

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

ORDER No. R2-2013-0024

SITE CLEANUP REQUIREMENTS for:

GUADALUPE MINE
GUADALUPE RUBBISH DISPOSAL COMPANY, INC.
SAN JOSE, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Water Board), finds that:

NAMED PARTIES AND LOCATION

1. **Owner, operator, and discharger named:** Guadalupe Rubbish Disposal Company, Inc., (hereinafter called the Discharger) is named as a discharger because it is the current owner of 411 acres located approximately at 15999 Guadalupe Mines Road (Site) (Figure 1) from which there is an ongoing discharge of pollutants. The Discharger has knowledge of the discharge or the activities that caused the discharge, and it has the legal ability to control the discharge, in accordance with California Water Code (Water Code) section 13304. If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the Site where it entered or could have entered waters of the State, the Water Board will consider adding those parties to this Order.
2. **Location:** The Guadalupe Mine (Mine) is located at 15999 Guadalupe Mines Road, in south San Jose, approximately four miles southeast of the City of Los Gatos. The Mine is located on Los Capitancillos Ridge, contiguous with the New Almaden Mining District, but because of separate ownership, it has retained a distinct name. The Mine is located along Guadalupe Creek.

PURPOSE OF ORDER

3. The objective of this Order is to abate discharges of mercury mining waste. This Order implements the Guadalupe River Watershed Mercury TMDL, adopted October 8, 2009 (see findings 16, 16, 17, and 18). The TMDL and its associated Staff Report describe the threat to water quality posed by mercury in general and discharges from the Discharger's property (see Finding 17). Mercury mining waste is present on the Discharger's property and is discharging, or threatening to discharge, to waters of the State. On October 18, 2007, Water Board staff inspected the Mine and observed mercury mining waste piles with steep, unvegetated, raveling slopes above Guadalupe Creek. In April 2008, GRDC submitted a *Work Plan for Stormwater Best Management Practices* to the Water Board that includes photographs of these actively eroding slopes.

The Discharger has been working with the Water Board to minimize the discharge of mining wastes from the Site into the creek. However, these Site Cleanup Requirements are necessary to clarify the cleanup process and applicable Title 27 requirements.

This Order does not preclude the possibility that the Water Board may determine that the Discharger must take additional mercury cleanup actions as necessary to protect water quality.

SITE DESCRIPTION

4. The Discharger owns and operates the Guadalupe Recycling and Disposal Facility (the Landfill) on the 411-acre site, 115 acres of which is permitted for waste disposal of Class III municipal refuse. The Mine is located on the southeastern portion of the Site and bounded by Guadalupe Creek to the southwest (Figures 2 and 3).
5. Numerous mine-related facilities are present on the Site, primarily on the southeastern portion of the Site, including standing buildings and structures; mining shafts, tunnels, and roads; a concrete flume (also known as the U-frame channel); and piles of mercury mining wastes (i.e., processed ore, unprocessed ore, overburden, and other wastes), including extensive piles along the eastern bank of Guadalupe Creek. According to Bailey & Everhart (USGS Professional Paper 360, 1964), dewatering began at the Mine after 1889. In 1917, mining operators lined Guadalupe Creek with “a concrete flume 740 feet long and 55 feet wide, and with side walls 9 feet high.” This flume, and some additional concrete walls and newly-installed fish passage improvements in the flume bottom, are still present. Nearly all of the Mine is located at the Site (see Finding 7).
6. The Mine operated between the mid-1800s and mid-1900s with possible intermittent, sporadic operations until approximately 1975. Mining waste at the Site has a potential to erode and discharge potentially mercury-laden sediment to Guadalupe Creek and its tributary streams. Mining wastes have eroded from the Site and been transported by stormwater and creek flow downstream. Some of these mining wastes are visually apparent in the creek bed and banks for 300 feet downstream of the U-frame channel in Guadalupe Creek and may extend to the southwest on property owned by Midpeninsula Regional Open Space District. The Discharger has taken interim remedial actions to minimize the discharge of mining wastes. These Site Cleanup Requirements are necessary to clarify the cleanup process and schedule. In the future, revisions to these Site Cleanup Requirements may be necessary to address mining wastes in Guadalupe Creek and other surface waters.

SURROUNDING SITES

7. The Site is surrounded by residential properties to the north, commercial properties to the west, open space (owned by the Midpeninsula Open Space District) to the southwest, and park land (Santa Clara County New Almaden Quicksilver Park) to the south and east (Figure 1). A portion of the Midpeninsula Regional Open Space District’s property is located adjacent to Guadalupe Creek. A few Guadalupe Mine-related facilities are located on the western side of Guadalupe Creek on property owned by the Midpeninsula Regional Open Space District. These facilities include Hicks Flat, Engine Shaft, and Lamb Shaft. Erosion of mining wastes from these facilities has been or is being addressed by separate Water Board actions. The New Almaden Mining District, upstream of the Mine, was the largest-producing mercury mine in North America; a

portion of this mining district drains to Guadalupe Creek and Guadalupe Reservoir. Guadalupe dam, which forms Guadalupe Reservoir, was built in 1935, about 25 years after mercury mining had peaked.

SURFACE WATERS AND PRECIPITATION

8. The Site straddles the Los Capitancillos Ridge and hence drains both to the west and to the east. Guadalupe Creek and an ephemeral, unnamed tributary are the principal drainages of the western side of the Site, while the eastern side of the Site drains into McAbee Creek and an ephemeral, unnamed tributary in New Almaden Quicksilver Park. Runoff from the Landfill collects in ponds and discharges intermittently to these creeks through channels and pipes (sedimentation ponds on Figure 2). Runoff flow patterns have been mapped for most of the Mine area. Most upland Mine areas lie within three drainage basins that flow to ponds constructed in the mining era and that flow intermittently overland to Guadalupe Creek (ponds A through F on Figure 2). Ponds constructed in the mining era provide important habitat to wildlife species but are a potential source of mercury discharges to Guadalupe Creek. Creekside areas containing mining waste drain directly to Guadalupe Creek and are also a potential source of mercury.

