are either stored in new boxes or placed back in their original locations in geotechnical correspondence files.
- It can be determined what MP document number (electronic file number) each paper file has been given because it has been marked on them.
- Although the exact source location of an electronic document isn't noted on the spreadsheet, the fact that the document was only found in digital form is recorded on the spreadsheet.

All of the digital files that were created from the scanning or were already in electronic form on the MEM Computer System or were new documents received electronically from Mount Polley via Sharepoint and the spreadsheet are being stored in one folder on the "G Drive" titled "**G:\Mines Operations\Victoria\Chief Inspector\MT POLLEY\Geotechnical**". The digital file names for each of the documents commences with their assigned MP number followed by a document name or description.

Note: This is a folder that isn't contained within the M200 folder on the G Drive.

I observed that there are two versions of the spreadsheet in that sub folder. The first version is as of Aug 25 and ends with the MP number 10031. The second is the most recent version dated Sep 2 and ends with MP number 10036 to reflect the 5 additional files that were sent to the Expert Panel on Sept 2, 2014.

g) Other Documents in Tania Demchuk's Possession

Tania Demchuk has the following documents in her possession:

i) 16 boxes of archived files from the Off Site Storage
ii) 6 boxes of documents that were removed from the 16 Offsite boxes and scanned
iii) 2 bookshelves of reports and folders that were removed from the file room by Kim Bellefontaine. (some documents from the folders were scanned and placed back in the files - see suggestion for future handling)
iv) Five documents printed out from Sharepoint and included in the MP Excel Spreadsheet and provided to the External Panel were also in Tania's office however they have been temporarily removed for review by another MEM staff member. These five documents were received electronically and were printed out and marked with MP numbers 10032 to 10036.
v) Tania is in possession of two statements that were provided to her. The statements were contained in a sealed envelope and were in a separate box. Tania opened the envelope at my request and has marked the statements for continuity purposes. The statements are from Mount Polley employees and relate to their observations and actions immediately after the failing of the TSF.

h) Photographs

From browsing the G Drive, I have located photographs that may be relevant to the investigation in various electronic folders. For instance, I located photographs in the following folders:

i) Z:\Mines Operations\Kamloops\Mt Polley TSF
ii) Z:\Mines Operations\Victoria\RECLAMATION\0E - MINING PROJECTS\MINE LIST\2 METAL\M-200 Mt Polley\File Compilation August 2014\Inspectors Notes and Photos 2014
iii) **Z:\Mines Operations\Victoria\RECLAMATION\0E - MINING PROJECTS\MINE LIST\2 METAL\M-200 Mt Polley\05 Photos**

It doesn't appear that there is a standardized naming convention for the photographs. Some photograph file names have the camera assigned name, others have been named according to the date (but using different date formats), and other file names contain a description of the photograph and the location. For the most part the photographs are in sub folders that are named according to MEM Staff who took the pictures.

I recommend establishing business rules with respect to the naming of photographs and also with respect to storage. The business rule for storage will depend on what file management system is selected but for now I would recommend continuing storing photographs in folders organized by investigator name (i.e. person who took the picture).

My suggestion for the business rule for naming photograph files is by date and time with investigator name and description of the photograph.
i.e. **201409021423 – Ard – TSF breach looking SE**.

This file name indicates a photograph taken by Ard on Sep 2, 2014 at 2:23 pm. This will provide a unique file identifier for each photograph. There may be more than one photograph taken during a specific minute but the investigator name and description will uniquely identify the photograph. If deemed important for sorting and unique identifier, the time could include the seconds.

i) Spreadsheets

A number of spreadsheets were already in existence and being used for various purposes such as tracking permit applications, GRIT list etc. In addition some spreadsheets have been created since the TSF failure and are being used to track documents that are relevant to the investigation or to document work that has been done. I believe that all of these spreadsheets are important to the investigation for either:

- Documenting work that has been done
- Information sources to identify relevant documents

I would recommend that a business rule be developed for the creation of spreadsheets to assist the investigation. It would be preferable to have as few as possible and also ensure that there isn't duplication of data on spreadsheets and that there aren't multiple versions in multiple locations. I think it would be desirable for all investigators to be aware of what spreadsheets exist and restrict editing of spreadsheets to one or two users to ensure integrity of data.

