EMERGENCY ACTION PLAN

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EMERGENCY ACTION PLAN

Thompson Creek Mine
Bruno Creek Tailings Impoundment

Idaho Dam Safety Identification Number 72-7257a
National Inventory of Dams (NID) Number ID00448
Custer County, Idaho

Submitted To: Thompson Creek Mining Company
P.O. Box 62
Clayton, Idaho 83227

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March 24, 2015 (Rev. 3) **103-81610B5**
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Golder Associates

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1.0 BASIC INFORMATION

1.1 Purpose

The purpose of this Emergency Action Plan (EAP) is communication of procedures to be followed during an unusual or emergency event at the Bruno Creek Tailings Impoundment (IDWR File 72-7257a) (the facility), which is owned and operated by Thompson Creek Mining Company (TCMC). These procedures are intended to reduce the risk of human life loss and injury and to limit property damage in the unlikely event of structural distress and/or facility failure.

This EAP has been prepared by TCMC and Golder Associates Inc. (Golder) to meet the requirements of the Idaho Administrative Procedure Act, Chapter 37.03.05 Mines Tailings Impoundment Structures Rules, Rule 035.06.k. The document conforms generally to the EAP electronic template available for download from the Idaho Department of Water Resources (IDWR) website, but has been expanded to include additional information and reorganized for ease of use. A glossary of terms used in the EAP is provided in Appendix A-4.

Emergency notification procedures have been prepared to aid the tailings dam operators and managers in determining the immediate actions to take and the appropriate people to notify during an unusual occurrence or an emergency. An unusual occurrence is defined as an event that takes place or a condition that develops that is not normally encountered in the routine operation of the dam and impoundment and could endanger the structural integrity of the tailings impoundment. An emergency is defined as a serious situation that develops suddenly and unexpectedly and endangers the structural integrity of the dam and impoundment, endangers human life and downstream property, and demands immediate attention.

This EAP provides examples of possible operational situations that could qualify as unusual occurrences or emergencies and describes a selected subset of possible corrective actions and specific notification procedures to be followed. The facility, if operated in accordance with the design, is expected to withstand a wide range of possible natural events, as documented in the design criteria for the various facility components. However, larger, low-probability events are possible during the operating life of the impoundment and may cause operational difficulties and/or structural distress. These conditions may represent an emergency situation or have the potential to develop into one. The EAP provides a management response to potential emergency situations and incorporates TCMC personnel, responsible state and local agencies, and other interested parties in the overall response.

TCMC has established similar emergency procedures and plans for other facilities on the Thompson Creek Mine site. The response outlined below is intended to complement existing emergency procedures and plans.

1.2 Facility Description

A plan view of the facility is shown in Appendix B-5. Key elements of the facility are described as follows:

Facility Name: Bruno Creek Tailings Impoundment
Height: 755 feet (as of March 2015)
Built: 1983
Facility Owner: Thompson Creek Mining Company
National Inventory of Dams No.: ID00448
Drainage Area: 2.80 square miles
Hazard Classification: High
Idaho Identification Number: 72-7257a
Original Designer: Steffen Robertson and Kirsten
Expansion Designer: Golder Associates Inc.
Engineer of Record: Golder Associates Inc.

1.3 Directions to Facility

The facility is located at the Thompson Creek Mine on Upper Bruno Creek, which is tributary to Squaw Creek and the Salmon River. The location is shown on the Location and Vicinity Map in Appendix B-2. Access to the facility is via State Highway 75 to Squaw Creek to Bruno Creek. The closest town is Clayton, Idaho, which is located approximately 10 miles downstream of the facility. The larger town of Challis, Idaho, is located approximately 28 miles downstream along the Salmon River from Clayton.

1.4 Evacuation Routes

The primary evacuation route is via the primary access road into the site. In the event of a catastrophic dam failure, the primary access road into the site, which is adjacent to Squaw Creek, may become impassable. The secondary evacuation route from the site is along Thompson Creek via a four-wheel drive road that is adjacent to the Cherry Creek pump station pipeline route. The Evacuation Route Map in Appendix B-4 shows the primary and secondary evacuation routes.

2.0 FLOW CHARTS AND CONTACTS

The figures in this section are schematic representations of the sequences of activities that should be followed upon detection of an unusual occurrence or emergency. Figure 1 depicts five key steps or activities typically required for any potential emergency event. Figures 2, 3, and 4 depict required notifications and their priority for Emergency Level 1, Emergency Level 2, and Emergency Level 3 events, respectively. The three emergency levels are described as follows:

- Emergency Level 1 – Unusual Event, Slowly Developing
- Emergency Level 2 – Potential Dam Failure Situation, Rapidly Developing
- Emergency Level 3 – Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress

Information about determining the emergency level is included in Section 5.2.

Table 1 summarizes contact information for key personnel at organizations that may be involved in the emergency notification process.