Approximately a mile and a half downstream from the Site, percolation ponds along Guadalupe Creek upstream of its confluence with Alamitos Creek facilitate recharge of the region's groundwater. As such, mercury discharges pose a threat to municipal drinking water.

9. The mean annual precipitation for the Site is about 25 inches. The 2-year, 10-year, 25-year, and 100-year 24-hour storm events are estimated to be 3.0, 5.1, 6.1, and 7.6 inches respectively.

BENEFICIAL USES OF SURFACE WATER

10. The surface water on or near the Site includes Guadalupe Creek and ponds constructed in the mining era. The beneficial uses of these water bodies include: Cold Freshwater Habitat (COLD); Freshwater Replenishment (FRSH); Groundwater Recharge (GWR); Fish Migration (MIGR); Municipal and Domestic Supply (MUN); preservation of Rare and Endangered Species (RARE); Water Contact Recreation (REC1); Noncontact Water Recreation (REC2); Fish Spawning (SPWN); Warm Freshwater Habitat (WARM); and Wildlife Habitat (WILD). Of the many beneficial uses listed above, only human consumption of fish (REC1) and wildlife consumption of fish (RARE and WILD) are impaired by mercury.

REGULATORY HISTORY

11. In 2007, the Water Board issued a Water Code section 13267 order requiring submittal of a technical report addressing stormwater management associated with the Mine.

In 2009, the Water Board issued a Water Code section 13267 order that superseded the 2007 order and required the Discharger to inventory and evaluate erosion of mercury mining wastes. The Discharger provided quarterly progress reports in accordance with

the 2007 order through December 2012. The Discharger has largely complied with the 2009 order by submitting reports in December 2010, April 2011, and July 2011. These reports inventoried mining waste sites on the Site. An outstanding question is whether or not the Mine, i.e., mining shafts and tunnels, extend over the top of Los Capitancillos Ridge down to the northeastern portion of the Site (p. 34, 2011 archeological survey).

12. The Discharger is covered under Waste Discharge Requirements and Self-Monitoring Program Order No. R2-2011-0037 for the Landfill and its related industrial operations.
13. The Discharger is covered under the State Water Resources Control Board's (State Water Board's) most recent General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit), having filed a notice of intent in 1991. The facility's waste discharge identification (WDID) number is 243S007368.
14. Pursuant to the General Permit, the Discharger conducts visual site inspections during both the wet and dry seasons to ensure stormwater BMPs in the Mine area function effectively. During the wet season (October–May), the Discharger undertakes visual inspections of the stormwater discharge locations during at least one storm event per month, provided the visual inspections occur (1) during the first hour of discharge at all discharge locations, (2) during daylight hours that are preceded by at least three (3) working days without stormwater discharges, and (3) during scheduled facility operating hours. The Discharger undertakes additional visual inspections of discharges from the Mine area if rainfall exceeds 3 inches in 24 hours. If erosion occurs in the Mine area, the Discharger will evaluate and implement additional BMPs, as appropriate. The Discharger reports on this work in its annual report submitted pursuant to the General Permit. In 2008, in response to an October 2007 site inspection by Water Board staff, the Discharger prepared a *Workplan for Storm Water Best Management Practices, Guadalupe Recycling and Disposal Facility (Workplan)*; revised September 2010). The 2010 *Workplan* identified ten sites of concern and proposed BMP implementation to occur in two phases: first at five sites that do not require permits because the work can be completed by hand methods and ground crews without the need for heavy equipment, and later at five sites where the work will require permits. The *Workplan* does not include the entire footprint of the Mine area. The first phase of this work has been implemented and, in late 2010, the Discharger installed interim erosion control BMPs at the Phase 2 sites.

BASIN PLAN

15. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Water Board, U.S. EPA, and the Office of Administrative Law where required.
16. Basin Plan Section 7.7.1 presents *Total Maximum Daily Loads for Mercury in Waters of the Guadalupe River Watershed* (TMDL). The TMDL is designed to attain mercury water quality objectives.

- 17.** The TMDL implementation plan (Basin Plan Section 7.7.1.6) “establishes requirements for responsible parties to reduce or control mercury loads using available technology.” The Plan states that “mercury mining waste control actions are phased so that mercury discharges from upstream will be eliminated or significantly reduced before downstream projects are undertaken. Erosion control actions at mercury mines shall be completed within the first 10 years (Phase 1).” Stormwater erosion control BMPs are appropriate, available and cost effective technology used to reduce or control mercury loads from mining waste. Further, stormwater erosion control BMPs comply with the TMDL goal “to prevent excessive erosion of mercury mining waste by stabilizing and vegetating slopes” (TMDL Staff Report, p. 9-7). Additional remedial actions may be necessary in some cases, such as “excavate, stockpile, haul, and consolidate mercury mining waste in engineered, onsite capped/covered waste management units” (TMDL Staff Report, Table 9.2, p. 9-12). The Water Board will work with the Discharger to evaluate the effectiveness, feasibility, and relative costs of alternative methods of cleaning up the mining waste.

Mercury transport, methylation, biological uptake, and bioaccumulation into fish are described in the TMDL Staff Report (Section 7). For mercury to be methylated, it must first be available in its dissolved form. For dissolution to occur, mercury must first be transported to the aquatic environment, i.e., “discharged”. Keeping mercury mining waste on the landscape and out of the aquatic environment prevents methylation, biological uptake, and bioaccumulation.