I have located the following spreadsheets that I believe may be relevant and / or important. I have not done an exhaustive search and I am listing the spreadsheets here simply as a start of a list should the investigative team wish to create an inventory of spreadsheets.

i) **MP00000 MASTER Mount Polley Scanned Files Database - HN edits**
(referred to by me as MP Excel Spreadsheet. Created to track the geotechnical documents that were provided to the External Panel.)
There are Multiple versions in multiple locations

- **Z:\Mines Operations\Victoria\RECLAMATION\0E - MINING PROJECTS\MINE LIST\2 METAL\M-200 Mt Polley\File Compilation August 2014**
- **Z:\Mines Operations\Victoria\Chief Inspector\MT POLLEY\Geotechnical**
  Note there are two versions of the spreadsheet at this location and they have the following names (i.e. each spreadsheet has a different name. The spreadsheet named … version2 is the most current version and has 5 more entries than the other 2.

- **MP00000_2014 Aug 25_Mount Polley TSF Geotechnical Files - Panel Version**
- **MP00000_2014 Sep 2_ Mount Polley TSF Geotechnical Files - Panel Version 2**

Note: I recommend that it be determined if there are data differences between the spreadsheets and the spreadsheets be consolidated and only one version of the spreadsheet be retained.

ii) **Mount Polley File search** (believed to have been created to document the searches that were conducted for geotechnical documents
Z:\Mines Operations\Victoria\Chief Inspector\MT POLLEY

iii) **Mount Polley GRIT List** – list of documents on the GRIT LIST that are related to Mount Polley. (i.e. believed to be a subset of the GRIT List in para v below)
Z:\Mines Operations\Victoria\RECLAMATION\0E - MINING PROJECTS\MINE LIST\2 METAL\M-200 Mt Polley\File Compilation August 2014

iv) **Mt. Polley Mines Act Applications and Permit List**
Located at the following 2 locations:
(1) **(Z:\Mines Operations\Victoria\RECLAMATION\0E - MINING PROJECTS\MINE LIST\2 METAL\M-200 Mt Polley\File Compilation August 2014\6 Permits**)

(2) **MP00213_2014 Aug 5_Mt. Polley List of Mines Act Applications and Permits** (this file is a duplicate of the spreadsheet and is in this location because it has been included on the MP Excel Spreadsheet and has been provided to the External Panel. Located at:
Z:\Mines Operations\Victoria\Chief Inspector\MT POLLEY\Geotechnical

v) GRIT List-Updates by TW-DO NOT SORT
This file appears to be the GRIT List that was used by Kim Bellefontaine to locate relevant Geotechnical documents for the External Panel. Located at:
Z:\Mines Operations\Victoria\RECLAMATION\0D - GEOTECHNICAL\GRIT

vi) **List of Geotechnical Reports offsited** (2 files)
Z:\Mines Operations\Victoria\RECLAMATION\0D - GEOTECHNICAL\GRIT\Reports off sited 2010

(1) All Geotechnical Reports offsited 2010
(2) Copy of All Geotechnical Reports offsited 2010 - Section 2

V. NEEDS ANALYSIS

I believe that Mount Polley Mine Investigation has or will have the following needs:

a) Task tracking
I anticipate that the Chief Inspector will need to task investigators and track the tasks to ensure completion. Tasks will generate various forms of evidence such as witness statements and relevant documents.

An example of tasking is that various staff have undertaken is the task of location and identification of relevant documents off site, in the MEM Office, and electronically on the MEM G Drive. (Tania Demchuk, Margot Brody, and Heather Narynski). There have been overlaps of results, incomplete identification of potential relevant documents, no documented process followed, and no single person responsible for collating results.
Note: Kim Bellefontaine appears to have done the majority of the work and a spreadsheet indicating what searches were conducted by Margo, Megan, and Nancy, was located (see Mount Polley File Search spreadsheet above)

b) Event timeline
I understand that creating an event timeline may be important for establishing causation of the failure of the TSF.

c) Document analysis
I understand that the investigation has not focused resources on document analysis yet however it is anticipated that this will be necessary to complete the investigation.

The document analysis may be in two forms. Firstly searches will need to be conducted of the various locations within MEM (electronic, offsite storage, regional offices etc.) where documents are stored, in order to locate documents that may be relevant to the investigation.

Secondly, relevant documents may need to be reviewed by MEM Staff or provided to experts for review and consideration in determining the cause of the failure of the TSF.

d) Linking of Documents:
I anticipate that potentially thousands of documents may be relevant to the investigation. Documents may relate to an event on the timeline and / or they may relate to one or more witnesses (notes, inspection reports, engineer reports etc). When producing a report, the Chief Inspector will need to be able to ensure that all relevant documents are considered and may wish to cross reference and refer to various documents in the course of his report. Linking as the investigation progresses will facilitate those tasks.

e) List of Witnesses & Investigators
I believe that it would be desirable for the Chief Inspector to maintain a list of all investigators that are assigned to the investigation or that are tasked to assist the investigation. In addition, it will be necessary to provide a list of all persons who are interviewed and are potential witnesses. As the investigation proceeds, it may be desirable to develop links between witnesses and events and documents.