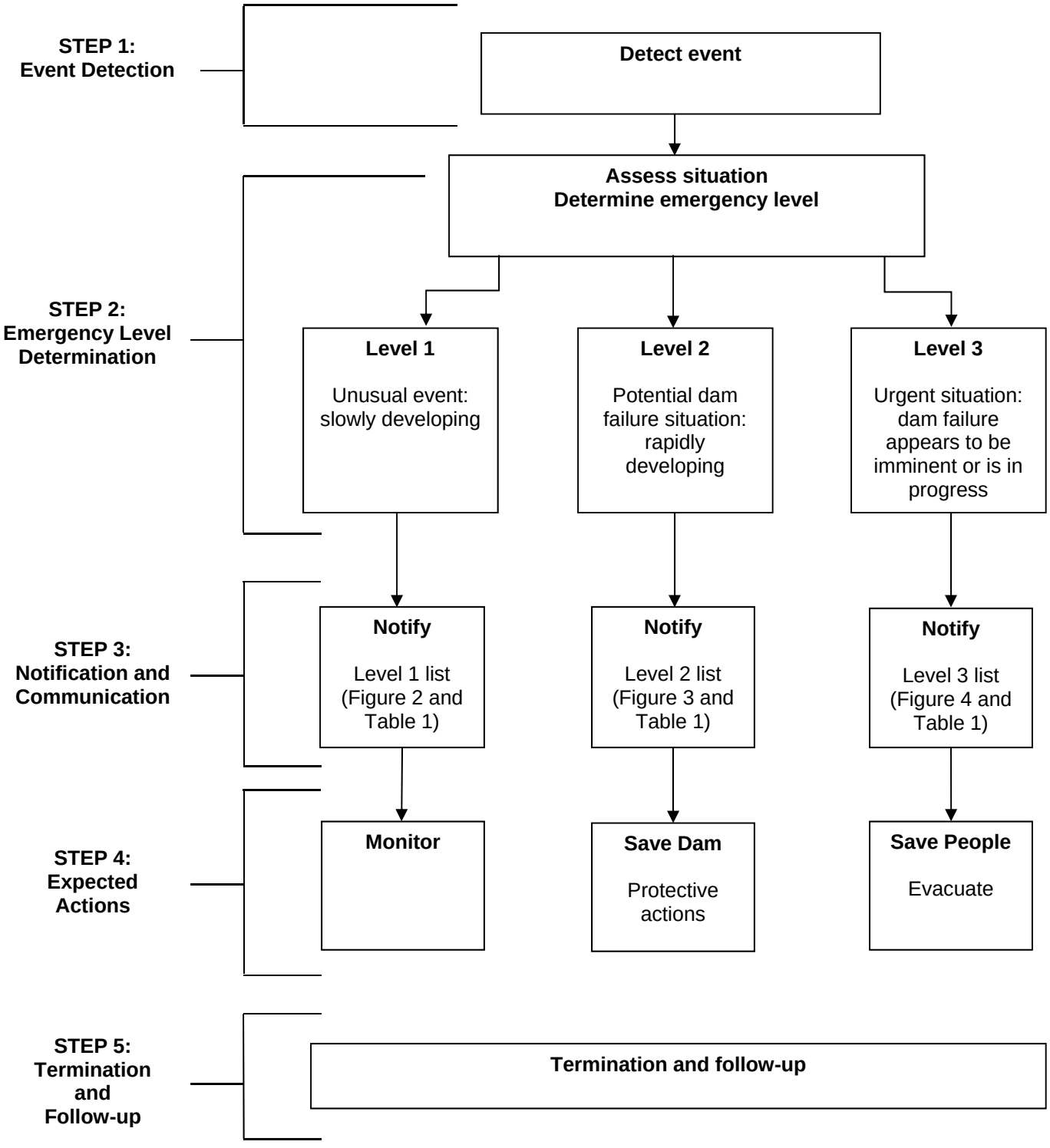


Figure 1: Emergency Action Plan Steps

Unusual Event, Slowly Developing

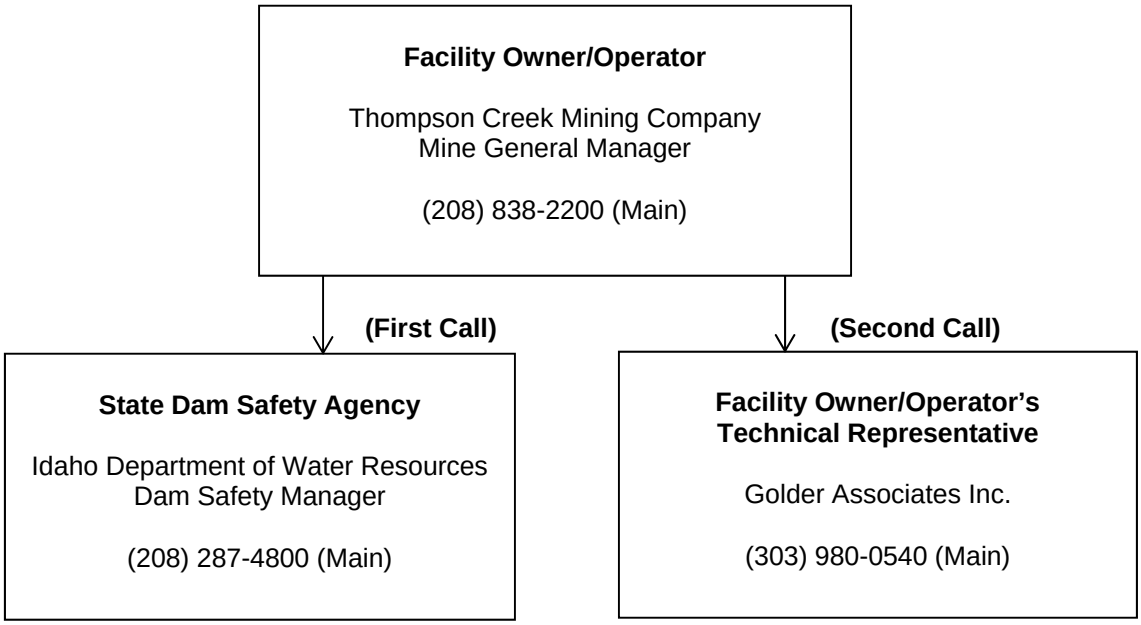


Figure 2: Emergency Level 1 Notifications

Potential Dam Failure Situation, Rapidly Developing

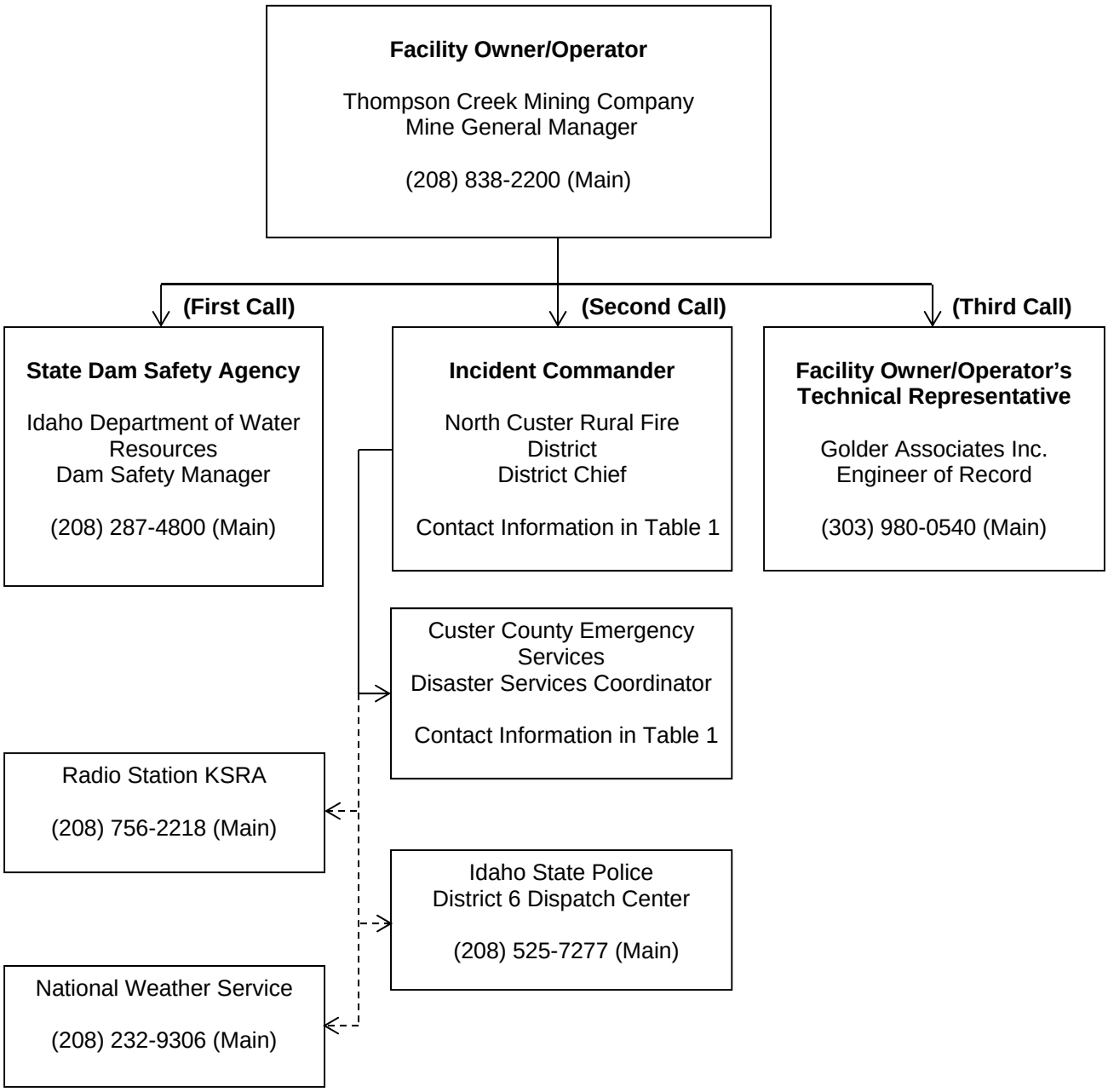


Figure 3: Emergency Level 2 Notifications

Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress

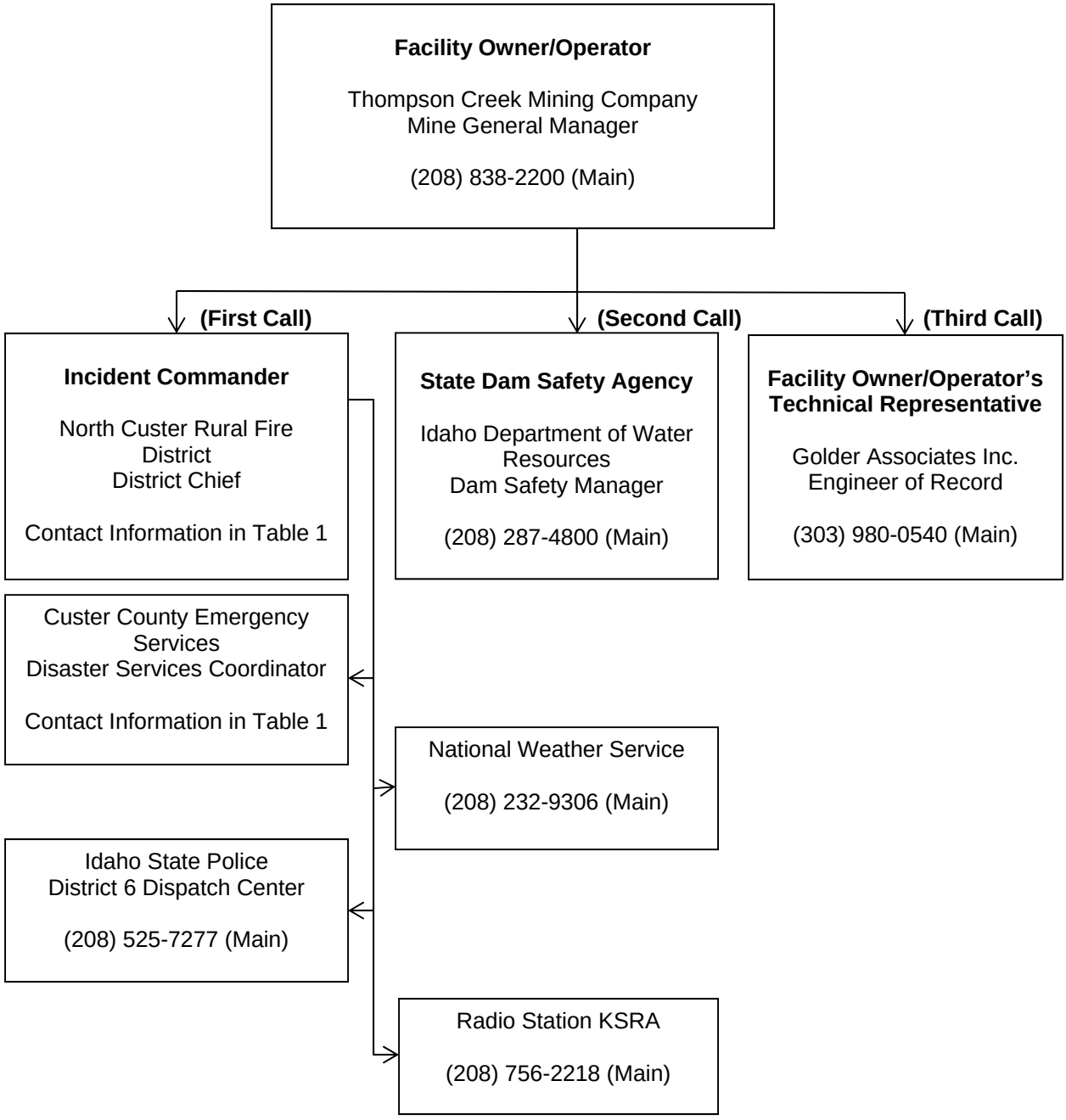


Figure 4: Emergency Level 3 Notifications

Table 1: Contacts List

Agency or Organization	Principal Contact	Address	Primary Contact Number	Alternate Contact
Thompson Creek Mining Company, Mine General Manager	Greg Hurless	P.O. Box 600 Challis, ID 83226	(208) 838-3521 (W)	(208) 838-2200 (208) 879-4250 (H)
Thompson Creek Mining Company, Mill Manager	Jim Kopp	P.O. Box 600 Challis, ID 83226	(208) 838-3559 (W)	(208) 838-2200 (208) 833-7051 (C)
Thompson Creek Mining Company, Environmental Manager	Bert Doughty	P.O. Box 600 Challis, ID 83226	(208) 838-3511 (W)	(208) 838-2200 (208) 879-2246 (H)
Thompson Creek Mining Company, Tailings Dam Coordinator	Dudley Verbeck	P.O. Box 600 Challis, ID 83226	(208) 838-3536 (W)	(208) 838-2200 (208) 879-4836 (H) (208) 833-4836 (C)
Thompson Creek Mining Company, Security		P.O. Box 600 Challis, ID 83226	(208) 838-2200	
North Custer Rural Fire District, District Chief	Launna Gunderson	P.O. Box 916 Challis, ID 83226	(208) 833-2932 (C) 911 for Level 3	(208) 879-2400
Custer County Emergency Services, Disaster Services Coordinator	Anna Sammer	P.O. Box 385 Challis, ID 83226	(208) 833-6168 (C)	
Idaho State Police, District 6 Dispatch Center			(208) 525-7277	
Custer County Sheriff's Office, Custer County Sheriff	Stuart Lumpkin	P.O. Box 344 Challis, ID 83226	(208) 879-2232 (W)	
Idaho Department of Water Resources, Dam Safety Manager	John Falk	322 E. Front St. Boise, ID 83720	(208) 287-4927 (W)	(208) 287-4800 (208) 269-3236 (C)
Idaho Department of Water Resources, Dam Safety Engineer*	Corey Skinner	1341 Fillmore St., Ste. 200 Twin Falls, ID 83301	(208) 736-3033 (W)	(208) 736-4846 (H) (208) 308-2956 (C)
Golder Associates Inc., Engineer of Record	James Johnson	44 Union Blvd., Ste. 300 Lakewood, CO 80228	(720) 920-4580 (W)	(303) 980-0540 (W) (720) 224-4098 (C)
Idaho Department of Transportation, District Engineer	Kimbol Allen	P.O. Box 97 Rigby, ID 83442	(208) 745-5600 (W)	(208) 745-7781
Custer County Road and Bridge Department, Road and Bridge Supervisor	Melvin Lanier	P.O. Box 385 Challis, ID 83226	(208) 879-2379 (W)	
National Weather Service		1945 Beechcraft Ave. Pocatello, ID 83204	(208) 232-9306	
Radio Station KSRA, Program Director	Todd Skeen	315 Riverfront Dr. Salmon, ID 83467	(208) 756-2218	(208) 756-7070 (C)