Calcines [i.e., heat processed ores] present a greater threat to water quality than other mining wastes. Researchers have found that some mercury invariably remains in the calcines, and impurities incorporated during roasting can enhance mercury solubility compared to non-roasted mining wastes. (Ganguli et al., Mercury Speciation in Drainage from the New Idria Mercury Mine, California, *Environmental Science and Technology*, 2000, 34, 4773-4779). Calcines are present at the Site and pose a threat to the beneficial uses of Guadalupe Creek.

- 18.** The TMDL incorporates adaptive implementation to achieve the goals of (a) reducing risk to human health and to ecological receptors, and (b) restoring the beneficial uses of surface water on, adjacent, and downstream of the Site. If, in the future, evidence indicates that implemented remedial actions are not sufficiently effective in reducing or controlling mercury loads from the Site, then the Water Board may determine that further cleanup actions should be taken. Conversely, if full restoration of beneficial uses is not technologically or economically achievable within a reasonable period of time, the Discharger may request that the Water Board re-evaluate the TMDL and associated implementation plan.
- 19.** The TMDL directs the Water Board to require water quality monitoring (Basin Plan Section 7.7.1.6). Parties responsible for discharges from mercury mines are required to monitor to evaluate the following:
- (a) effectiveness of erosion control measures;
 - (b) mercury loads discharged annually to waters of the State at the points of discharge;

- (c) fish bioaccumulation of mercury in waters downstream of the discharge;
- (d) mercury loads discharged annually to San Francisco Bay; and
- (e) factors that contribute to methylmercury production and bioaccumulation in creeks and rivers.

The responsible parties may alternatively participate in a coordinated watershed monitoring program to address monitoring requirements (c, d, and e, above); and the Water Board may consider waiving or reducing monitoring requirement (b), on an individual basis, based on progress on abating discharges of mining waste and participation in an approved coordinated watershed monitoring program.

MONITORING

- 20.** The Discharger is a member of the Guadalupe River Coordinated Mercury Monitoring Program (Program). In 2011, the Water Board issued a Water Code section 13267 order to Program participants requiring submittal of a technical report addressing monitoring for requirements (c) and (d), through the year 2016. The Santa Clara Valley Water District is addressing special study requirement (e). Thus the TMDL requirements for monitoring identified in Finding 19 (b) through (e) may be satisfied through 2016 by participation in a coordinated monitoring program. After 2016, or sooner if the coordinated monitoring program ceases, the Water Board may reconsider the scope of water quality mercury monitoring, and revise monitoring required of the Discharger. This Order addresses the TMDL monitoring requirements identified in Finding 19 (a).

WATER BOARD POLICIES

- 21. Water Board Policies:** Water Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels.
- 22. State Water Board Policies:** State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. This Order and its requirements are consistent with Resolution No. 68-16.

State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge. This Order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

- 23.** It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and

sanitary purposes. The mercury discharges from this Site shall not cause drinking water to exceed maximum contaminant levels (0.002 mg/L) designed to protect human health and ensure that water is safe for domestic use. This Order promotes the policy by requiring the Discharger to take actions that will further improve the condition of the adjacent creeks, reducing erosion and transport of mercury-containing sediment to sources of drinking water.

REGULATORY AUTHORITY

- 24. Basis for Water Code section 13304 Order:** Water Code section 13304 authorizes the Water Board to issue orders requiring a discharger to clean up and abate waste where the discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.
- 25. Cost Recovery:** Pursuant to Water Code section 13304, the Discharger is hereby notified that the Water Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order. These costs include the costs incurred by the Water Board to prepare this Order.
- 26.** Hazardous waste is regulated by the federal Resource Conservation and Recovery Act (RCRA). In October 1980, RCRA was amended by adding section 3001(b)(3)(A)(ii), known as the Bevill exclusion, to exclude “solid waste from the extraction, beneficiation, and processing of ores and minerals” from regulation as hazardous waste under Subtitle C of RCRA.” Mining waste is nonetheless considered a “Non-RCRA Hazardous Waste” under state law if it exhibits hazardous waste characteristics, including the characteristic of toxicity under Article 3 of Chapter 11 of Title 22 of the California Code of Regulations. (Cal. Code Regs., tit 22, § 66261.101(b)(2).)
- 27.** In California, discharges of mining wastes are subject to the requirements of Title 27 of the California Code of Regulations, section 22470 *et seq.* For some provisions, the Water Board has discretion in determining site-specific requirements. The following will be considered in approving remedial actions and cleanup plans for this Site (Cal. Code Regs., tit. 27, § 22470 *et seq.*).
- (a) Engineered alternatives to prescriptive closure design requirements are described in Title 27 section 20080(b) (as referenced in section 22470(a)). Erosion Control and Stormwater BMPs are engineered alternatives used at other mercury mine sites that may be appropriate if the prescriptive closure design requirements for final cover over mining waste are not necessary to achieve compliance with the Basin Plan (Cal. Code Regs., tit. 27, § 20080(b)(1)) or are impractical and will not promote attainment of applicable performance standards (Cal. Code Regs., tit. 27, § 21090). Performance standards for this Site are identified in the TMDL (see Finding 17) (Cal. Code Regs., tit. 27, § 20080(c)(2)). Any proposed engineered alternative must be consistent with the performance goal addressed by the prescriptive design standard.

