



# Appendix D

## Summary Tables of Previous and Pending Remedial Activities



**Table 1 Summary of Silver Bear Mines Remedial Activities: Past and Pending**

<b>RAP Component</b>	<b>Remedial Activities 2010-2016</b>	<b>Remedial Activities Pending - 2017 Onwards</b>
<b>Mine Openings</b>	None	17 Vertical openings (shafts and raises) will be closed using engineered caps. 12 Horizontal openings (portals and adits), 1 mined trench and 6 open stopes will be closed using waste rock backfills.
<b>Waste Rock</b>	None	<ol style="list-style-type: none"> <li>1. Terra Mine: Minimize drainage through the piles by diverting surface runoff flows around the waste rock, enhance natural attenuation of drainage (e.g. wetlands) and remove any non-hazardous or hazardous debris.</li> <li>2. Northrim: Relocate waste rock by the Camsell River to cover tailings at the Leachate Pond.</li> <li>3. Norex: Redirect mine drainage away from waste rock with open channel.</li> <li>4. Graham Vein: Use to backfill trench as necessary.</li> <li>5. Smallwood: Use potentially acid generating waste rock to backfill Graham Vein trench.</li> </ol>
<b>Tailings and Water Quality</b>	None	<ol style="list-style-type: none"> <li>1. Terra Mine-Ho Hum Lake Tailings Containment Area (TCA) Exposed Tailings: Exposed tailings covered with geotextile and waste rock.</li> <li>2. Terra Mine-Ho Hum Lake TCA Submerged Tailings: Leave the tailings in place and enhance the former Upper Wetland to "polish" discharges from the Ho Hum TCA.</li> <li>3. Northrim Exposed Tailings: Exposed tailings will be covered and the smelter waste excavated and disposed of at a licensed off site management facility.</li> <li>4. Northrim Submerged Tailings: Leave the tailings in the river in-situ and to restore the drainage to the former outlet of Hermandy Lake TCA.</li> </ol>
<b>Buildings and Equipment</b>	None	Demolish structures, manage non-hazardous debris in on-site landfill, ship hazardous debris off site to management facility and burn unpainted/untreated wood.
<b>Non-Hazardous Waste</b>	None	Non-hazardous surface debris, demolition debris and disposal site debris will be placed in a new non-hazardous engineered landfill at Terra Mine (proposed location the former camp/tank farm).
<b>Hazardous Waste</b>	Products from drums/tanks consolidated and transported for off-site disposal.	All hazardous materials will be shipped off site in accordance with the Transportation of Dangerous Goods Regulations (TDGR) to a licensed disposal facility. Sole exception is asbestos containing materials (ACMs) which will be double bagged and placed in one corner of the onsite landfill, clearly marked by the Contractor.
<b>Roads</b>	None	Remove the culverts (with DFO consultation) and allow the roads to naturally revegetate.
<b>Waste Disposal Sites</b>	None	Excavate old waste disposal sites and relocate the non-hazardous waste to the new landfill. Soil exceeding applicable criteria will be managed appropriately (off site or treated).
<b>Impacted Soils</b>	None	Soil exceeding site specific F1-F2 criteria will be excavated and treated on-site in windrow treatment areas (i.e. landfarm). Soil exceeding F3-F4 criteria will either be covered in place or excavated and placed in the non-hazardous waste landfill as intermediate fill. Small areas of soils associated with pesticides or hazardous material storage (e.g. batteries) will be excavated for off site disposal.
<b>Airstrips</b>	None	Smallwood airstrip left as is. Once Terra Mine airstrip is no longer required to service reclamation activities, consult with Transport Canada.
<b>Docks</b>	None	Remove the three docks (one each at Terra, Northrim and Norex), with minimal disturbance to the surrounding sediments and stabilize the shorelines. If soil around the docks are contaminated with hydrocarbons (e.g. Northrim), soil will be removed and treated as listed above.