VI. POSSIBLE SOLUTIONS

It is obvious that the Mount Polley Mine investigation is a complex investigation. I will outline two possible solutions.

a) Sub-Directory System with Scanned Paper / Digital Records
Commonly maximizes the use of the Windows tree with cascading folders as well as the Adobe Acrobat Professional application complete with integrated redacting & Optical Character Recognition (OCR.) This method is highly reliant on a set of business rules & naming conventions for folders & documents. A choice must be made at the commencement of the investigation whether to organize the primary folders by names, document #, tasks, or some other data field. For instance if the decision was made to organize the primary folders by individual name, the database would consist of folders with witness names and possibly investigators names. As the investigation progressed, copies of documents relating to that individual would be placed into that folder (electronically). If a document related to more than one person a copy would be placed in each folder it related to therefore there it is likely that many documents would be in multiple locations. At the end of the investigation a system would have to be developed to ensure that multiple copies of the same document weren't included in the report.

The advantages of this system is that it is flexible, economical, good search functionality, can facilitate electronic based reports & disclosure

The disadvantages are that information is generally kept & accessed locally some remote accessibility options are possible. Linking of tasks, names, documents and events results in duplications of one or the other.

The MEM Staff have already commenced using a form of this system. I have located the following folders that have been created since the failure of the TSF to track documents or store documents generated by the investigation: (this is not intended to be an exhaustive list but merely to indicate the use of this system)

i) **Z:\Mines Operations\Victoria\Chief Inspector\MT POLLEY**
created to store the scanned & electronic geotechnical documents that are listed on the MP Excel spreadsheet to track the files provided to the External Panel.

ii) **Z:\Mines Operations\Victoria\Chief Inspector\Mount Polley 2014**

Contains inpection data (copies), Mine Audit (copies), health inspections and mine visit from MMS

iii) **Z:\Mines Operations\Victoria\RECLAMATION\0E - MINING PROJECTS\MINE LIST\2 METAL\M-200 Mt Polley\File Compilation August 2014**
This folder has several sub folders and appears to have been set up in anticipation of the need for electronic storage folders for the investigation. Among the documents that are contained in sub folders are four interview audios and typed transcripts. **Z:\Mines Operations\Victoria\RECLAMATION\0E - MINING PROJECTS\MINE LIST\2 METAL\M-200 Mt Polley\File Compilation August 2014\Inspectors Notes and Photos 2014\Haley Kuppers\Interviews**

iv) **Z:\Mines Operations\Mount Polley Investigations**
This folder contains 3 sub folders two of which are empty and the third folder is named Investigation files and contains 33 audio interview recordings (in sub folder "Interview Recordings") and 9 interview transcripts.

One of the immediate tasks is to create a full inventory of the electronic location of documents related to the investigation and develop business rules with regard to the creation of folders and standardize the location and naming of the folders.

Summary
This solution may be sufficient but I believe that it will be result in duplication of many documents and several spreadsheets to track tasks and documents. I believe it will be difficult to manage the investigation using this system. As can be seen from the examples that I have listed of folders that have been created, there are at least 3 folders that have been created to track investigation information and interviews are currently in two different folders and perhaps others as well.

If this solution is adopted and it becomes apparent that it is insufficient to accomplish the task, migration to a more sophisticated option will be costly in terms of time and resources.

b) Database Solution (Local ie MS access or Enterprise ie MS Sequel)
The most sophisticated system is a relational database. This solution encompasses the functionality of all other systems.

The advantages are:

- scalable with networking & remote access options.
- Relational databases have the ability to parse & categorize information
- very effective reporting & searching capabilities.
- Facilitate identifying information gaps eg: timelines
- Facilitate identifying conflicting information
- Facilitate Tasking and tracking of tasking
- Facilitate linking of data eg: names to documents and events

- One time entry of data eg: names are only entered in the database once and are then linked to events and documents etc. This is important because with names only entered once there won't be instances of different spelling of names.
- Documents are only entered once
- Access Control is flexible giving the ability to provide access to data on a "need to" basis including the ability to limit investigators to read only and limit the number of users / investigators that have the ability to modify data
- Tracking of data modification

The disadvantages of a relational database are that there is a requirement for more skilled resources including technical. There is a "front end" cost in terms of resource requirements to enter data onto the database so that it can be searched and analyzed. There is an economic cost for hardware and software.