- (b) Mining waste at the Site may be classified as Group B mining waste because it contains mercury at hazardous waste levels and has no acid-generating potential. (Cal. Code Regs., tit. 27, § 22480(b)(2).) This classification would be consistent with geologic interpretations of the surrounding area but needs to be verified. In the New Almaden Mining District, the mercuric-sulfide mercury ore is found in silica-carbonate host rock. The host rock provides buffering capacity for the sulfur in the ore and pH creek water samples generally ranges from 7 to 9. Because of these intrinsic properties, mining waste is readily containable by less stringent measures. (Cal. Code Regs, tit. 27, § 22480(c).)
- (c) Title 27 siting requirements require that remedial actions be designed to protect from 100-year peak stream flow to the extent feasible (Cal. Code Regs., tit. 27, § 22470(a), Table 1.1, Table 1.2, § 22490(b), and § 20090(d).)
- (d) Title 27 construction requirements state that remedial actions shall be designed to provide precipitation and drainage controls for one 10-year, 24-hour storm to the extent feasible. (Cal. Code Regs., tit. 27, § 22470(a), Table 1.1, § 22490(h), and § 20090(d).)
- (e) Title 27 requirements concerning registered professionals require that the stormwater BMPs shall be designed by a registered civil engineer and construction shall be supervised and certified by a registered civil engineer or a certified engineering geologist. (Cal. Code Regs., tit. 27, § 22490(d).)
- (f) The Water Board retains its authority to re-consider imposing additional requirements and/or prescriptive closure design standards at a future date if evidence indicates a need for additional protective measures. Waste pile closure standards referenced herein are specified in the Title 27 section 22510(j), and include prescriptive final cover requirements in section 21090(a).

CALIFORNIA ENVIRONMENTAL QUALITY ACT

- 28.** This action is to enforce the laws and regulations administered by the Water Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Title 14 of the California Code of Regulations, section 15321.
- 29.** In addition, the City of San Jose Planning Department prepared and certified a Mitigated Negative Declaration (State Clearinghouse Number 201211037) on March 29, 2013 , for the Discharger's Guadalupe Mines Landfill Creek Bank Stabilization Project (City project No. PDA93-018-02). This SCR requires construction of remedial actions necessary to minimize the discharge of mercury mining wastes into surface water. These construction activities are subject to San Jose permits and have been evaluated in the Mitigated Negative Declaration. The Water Board, as a responsible agency under CEQA, finds that all environmental effects have been identified for project activities that it is required to approve, and that the Project will not have significant adverse impacts on

water quality provided that the activities in this SCR and associated monitoring is carried out as conditioned in this Order.

30. The actions taken in response to this Order will contribute to the restoration and enhancement of a natural resource and protection of the environment. (Cal. Code Regs., tit. 14, §§ 15307 and 15308.)

NOTIFICATION AND PUBLIC MEETING

31. The Water Board has notified the Discharger and interested agencies and persons of its intent to issue Site Cleanup Requirements (SCRs) and has provided them with an opportunity to submit their written comments and recommendations.

IT IS HEREBY ORDERED pursuant to the authority in Water Code section 13304 that the Discharger, its agents, successors, and/or assigns shall clean up and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous substances in a manner that will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
2. Significant transport of mercury mining wastes via stormwater or mass wasting to waters of the State is prohibited.
3. Activities associated with investigation and cleanup that cause or contribute to a discharge of wastes or hazardous substances are prohibited.

B. TASKS

1. **WORKPLAN TO EVALUATE SITE SOURCES OF MERCURY TO SURFACE WATERS**

COMPLIANCE DATE: December 30, 2013

The Discharger shall develop a Mercury Sources Workplan, acceptable to the Executive Officer, to evaluate the sources of mercury from mining waste, in particular from calcines, to surface waters. The Mercury Sources Workplan shall supplement the previous investigations and reports (see Finding 11). The purpose of the mercury sources evaluation work is to inform the *Workplan for Storm Water Best Management Practices* (*Workplan*, see Finding 13). The Mercury Sources Workplan must include, but shall not be limited to:

- (a) A plan to map sources of mercury to surface waters, including site drainage paths and potential transport of sediment from mining waste. The plan must include the scope for preparing:
 - (i) A map of (a) surface water flow paths, including those with the potential to erode mercury mining wastes on the Site, (b) all eroding or potentially eroding mercury mining wastes on the Site, with background graphics of former mining operations, waste piles, and facilities similar to Figure 3 from Stantec 2010. The

map of surface runoff should be prepared using current topography with subsequent field verification of the identified flow paths, and all stormwater control measures and BMPs. The map should also include the existing system of sedimentation and infiltration ponds and identify drainage pathways (i.e., channelized flow) to discharge points into surface waters (see Finding 8). The surface drainage map would be overlain with the existing geologic maps showing the location of mining wastes, and cultural mapping of former mining operations, waste piles, and facilities. This task should also include updated field inspection and mapping of identified areas of excessive erosion, or potential areas of erosion, in areas of mapped mining waste and calcines in particular. The map must also provide an associated narrative sufficient to describe and support the map. Additionally, the map and associated narrative should resolve whether the Mine extends over the top of Los Capitancillos Ridge down to the northeastern portion of the Site (see Finding 11). The map and associated narrative must also include evaluation of former mining areas within the landfill footprint, describe current site conditions, and discuss whether there is cause for concern that mercury mining wastes are eroding or have potential to erode and be transported by stormwater to surface waters;

- (ii) A map of streambank materials on the eastern bank of Guadalupe Creek, from upstream to downstream, and from the center line of the Creek to the top of the eastern bank on or contiguous to the Site. Segments must be denoted each time there is a change in material along the creek or up the bank. Within each segment, the percentage of native stream terrace deposits and/or mining waste must be estimated, and if mining waste is identified, then the approximate percentage of calcines [i.e., heat processed ores] in the waste must be estimated (see Finding 17). Also within each segment, the potential for mercury mining wastes to erode (e.g., gullies and surface erosion from stormwater, discharge from seeps, slumps, or landslides) into surface waters must be evaluated. If there is cause for concern that mercury mining wastes located within the landfill footprint may be eroding or have potential to erode, then the plan must characterize these materials using similar procedures as for streambank materials;
 - (iii) Collect grab samples of mercury mining wastes on the Site and analyze for total mercury concentration. In addition, characterize a subset of samples to verify that Group B mining waste classification is appropriate;
- (b) An evaluation of whether ponds are a source of mercury to downstream waters (see Finding 8). This must include, but should not be limited to:
- (i) Characterization of the mercury concentration(s) of sediments in ponds A – F. Collect surface grab samples of sediment and analyze fines less than 63 microns in diameter for total mercury concentration; and
- (c) A schedule for implementation of the Mercury Sources Workplan.

