

1 **NEVADA COUNTY WATER QUALITY**

2
3 **The Impact of Mine Water in Nevada County**

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5
6 **Summary**

7 There has been a long history of mining operations in the Northern Mines District of
8 California, including western Nevada County. Mining, by its very nature, has often had an
9 impact on the quality of drinking water for residents of Nevada County.

10
11 The 2013-2014 Nevada County Grand Jury chose to inquire into efforts undertaken by
12 federal, state and local officials and agencies in ensuring safe, clean drinking water for
13 residents of Nevada County residing in areas in and around former mine sites. Specifically,
14 the 2013-2014 Nevada County Grand Jury inquired into efforts made by the aforementioned
15 officials and agencies around three former mining operations: the Lava Cap Mine, the North
16 Star Mine and the Empire Mine.

17
18 The Nevada County Grand Jury found that there were two instances, in 1979 and 1997,
19 where the tailings and effluent from the Lava Cap Mine had been released into an area of the
20 county's watershed. The Nevada County Grand Jury found numerous reports, orders, letters
21 and internal memoranda which indicate that the responsible agencies failed to act. Agencies
22 discussed and agreed there was a need to take action, but to date no remedial actions have
23 occurred. Documents reviewed by the Nevada County Grand Jury indicated the various
24 agencies realized that a Clean Up and Abatement Order for the affected area had not been
25 adequately supervised and managed. These documents indicate when it was recognized that
26 the Clean Up and Abatement order had not been completed, further documents indicated that
27 at least one agency debated how to explain their failure to act to the public, rather than
28 developing a plan to enforce the Clean Up and Abatement Order.

29
30 The Nevada County Grand Jury finds that the North Star Mine site continues to discharge
31 toxin laden water into the Grass Valley Waste Water Treatment Plant. During heavy rains,
32 the additional flow from the mine site causes over capacity of the treatment plant and the
33 subsequent spillage of untreated water into Wolf Creek.

34
35 In a negotiated settlement, the owners of the North Star Mine site agreed to construct a new
36 treatment plant, which would treat the additional flow into the treatment plant by February
37 2013. To date, the new treatment plant has not been constructed. The Nevada County Grand
38 Jury finds there has been no discernible effort by the City of Grass Valley to seek judicial
39 relief in the enforcement of the civil agreement.

40
41 The Nevada County Grand Jury finds that the Empire Mine State Historical Park produces a
42 discharge path known as the Magenta Drain, from which mine effluent naturally flows. The
43 Magenta Drain flows adjacent to and through city public park property, an area frequented by
44 families and children.

45 The Nevada County Grand Jury finds that there is evidence of construction in the Magenta
46 Drain adjacent to and through Memorial Park. No permits were found for the diversion of a
47 water course issued either from City of Grass Valley or from Nevada County Building
48 Department and there are no inspection reports from either agency.

49
50 The Nevada County Grand Jury found that for over 30 years, there has been a lack of
51 coordination and communication and a failure to accept responsibility by federal, state and
52 local governmental agencies in efforts to monitor the water quality in some areas of Nevada
53 County. These agencies have failed to properly enforce clean up and abatement orders and
54 legal agreements and/or settlements ordered against the then property owners of former
55 mining operations. The Nevada County Grand Jury finds that waterways containing
56 contaminants from former mining sites flow unimpeded into a municipal wastewater
57 treatment facility, resulting in over capacity of the facility and spillage of untreated water.
58 Additionally, some waterways openly flow past parks and schools which are frequented by
59 the public, including families with small children. As a result, the Nevada County Grand
60 Jury finds that the health and welfare of some residents of Nevada County and their water
61 quality may be compromised.

62
63 The Nevada County Grand Jury recommends that federal, state and local agencies should
64 meet and confer to develop and implement a written agreement to define the responsibilities
65 of each agency for the safeguarding of water quality in Nevada County.

66
67 It is further recommended that the Nevada County Board of Supervisors direct the Director
68 of the Community Development Agency to revisit and examine the Lava Cap Mine incidents
69 of 1979 and 1997 and develop and implement policy and procedures to ensure appropriate
70 clean up of the affected area and future incidents of this type. The Nevada County Grand
71 Jury also recommends the Nevada County Board of Supervisors direct the Director of the
72 Community Development Agency to develop and implement policy and procedures for
73 periodic testing of surface and ground water and communicate the findings to the general
74 public.

75
76 The Nevada County Grand Jury also recommends the City Council of the City of Grass
77 Valley should direct the City Manager to develop and implement a legal strategy to ensure
78 immediate adherence by the defendant to the terms outlined in the 2009 civil settlement. It is
79 further recommended that the City Council of the City of Grass Valley should direct the City
80 Manager to take immediate steps to ensure the safety of the public using Memorial Park from
81 toxins emitting from the Magenta Drain and should immediately initiate meetings with
82 representatives of the Empire Mine State Historical Park to develop and implement a plan to
83 divert the contents of the Magenta Drain away from Memorial Park.