* Back-up to primary contact

3.0 ROLES AND RESPONSIBILITIES

3.1 Facility Owner/Operator's Representative (Thompson Creek Mining Company, Mine General Manager)

- As soon as an emergency event is observed or reported, immediately determine the emergency level (refer to Section 5.2).
  - Level 1: unusual event, slowly developing
  - Level 2: potential dam failure situation, rapidly developing
  - Level 3: urgent situation, dam failure appears imminent or is in progress
- Immediately notify the personnel in the order shown on the notification chart for the appropriate level (refer to Figures 2 to 4 and Table 1 in Section 2.0).
- Provide updates on the situation to the Incident Commander to assist in making timely and accurate decisions regarding warnings and evacuations.
- Provide leadership to assure that the EAP is reviewed and updated annually and that copies of the revised EAP are distributed to all recipients of the original EAP, as well as any new recipients.

3.2 Incident Commander (North Custer Rural Fire District)

- Serve as the primary contact person responsible for coordination of emergency actions.
- If a Level 2 situation occurs, prepare emergency management personnel for possible evacuations that may be needed if a Level 3 situation develops.
- If a Level 3 situation occurs:
  - Initiate warnings (reverse 911) and order the evacuation of people at risk downstream of the facility.
  - Notify local emergency management services to carry out the evacuation of people and close roads within the evacuation area.
- Decide when to terminate the emergency.
- Participate in an annual review and update of the EAP.

3.3 Emergency Management Services (Custer County Emergency Services)

- Maintain communication with the media.
- If a Level 2 situation occurs:
  - Prepare emergency management personnel for possible evacuations that may be needed if a Level 3 situation develops.
  - Alert the public as appropriate.
- If a Level 3 situation occurs:
  - Alert the public.
  - Immediately close roads and evacuate people within the evacuation area.
- Participate in an annual review and update of the EAP.

3.4 Facility Owner Operator's Technical Representative (Golder Associates Inc.)

- Assist TCMC with determination of the emergency level, time permitting.
- Advise TCMC of needs for data collection, interpretation, and analysis to resolve Level 1 situations, time permitting.
- Advise TCMC of possible remedial actions to resolve Level 2 situations, time permitting.

3.5 State Dam Safety Agency (Idaho Department of Water Resources)

- Work with TCMC to determine the emergency level, time permitting.
- Advise TCMC of needs for data collection, interpretation, and analysis to resolve Level 1 situations, time permitting.
- Advise TCMC of possible remedial actions to resolve Level 2 situations, time permitting.

4.0 EXAMPLES OF EMERGENCY SITUATIONS

This section includes examples of possible initiating events that can result in an emergency situation for a dam. Adverse or unusual conditions that can lead to failure of a tailings dam can be the result of:

- Natural events in excess of design criteria
  - Earthquake loading
  - Extreme weather, particularly rainfall and snowmelt events
- Substandard construction
  - Poor foundation preparation
    - Lack of tree and topsoil removal
    - Low strength soil and rock left in place at critical locations
  - Inadequate dam construction materials and/or placement
  - Overly steepened slopes
  - Inadequate sub-drainage
    - Too few, poorly placed, and/or low flow capacity drains
    - Filter incompatibility
- Operating conditions outside of the design intent and/or prescribed criteria
  - Inadequate tailings beach width
  - Lack of freeboard
  - High phreatic surface
  - Pipeline rupture on or near the dam with resulting erosion from slurried tailings and/or reclaim water
- Lack of data collection for performance monitoring
  - Slope movement
  - Phreatic surface level
  - Erosion of conveyance channels and dam face
  - Pipeline performance
- Security threat, sabotage or vandalism

Some potential emergency conditions are described in Sections 4.1 to 4.3. The groupings are provided for guidance only. Not all emergency conditions may be listed, and conservative judgment should be used in determining whether a specific condition should be defined as an emergency situation at the dam.

4.1 Embankment Overtopping

4.1.1 Level 2 – Potential Dam Failure Situation, Rapidly Developing

1. The reservoir level is within five feet of the crest of the dam.

4.1.2 Level 3 – Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress

1. The reservoir level has exceeded the crest elevation, and flow is occurring over the embankment.

4.2 Seepage and Sinkholes

4.2.1 Level 2 – Potential Dam Failure Situation, Rapidly Developing

1. Cloudy seepage or soil deposition is observed at seepage exit points or from internal drain outlet pipes.
2. New or increased areas of wet or muddy soils are present on the downstream slope, abutment, and/or foundation of the dam, and there is an easily detectable and unusual increase in volume of downstream seepage.
3. Significant new or enlarging sinkhole is observed on or near the dam.
4. Settlement of the dam is observed.
5. The reservoir level is falling without apparent cause.
6. One or more of the following dam defects have been observed and are or will soon be inundated by a rise in the reservoir:
   - A sinkhole located on the upstream slope, crest, abutment, and/or foundation of the dam
   - A transverse crack extending through the dam, abutment, or foundation

4.2.2 Level 3 – Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress

1. Cloudy seepage or soil deposition at seepage exit points increases to the point that failure appears to be imminent or is in progress.
2. The volume of downstream seepage increases to the point that failure appears to be imminent or is in progress.
3. Water is flowing out of holes in the downstream slope, abutment, and/or foundation of the dam to the point that failure appears imminent or is in progress.
4. A whirlpool or other evidence exists to indicate that the reservoir is draining rapidly through the dam or foundation.
5. A rapidly enlarging sinkhole is forming on the dam or abutments to the point that failure appears to be imminent or is in progress.
6. Rapidly increasing flow through a crack is eroding materials to the point that failure appears to be imminent or is in progress.

4.3 Embankment Movement and Cracking

4.3.1 Level 2 – Potential Dam Failure Situation, Rapidly Developing

1. Rapid settlement of the crest, slopes, abutments and/or foundation of the dam may eventually result in breaching of the dam.
2. A significant increase in length, width, or offset of cracks in the crest, slopes, abutments, and/or foundation of the dam that may eventually result in breaching of the dam is observed.

4.3.2 Level 3 – Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress

1. Sudden or rapidly proceeding sliding, settlement, or cracking of the crest, slopes, abutments, and/or foundation is observed and breaching of the dam appears to be imminent or is in progress.

5.0 EMERGENCY ACTION PROCEDURES

The activities described in this section are depicted schematically in Figures 1 through 4, which are included in Section 2.0. Additional contact information is presented in Table 1, which is also included in Section 2.0.

5.1 Step 1 – Event Detection

This step describes the detection of an unusual occurrence or an emergency and provides information to assist in determining the appropriate emergency level for the event.

Unusual occurrences or emergencies may be detected by:

- Observations at or near the facility by government personnel (local, state, or federal), landowners, visitors to the dam, or the public
- Evaluation of instrumentation data
- Earthquakes felt or reported in the vicinity of the facility
- Forewarning of conditions that may cause an unusual occurrence or emergency at the facility, such as a forecast of severe weather or flash flooding

Section 5.2 provides considerations for evaluating a specific situation to determine whether it constitutes an unusual occurrence or an emergency.

5.2 Step 2 – Emergency Level Determination

After an unusual occurrence or an emergency is detected or reported, TCMC or an alternate designated by TCMC is responsible for classifying the event into one of the three emergency levels described in Sections 5.2.1 to 5.2.3. Guidance for the determination of the emergency level is provided in Table 2.

5.2.1 Level 1 – Unusual Event, Slowly Developing

This situation is not normal but has not yet threatened the operation or structural integrity of the dam, but could do so if it continues to develop. IDWR should be contacted to investigate the situation and recommend actions to be taken. The condition of the dam should be closely monitored, especially during storm events, to detect the development of a potential or imminent dam failure situation. The North Custer Rural Fire District and Custer County Emergency Services should be informed if it is determined that the conditions may deteriorate to result in a situation that may require emergency actions.

5.2.2 Level 2 – Potential Dam Failure Situation, Rapidly Developing

This situation may eventually lead to dam failure and flash flooding downstream, but there is not an immediate threat of dam failure. IDWR should be contacted and informed of the situation. The North Custer Rural Fire District and Custer County Emergency Services should be notified of the situation and placed on alert. TCMC should closely monitor the condition of the dam and periodically report the status

of the situation to the North Custer Rural Fire District. If the dam condition worsens and failure becomes imminent, the North Custer Rural Fire District and Custer County Emergency Services must be notified immediately of the change in the emergency level so that people at risk downstream may be evacuated.

If time permits, IDWR should be contacted to evaluate the situation and recommend remedial actions to prevent failure of the dam. TCMC should initiate remedial repairs. Local resources that may be available to help accomplish the remedial repairs are summarized in Appendix B-1. The amount of time that is available to employ remedial actions may be on the order of hours or days.