2. REPORT RESULTS OF EVALUATION AND REVISE WORKPLAN FOR STORM WATER BEST MANAGEMENT PRACTICES

COMPLIANCE DATE: December 30, 2014

Submit a report, which details the results of Task 1 and proposes as needed revisions to the *Workplan* to control the discharge of mining waste to surface waters, and address any additional sites identified in Task 1. The revised *Workplan* must include, but should not be limited to:

- (a) Revised or new designs for remedial actions, as appropriate, for control of mercury mining waste discharges and, if needed, to control discharges of mercury from ponds.
 - (i) Protect mining waste from peak streamflow in Guadalupe Creek, as specified in Finding 27(c);
 - (ii) Stormwater BMPs shall provide precipitation and drainage controls as specified in Finding 27(d);
 - (iii) Minimize discharges of mercury from ponds and retain habitat for wildlife (see Finding 8); and
 - (iv) Describe disposal plans for cut mining wastes;
- (b) Specify a performance goal for plants and soil bioengineering systems of no less than 85 percent plant survival (percentage as compared to the as-built plans) within 5 years of planting, or equivalent measure (see Finding 17). Further, plants that do not survive to thrive within a three year period following their planting must be replaced; and
- (c) Revised figures of Stormwater Collection and Flow to Creeks (Figure 2 herein) and Former Mining Operations, Waste Piles, and Facilities Map (Figure 3 herein).
 - (i) Figure 2 must be revised to indicate (a) drainage conveyances and pathways for the entire property, including the northwest portion of the Site, and (b) 300- foot-long stretch of mining waste in Guadalupe Creek downstream of U-frame channel (refer to *Mercury Mine Waste Erosion Inventory: Rancho De Guadalupe Area Sierra Azul Open Space Preserve*, Revised, April 2011 available at http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/guadalupe/rivermercurytml.shtml); and
 - (ii) Figure 3 must be revised to indicate (a) U-frame channel, (b) 300- foot-long stretch of mining waste from 2(c)(i)(b), and (c) furnace yards (refer to Slide 15 in Michael Cox's letter dated 29Aug2012).

The revised *Workplan*, acceptable to the Executive Officer, shall be submitted by the compliance date.

3. IMPLEMENT REVISED WORKPLAN

COMPLIANCE DATE: December 31, 2015

The Discharger shall implement the revised *Workplan*, acceptable to the Executive Officer, by the compliance date.

4. REPORT ON COMPLETION OF REMEDIAL ACTIONS

COMPLIANCE DATE: March 30, 2016

The Discharger shall complete a report that documents the completion of necessary tasks identified in the revised *Workplan* described above. The report shall include at least the following components, as follows:

- (a) Description of construction and any variance(s) from revised *Workplan*;
- (b) Site map with the photo survey points clearly shown;
- (c) Immediate post-construction photo documentation for each area where erosion control BMPs have been implemented; and
- (d) As-built plans illustrating at a minimum, the following components for each area where erosion control BMPs are implemented:
 - (i) Final topography and limits of construction;
 - (ii) Permanent photo points;

Additionally, the as-built plans must show at least the following components for each area where erosion control BMPs are implemented below ordinary high water in Guadalupe Creek, as follows:

- (iii) Survey monument points located not less than 10 channel widths apart on Guadalupe creek; and
- (iv) Cross-sections and profiles of the channel, floodplain, and terraces.

The report, acceptable to the Executive Officer, shall be submitted by the compliance date.

5. DEVELOP AND IMPLEMENT MONITORING PLAN

COMPLIANCE DATE: June 30, 2014

The Discharger shall propose and fully implement a monitoring plan, acceptable to the Executive Officer, that includes at least the following components. The purpose of this monitoring is to ensure that the measures employed to reduce and control erosion of mercury mining waste are performing effectively, and if not, to determine why not, and to fix the problem.

- (a) A schedule for conducting annual dry season visual site inspection(s) of all mining waste impacted areas for erosion and threatened erosion of mercury mining wastes;