84 **Reasons for Investigation**

85 The 2013-2014 Nevada County Grand Jury (Jury), exercising its oversight responsibilities
86 pursuant to California Penal Code §925, reviewed the actions of several public agencies and
87 municipalities in this matter.

88

Background

89 There has been a long history of mining operations in the Northern Mines District of
90 California, including western Nevada County. Mining, by its very nature, has often had an
91 impact on the quality of drinking water for residents of Nevada County.

92

93 The Jury chose to inquire into efforts undertaken by federal, state and local officials and
94 agencies in ensuring safe, clean drinking water for residents of Nevada County residing in
95 areas in and around former mine sites. Specifically, the Jury inquired into efforts made by
96 the aforementioned officials and agencies in areas in and around three former mining
97 operations: the Lava Cap Mine, the North Star Mine and the Empire Mine.

98

99

Procedures Followed

100 The Jury interviewed staff from Nevada County and the City of Grass Valley (City). The
101 Jury also reviewed multiple documents including, but not limited to, reports, letters,
102 correspondence and internal memoranda from various federal, state and local agencies as
103 well as federal and state courts.

104

105

Facts

106 **Fa. 1** The California Water Code (CWC) established an agency known as the State Water
107 Resources Control Board (SWRCB).

108

109 **Fa. 2** The CWC authorized the SWRCB to “... *conduct investigations of all or any stream,*
110 *stream system...*” and to ... “*investigate either or both surface and underground*
111 *water conditions.*”

112

113 **Fa. 3** The SWRCB website states that it “... *regulates the disposal of wastes into the waters*
114 *of the state and requires that the quality of existing high-quality water be*
115 *maintained.*”

116

117 **Fa. 4** The California Department of Toxic Substance Control (DTSC) website states that it
118 protects “... *people and environment from harmful effects of toxic substances by*
119 *restoring contaminated resources.*”

120

121 **Fa. 5** The California Department of Fish and Wildlife, formerly known as California
122 Department of Fish & Game (F&G) website states that it is responsible to monitor
123 water quality and wildlife in the state.

124

125 **Fa. 6** The Nevada County Department of Environmental Health (EH) website states that it:
126 “...*is responsible for environmental protection and public health ... whether it is the*
127 *water you drink ... or land that is developed and used by all of us.*”

128

129 **Fa. 7** The Nevada County Planning Department (Planning) website states that it is their
130 goal to protect the environment in order to ensure that Nevada County remains a
131 desirable place to live, work, and recreate by applying community land use polices.

132 **Fa. 8** EH and Planning are each directed by a department head who reports to the
133 Community Development Agency Director, who reports to the Nevada County Chief
134 Executive Officer.

135 **Lava Cap Mine**

136 **Fa. 9** The Lava Cap Mine (Mine) is physically located south of the intersection of Idaho
137 Maryland Road and Banner Lava Cap Road in an unincorporated area of Nevada
138 County.

139
140 **Fa. 10** In 1940, a cyanide plant was activated on the site that “leached” cyanide middlings
141 and tailings which were deposited in a ravine on the site.

142
143 **Fa. 11** Between 1940 and 1941, a 60 foot high log dam was constructed to hold the mine
144 tailings in place.

145
146 **Fa. 12** In 1943, Lost Lake was dug to provide a mining impoundment area specifically to
147 contain run off from the mine site.

148
149 **Fa. 13** In 1979, the log dam partially collapsed, releasing an estimated 80,000 cubic yards of
150 mine waste downstream towards Lost Lake.

151
152 **Fa. 14** The estimated 80,000 cubic yards of material would cover an area approximately
153 2,400 feet long, 300 feet wide and three feet high.

154
155 **Fa. 15** Personnel from EH and SWRCB responded to this incident.

156
157 **Fa. 16** On October 25, 1979, the SWRCB issued a Clean Up and Abatement Order (C&A
158 Order) to the then owner and the operators of the Mine property.

159
160 **Fa. 17** An engineering firm was contracted by the then owners of record to supervise and
161 monitor compliance with the C&A Order. This order included removal of all mine
162 waste deposited downstream.

163
164 **Fa. 18** The engineering firm published two letters in November 1979 regarding discharge
165 from Lava Cap Mine.

166
167 **Fa. 19** Planning received copies of all correspondence pertaining to the 1979 C&A Order.

168
169 **Fa. 20** Title 42 United States Code entitled Comprehensive Environmental Response,
170 Compensation and Liability Act (CERCLA), commonly known as “Superfund”
171 statutes, states that the party causing the toxic environment is responsible for site
172 clean up.