This emergency level is also applicable when flow has resulted in or is expected to result in flooding of downstream areas, endangering people near the channel. Emergency services should be put on alert to initiate evacuations or road closures if the flooding increases.

5.2.3 Level 3 – Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress

This is an extremely urgent situation where dam failure is occurring or is obviously about to occur and cannot be prevented. Flash flooding will occur downstream of the dam. This situation is also applicable when flow is causing downstream flooding of populated areas and roads. The North Custer Rural Fire District and Custer County Emergency Services should be contacted immediately so emergency services can begin evacuating at-risk people and closing roads as needed.

Table 2 provides information to help determine the emergency level for various situations:

Table 2: Guidance for Determining the Emergency Level

Event	Situation	Emergency Level
Embankment overtopping	Reservoir level is 1 foot below the top of the dam	1
	Water from the reservoir is flowing over the top of the dam	2
Seepage	New seepage areas are observed in or near the dam	1
	New seepage areas with cloudy discharge or increasing flow rate are observed	2
	Rapid increase in seepage rates are observed over a 48-hour period	2
Sinkholes	A new sinkhole is observed in the reservoir area or on the dam	2
	A rapidly enlarging sinkhole is observed	3
Embankment cracking	New cracks in the embankment greater than ¼-inch wide are observed without seepage	1
	Cracks in the embankment are observed with seepage	2
Embankment movement	Visual movement/slippage of the embankment slope is observed	1
	Sudden or rapidly proceeding slides of the embankment slopes are observed	3
Instruments	Instrumentation readings are beyond predetermined values	1
Earthquake	A measurable earthquake is felt or reported on or within 50 miles of the dam	1
	An earthquake resulting in visible damage to the dam or appurtenances is experiences	2
	An earthquake resulting in an uncontrolled release of water from the dam is experienced	3
Security threat	A verified bomb threat that, if carried out, could result in damage to the dam is received	2
	A detonated bomb has resulted in damage to the dam or appurtenances	3
Sabotage or vandalism	Damage to the dam or appurtenances is incurred with no impacts to the functioning of the dam	1
	Modification to the dam or appurtenances that could adversely impact the functioning of the dam is experienced	1
	Damage to dam or appurtenances that has resulted in seepage flow is experienced	2
	Damage to the dam or appurtenances that has resulted in an uncontrolled water release is experienced	3

* Level 1: Unusual event, slowly developing
* Level 2: Potential dam failure situation, rapidly developing
* Level 3: Urgent situation, dam failure appears to be imminent or is in progress

5.3 Step 3 – Notification and Communication

5.3.1 Notification

After the emergency level has been determined, the personnel on the appropriate notification chart for the emergency level shall be notified immediately by TCMC. The notification charts are provided as Figures 2, 3, and 4 in Section 2.0.

5.3.2 Communication

5.3.2.1 Level 1 – Unusual Event, Slowly Developing

The Mine General Manager should contact IDWR and Golder. He should describe the situation and request technical assistance on the next steps to take.

The Mine General Manager should contact the North Custer Rural Fire District, which will in turn contact Custer County Emergency Services, if it is determined that the conditions may deteriorate to result in a situation that may require emergency actions.

5.3.2.2 Level 2 – Potential Dam Failure Situation, Rapidly Developing

The Mine General Manager should contact the IDWR. He should describe the situation and request technical assistance on the next steps to take.

The Mine General Manager should contact the North Custer Rural Fire District, which will in turn contact Custer County Emergency Services. The following message may be used to help describe the emergency situation:

> *"This is (identify yourself by name and position).*
>
> *We have an emergency condition at the Thompson Creek Mine Bruno Creek Tailings Impoundment, located approximately 10 miles northwest of Clayton.*
>
> *We have activated the Emergency Action Plan and are currently under Emergency Level 2.*
>
> *We are implementing predetermined actions to respond to a rapidly developing situation that could result in dam failure.*
>
> *Please prepare to evacuate the area along low-lying portions of Squaw Creek.*
>
> *We will advise you when the situation is resolved or if the situation worsens.*

I can be contacted at the following telephone number: (give telephone number). If you cannot reach me, please call the following alternate telephone number: (give alternate telephone number).”

The Mine General Manager should contact Golder. He should describe the situation and request technical assistance on the next steps to take.

5.3.2.3 Level 3 – Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress

The Mine General Manager should contact the North Custer Rural Fire District immediately to commence the evacuation process. For Level 3 emergency situations, dial 911. The following message may be used to help describe the emergency situation:

“This is an emergency. This is (identify yourself by name and position).

The Thompson Creek Mine Bruno Creek Tailings Impoundment, located approximately 10 miles northwest of Clayton is failing. The downstream area must be evacuated immediately. Repeat, the Thompson Creek Mine Bruno Creek Tailings Impoundment is failing. Evacuate the area along low-lying portions of Squaw Creek and State Highway 75.

We have activated the Emergency Action Plan and are currently under Emergency Level 3.

I can be contacted at the following telephone number (give telephone number). If you cannot reach me, please call the following alternate telephone number (give alternate telephone number).”

The North Custer Rural Fire District will contact Custer County Emergency Services, other authorities, and the media and begin the evacuation. The following message may be used as a guide for the North Custer Rural Fire District to communicate the status of the emergency with the public:

Attention: This is an emergency message from the North Custer Rural Fire District. Listen carefully. Your life may depend on immediate action.

The Thompson Creek Mine Bruno Creek Tailings Impoundment, located approximately 10 miles northwest of Clayton, is failing. Repeat. The Thompson Creek Mine Bruno Creek Tailings Impoundment, located approximately 10 miles northwest of Clayton, is failing.

If you are in or near this area, proceed immediately to high ground away from the valley. Do not travel on State Highway 75 towards Clayton or Challis or return to your home to recover your possessions. You may not be able to outrun or drive away from the flood wave. Proceed immediately to high ground away from the valley.

The Mine General Manager should do whatever is necessary to bring people in immediate danger (evacuees or people on the dam or downstream of the dam) to safety if so directed by the Incident Commander. The Mine General Manager should keep in frequent contact with the Incident Commander and emergency services to keep them updated on the condition of the dam.

If the usual means of communication are lost, the Mine General Manager should: (1) attempt to determine the reason for the loss of communication, (2) attempt to locate a radio or telephone that works, and/or (3) task an employee with attempting to reestablish communications. Even if these means fail, the Mine General Manager should periodically attempt to reestablish contact with the North Custer Rural Fire District.

5.4 Step 4 – Expected Actions

The primary objective of the EAP is to limit, to the extent possible, damage to property and injury or death to downstream residents in the event of a major failure. In order to accomplish this objective, the following procedures should be followed by TCMC personnel and the designated Emergency Action Team, which includes TCMC representatives and designated local, state, and federal officials.

In accordance with the operating procedures outlined in other sections of this EAP, operations personnel are expected to take specific actions that depend on the identified problem. Concurrent with the operational procedures, TCMC personnel are required to initiate a notification/communication plan that is designed to notify certain senior management personnel, depending on the severity of the problem.

This EAP is designed to be implemented only in the event of a significant failure or when a potentially major failure appears to be imminent. As a result, ONLY THE MINE GENERAL MANAGER OR, IN HIS ABSENCE, THE DESIGNATED PERSON IN CHARGE MAY DECLARE THAT THIS EMERGENCY ACTION PLAN IS TO BE IMPLEMENTED.

If the North Custer Rural Fire District or Custer County Emergency Services receives a call regarding observations of an unusual event or emergency at the facility, the TCMC Representative should be contacted immediately. After the TCMC Representative has determined the emergency level, the actions described in Section 5.5.1 (Level 1 – Unusual Event, Slowly Developing), Section 5.5.2 (Level 2 – Potential Dam Failure Situation, Rapidly Developing), or Section 5.5.3 (Level 3 – Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress) should be taken. If time permits, IDWR should be contacted for technical consultation.

5.4.1 Level 1 – Unusual Event, Slowly Developing

1. TCMC should inspect the dam. At a minimum, inspect the full length of the upstream slope, crest, downstream toe, and downstream slope. Also, check the reservoir area, abutments, and downstream channel for signs of changing conditions**. If piping,**

increased seepage, erosion, cracking, or settlement is observed, immediately report the observed conditions to IDWR. Refer to the emergency level guidance in Table 2 in Section 5.2.3 for help in determining the appropriate emergency level for the new condition.

2. TCMC should record all contacts that were made on the Contact Checklist provided in Appendix A-1. Record all information, observations, and actions taken on the Unusual Event or Emergency Log Form provided in Appendix A-2. Note the time of changing conditions. Document the situation with photographs and video footage, if possible.
3. TCMC should contact IDWR and request that technical staff be mobilized to investigate the situation and recommend corrective actions.

5.4.2 Level 2 – Potential Dam Failure Situation, Rapidly Developing

1. TCMC should contact IDWR to report the situation and, if time permits, request that technical staff be mobilized to investigate the situation and recommend corrective actions.
2. TCMC should contact the North Custer Rural Fire District to communicate that the EAP has been activated and that, if conditions worsen, an emergency situation may require evacuation. The North Custer Rural Fire District should contact Custer County Emergency Services and make preparations for possible road closures and evacuations.
3. TCMC should provide updates to the Incident Commander to assist in making timely decisions concerning the need for warnings, road closures, and evacuations.
4. If time permits, TCMC should inspect the dam. At a minimum, inspect the full length of the upstream slope, crest, downstream toe, and downstream slope. Also, check the reservoir area, abutments, and downstream channel for signs of changing conditions. **If piping, increased seepage, erosion, cracking, or settlement is observed, immediately report the observed conditions to the IDWR. Refer to the emergency level guidance in Table 2 in Section 5.2.3 for help in determining the appropriate emergency level for the new condition.**
5. Any party making contacts prescribed by this EAP should record the contacts that were made on the Contact Checklist provided in Appendix A-1. Record all information, observations, and actions taken on the Unusual Event or Emergency Log Form provided in Appendix A-2. Note the time of changing conditions. Document the situation with photographs and video footage, if possible.
6. If time permits, the emergency remedial actions described in Sections 5.4.2.1 to 5.4.2.5 should be considered and taken by TCMC as appropriate. Immediate implementation of these remedial actions may delay, moderate, or prevent the failure of the dam. Several of the listed adverse or unusual conditions may be apparent at the dam at the same time, requiring implementation of several remedial actions. Close monitoring of the dam must be conducted to verify the success of any remedial action taken at the dam. Time permitting, any remedial action should be developed through consultation with IDWR. The Available Resources List provided in Appendix B-1 identifies potential sources of equipment and materials to assist with remedial actions.