VII. RECOMMENDATION

It is recommended that a relational database be implemented for the following reasons:

- Enables linking of documents, witnesses, and events
- Tasking capability (assign tasks and monitor completion of tasks)
- Enables investigative team to access investigative data remotely
- Ability to assign access rights to investigators (ensure data integrity)
- Reduce duplication of documents
- Eliminate potential impact on investigative effectiveness if lesser solution proves to be insufficient to meet the needs of the investigation.
- Facilitate preparing report and providing disclosure if necessary

If a relational database is implemented the following job functions will need to be filled:

i) Database Manager

This person is responsible for:

- ensuring data security (backups)
- ensuring data integrity (data audits)
- assigning access rights to investigators in accordance with instructions from the file coordinator
- oversee data entry
- implement business rules with respect to linking of documents
- recommend business rules with respect to data entry to ensure consistency of data
- produce requested reports (may be requested from investigators or investigative team managers)
- facilitate / produce electronic disclosure

Required Skills:

- Superior computer technical expertise
- Familiar with relational database being used
- Able to set up new users on networked work stations (either himself or using existing SSBC support)
- Able to troubleshoot user problems (help desk function for the investigative team)

ii) Data Entry Clerk

This person acts under the direction of the Database Manager and fills the following functions:

- enters data on behalf of investigators
- adds documents to the database
- links documents, events etc in accordance with direction from File Management Team and in accordance with established business rules.

Required Skills

- Good computer technical ability
- Good understanding of data entry onto relational database
- Able to navigate within a relational database
- Good understanding of need for data consistency
- Good attention to detail
- Able to scan and manipulate scanned documents
- Reliable for handling of exhibits / documents (could be part of continuity chain)

VIII. ORGANIZATION AND SECURITY OF EXHIBITS / DOCUMENTS

The investigation has received exhibits / documents from Mount Polley Mine (some or all in electronic format). In addition the investigative team has received at least two statements from Mount Polley Mine staff on paper. Staff at MEM has identified several documents that are potentially relevant to the investigation and there are likely hundreds of other documents that will be identified as potentially relevant. These documents are not yet listed on a single exhibit list and are not all in the same place. All of these documents should be treated as exhibits and secured by an Exhibit Custodian appointed by the Chief Inspector.

Business Rules should be implemented with regard to:

a) Handling of Exhibits to ensure that the "chain of continuity" can be maintained. Handling rules should include:

(1) marking exhibits when received for identification purposes so that investigators and the exhibit custodian can identify and account for exhibits

(2) Investigator notes to document receipt and handling of exhibits

(3) Exhibits are to be kept in personal possession until being turned over to the Exhibit Custodian

(4) Exhibits should be turned over to the Exhibit Custodian as soon as practicable and in person without involving others in the chain of continuity

b) Numbering of Exhibits so that exhibits can be accounted for, filed, and retrieved when necessary. It may be desirable to implement a coding system similar to the MP numbering system used above. i.e. first two digits to identify the source of the exhibits

c) Emails

Emails are one of the most critical areas to establish business rules for. Suggestions to enhance the effectiveness of the investigation are:

(1) Emails should not be used for discussion purposes. Phone calls are a better alternative

(2) Email threads should only relate to the initial subject.

An example is the documents requested from Mount Polley Mine and placed on Sharepoint were requested by email in at least some instances. The email request was one continuous thread. It would be preferable to initiate a new request each time a document was requested. If source of document becomes an issue at some point in the future, the email will be important to establish the source and date of acquisition. The email should be attached to the document electronically and should be attached to the document if it is printed out.

(3) A process / business rule should be implemented to facilitate storage and retrieval of emails relevant to the investigation. For example an email address could be implemented and all emails that meet the criteria for relevancy could be CC'd to that email address. A Data Entry clerk could be responsible for ensuring that relevant emails are included in the investigative database and are appropriately linked.

d) Storage of documents that are generated by staff

Currently electronic documents appear to be stored in a variety of locations. I am told that no business rule exists with regard to creation of folders and sub folders within the MEM G Drive. I recommend that one be established so that there can be some assurance if staff are looking for a document that it will be in one specific location.

e) Investigator Notes

Rules / Standards should be implemented with regard to investigator notes. The rules should facilitate eventual disclosure of investigator notes and also enhance investigator's ability to provide evidence at some point in the future (eg: continuity of exhibits and conversations with Mount Polley Staff.) Notes will likely be in various formats such as handwritten in notebooks or entries on a database – eg: task responses (if and when a database is implemented).