173
174 **Fa. 21** In 1984, a corporation attempted to reopen the Mine. A formal request was made to
175 the SWRCB for pumping water out of the mine consisting of 63,000,000 gallons of

176 water into Little Clipper Creek and Clipper Creek. The request was denied by
177 SWRCB.
178
179 **Fa. 22** Later in 1984, the corporation petitioned Planning for a zone district combining
180 change for mineral extraction. The combined zone request was originally approved
181 by Planning, EH and Nevada County Building Department and certified by the Board
182 of Supervisors (BOS). However, public outcry then convinced the BOS to rescind
183 their approval.
184
185 **Fa. 23** On May 15, 1989, 486.5 acres including the Mine and surrounding property was sold
186 to another buyer.
187
188 **Fa. 24** For this sale, a local title company issued two different sets of escrow instructions,
189 each denying existence of dangerous or toxic chemicals on site.
190
191 **Fa. 25** SWRCB records and memoranda indicate that they did not initiate follow up with the
192 engineering firm contracted to monitor the 1979 C&A Order. Documents reflect that
193 SWRCB did not know what, if any, work had been completed.
194
195 **Fa. 26** On September 23, 1991, SWRCB generated a handwritten internal memorandum
196 entitled, – *RE: 25 October 1979, Clean Up and Abatement Order*, decrying the belief
197 that the clean up had apparently ceased, stating in part, “*There is no record of our*
198 *rescinding this Order.*”
199
200 **Fa. 27** EH was provided copies of this internal memorandum.
201
202 **Fa. 28** On January 1, 1997 the remaining upper portion of the log dam collapsed, releasing
203 an additional 10,000 cubic yards of tailings into Little Clipper Creek. Personnel from
204 EH and F&G inspected the site and issued incident reports.
205
206 **Fa. 29** These 1997 incident reports reflect that extensive deposits of tailings were observed:
207
208 • in and on the shoreline of Little Clipper Creek,
209 • at the confluence of Little Clipper and Clipper Creeks,
210 • in and on the shoreline of Lost Lake,
211 • in wetland area contiguous with these water bodies, and
212 • in some cases, completely covering the vegetation.
213
214 **Fa. 30** These incident reports do not mention the previous dam failure in 1979.
215
216 **Fa. 31** An internal memorandum, dated March 5, 1997, from SWRCB staff, entitled *RE:*
217 *C&A Order follow up*, states in part; “*I looked in the C&A file and it said that the*
218 *C&A was issued on 10/25/79 to (name withheld). Compliance was required forthwith*
219 *and it says that a Technical Report was submitted on 11/6/79. It says the C&A was*
220 *rescinded but no date was given. ... There was (name withheld) memo that said that*

221 *the C&A was rescinded but that there was no record of when or why. The file doesn't*
222 *contain anything useful."*

223

224 **Fa. 32** This internal memorandum concludes with the following; "*What should we tell DTSC*
225 *or any media who might call, especially about the C&A?"*

226

227 **Fa. 33** An internal memorandum dated May 20, 1997, from staff at SWRCB, entitled *RE:*
228 *INSPECTION STATUS OF LAVA CAP MINE, NEVADA COUNTY* states in part; "*I*
229 *searched the microfiche files and found that there is no record in the project file that*
230 *the C&A Order was ever rescinded."* and, "*I have found no record that they ever did*
231 *anything to stabilize the dam or tailings pile. There is no Technical Report in the*
232 *microfiche or project file."*

233

234 **Fa. 34** On June 20, 1997, SWRCB passed responsibility for the oversight of the 1979 and
235 1997 events to DTSC.

236

237 **Fa. 35** On January 23, 2009, a copy of a log entitled *Clean Up and Abatement Order* was
238 sent out from SWRCB. This document indicated the 1979 C&A Order for the Mine
239 was "*rescinded*". There is a disposition that the 1979 C&A Order was rescinded for
240 the Mine but the form contains questionable entries:

241

- 242 • this document has 33 total sites listed,
- 243 • 25 of the entries are noted to have been rescinded, including the Mine, without
244 explanation.

245

246 **Fa. 36** The current property owner of the Mine has been held responsible by CERCLA for
247 the clean up and abatement of the failures of the log dam in 1979 and 1997.

248

249 **Fa. 37** On several occasions, state and federal officials have entered the Mine properties and
250 drilled monitoring wells without proper permits

251

252 **Fa. 38** During several EH staff meetings the question of the requirement of a monitor well
253 permit was asked.

254

255 **Fa. 39** EH management personnel verbally stated that the issue was not to be brought up
256 and for staff to "*drop the issue*" of requiring monitoring well permits.

257

258 **Fa. 40** There are water quality condition concerns below the Mine which exist to this day.

259

260 **Fa. 41** Water quality levels are currently unknown following the failure to manage the C&A
261 Order of 1979 by SWRCB.

262

263 **Fa. 42** On or about May 22, 2012, California DTSC, applied for an Inspection Warrant to
264 inspect the Mine property at a cost to the Mine owner \$20,000. The warrant did not
265 make any reference the 1979 C&A Order regarding the 80,000 cubic yard release of
266 mine tailings. The only reference regarding this incident was, "*In 1979, a*
267 *decomposing log dam on the property failed, releasing tailings into LCC."* LCC is
268 Little Clipper Creek.