- (b) Monthly visual site inspections during the wet season (October–May) of all mining waste impacted areas for erosion and threatened erosion of mercury mining wastes. At least two of these inspections during each wet season shall be conducted during storms that generate runoff. When conditions permit, conduct at least one of these inspections each year during a storm that yields at least one inch of precipitation in 24 hours;
- (c) Photo documentation of (1) site conditions during both dry (June–September) and wet season (October–May) inspections from permanent photo points for each area where erosion control BMPs are implemented, and wet season inspection locations, and measurements of (2) the turbidity of stormwater runoff flowing across and discharging from the Mine area, and Guadalupe Creek at fixed sampling locations upstream and downstream of the Mine area;
- (d) Photo documentation of failed BMPs prior to any fixes;
- (e) Documentation that operations and performance of irrigation systems were routinely checked when in use to assure their effectiveness;
- (f) Analyses of changes in creek profiles and cross-sections surveyed at monument points at time intervals of no less than three years, for ten years after construction;
- (g) Documentation that the Discharger is and shall continue to be an active member in good standing of the Guadalupe River Coordinated Mercury Monitoring Program through the year 2016;
- (h) Quarterly and Annual Monitoring Reports: The Discharger shall submit quarterly monitoring reports to the Water Board no later than 30 days following the end of the quarter (e.g., the report for first quarter of the calendar year shall be due not later than April 30 of that year). The reporting frequency may be reduced to annual upon receipt of the Executive Officer's written acceptance of the Report on Completion of Remedial Actions. The first quarterly monitoring report shall be due on July 30, 2014. Each report shall include:
 - (i) A transmittal letter: The transmittal letter shall discuss, for the Mine area, any violations and/or failures of remedial actions during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the Discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the accompanying report is true and correct to the best of the official's knowledge;
 - (ii) Report Result of Inspections and Surveys: The quarterly report will summarize visual observations, provide photo documentation from permanent photo points, and provide surveyed maps, in accordance with the Monitoring Plan;
 - (iii) Status Report: The quarterly report shall describe relevant work completed during the reporting period (e.g., site investigation, interim remedial actions) and work planned for the following quarter. The report shall describe any new or

proposed remedial actions, any significant changes to remedial actions. The report shall describe any proposed (or recently completed) activities that will (or did) change surface water drainage from areas outside the Mine onto the Mine area. If additional measures are needed to increase the stability of floodplain, creek bank, or creek bed areas or improve vegetation survival, the Discharger will propose additional measures in its annual reports; construction of these additional measures is subject to Water Board review and approval in addition to other agency applicable permits and approvals;

- (i) Periodic Inspection Reports: The Discharger shall submit inspection reports to the Water Board by December 31 in years 2020 and 2025. The reports shall cover July 1, 2013 – June 30, 2020, and July 1, 2020 – June 30, 2025, respectively. The Water Board will evaluate the findings of these and other reports with respect to the TMDL goals to attain the watershed fish tissue targets and the San Francisco Bay mercury TMDL allocations to urban stormwater runoff and legacy mercury sources in the Guadalupe River watershed by December 31, 2028. As necessary, the Water Board will modify the TMDL, including cleanup goals for mercury mining wastes.

Each periodic inspection report shall evaluate whether the remedial actions are meeting the TMDL goals to prevent excessive erosion resulting from anthropogenic alterations to the land surface and to restore the landscape to nearly natural erosion rates (see Prohibition 3). Each report shall include a narrative summary of field inspections, copies of field notes, and provide photo documentation. Each report shall include a signature page for the stamp and dated signature of an appropriate registered professional, certifying the accuracy of the inspection and report;

- (j) Violation Reports: If the Discharger violates requirements in the Site Cleanup Requirements, then the Discharger shall notify the Water Board by telephone as soon as practicable once the Discharger has knowledge of the violation. At a minimum, the Discharger shall leave a voicemail message at the Water Board's Spill Hotline (510-622-2369) and shall contact or leave a message with the case manager(s) for its site. Water Board staff may, depending on violation severity, require the Discharger to submit a separate technical report on the violation within five working days of telephone notification; and
- (k) Record Keeping: The Discharger or his/her agent shall retain the above reports, all data generated for the above reports, including lab results and QA/QC data, through December 31, 2030, and shall make them available to the Water Board upon request.

A monitoring plan, acceptable to the Executive Officer, shall be submitted by the compliance date. The plan must be implemented upon concurrence from Water Board staff. Quarterly and Annual Monitoring Reports, and Periodic Inspection Reports, acceptable to the Executive Officer, shall be submitted by the due dates herein.

6. DELAYED COMPLIANCE

If the Discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the Discharger shall promptly notify the

Executive Officer, and the Water Board or Executive Officer may revise the deadlines imposed by this Order.

C. PROVISIONS

1. **No Nuisance:** The storage, handling, treatment, or disposal of polluted soil or mining wastes shall not create a nuisance as defined in Water Code section 13050(m).
2. **Good Operation and Maintenance (O&M):** The Discharger shall maintain in good working order and operate as efficiently as possible any remedial actions (e.g., BMP, facility, or control system) installed to achieve compliance with the requirements of this Order.
3. **Cost Recovery:** The Discharger shall be liable, pursuant to Water Code section 13304, to the Water Board for all reasonable costs actually incurred by the Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. This includes the costs incurred by the Water Board to prepare this Order. If the site addressed by this Order is enrolled in a State Water Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the Discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.
4. **Access to Site and Records:** In accordance with Water Code section 13267(c), the Discharger shall permit the Water Board or its authorized representative:
 - (a) Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - (b) Access to copy any records required to be kept under the requirements of this Order.
 - (c) To inspect any monitoring or remediation facilities installed in response to this Order.
 - (d) To sample any water or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Discharger.
5. **Contractor / Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.
6. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Water Board using approved U.S. EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Water Board review. This provision does not apply to analyses that can only reasonably be performed onsite (e.g., temperature).

7. Periodic SCR Review: The Water Board will review this Order periodically and may revise it when necessary. The Discharger may request revisions and upon review the Executive Officer may recommend that the Water Board revise these requirements.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 12, 2013.