**Table 2 Summary of Contact Lake Mine Remedial Activities: Past and Pending**

<b>RAP Component</b>	<b>Remedial Activities 2010-2016</b>	<b>Remedial Activities Pending - 2017 Onwards</b>
<b>Waste Disposal Area</b>	Surficial debris consolidated, sorted by classification (hazardous or non-hazardous) and burned if unpainted untreated wood. Debris stockpiles recorded. A total of 34 drums were transferred to Sawmill Bay for sampling, product consolidation, off site management of product and crushing of empty drums.	Excavate materials >0.5m depth. Transport non-hazardous debris to the Terra Mine Landfill.
<b>Buildings and Infrastructure</b>	Buildings were demolished (except the headframe, hoist house shed, quonset and outhouse). Wastes were consolidated and managed as combustible unpainted untreated wood (burned), non-hazardous waste (stockpiled) or hazardous waste (shipped off site).	Remaining buildings will be demolished and materials sorted. Unpainted and untreated wood will be burnt under an applicable permit. Non-hazardous waste will be transported to the Terra Mine Landfill. With the exception of ACMs, which will be double bagged for storage in the Terra Landfill, all other hazardous materials and burn ash exceeding criteria will be transported to licensed management facility.
<b>Mine Openings</b>	None	Vertical Openings (shaft and raise) will be capped, the adit backfilled and the open stope fenced.
<b>Waste Rock</b>	None	Cover where 10m x 10 m grid average exceeds 250 µR/hr. Improve drainage through grading and around the toe of the waste rock pile.
<b>Surface Tailings</b>	None	Cover exposed tailings and improve drainage to minimize surface water runoff contact with the tailings.
<b>East Arm Fuel Storage Area and Dock</b>	In 2010, the fuel storage tank was labeled with a unique identifier number.	Remove and containerize oily water in tank for off site disposal. Dispose of the tank, dock materials, boiler and equipment at the non-hazardous Terra Mine Landfill (if leachable lead levels in paint below criteria). Boiler with asbestos to be double bagged for management in Terra Mine Landfill.
<b>Hydrocarbon Impacted Soils</b>	None	Soil exceeding site specific F1-F2 criteria will be excavated and treated at El Bonanza/Bonanza (i.e. landfarm). Soil exceeding only F3-F4 criteria will be covered and graded.
<b>Miscellaneous Debris</b>	Surface debris was consolidated and sorted as combustible unpainted untreated wood (burned), non-hazardous waste (stockpiled) or hazardous waste (shipped off site).	Consolidate large debris and empty drums (for crushing) in the non-hazardous debris stockpiles. Transport non-hazardous debris to the Terra Mine Landfill. With the exception of ACMs, which will be double bagged for storage in the Terra Mine Landfill, all other hazardous materials remaining and burn ash exceeding applicable criteria transported to licensed off site management facilities.
<b>Roadways</b>	None	Remove any culverts (if encountered and with DFO consultation), leave the roads as is for natural revegetation.

**Table 3 Summary of El Bonanza/Bonanza Mine Remedial Activities: Past and Pending**

<b>RAP Component</b>	<b>Remedial Activities 2010-2016</b>	<b>Remedial Activities Pending - 2017 Onwards</b>
<b><i>Waste Disposal Area</i></b>	Surficial debris consolidated, sorted by classification (hazardous or non-hazardous) and burned (if unpainted untreated wood). Debris stockpiles recorded.	Transport non-hazardous debris stockpiles to the Terra Mine Landfill.
<b><i>Buildings and Infrastructure</i></b>	All buildings were demolished (except the head frame at both El Bonanza and Bonanza, building #2A Shop and cabin at Bear Portal). Wastes were consolidated and managed as combustible unpainted untreated wood (burned), non-hazardous waste (stockpiled) or hazardous waste (shipped off site).	Remaining buildings will be demolished and materials sorted. Unpainted and untreated wood will be burnt under an applicable permit. Non-hazardous waste will be transported to the Terra Mine Landfill. With the exception of ACMs, which will be double bagged for storage in the Terra Mine Landfill, all other hazardous materials and burn ash exceeding criteria transported to licensed off site management facilities.
<b><i>Mine Openings</i></b>	None	Install waste rock backfill seals of the adit at site and at Bear Portal, install engineered caps of two accessible vertical openings and cap the inaccessible #1 shaft in a safe manner
<b><i>Airstrip and Fuel Storage Tank Area</i></b>	In 2010, the fuel tanks were labeled with unique identifier numbers. A total of 76 empty drums from El Bonanza were moved to Sawmill Bay for crushing and approximately 108 drums remain on-site. Out of the 108, four drums with product were containerized in 2014 and removed in 2016.	Empty drums crushed (on or off site) and consolidated with surface non-hazardous debris. Tanks will be dismantled for management as hazardous or non-hazardous depending on leachable lead paint concentrations. Non-hazardous waste will be transported to the Terra Mine Landfill and hazardous materials to licensed off site management facilities.
<b><i>PCB and Hydrocarbon Impacted Soils</i></b>	PCB contaminated soil around a transformer at the powerhouse was collected and shipped to Yellowknife via Sawmill Bay for disposal	Soil exceeding site specific F1-F2 criteria will be excavated and treated on site (i.e. landfarm). Soil exceeding only F3-F4 criteria will be covered and graded.
<b><i>Miscellaneous Debris</i></b>	Surface debris was consolidated and sorted as combustible unpainted untreated wood (burned), non-hazardous waste (stockpiled) or hazardous waste (shipped off site).	Consolidate large debris and empty drums (for crushing) in the non-hazardous debris stockpiles. Transport non-hazardous debris to the Terra Mine Landfill. With the exception of ACMs, which will be double bagged for storage in the Terra Mine Landfill, all other hazardous materials remaining and burn ash exceeding criteria transported to licensed off site management facilities.
<b><i>Roadways and Culverts</i></b>	None	Remove any culverts and leave the roads as is for natural revegetation (including designed removal of culvert linking Mile Lake and Silver Lake, with DFO consultation)