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Fa. 43 EH staff has stated they are unaware of the water quality in and around the area of the Mine.

Fa. 44 EH staff stated their only responsibility is for new well construction conforming to current statutes.

Fa. 45 On June 30, 2013, The United States District Court, Eastern District of California published a finding concerning the Mine, summarized as follows:

- Little Clipper Creek, Clipper Creek drainage and Lost Lake contain elevated levels of arsenic in drinking water wells,
- mill tailings were placed directly onto the soil at the Mine site,
- on September 27, 1979, the Water Board knew of the arsenic contaminated water at the Mine site and wrote a letter to the Mine owner,
- on October 9, 1979, F&G received complaints about discharges from the Mine,
- in 1982, a state biologist made an inspection and observed the discharges to contain toxins and the wood dam was not stable and would collapse during heavy rains,
- following the 1979 release of 80,000 cubic yards of tailings, the private contractor was hired to remove the tailings but did not. He noted that the remainder of the dam was unsafe.

North Star Mine/Grass Valley Wastewater Plant

Fa. 46 The City possesses a license, issued by the SWRCB, to operate a wastewater treatment plant (WTP).

Fa. 47 The WTP is designed to process organic discharges at the rate of approximately 800,000 gallons per day.

Fa. 48 After processing, the treated effluent is released into Wolf Creek.

Fa. 49 The City is required to renew their license to operate this treatment facility from the SWRCB at regular intervals.

Fa. 50 The SWRCB, in the operating license renewal, has required that the WTP continue receiving the mine water produced by the North Star Mine.

Fa. 51 The Drew Tunnel is a component of the North Star Mine.

Fa. 52 The Drew Tunnel also contains drainage from the surrounding Empire-Star Mine.

Fa. 53 In 2000, the Drew Tunnel was damaged by a landslide.

314 **Fa. 54** During storm conditions the damaged Drew Tunnel discharges 400,000 gallons of
315 contaminated water per day into the WTP.

316

317 **Fa. 55** The contaminated mine water contains iron, manganese, copper, lead, zinc and
318 mercury.

319

320 **Fa. 56** The WTP is not designed to process non-organic chemicals.

321

322 **Fa. 57** During severe rainstorms, the capacity of the WTP is often exceeded, caused by an
323 increase in the amount of City runoff in addition to the Drew Tunnel flow.

324

325 **Fa. 58** On these occasions, the WTP is unable to properly treat all water flowing into the
326 facility and the effluent is discharged into the Wolf Creek watershed.

327

328 **Fa. 59** Prior to February 2009, the City was reluctant to complain to state legislators for
329 assistance in this situation, as the City believed the SWRCB would exert the
330 maximum fines for untreated discharge.

331

332 **Fa. 60** On January 22, 2004, the City filed a civil suit against the owners of the North Star
333 Mine property (defendants).

334

335 **Fa. 61** On May 1, 2007, a draft C&A Order for Drew Tunnel was issued by the SWRCB.

336

337 **Fa. 62** In February 2009, after 1,532 days, the City and the defendants reached a civil
338 settlement in the lawsuit. The agreement states, in part:

339

- 340 • the defendants may continue discharge of mine water containing toxins into
- 341 the City's wastewater plant,
- 342 • the defendants will pay any fines imposed on the City for overflows of the
- 343 WTP,
- 344 • the defendants will pay a reasonable water treatment fee,
- 345 • the defendants will construct their own water treatment plant no later than
- 346 February 2013.

347

348 **Fa. 63** To date, the defendants have not begun construction on their treatment plant as
349 required by the agreement.

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351 **Fa. 64** Neither the City nor EH has tested water quality in, around or downstream from the
352 WTP.

353

354 **Empire Mine State Historical Park/The Magenta Drain**

355 **Fa. 65** Empire Mine State Historical Park (Empire) is owned by the State of California.

356 **Fa. 66** Prior to 1975, Empire was owned by the corporation that currently owns the North
357 Star Mine.