Bruce H. Wolfe
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT
YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF
ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350,
OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR
CRIMINAL LIABILITY
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Attachments:

- Figure 1. Site Location Map
- Figure 2. Stormwater Collection and Flow to Creeks
- Figure 3. Former Mining Operations, Waste Piles, and Facilities Map

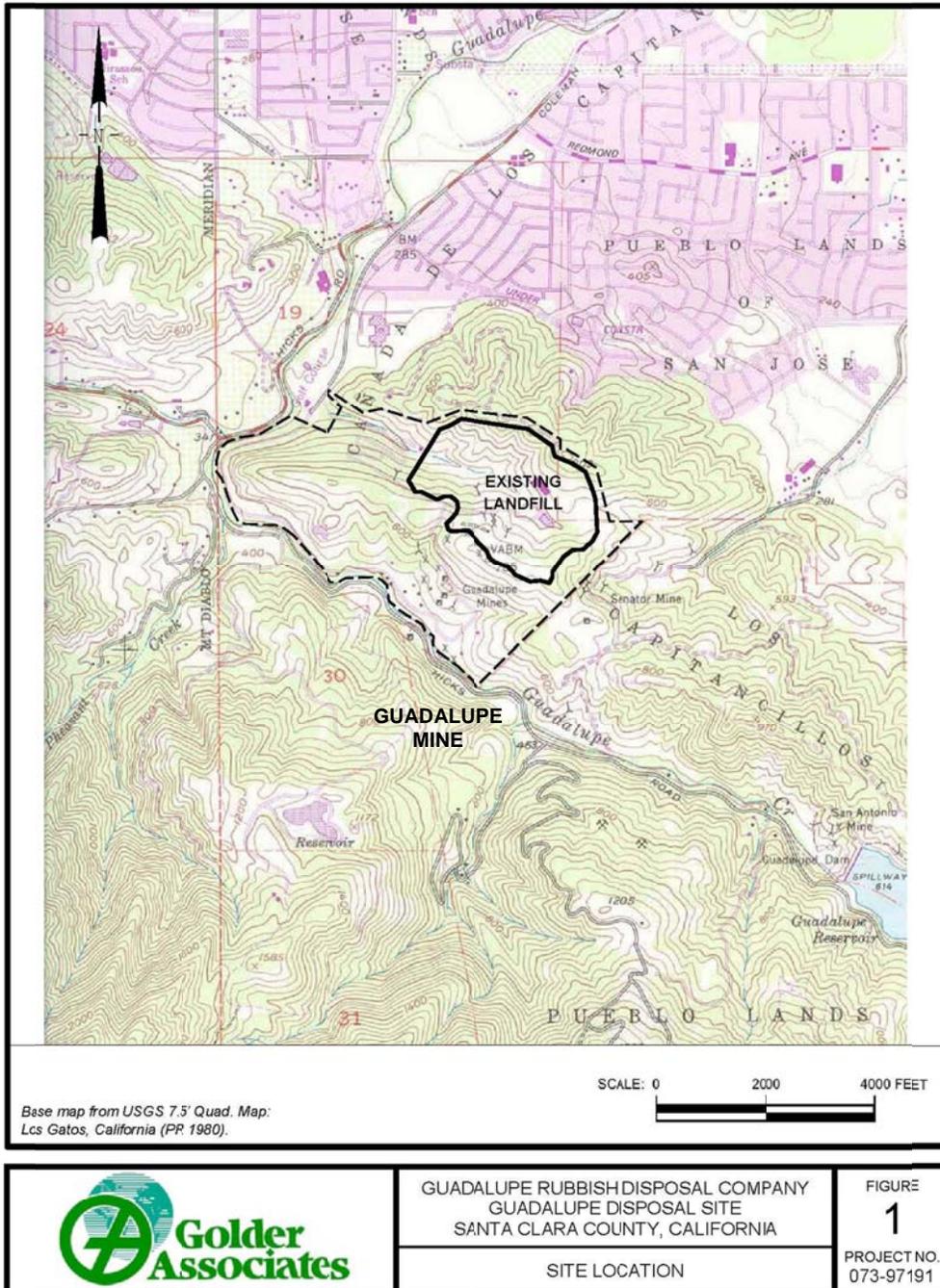


Figure 1. Site Location Map

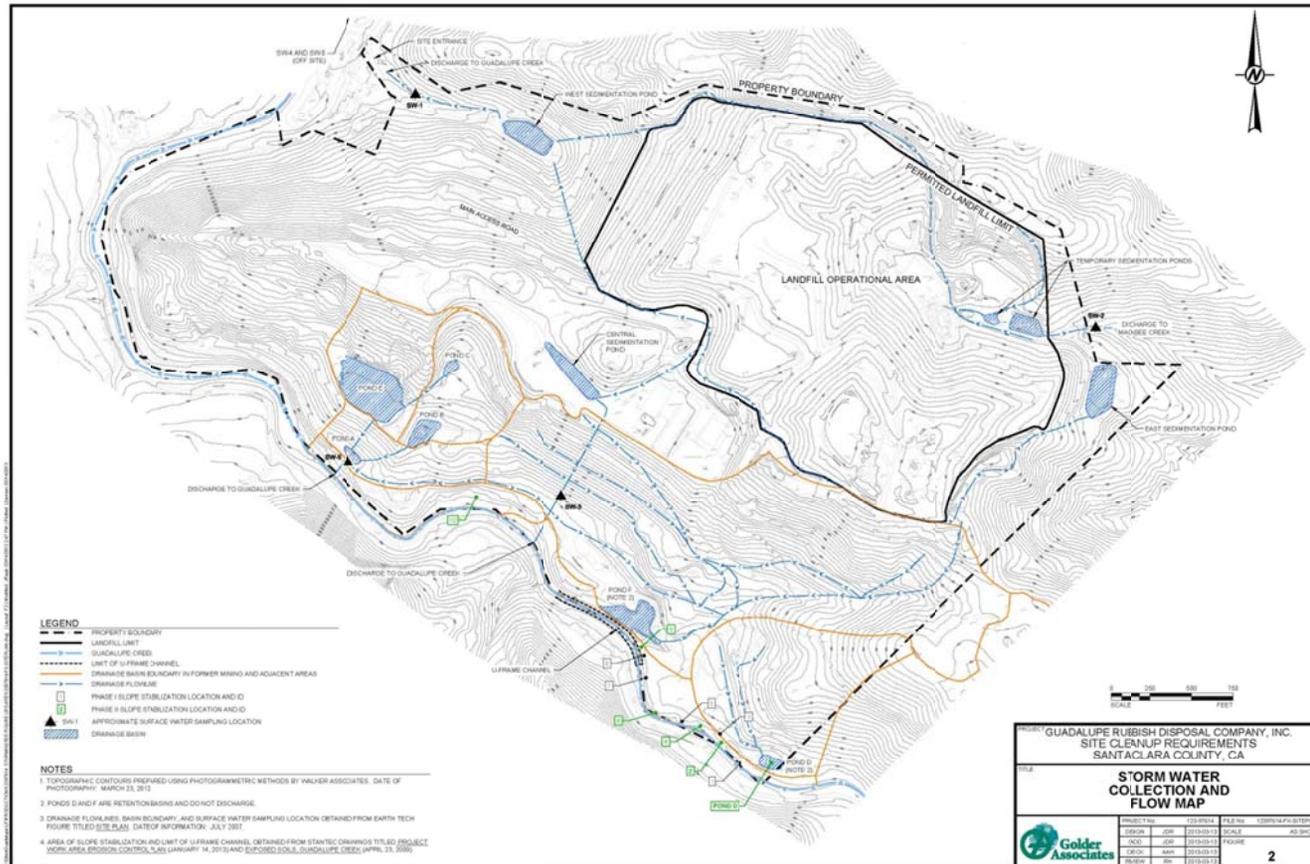


Figure 2. Stormwater Collection and Flow to Creeks

Drainage basins are outlined in brown for the Mine, which is located on the southeastern portion of the Site.

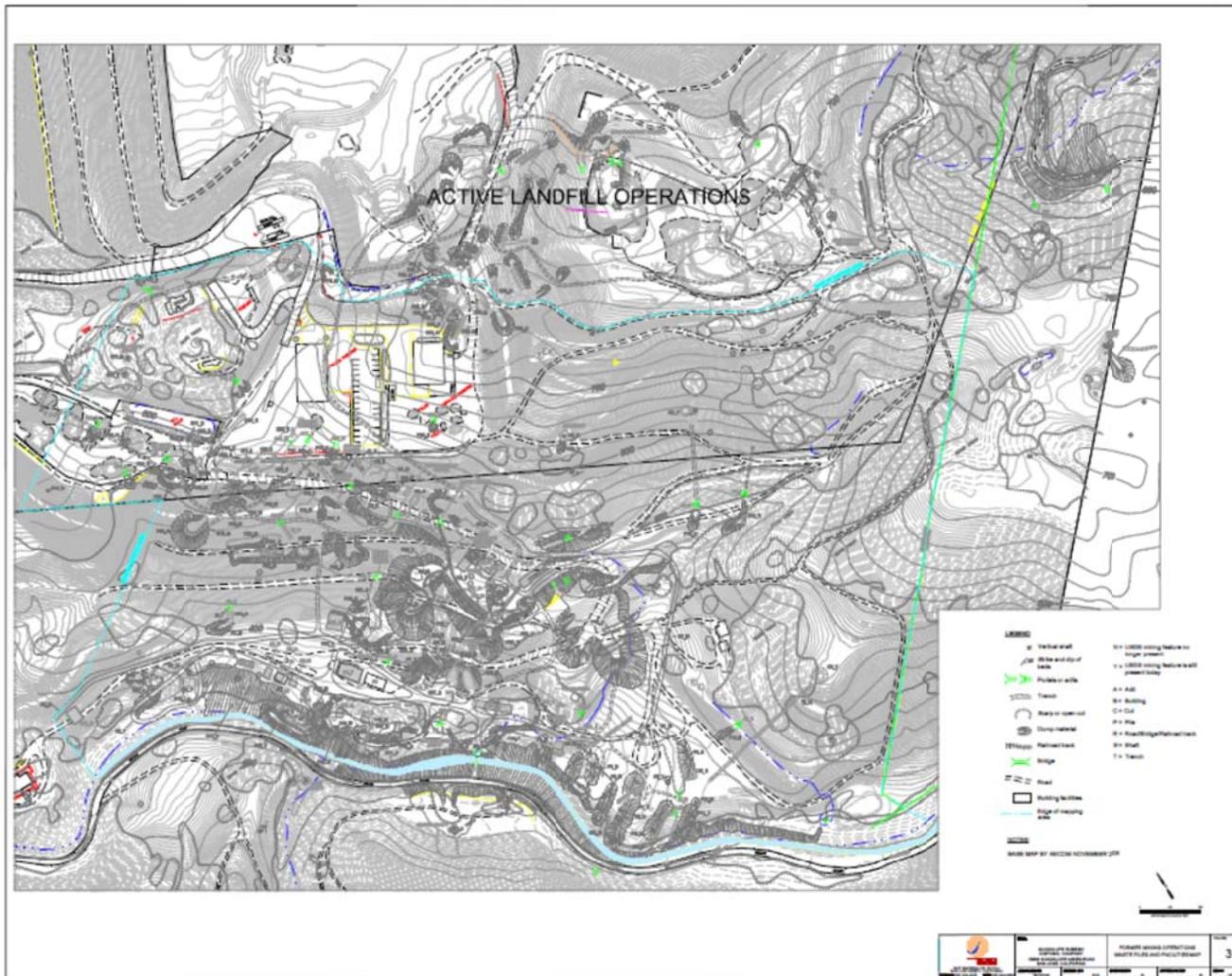


Figure 3. Former Mining Operations, Waste Piles, and Facilities Map