5.4.2.1 Embankment Overtopping

Under normal operating conditions, the crest is managed and operated to maintain at least 15 feet of freeboard within the reservoir area. Freeboard is measured vertically from the dam crest to the pool water surface elevation. The dam and impoundment have been designed to store runoff events including the

Probable Maximum Flood (PMF) event. A watershed map for the facility is provided in Appendix B-3, and the elevation-area curve for the impoundment is provided in Appendix B-6.

The following procedures should be followed during an extreme runoff event:

1. If an extreme thunderstorm or runoff event is forecasted, TCMC should monitor inflows to the reservoir hourly. All diversion systems should be fully operational and upgraded if required.
2. If the reservoir freeboard decreases to six feet or less, TCMC should inspect the dam and reservoir daily. Immediate action should be taken to increase the freeboard, including possibly lowering the reservoir pool by pumping, diversion of runoff around the impoundment, and/or mechanically raising the dam crest. This could include covering the weak areas of the top of the dam crest and downstream slope with riprap, sandbags, plastic sheets, or other materials to provide erosion-resistant protection.
3. If the freeboard decreases to five feet or less, TCMC should monitor the dam crest 24 hours a day. Additional contingency measures should be implemented to increase the freeboard, and tailings deposition operations should cease.
4. If the freeboard increases to six feet or more and the threat has passed, normal operations may resume.

If the reservoir pool rises to within five vertical feet or 50 horizontal feet of the crest or the Mine General Manager suspects failure is impending due to loss of freeboard or a piping failure, the following procedures should be implemented immediately:

1. TCMC should cease tailings deposition.
2. TCMC should contact Golder and IDWR for an evaluation of the failure potential, then inspect and monitor the facility as requested by IDWR.
3. TCMC should place heavy equipment on standby at the facility in a location away from possible harm, such as upgradient of the dam crest and out of direct drainage pathways.
4. TCMC should alert the North Custer Rural Fire District of the potential danger.
5. If failure of the impoundment is imminent, TCMC should initiate actions to secure the dam. This may include adding material to the dam crest to increase freeboard or excavating a controlled breach section at one of the abutments to control the location of the release away from the embankment. If a controlled breach of the dam becomes necessary, or if the dam overtops, TCMC should implement Level 3 actions as described in Section 5.4.3.

5.4.2.2 Seepage and Sinkholes

1. TCMC should operate diversion and pump systems to lower the reservoir level as rapidly as possible to a level that stops the seepage or decreases it to a non-erosive velocity. If the systems are damaged or blocked, additional pumping or siphoning may be required. Continue lowering the water level until the seepage stops.
2. If the entrance to the seepage origination point, which may be indicated by a whirlpool, is observed in the reservoir and is accessible, TCMC should attempt to reduce the flow by plugging the entrance with readily available materials, such as hay bales, bentonite, soil or rockfill, or plastic sheeting.

3. TCMC should cover the seepage exit area(s) with several feet of sand or gravel to hold fine-grained embankment or foundation materials in place. Alternatively, construct sandbag dikes or other types of ring dikes around seepage exit areas to retain a pool of water, providing backpressure and reducing the erosive nature of the seepage.
4. TCMC should prevent vehicles and equipment from driving between the seepage exit points and the embankment to avoid potential loss from the collapse of an underground void.

5.4.2.3 Embankment Movement

1. TCMC should operate diversion and pump systems and lower the reservoir to a safe level at a rate commensurate with the urgency and severity of the condition of the slide or slump. If the systems are damaged or blocked, additional pumping or siphoning may be required.
2. TCMC should repair settlement along the dam crest by placing sandbags or soil and rockfill materials in the damaged area to restore freeboard.
3. TCMC should stabilize slides by placing a soil or rockfill buttress against the toe of the slide.

5.4.2.4 Earthquake

1. TCMC should immediately conduct an overall visual inspection of the facility.
2. TCMC should perform a field survey to determine whether there has been settlement or movement of the dam embankment, spillway, or low-level outlet works.
3. TCMC should drain the reservoir, if required.

5.4.2.5 Failure or Rupture of the Header Line

Shutdown of the header line is initiated by mill operations personnel if there is a significant pressure drop within the header line.

1. TCMC should cease all tailings deposition operations. Immediately conduct an overall visual inspection of the facility.
2. TCMC should perform a field survey to determine whether there has been overtopping or erosion of the crest or downstream embankment.
3. TCMC should drain the reservoir pool to the extent practical, if required.

5.4.3 Level 3 – Urgent Situation, Dam Failure Appears to Be Imminent or Is in Progress

1. TCMC shall immediately contact the North Custer Rural Fire District and others shown on the notification chart (refer to Figures 2 to 4 and Table 1 in Section 2.0). Security personnel shall be informed so that access to the site can be secured.
2. The North Custer Rural Fire District should lead the efforts to carry out warnings, close roads, and evacuate people at risk downstream of the dam.
3. Emergency management services personnel should alert the public and immediately evacuate people at risk and close roads as necessary.

4. TCMC should maintain frequent communication with the Incident Commander to provide updates of the situation and assist in making timely decisions concerning warnings and evacuations.
5. Any party making contacts prescribed by this EAP should record the contacts that were made on the Contact Checklist provided in Appendix A-1. Record all information, observations, and actions taken on the Unusual Event or Emergency Log Form provided in Appendix A-2. Note the time of changing conditions. Document the situation with photographs and video footage, if possible.
6. TCMC should advise personnel monitoring the facility to follow safe procedures. Personnel should stay away from structures or slopes that may fail and stay out of the potential breach inundation areas.

5.5 Step 5 – Termination

Whenever the EAP has been activated, an emergency level has been declared, EAP actions have been completed, and the emergency is over, the EAP operations should be terminated and follow-up procedures completed.

5.6 Termination Responsibilities

The North Custer Rural Fire District is responsible for terminating EAP operations and relaying this decision to TCMC. It is then the responsibility of each person to notify the same contacts the person notified during the event notification process to inform those people that the EAP operations have been terminated.

Prior to termination of a Level 3 event that has not caused actual dam failure, IDWR should inspect the facility or require the inspection of the facility to determine whether any damage has occurred that could potentially result in loss of life, injury, or property damage. If it is determined that conditions do not pose a threat to people or property, IDWR will advise the North Custer Rural Fire District to terminate EAP operations.

TCMC should assure that the Dam Emergency Situation Report Form provided in Appendix A-3 is completed to document the emergency event and the actions that were taken. TCMC should distribute copies of the completed report to IDWR.

6.0 MAINTENANCE—EMERGENCY ACTION PLAN REVIEW AND REVISION

6.1 Emergency Action Plan Annual Review

TCMC will review and, if needed, update the EAP on an annual basis. The EAP annual review will include the following:

- Calling all contacts listed in the EAP to verify that the phone numbers and personnel in the indicated positions are current. The EAP will be revised if any of the contact information has changed.
- Confirming that the procedures to be followed during an unusual event or emergency are appropriate.

6.2 Distribution of Revisions

TCMC is responsible for updating the EAP document. The EAP document held by TCMC is the master document. When revisions occur, TCMC will either provide an updated complete version or will provide the revised pages and a revision summary page to each of the EAP document holders. The EAP document holders are responsible for updating outdated copies of the EAP whenever revisions are received. Outdated versions and/or pages should be immediately discarded to avoid confusion that could be caused by revisions.

Table 3 lists the EAP document holders and is intended to serve as a distribution list for the EAP.

6.3 Emergency Action Team and Training

An Emergency Action Team has been or will be developed to include local officials of county, state, and federal organizations and employees and/or representatives of TCMC. Regular meetings of the Emergency Action Team will be summarized in the Integrated Contingency Plan for Thompson Creek Mine dated July 2010. During regular meetings for the Integrated Contingency Plan, the EAP should be reviewed and discussed.

In addition, senior management personnel and tailings dam operations personnel at the facility will receive training from a qualified professional engineer to recognize physical signs of embankment distress that could cause structural failure. Potential types of emergency remedial action will be discussed as part of this training. The EAP will be discussed so that personnel are informed of the actions that should be taken in the event of an unusual event or emergency. Portions of the training program should be recorded for presentation to new personnel.

Table 3: Emergency Action Plan Document Holders List

Copy Number	Person Receiving Copy	Organization
1 2 3 4	Mine General Manager Mill Manager Tailings Dam Coordinator Security Office	Thompson Creek Mining Company P.O. Box 600 Challis, Idaho 83226
5	Dam Safety Manager	Idaho Department of Water Resources 322 E. Front St. Boise, Idaho 83720
6	Dam Safety Engineer	Idaho Department of Water Resources 1341 Fillmore St., Ste. 200 Twin Falls, Idaho 83301
7	District Chief	North Custer Rural Fire District P.O. Box 916 Challis, Idaho 83226
8	Disaster Services Coordinator	Custer County Emergency Services P.O. Box 385 Challis, Idaho 83226
9	Engineer of Record	Golder Associates Inc. 44 Union Blvd., Ste. 300 Lakewood, Colorado 80228

Table 4: Record of Revisions to Emergency Action Plan

Revision Number	Date	Revisions Made	Revisions By
1	3-28-11	Updated January 2008 EAP (included in O&M Plan) for contacts and IDWR standard format	John Andrew, P.E.
2	3-12-14	General revisions, updated contacts	Golder Associates Inc.
3	3-26-15	Updated Incident Commander, updated contacts	Golder Associates Inc.

7.0 CONCURRENCES

By my signature, I acknowledge that I, or my representative, have reviewed this EAP and concur with the tasks and responsibilities assigned herein for me and for my organization.