358

- 359 **Fa. 67** Empire is located adjacent to Memorial Park, a public park owned by the City,
360 frequented by families with children.
361
- 362 **Fa. 68** The Magenta Drain originates in Empire and openly flows through property adjacent
363 to and under Memorial Park.
364
- 365 **Fa. 69** The Magenta Drain continues to flow below Memorial Park past Grass Valley Charter
366 School and eventually into Wolf Creek
367
- 368 **Fa. 70** The Magenta Drain evacuates mine water from the Empire Mine.
369
- 370 **Fa. 71** According to an independent contractor's report dated July 2006, the evacuated water
371 from Empire property contains chemical contaminants from the Empire Mine.
372
- 373 **Fa. 72** There were chain link fences erected around the Magenta Drain, in and around
374 Memorial Park, and have been replaced by orange, plastic construction fencing, to
375 prevent access to the watercourse. Signs are posted that warn against:
376
- 377 • wading in the water flowing in the Magenta Drain,
 - 378 • drinking water from the Magenta Drain,
 - 379 • eating fish caught from the Magenta Drain,
 - 380 • handling the sediment in the Magenta Drain, and further warn, "*The water and*
381 *sediment contains residual metals and chemicals that may be hazardous.*"
382
- 383 **Fa. 73** Officials from the City and EH do not test water quality in and downstream from
384 Memorial Park.
385

386 Findings

- 387 **Fi. 1** For over 30 years, the following agencies have failed in their responsibilities to
388 monitor water quality in Nevada County due to a lack of coordination and
389 communication and failure to follow through with mandated clean up orders. Due to
390 these omissions, the health and welfare of residents of Nevada County and their water
391 quality is compromised. The responsible agencies are:
392
- 393 • State Water Resources Control Board (SWRCB),
 - 394 • California Department of Fish and Game (F&G),
 - 395 • State Department of Toxic Substance Control (DTSC),
 - 396 • Nevada County Department of Environmental Health (EH),
 - 397 • Nevada County Planning Department (Planning),
 - 398 • City of Grass Valley (City).
399
- 400 **Fi. 2** Due to a lack of agency cooperation to address the problems effectively and
401 efficiently, public health is potentially endangered.
402

403 **Fi. 3** There was internal acknowledgement of frequent failures by governmental agencies
404 in these matters. Numerous efforts were made to conceal these failures from the
405 public.
406

407 **Fi. 4** Because the City does nothing to monitor water quality in, around and downstream
408 from the North Star Mine and WTP, the City faces potential public health issues and
409 litigation.
410

411 **Fi. 5** Due to a lack of compliance with the 2009 civil settlement, water quality continues to
412 be questionable and potable water downstream from the WTP continues to be
413 consumed, placing public health at potential risk.
414
415

416 **Recommendations**

417 The Jury recommends:
418

419 **R. 1** The Nevada County Board of Supervisors should request the following agencies to
420 meet and confer to develop and implement a written agreement to define the
421 responsibilities of each agency for the safeguarding of water quality in Nevada
422 County:
423

- 424 • US EPA,
- 425 • State Water Resources Control Board,
- 426 • California Department of Fish & Game,
- 427 • California Department of Toxic Substance Control,
- 428 • Nevada County Department of Environmental Health,
- 429 • Nevada County Planning Department.

430
431 **R. 2** Nevada County Board of Supervisors direct the Director of Community Development
432 Agency to:
433

- 434 • develop and implement policy and procedures for periodic testing of surface
435 and ground water at the locations identified in this report and communicate
436 the findings to the general public,
- 437 • revisit and examine the Lava Cap Mine incidents of 1979 and 1997 and
438 develop and implement policy and procedures to ensure appropriate clean up
439 of such incidents,
- 440 • develop and implement a plan for the immediate enforcement of the 1979
441 Clean Up and Abatement Order concerning the area below the Lava Cap
442 Mine.

443
444 **R. 3** The City Council of the City of Grass Valley should direct the City Manager to:
445

- 446 • develop and implement a legal strategy to ensure immediate adherence by the
447 defendant to the terms outlined in the 2009 civil settlement,

- 448 • take immediate steps to ensure the safety of the public using Memorial Park
449 from Magenta Drain toxins,
450 • immediately initiate meetings with representatives of the Empire Mine State
451 Historical Park to develop and implement a plan to divert the contents of the
452 Magenta Drain away from open ditches which endanger the public.
453

Responses

- 454
455
456 Nevada County Board of Supervisors:
457 Findings: 1, 2, and 3
458 Recommendations: 1 and 2
459 Due Date: September 20, 2014
460
461 City Council of the City of Grass Valley:
462 Findings: 1, 2, 4 and 5
463 Recommendations: 3
464 Due Date: September 20, 2014
465

COUNTY OF NEVADA
STATE OF CALIFORNIA
BOARD OF SUPERVISORS



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September 16, 2014

The Honorable Thomas Anderson
Presiding Judge of the Nevada County Grand Jury
Nevada County Courthouse
201 Church Street
Nevada City, CA 95959

Re: Board of Supervisors' Responses to the 2013-14 Nevada County Civil Grand Jury Report,
Nevada County Water Quality, The Impact of Mine Water in Nevada County.

Dear Judge Anderson:

As required by California Penal Code Section 933, the Board of Supervisors hereby submits its responses to the 2013-14 Nevada County Civil Grand Jury Report, dated June 20, 2014, entitled *Nevada County Water Quality, The Impact of Mine Water in Nevada County.*

These responses to the Grand Jury's Findings and Recommendations were approved by the Board of Supervisors at their special meeting on September 16, 2014. The Responses are based on either personal knowledge, examination of official County records, information received from the County Executive Officer, or the Board of Supervisors and County staff members.