**Table 4 Summary of Sawmill Bay Remedial Activities: Past and Pending**

<b>RAP Component</b>	<b>Remedial Activities 2010-2016</b>	<b>Remedial Activities Pending - 2017 Onwards</b>
<b><i>Buildings and Infrastructure</i></b>	Boarded to restrict access.	Buildings will be demolished and materials sorted. Unpainted and untreated wood will be burnt under an applicable permit. Non-hazardous waste will be transported to the Terra Mine Landfill. With the exception of ACMs, which will be double bagged for storage in the Terra Mine Landfill, all other hazardous materials and burn ash exceeding criteria will be transported to licensed off site management facilities.
<b><i>Impacted Soils</i></b>	Small spill areas from current activities were excavated and placed in containment for off site management.	Soil exceeding site specific F1-F2 criteria will be excavated and treated on site (i.e. landfarm). Soil exceeding only F3-F4 criteria will be covered and graded. Small areas of soils associated with pesticides or hazardous material storage will be excavated for off site disposal.
<b><i>Drum Caches, Fuel Storage Tanks and Residual Fuels</i></b>	Fuel products in drums at Sawmill Bay (and those transferred from Contact Lake and El Bonanza/Bonanza) were tested and consolidated for off site management (transported off site in 2016). Once liquid product drained, drums were washed and crushed. A total of 10,425 drums were crushed and stockpiled.	Crushed drums and fuel storage tanks (with leachable lead levels below criteria) will be transported to the non-hazardous landfill at Terra Mine for disposal.
<b><i>Designated Substances/Hazardous Materials</i></b>	Surface debris classified as hazardous was collected and consolidated in a temporary hazardous debris stockpile and transported to Yellowknife for disposal. A stockpile of car batteries and paint cans remain at site.	Consolidate any remaining surface materials as well as those removed from buildings/infrastructure during demolition. With the exception of ACMs, which will be double bagged for storage in the Terra Mine Landfill, all other hazardous materials will be transported to licensed off site management facilities.
<b><i>Waste Disposal Areas</i></b>	Surface debris was consolidated and sorted as combustible unpainted untreated wood (burned), non-hazardous waste (stockpiled) or hazardous waste (shipped off site).	Excavate debris >0.5 m depth and consolidate in the non-hazardous debris stockpiles. Transport non-hazardous debris to the Terra Mine Landfill.
<b><i>Machinery, Heavy Equipment and Miscellaneous</i></b>	None	Consolidate and transport to Terra Mine Landfill (subject to confirmation of leachable lead levels in any paint applications).
<b><i>Submerged Debris</i></b>	None	Consolidate and transport to Terra Mine Landfill. Barge to be left as is pending assessment/management by Atomic Energy Canada Limited (AECL).
<b><i>Surface Water, Sediment and Groundwater</i></b>	None	Remove surface debris and contaminated soil to reduce contaminant loadings (activities discussed above within Waste Disposal Areas and Impacted Soils).
<b><i>Roadways and Airstrip</i></b>	None	Remove culverts and leave roadways and airstrips as is to continue natural revegetation.