1. Greg Hurless, Mine General Manager, Thompson Creek Mining Company

Greg Hurless — *Signature*

4-13-15 — *Date*

2. Launna Gunderson, District Chief, North Custer Rural Fire District

Signature

4/13/15 — *Date*

3. Anna Sammer, Disaster Services Coordinator, Custer County Emergency Services

Signature

3-31-15 — *Date*

4. James Johnson, Engineer of Record, Golder Associates Inc.

Signature

4/20/15 — *Date*

APPENDIX A
FORMS AND GLOSSARY

APPENDIX A-1
CONTACT CHECKLIST

CONTACT CHECKLIST

Facility Name – Thompson Creek Mine Bruno Creek Tailings Impoundment

Facility Owner/Operator – Thompson Creek Mining Company Date _____

The following contacts should be made immediately after the emergency level is determined (refer to pages 8 to 10 for guidance to determine the appropriate emergency level for a specific situation). The person making the contacts should initial and record the time of the call and the person notified for each contact made.

Emergency Level 1	**Person Contacted**	**Time Contacted**	**Contacted by**
Facility Owner/Operator			
State Dam Safety Agency			
Facility Owner/Operator's Technical Representative			

Emergency Level 2	**Person Contacted**	**Time Contacted**	**Contacted by**
Facility Owner/Operator			
State Dam Safety Agency			
Incident Commander			
Facility Owner/Operator's Technical Representative			

Emergency Level 3	**Person Contacted**	**Time Contacted**	**Contacted by**
Incident Commander			
Facility Owner/Operator			
State Dam Safety Agency			
Facility Owner/Operator's Technical Representative			

APPENDIX A-2

UNUSUAL EVENT OR EMERGENCY LOG FORM

UNUSUAL EVENT OR EMERGENCY LOG
(to be completed during the emergency)

Facility name: Thompson Creek Mine Bruno Creek Tailings Impoundment

When and how was the event detected: _____

_____

_____

Weather conditions: _____

_____

General description of the emergency situation: _____

_____

_____

_____

Emergency level determination: _____ Made by: _____

Actions and Event Progression

Date	Time	Action/Event Progression	Taken By

Report prepared by: _____ Date: _____

APPENDIX A-3

DAM EMERGENCY SITUATION REPORT FORM

DAM EMERGENCY SITUATION REPORT
(to be completed following the termination of the emergency)

Facility name: Thompson Creek Mine Bruno Creek Tailings Impoundment

Idaho Dam Safety ID No. 72-7257a

Facility location: 10 miles northwest of Clayton (City) Custer County (County) Bruno Creek (Stream/River)

Date: Time:

Weather conditions: _____

General description of the emergency situation: _____

_____

_____

Area(s) of the facility affected: _____

_____

_____

Extent of damage to facility: _____

Possible cause(s): _____

Effect on facility operation: _____

Initial reservoir elevation: _____ Time: _____

Maximum reservoir elevation: _____ Time: _____

Final reservoir elevation: _____ Time: _____

Description of area flooded downstream, damage, injuries, and/or loss of life: _____

_____

_____

Other information and comments: _____

_____

_____

Observer's name and telephone number: _____

Report prepared by: _____ Date: _____

APPENDIX A-4
GLOSSARY OF TERMS

GLOSSARY OF TERMS

Abutment:	That part of the valleyside against which the dam is constructed. The left and right abutments of dams are defined with the observer looking downstream from the dam.
Acre-foot:	A unit of volumetric measure that would cover 1 acre to a depth of 1 foot. One acre-foot is equal to 43,560 cubic feet or 325,850 gallons.
Berm:	A nearly horizontal step (bench) in the upstream or downstream sloping face of the dam.
Boil:	A disruption of the soil surface due to water discharging from below the surface. Eroded soil may be deposited in the form of a ring (miniature volcano) around the disruption.
Breach:	An opening through the dam that allows draining of the reservoir. A controlled breach is an intentionally constructed opening. An uncontrolled breach is an unintended failure of the dam.
Conduit:	A closed channel (round pipe or rectangular box) that conveys water through, around, or under the dam.
Control section:	A typically level segment in the profile of an open channel spillway above which water in the reservoir discharges through the spillway.
Cross section:	A slice through the dam showing elevation vertically and direction of natural water flow horizontally from left to right. Also, a slice through a spillway showing elevation vertically and left and right sides of the spillway looking downstream.
Dam:	An artificial barrier generally constructed across a watercourse for the purpose of impounding or diverting water.
Dam failure:	The uncontrolled release of a dam's impounded water.
Dam operator:	The person(s) or unit(s) of government with responsibility for the operation and maintenance of dam.
Drain, toe or foundation, or French drain:	A water collection system of sand and gravel and typically pipes along the downstream portion of the dam to collect seepage and convey it to a safe outlet.
Drainage area (watershed):	The geographic area on which rainfall flows into the dam.
Drawdown:	The lowering or releasing of the water level in a reservoir over time or the volume lowered or released over a particular period of time.
Emergency:	A condition that develops unexpectedly, endangers the structural integrity of the dam and/or downstream human life and property, and requires immediate action.
Emergency Action Plan (EAP):	A formal document identifying potential emergency conditions that may occur at the dam and specifying preplanned actions to minimize the potential for failure of the dam or minimize failure consequences, including loss of life, property damage, and environmental impacts.

Filter:	The layers of sand and gravel in a drain that allow seepage through an embankment to discharge into the drain without eroding the embankment soil.
Freeboard:	Vertical distance between the water level in the reservoir and the crest of the dam.
Gate, slide or sluice or regulating:	An operable, watertight valve to manage the discharge of water from the dam.
Groin:	The area along the intersection of the face of a dam and the abutment.
Hazard classification:	A system that categorizes dams (high, significant, or low) according to the degree of their potential to create adverse incremental consequences of a failure or misoperation of a dam, such as loss of life, property damage, or environmental impacts.
Height, dam:	The vertical distance between the lowest point along the crest of the dam and the lowest point at the downstream toe, which usually occurs in the bed of the outlet channel.
Hydrograph, inflow or outflow or breach:	A graphical representation of either the flow rate or flow depth at a specific point above or below the dam over time for a specific flood occurrence.
Incident Commander:	The highest predetermined official available at the scene of emergency situation.
Instrumentation:	An arrangement of devices installed into or near dams that provide measurements to evaluate the structural behavior and other performance parameters of the dam and appurtenant structures.
Inundation area or map:	The geographic area downstream of the dam that would be flooded by a breach of the dam or other large discharge.
Notification:	Informing of appropriate individuals, organizations, or agencies about a potentially emergency situation so they can initiate appropriate actions.
Outlet works (principal spillway):	The appurtenant structure that provides for controlled passage of normal water flows through the dam.
Overtopping:	The condition where the reservoir level has exceeded the crest elevation and flow is occurring over the embankment.
Piping:	The progressive destruction of an embankment or embankment foundation by internal erosion of the soil by seepage flows.
Phreatic Surface:	The level below which the earthen materials composing the dam are saturated.
Probable Maximum Precipitation (PMP):	The greatest amount of precipitation that is considered to be meteorologically feasible for a given duration over a specific drainage area at a particular geographic location.
Probable Maximum Flood (PMF):	The largest flood that is considered to be feasible for a specific drainage area.
Reservoir:	The body of water impounded or potentially impounded by the dam.

Riprap:	A layer of large rock, precast blocks, bags of cement, or other suitable material generally placed on an embankment or along a watercourse as protection against wave action, erosion, or scour.
Risk:	A measure of the likelihood and severity of an adverse consequence.
Seepage:	The natural movement of water through the embankment, foundation, or abutments of the dam.
Slide:	The movement of a mass of earth down a slope on the embankment or abutment of the dam.
Spillway (auxiliary or emergency):	The appurtenant structure that provides the controlled conveyance of excess water through, over, or around the dam.
Spillway capacity:	The maximum discharge the spillway can safely convey with the reservoir at the maximum design elevation.
Spillway crest:	The lowest level at which reservoir water can flow into the spillway.
Tailwater:	The body of water immediately downstream of the embankment at a specific point in time.
Toe of dam:	The junction of the upstream or downstream face of an embankment with the ground surface.
Top of dam (crest of dam):	The elevation of the uppermost surface of an embankment that can safely impound water behind the dam.

APPENDIX B
MAPS AND SUPPORTING INFORMATION

APPENDIX B-1
AVAILABLE RESOURCES LIST

AVAILABLE RESOURCES LIST

Locally available equipment, labor, and materials:

Thompson Creek Mining Company has access to the following resources that can be utilized in the event of an emergency:

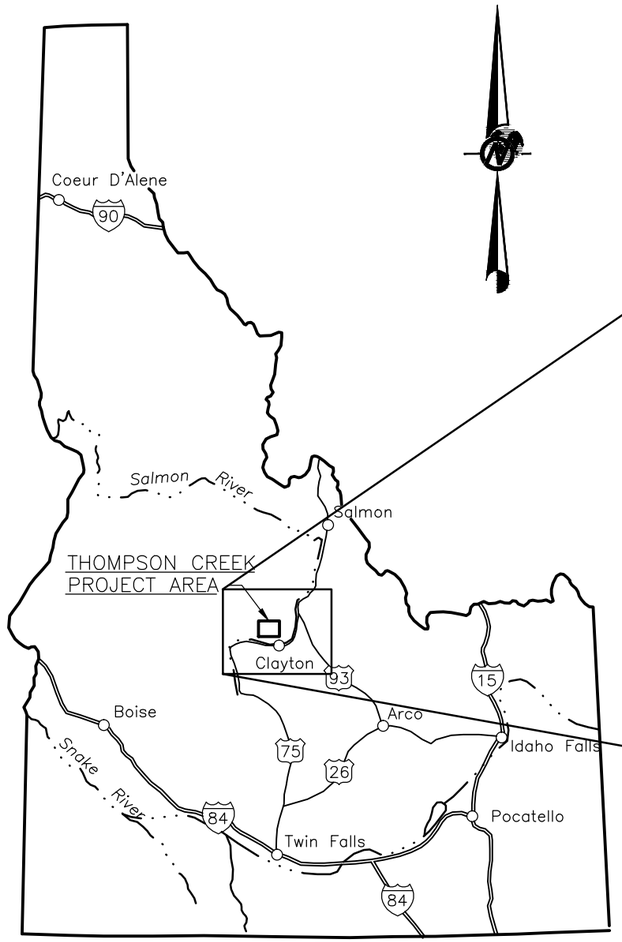
Two (2) Caterpillar 966 wheel loaders	One (1) Caterpillar 385 track excavator
One (1) Caterpillar 993 wheel loader	One (1) Caterpillar 14M motor grader
One (1) Caterpillar D-9 bulldozer	One (1) Caterpillar 16G grader
Three (3) Caterpillar D-10 bulldozers	Two (2) 15-cy haul trucks
One (1) Caterpillar D-11 bulldozer	One (1) Caterpillar 730 haul truck
Two (2) Caterpillar 235 track excavators	
One (1) Caterpillar 330 track excavator	