The Board of Supervisors would like to thank the members of the 2013-14 Grand Jury for their participation and effort in preparing their Reports, and their participation in the Grand Jury process.

Sincerely,



Nathan H. Beason, Chair
Nevada County Board of Supervisors

cc: Keith Overbey, Foreman, Grand Jury
Rick Haffey, County Executive Officer

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NEVADA COUNTY BOARD OF SUPERVISORS RESPONSES TO

2013-2014 Nevada County Civil Grand Jury Report

Nevada County Water Quality The Impact of Mine Water in Nevada County

DATED: June 20, 2014

Responses to findings and recommendations are based on either personal knowledge, examination of official county records, review of the responses by the County Executive Officer, or testimony from the Board of Supervisors and county staff members.

A. RESPONSES TO FINDINGS:

Finding 1: For over 30 years, the following agencies have failed in their responsibilities to monitor water quality in Nevada County due to a lack of coordination and communication and failure to follow through with mandated clean up orders. Due to these omissions, the health and welfare of residents of Nevada County and their water quality is compromised. The responsible agencies are:

- State Water Resources Control Board (SWRCB),
- California Department of Fish and Game (F&G),
- State Department of Toxic Substance Control (DTSC),
- Nevada County Department of Environmental Health (EH),
- Nevada County Planning Department (Planning),
- City of Grass Valley (City).

Disagree.

The Banner/Lava Cap Mine was designated a Federal Superfund site in 1998. Responsibility for the coordination of the remediation of the site was assumed by the US EPA at that time. Adequate and appropriate public agency coordination has insured that public health has not been endangered. The Nevada County Planning Department does not engage in water quality testing or analysis.

Current information regarding the EPA's management of this site is attached and available at www.epa.gov.

Finding 2: Due to a lack of agency cooperation to address the problems effectively and efficiently, public health is potentially endangered.

Disagree.

Adequate and appropriate public agency coordination has insured, to the greatest extent practicable, that public health has not been endangered.

Finding 3: There was internal acknowledgement of frequent failures by governmental agencies in these matters. Numerous efforts were made to conceal these failures from the public.

Disagree.

The County has no evidence of frequent failures by governmental agencies or of efforts to conceal failures.

B. RESPONSES TO RECOMMENDATIONS:

Recommendation 1: The Nevada County Board of Supervisors should request the following agencies to meet and confer to develop and implement a written agreement to define the responsibilities of each agency for the safeguarding of water quality in Nevada County:

- US EPA,
- State Water Resources Control Board,
- California Department of Fish & Game,
- California Department of Toxic Substance Control,
- Nevada County Department of Environmental Health,
- Nevada County Planning Department.

This recommendation will not be implemented.

Adequate definition of responsibilities and avenues for coordination and cooperation exist to safeguard water quality in Nevada County. The Nevada County Planning Department does not engage in water quality testing or analysis.

Recommendation 2: Nevada County Board of Supervisors directs the Director of Community Development Agency to:

- develop and implement policy and procedures for periodic testing of surface and ground water at the locations identified in this report and communicate the findings to the general public,
- revisit and examine the Lava Cap Mine incidents of 1979 and 1997 and develop and implement policy and procedures to ensure appropriate clean-up of such incidents,
- develop and implement a plan for the immediate enforcement of the 1979 Clean Up and Abatement Order concerning the area below the Lava Cap Mine.

This recommendation will not be implemented.

- Adequate testing of surface and ground water to insure the public health and welfare is currently conducted by appropriate State and Federal agencies.
- Appropriate policies and procedures are currently in place at the Federal, State and Local level.
- See comment in response to Finding 1 above. The remediation of the Banner/Lava Cap Mine is under the jurisdiction of the US EPA.



Pacific Southwest, Region 9: Superfund

Serving Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations

Lava Cap Mine

On this page

Description and History

NPL Listing History

NPL Status: Final
 Proposed Date: 09/29/98
 Final Date: 01/19/99
 Deleted Date:

The Lava Cap Mine site occupies approximately 33 acres in a semi-rural residential area of the Sierra Nevada foothills in western Nevada County, California. The site is approximately 5 miles southeast of Nevada City and 6 miles east of Grass Valley at an elevation of about 2700 feet. The site includes the mining area where ore was processed to recover gold, and areas where tailings which originated at the mine have been washed downstream and deposited over time. The downstream areas of the site include Lost Lake, a private lake surrounded by homes, located approximately 1-1/4 miles downstream of the Lava Cap mine site.