It should be understood that the above business rules only relate to the handling and organization of documents / exhibits. It is likely that business rules relating to other areas of the investigative process, will need to be established.

IX. SUGGESTED TASKS

It is suggested that the following tasks be assigned:

i) Assign an Exhibit Custodian

ii) Establish Business Rules for Handling of Documents / Exhibits. I would suggest marking original documents with a stamp indicating "Original" and marking copies with a stamp or labeled "COPY". One copy of an electronic document (eg: Documents received from Sharepoint should be labeled "ORIGINAL" and treated as an exhibit. If the document was requested by email I would recommend attaching the email to the document to indicate the source and date received. More copies of electronic documents can be printed for review and analysis by investigators or experts.

I would also recommend that when documents are taken out of correspondence files and scanned, they be treated as an exhibit and stored by their assigned MP number (assuming that convention is continued). A copy of the original document should be placed back in the correspondence file and a note on it indicating "COPY" and the MP # so that the original can be located if necessary.

iii) Establish Business Rules for numbering of Documents (may continue use of existing MP numbering system)

iv) Establish business rules for the naming and storage of photographs (see photographs above)

v) Tasks Completed To Date should be documented
Kim Bellefontaine and other MEM Staff have been involved in locating, scanning, and storing relevant documents in the possession of MEM. In order to ensure that the work that has been done is not duplicated and also to identify what searches may need to be conducted, the work that has been done should be documented in the form of investigator notes so that they can be referred to by the Investigation managers and other investigators who may be given tasks to locate documents.

Note: I located a spreadsheet that appears to document the searches done to locate relevant documents. The spreadsheet name is **"Mount Polley File search"** and it is at the following location:
Z:\Mines Operations\Victoria\Chief Inspector\MT POLLEY

vi) Assign one person to conduct a comprehensive search of all information sources within the MEM that may contain relevant documents and ensure that documents aren't duplicated. This search should include Regional Offices. This task will involve determining what searches have already been conducted by MEM Staff and identifying potential search gaps.

vii) Establish Criteria to enable MEM Staff to know which documents / emails are deemed relevant to the investigation. Once the criteria are established it will be reasonable for the investigative team to rely on staff following the established business rules with regard to handling of documents and emails generated after the date of implementing the business rule (see investigative log below). This will eliminate the need to conduct searches for relevant documents in the future other than for quality assurance / audit.

viii) Instruct MEM Staff to conduct searches of their own electronic storage locations (especially email) and provide a list of potentially relevant documents to a specified person (i.e. person assigned the task of conducting a comprehensive search of all information sources within MEM)

ix) Assign staff to review documents that have been identified as potentially relevant and identify documents that are relevant. Consideration could be given to having relevant documents summarized. Documents that are relevant should be given a document number and included in the investigative database (if implemented and when established). As documents are included in the database they should be linked to persons, tasks, and events in accordance with established business rules.

x) A tracking system should be created to track what documents and electronic folders have been reviewed. The tracking system should identify documents identified as potentially relevant and any reviews for relevancy to the investigation.

xi) An investigative log be commenced to document significant events during the investigation such as the implementation date of a business rule, date that investigators are added to the team etc. It shouldn't be necessary to document tasks as part of the investigative log because whatever tasking process is adopted should contain the date a task is assigned and date completed. It may be important though to document the date that the investigative team became aware of significant information, for example the date that the team became aware that an offence may have been committed or the date that an investigation of an offence commenced. If a relational database is selected to manage the investigation, an event timeline can be generated as an investigative log.

Note: The above process of identifying relevant documents is going to be extremely time consuming and consume considerable resources. It may be that it will be sufficient for the purposes of the investigation to search for specific documents that the investigative team believes exist and simply rely on those searches to identify relevant documents. That is a decision that only the investigative team can make.

X. CONCLUSION

I am impressed with the amount of work that has been accomplished in approximately four weeks since the failure of the TSF. Although there are some gaps and overlaps in the search for documents within MEM, the handling of documents has been documented well enough that admissibility of documents should not be an issue.

It is important to appoint an exhibit custodian and implement business rules that will facilitate identification, analysis, and continuity of relevant documents.

It is recommended that a Relational Database be implemented to enhance the effectiveness of the investigation. This will require persons to fill the role of database manager and data entry clerk.

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