Other locally available resources include:

Heavy Equipment Contractor	**Sand and Gravel Supply**	**Ready-Mix Concrete Supply**
Westfall Construction 217 N. Daisy St. Salmon, Idaho 83467 (208) 756-4564	Challis Redi-Mix 95 Lagoon Ln. Challis, Idaho 83226 208-879-4381	Challis Redi-Mix 95 Lagoon Ln. Challis, Idaho 83226 208-879-4381
Pumps		
Rain for Rent 3615 Ririe Hwy. Idaho Falls, Idaho 83401 208-522-4500		

APPENDIX B-2

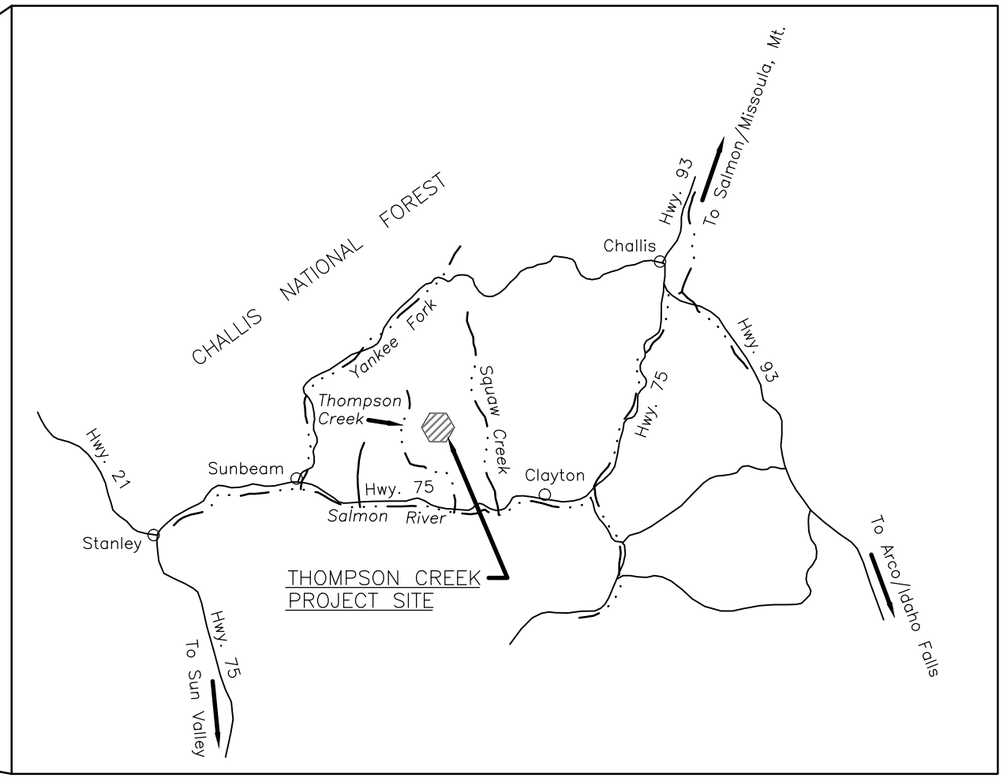
LOCATION AND VICINITY MAPS



VICINITY SITE MAP

80 0 80

SCALE MILES



LOCATION SITE MAP

10 0 10

SCALE MILES

PROJECT

THOMPSON CREEK MINING COMPANY
CUSTER COUNTY, IDAHO

TITLE

LOCATION AND VICINITY MAPS

Golder Associates
DENVER, COLORADO

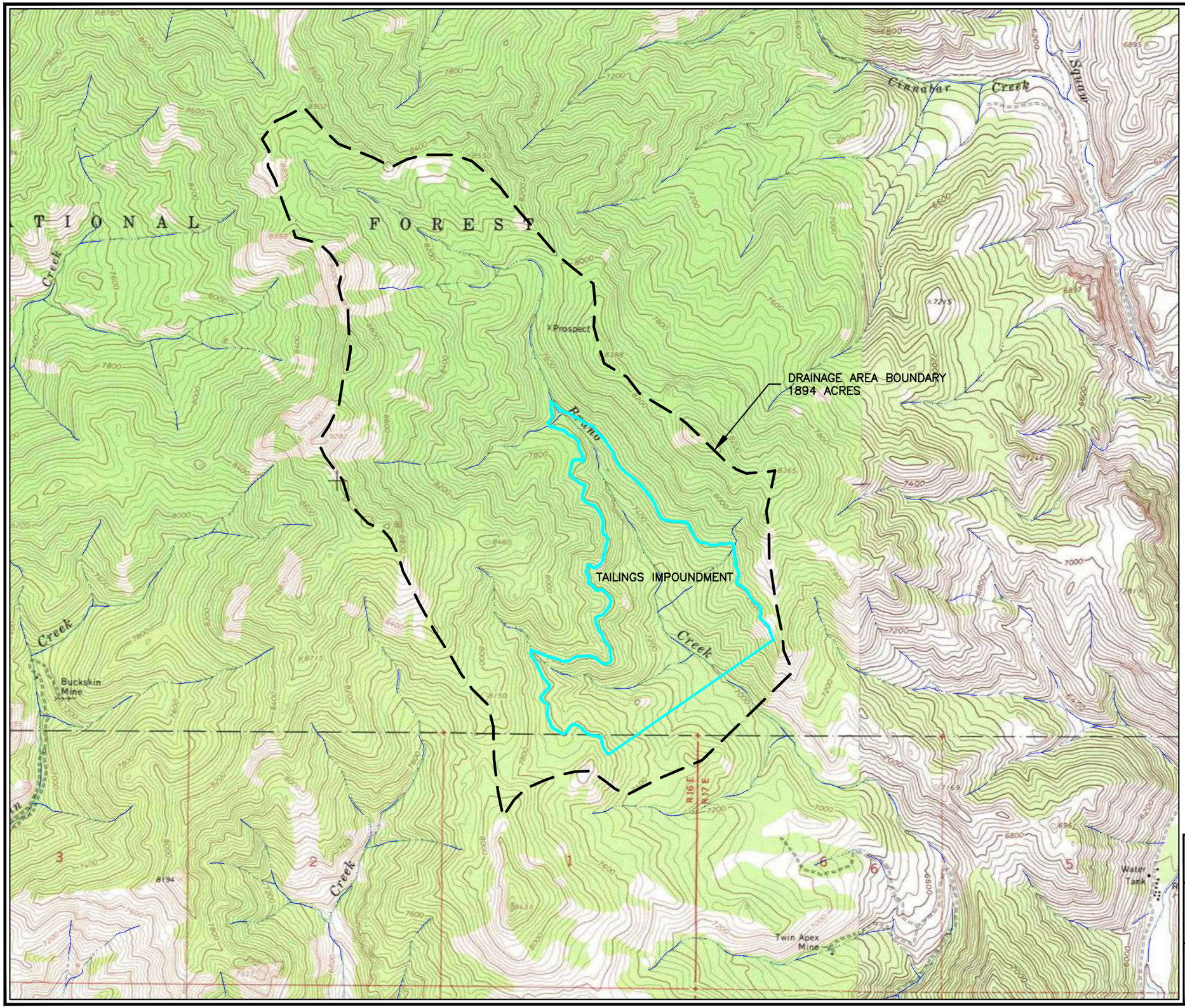
PROJECT No.		10381610B5	FILE No.	10381610C001
DESIGN	SWR	9/20/10	SCALE AS SHOWN	REV. C
CADD	MTM	10/1/10		
CHECK	JEO	3/23/15		
REVIEW	JMJ	3/23/15		

FIGURE B-2

Drawing File: N:\10\103-81610_C EAP\August 2013 Update\ 10381610C001.dwg | Layout: LOCATION AND VICINITY MAP | Modified: Sep 26, 2013 16:18 JObermeyer | Plotted: 03/23/15 12:22pm JObermeyer

APPENDIX B-3

WATERSHED MAP



LEGEND

- DRAINAGE AREA BOUNDARY
- TAILINGS IMPOUNDMENT LIMITS
- RIVER OR CREEK

REFERENCES

1. USGS 7.5–MINUTE TOPOGRAPHIC QUADRANGLE: THOMPSON CREEK AND CLAYTON.

2,000 0 2,000

SCALE FEET

PROJECT

THOMPSON CREEK MINING COMPANY
CUSTER COUNTY, IDAHO

TITLE

WATERSHED MAP

Golder Associates
DENVER, COLORADO

PROJECT No.		10381610B5	FILE No.		10381610C002
DESIGN	SWR	9/20/10	SCALE	AS SHOWN	REV. C
CADD	MTM	10/1/10			
CHECK	JEO	3/23/15			
REVIEW	JMJ	3/23/15			

FIGURE B-3

Drawing File: N:\10\103-81610\C EAP\August 2013 Update\ 10381610C002.dwg | Layout: WATERSHED MAP | Modified: Sep 26, 2013 16:18 JObermeyer | Plotted: 03/23/15 12:39pm JObermeyer