Bulletin Board

Links

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- [Who is Involved](#)
- [Investigation and Cleanup Activities](#)
- [Cleanup Results to Date](#)
- [Potentially Responsible Parties](#)
- [Documents and Reports](#)
- [Community Involvement](#)
- [Public Information Repositories](#)
- [Additional Links](#)
- [Contacts](#)
- [Progress Profile \(EPA Headquarters\)](#)

EPA #: CAD983618893

State: California(CA)

County: Nevada

City: 5 miles SE of Nevada City

Congressional District: 02

Other Names:



[Map this site in Cleanups in My Community](#)

In 1994, an estimated 1,776 people lived within one mile of the site, and 24,091 lived within four miles of the site. The immediate watershed basin ecosystem contains two California Species-of-Special-Interest: foothill yellow-legged frog and western pond turtle, in addition to more common species of reptiles, amphibians, fish, birds, and mammals.

Gold and silver mining activities were initiated at Lava Cap Mine in 1861. From 1861 to 1918, processing of the ore and disposal of the waste rock, overburden, and tailings occurred off-site at the Banner Mine, which is located approximately 1.5 miles north of the Lava Cap Mine.

The Lava Cap Mine was inactive from 1918 to 1934, at which time mining activities were resumed and a flotation plant was built to process the ore at the site. The gold and silver concentrates from the flotation plant were shipped to two smelters, one in California and the other in Washington. In 1940, a cyanide plant was built to recover the concentrates on site. However, this operation proved to be relatively ineffective. From 1941 to 1943, the cyanide plant only handled the middlings and tailings from the flotation plant. The middlings and tailings were ground to a very fine size (i.e., able to pass through a 400-mesh screen), then vat leached with cyanide to remove the residual gold and silver. Slurries from the flotation and cyanide processes were deposited in a ravine on the site. Where the ravine steepened and narrowed, a log dam approximately 60 feet high was built to hold the tailings in place. The waste rock and overburden were also deposited in two piles located at the site between the mineshaft and the tailings pond. In 1943, Lava Cap Mine was closed due to World War II. An attempt was made to re-open the mine in the mid-1980s. However, community opposition resulted in the defeat of a proposed re-zoning of the property which would have allowed mining activities to resume at the site.

In 1979, complaints from local residents initiated an action from California's Central Valley Regional Water Quality Control Board (RWQCB) that led to issuance of a Cleanup and Abatement Order (CAO). The CAO called for the property owners at that time to take measures to limit tailings discharges to Little Clipper Creek, to divert surface water runoff from the mine and mill waste fill deposits, and to obtain an evaluation of the dam.

additional data are gathered and analyzed. The Interim Record of Decision can be found in the Technical Documents section, dated September 30, 2008.

Initial Actions

Initial response. In October 1997, the EPA Region 9 Emergency Response Office determined that conditions associated with the tailings release from the Lava Cap Mine site met the National Contingency Plan (NCP) section 300.415(b)(2) criteria for a removal action. During October and November 1997, 4,000 cubic yards of tailings were removed from the damaged dam area and stockpiled on the waste rock pile immediately to the north of the tailings pile. The lower half of the dam (i.e., approximately 30 feet in height) was found to be in relatively good condition. The oversteepened slopes of the tailings pile immediately behind the dam were graded and the entire tailings pile was covered with waste rock. Stream diversions were also created around the tailings pile. In February 1998 a second response was constructed at the site to stabilize another tailings release and to further improve the drainage. The removal action has been completed and included covering approximately 4,000 cubic yards of stockpiled tailings with a clay cap.

Site Studies

Remedial investigation. As part of its longer term study of the site, EPA conducted several rounds of sampling upgradient from the mine, on the mine property, along Little Clipper and Clipper Creeks in the stretch from approximately 2,000 feet upstream of the mine to approximately 1,000 feet downstream of Lost Lake, and from in and around Lost Lake. EPA sampled several media, including surface soil, subsurface soil, air, groundwater, mine discharge, surface water, and sediment. To collect subsurface soil and groundwater samples, EPA installed borings and constructed groundwater monitoring wells using a truck-mounted drilling rig. The resulting remedial investigation report was released in November 2001. It concludes that arsenic in mine tailings is the primary threat to human health, while both arsenic and metals threaten the ecology of the area.

A Remedial Investigation for the **Groundwater Operable Unit** was completed in **July 2008** and is available in the information repositories for review. A supplement to this document may be developed once further studies of the groundwater/surface water interactions have been completed.

Site Studies

Feasibility Study.

EPA distributed the public release draft of the **Feasibility Study for the Mine Area in OU1** where mining took place in 2004. The feasibility study defined the goals of EPA's remedial action, evaluated different technologies for reaching those goals, and combined those available technologies into several alternative cleanup plans. Alternatives considered include:

- taking no action
- installing physical access and legal land use controls
- decontaminating the mine buildings
- demolishing the mine buildings
- capping the tailings and waste rock piles and constructing surface water diversion channels
- excavating and disposing of the tailings and waste rock pile in an on-site landfill
- excavating and shipping the tailings and waste rock pile to an off-site disposal facility
- capping tailings and contaminated sediment in Little Clipper Creek down to Greenhorn Road
- excavating the contaminated sediment in Little Clipper Creek down to Greenhorn Road

The **Feasibility Study** was completed for the drinking water component for **Groundwater (OU2)** in **July 2008**. Alternatives considered in this study include:

- taking no action
- installing point-of-use undersink treatment units, land use notifications, and monitoring of groundwater
- installing wellhead treatment units, land use notifications, and monitoring of groundwater
- providing an alternative water supply via pipeline from Nevada Irrigation District, land use notifications, and monitoring of groundwater

The proposed plan is available now for the drinking water component of the Groundwater Operable Unit.

A revised **Feasibility Study** and proposed cleanup alternatives for the **Lost Lake Area (OU3)** are expected in 2015.

Cleanup Ongoing

Construction.

Mine Area Cap

Construction of the cap on the mine area in **OU1** has been essentially completed. Excavated tailings and contaminated soils from Little Clipper Creek

11/01/01 [Final Human Health Risk Assessment -- Lava Cap Mine Superfund Site](#)

11/01/01 [Remedial Investigation, Lava Cap Mine Superfund Site](#)

11/01/01 [Supporting data: Lava Cap Mine Remedial Investigation](#)

02/01/04 [Public Release Draft Mine Area Feasibility Study](#)

07/01/08 [Operable Unit 2 Feasibility Study Report](#)

11/01/10 [Remedial Action Report Mine Area Operable Unit \(OU1\)](#)

09/14/11 [First Five-Year Review Report](#)

Community Involvement

Public Meetings: EPA is committed to involving the public in the cleanup decision-making process. Its Community Involvement Program focuses on answering the community's questions about the cleanup effort, providing information to the community about site activities, and incorporating community issues and concerns into Agency decisions, particularly when a cleanup remedy is proposed.

Community Involvement History:

In November 2000, EPA held public meetings in Grass Valley and Nevada City on our preliminary results from initial rounds of sampling.

In November 2001, EPA again held public meetings in the same locations, in cooperation with the Lava Cap Mine Superfund Coalition, recipient of an EPA grant to provide technical expertise to the community in understanding the Lava Cap cleanup. At these meetings, EPA presented the results of its human health and ecological risk assessments. EPA also began a discussion with community members on their preferences regarding possible actions EPA might take to clean up the site.

In December 2002, EPA conducted public workshops on cleanup alternatives for the Lost Lake area of the site and also met with area residents at home. EPA:

- described the process used to develop alternatives,
- presented sample alternatives,
- and conducted an exercises that allowed the community members to discuss the attributes of the site that they valued and wanted to retain or restore and to provide specific ideas about their preferred cleanup alternatives.

EPA incorporated the information from these sessions into the Feasibility Study for the Lost Lake operable unit of the site.

In February 2004, EPA held a formal public hearing on the [Proposed Plan](#) for the Mine Area of the site. See U.S. EPA Proposes Cleanup Plan for Mine Area Operable Unit Fact Sheet in Documents and Reports section above.

In August 2008, EPA invited the public to attend a public meeting to hear a presentation on the Proposed Plan.

EPA:

- discussed the results of the investigations into mine-related arsenic contamination in groundwater
- described the cleanup options EPA evaluated for addressing this contamination
- explained EPA's preferred alternative
- encouraged the public to comment on any or all of the alternatives

EPA considered all comments before the final remedy decision was made.

Public Information Repositories

Additional Links

Contacts

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EPA Community Involvement Coordinator

Amanda Pease

The public information repositories for the site are at the following locations:

Grass Valley
Public Library
207 Mill Street
Grass Valley, CA
95945
530-273-4117

Nevada County
Library
980 Helling Way
Nevada City, CA
95959
530-265-7050



contamination in September 2003. This investigation is ongoing under the Groundwater Operable Unit (OU2).

- In September 2004, EPA issued the Record of Decision (ROD) for the Mine Area Operable Unit (OU1).
- Cleanup at the Mine Area OU began in September 2005. To accelerate the cleanup, EPA split off the Mine Residences Operable Unit (OU4) from OU1. This enabled completion of this portion of the design in time for EPA to move forward with the excavation of contaminated soil from around one additional home (which was not included in the 2003 time-critical removal action detailed above) before winter 2005 (the end of the construction season). The cleanup of mine tailings at OU1 is scheduled for completion by the end of September 2006.

Current Funding Status

- To date, EPA has spent approximately \$5,662,000 for investigation work, design, and time-critical removal actions at this site.
- To date, EPA has allocated \$4,895,000 toward cleanup of the Mine Area and Mine Residences OUs.
- EPA estimates that an additional \$1,345,000 will be required in 2006 to complete the tailings cleanup at the Mine Area and Mine Residences OUs.
- EPA projects that an additional \$1,700,000 will be required in 2007 to undertake surface water cleanup at the Mine Area OU.