APPENDIX B-4

EVACUATION ROUTE MAP

LEGEND

- PRIMARY EVACUATION ROUTE
- SECONDARY EVACUATION ROUTE
- ROAD
- RIVER OR CREEK

REFERENCES

1. AERIAL PHOTOGRAPHY: USDA–FSA–APFO DIGITAL ORTHO MOSAIC – CUSTER COUNTY, IDAHO, 2009

4,000 0 4,000

SCALE FEET

PROJECT

THOMPSON CREEK MINING COMPANY
CUSTER COUNTY, IDAHO

TITLE

EVACUATION ROUTE MAP

Golder Associates
DENVER, COLORADO

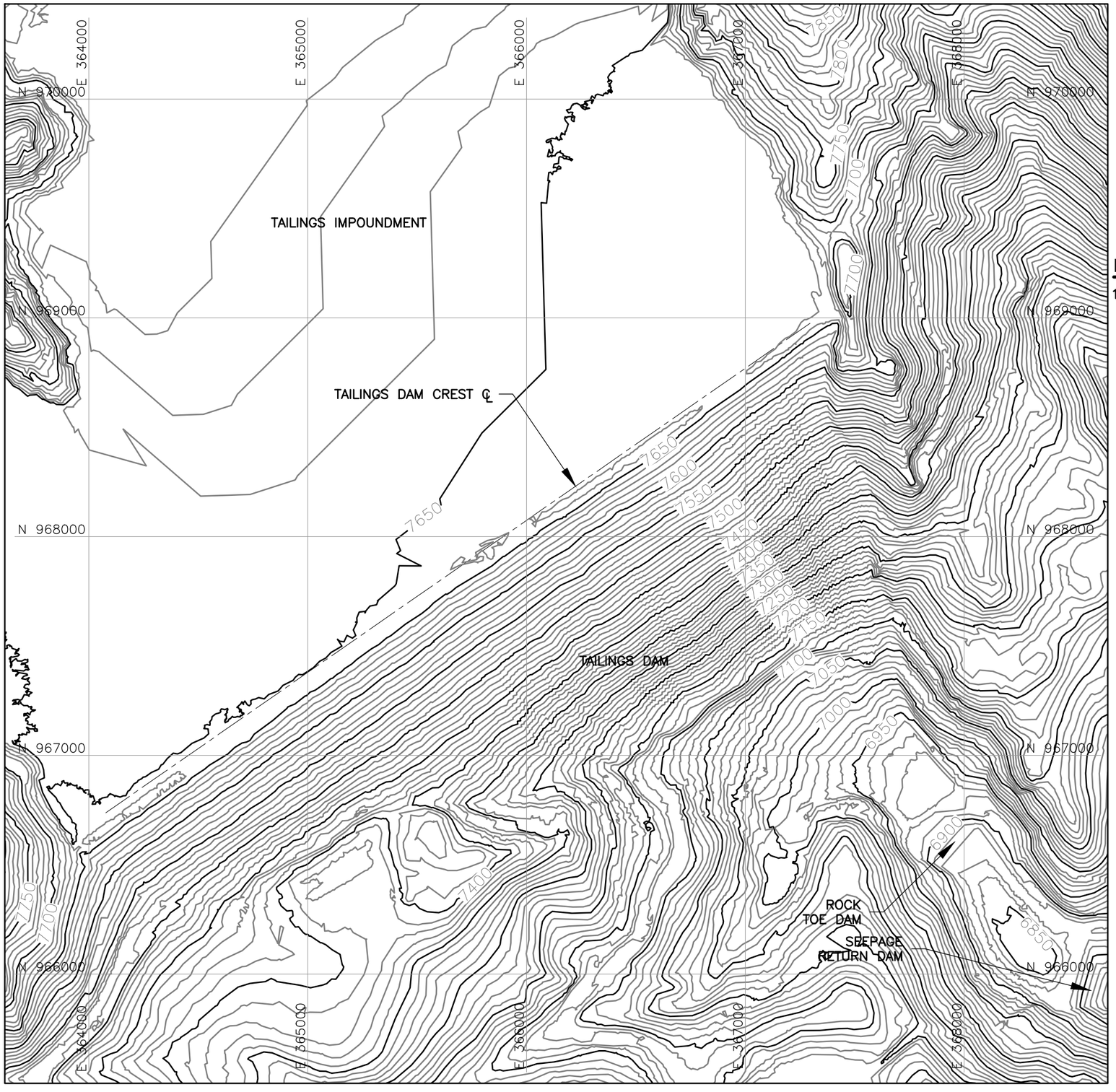
PROJECT No.		1038161085	FILE No.		10381610C003
DESIGN	SWR	10/14/10	SCALE	AS SHOWN	REV. C
CADD	MTM	10/14/10			
CHECK	JEO	3/23/15			
REVIEW	JMJ	3/23/15			

FIGURE B-4

Drawing File: N:\10\103-81610_C EAP\August 2013 Update\ 10381610C003.dwg | Layout: EVACUATION MAP | Modified: Mar 23, 2015 15:02 JObermeyer | Plotted: 03/23/15 3:03pm JObermeyer

APPENDIX B-5

PLAN VIEW OF DAM



LEGEND

7600 / 7550 — EXISTING TOPOGRAPHY (REFERENCE 1)

REFERENCES

1. BASE MAP TOPOGRAPHIC CONTOURS FROM 2009 PROVIDED BY THOMPSON CREEK MINING COMPANY. TAILINGS DAM CONTOURS FROM NOVEMBER 2014 PROVIDED BY THOMPSON CREEK MINING COMPANY.

500 0 500
SCALE FEET

PROJECT
THOMPSON CREEK MINING COMPANY
CUSTER COUNTY, IDAHO

TITLE
PLAN VIEW OF DAM

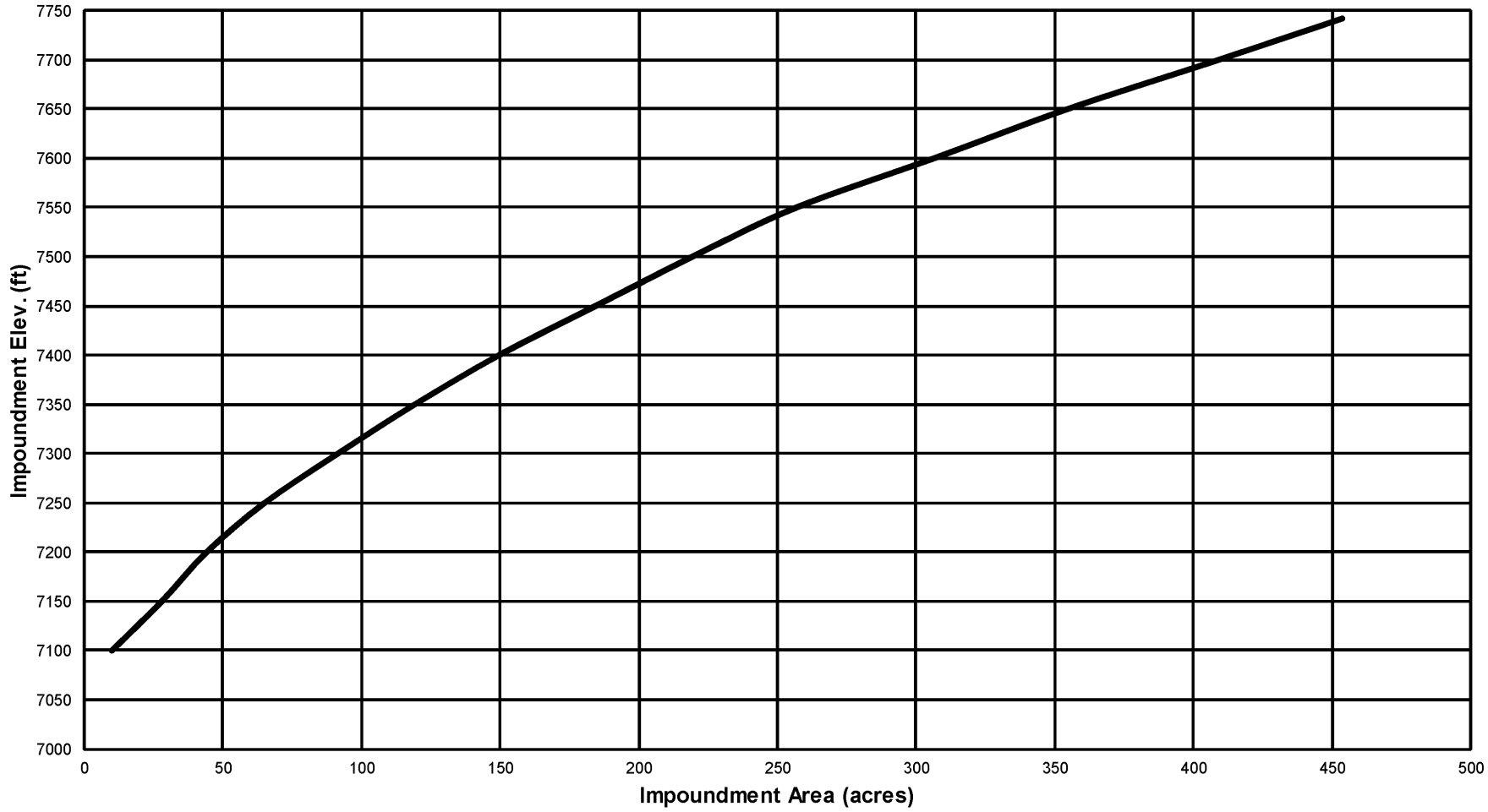
Golder Associates
DENVER, COLORADO

PROJECT No.		10381610B5	FILE No.		10381610C007
DESIGN	CCS	8/9/13	SCALE	AS SHOWN	REV. C
CADD	CCS	8/9/13	FIGURE B-5		
CHECK	JEO	3/23/15			
REVIEW	JMJ	3/23/15			

Drawing File: N:\10\103-81610_C EAP\August 2013 Update\ACAD2010\ 10381610C007.dwg | Layout: PLAN VIEW OF DAM | Modified: Mar 23, 2015 15:51 JObermeyer | Plotted: 03/23/15 3:53pm JObermeyer

Plot Time: 03/23/15 15:53

APPENDIX B-6
IMPOUNDMENT ELEVATION-AREA CURVE



PROJECT

THOMPSON CREEK MINING COMPANY
CUSTER COUNTY, IDAHO

TITLE

IMPOUNDMENT ELEVATION-AREA CURVE

Golder Associates
DENVER, COLORADO

PROJECT No.		10381610B5	FILE No.	10381610C005
DESIGN	SWR	9/20/10	SCALE AS SHOWN	REV. C
CADD	MTM	10/11/10		
CHECK	JEO	3/23/15		
REVIEW	JMJ	3/23/15		

FIGURE B-6

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

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