



Pillsbury Winthrop, Shaw Pittman LLP
50 Fremont Street | San Francisco, CA 94105-2228 | tel 415.983.1000 | fax 415.983.1200
MAILING ADDRESS: P. O. Box 7880 | San Francisco, CA 94120-7880

Gerald F. George
tel 415.983.1056
gerald.george@pillsburylaw.com

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Pamela C. Creedon
Executive Officer
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

**Response of Homestake Mining Company of California to Revised Draft
Cleanup and Abatement Orders for the Elgin Mine, the Wide Awake Mine and
the Central Mine, et al, Colusa County**

Homestake has received from the Regional Water Quality Control Board for the Central Valley (Regional Board), draft Revised Cleanup and Abatement Orders (CAOs), addressing abandoned mercury mining sites located along Sulphur Creek in Colusa County, California. By follow-up letter, dated May 29, 2009, the Regional Board requested initial comments on the draft CAOs by July 1, 2009. By this letter, Homestake comments on the Regional Board's inclusion of Homestake as a responsible party under the three CAOs, as well as on the terms of the draft CAOs.

Nature of Homestake's Involvement

Homestake has previously provided the Regional Board with letters summarizing its involvement with each of the three sites. (Attachments A, B and C). On June 24, the Board replied, stating that it "generally agreed" with Homestake's characterization of the mining history. In sum, that history shows that Homestake has had no involvement in the mining activities giving rise to the Regional Board's concerns at Sulphur Creek:

- The draft CAOs and the Board's own reports and supporting documentation confirm that the mining operations and associated waste rock and tailings that are the focus of the draft CAOs largely represent activities during the 1870's

and there has been little or no active mining at any of these sites for at least a half century.

- Homestake did not operate mines at any of the three sites. Homestake's involvement along Sulphur Creek was a century later, and involved limited exploration activities, not mining, during the period from 1978-1992.

The Board's reply continues to assert that Homestake's involvement with the three areas covered by the CAOs contributed to the mercury in the creek. Briefly stated, the Regional Board response asserts that exploratory work, including related road work, might well have contributed to erosion and increase mercury discharge to Sulphur Creek. As requested by the Board's June 24th letter, Homestake will be providing further information on those activities by July 24, 2009, so the impact of any exploration work at the Wide Awake Mine or on the parcel including the Central and other mines will be subject to further discussion.

Moreover, as the Regional Board's own reports on Sulphur Creek and Bear Creek repeatedly recognize, whatever the impact of erosion from areas of mining waste in the Sulphur Creek watershed, that is far from the only source of mercury to the creek given the naturally enriched soils along the creek and the abundant discharges of mercury and other metals from hot springs throughout the watershed. Indeed, a Phase I environmental assessment of the Central Mine, et al. parcel, was carried out in 1997 for the American Land Conservancy, by Erler & Kalinowski, Inc., in connection with Homestake's transfer of the property to the Conservancy subject to a conservation easement. The report (Attachment D) includes the observations of William Croyle, a Regional Board engineer, who accompanied the consultant on a survey of the property. The report noted the absence of adit flow or talus slopes associated with the abandoned mines, and included Mr. Croyell's opinion that the mercury in Sulphur Creek did not appear to be from the former mining operations but was more likely from the naturally-occurring geothermal activity. (Report, p. 5).

In this response, Homestake reiterates that whatever the impact of its activities at the various sites, they were no different than those of other landowners and lessees given notice by the Regional Board, and were relatively insignificant in duration, scale and certainly in potential for discharge of mercury to Sulphur Creek. Homestake's exploration activities were not extensive and involved rock and soil sampling and some drilling, with limited surface disturbance. The activities were also carried out under appropriate permits issued by the County and the State, with any drilling activities followed by reclamation and revegetation of any disturbed areas.

Homestake also unequivocally asserts that it has no liability with respect to the mine and mining waste addressed by the Elgin Mine CAO. Contrary to the assertion in the June 24th letter, Homestake did not have any lease giving it "exclusive possession of the [Elgin] mining property." Homestake had no lease on the Elgin Mine property. While its mining exploration and development lease with Terhel Farms and Bonneville Industries listed the general area in which the Elgin mine is located, the two patented mining claims on which the Elgin Mine and its retort were located were not covered by the lease, but were separately owned and controlled by another party. During that period when Homestake was engaged in limited exploratory work in the area, its personnel contacted the owner of the patented mining claims covering the Elgin Mine site, but were unable to negotiate an exploration lease for the property.¹

¹ Certainly the Lucientes family thought it held title to those two parcels. Documents in the Regional Board file for the Elgin Mine show that title was held by the Lucientes family, which transferred title, subject to a right of reverter, to a third party in 1971, with title then reverting to the Lucientes in 1978, and Richard Lucientes quitclaimed his interest in the claims to Jose Lucientes in 1998. Attachment E. Maps associated with the Terhel Farm lease (also found in the Regional Board file) and the terms of the lease itself indicate that the parcels were not included (Attachment F). Homestake's involvement with the Elgin is summarized in the Homestake memoranda attached as Attachments G and H, with the latter memo summarizing its contacts as follows:

The Elgin Mine is located principally on a nineteen acre patented mining claim in the southwest quarter of section 13, T 14 N, R6W. Also considered a part of the Elgin Mine is a 4.95 acre patented millsite located east of the lode patent and in the same quarter section. These two potential claims are owned by brothers Jose M. Lucientes, Jr. and Richard B. Lucientes, however, in a 1983 title report on the property, Mike Perenon notes that there are three distinct problems with the title

The two potential claims are completely surrounded by property owned by Bonneville Industries (ex-Terhel Farms ground) of Sacramento, California, and controlled by Homestake as part of the Cherry Hill land package. This property totals 176 acres and includes the remaining portions of the southeast ¼ of section 13, and the entire southeast ¼ of the southwest ¼ of section 13.

* * * * *

Homestake's current land acquisition activity involves trying to negotiate a mining lease agreement with the Lucientes brothers. After four years of contacting Jose in an unsuccessful effort to persuade him to discuss the matter with us, he finally relented in early 1987 to talk to Homestake about a deal. Negotiations by Jerry Carr went smoothly for a while, but stalled when Jose became increasingly unavailable for discussions. Currently, the negotiations are at a standstill, and it seems possible that a deal may never be reached with the Lucientes.

Accordingly, Homestake again requests that the Regional Board delete any reference to Homestake should it issue a CAO for the Elgin Mine.

Homestake also questions whether its limited involvement with the areas covered by the other draft CAOs would support liability under State law for discharging mercury to Sulphur Creek, or causing or contributing to a condition of pollution. Certainly, Homestake has had very limited connection with those two locations in terms of length of time and in terms of the nature of its involvement with the mines and mining waste. Under any reasonable and objective set of criteria for division of liability, Homestake would be little different than any of the twenty or more other parties given notice by the State. However, rather than litigate now over defenses to any liability, Homestake would prefer to enter into discussions with the Regional Board and the other recipients of the draft CAOs to develop an appropriate non-litigated resolution addressing the mining waste concerns that are the subject of those draft CAOs.

For any cooperative approach to be successful, however, it is important that the Regional Board recognize that it cannot place the burden of addressing the mining waste at Sulphur Creek on one or a small number of entities – over twenty other parties have been given notice by the Regional Board, and there are also other federal, State and local governmental agencies that have engaged in various activities potentially affecting mercury releases in these areas. If this effort is to be successful, all of these parties must share responsibility for addressing those problems.

In the expectation that the parties will be able to develop a cooperative arrangement, Homestake offers the following additional comments on the draft CAOs. Homestake's comments in this response apply generally to each of the three draft CAOs, in as much as each of them addresses mercury contamination within the Sulphur Creek watershed. Consistent with Homestake's view of its potential liability stated above, in providing comments, Homestake does not admit, and expressly denies, that it has engaged in any activity that would make it liable under State law for any discharge of contamination or any condition of pollution in Sulphur Creek or at the Elgin, the Wide Awake or the Central Mine, et al. sites.

Comments on the Draft CAOs

1. Timelines.

The proposed timeline in the CAOs is unrealistic and must be substantially extended to allow the parties an opportunity to coordinate and develop a thorough Conceptual Site Model which will define the

studies required to characterize and quantify mercury loading to Sulphur Creek from the various sources.

The draft CAOs as now drafted require a full site characterization and proposed evaluation and implementation of remedial options at all three sites. While the draft CAOs each incorporate a multi-year timeframe commencing with cleanup and abatement completed within three years (tentatively set as December 31, 2011 in the drafts), the dates for the initial characterization of the mining waste, including the determination of background levels, is set for mid-October, 2009. The draft CAOS, and the underlying TMDL reports produced for the Regional Board all indicate that the existing information identifying sources and estimating volume contribution to Sulphur Creek is inadequate, and that a more formal process must be undertaken, beginning with development of and agreement upon a Conceptual Site Model which would identify all potential sources of mercury to the creek and provide a framework for quantification of these sources. Given that any surface work would be limited to the dry season, the proposed timeline is unrealistic and must be substantially extended.

From the representations of the staff of the Regional Board at the May 6th meeting and in subsequent discussions, Homestake understands that site characterization is critical to achievement of the objectives of the CAOs and effective implementation of remediation at these sites. The first step in preparing a reliable site characterization, however, is development and agreement of all parties on a Conceptual Site Model addressing all of the mercury sources to the creek. If the site characterization begins without that initial agreement, we risk continuing disputes over the adequacy of characterization efforts as the parties move through a multi-year process.

The CAOs are intended to initiate implementation of the TMDL Report for Sulphur Creek. That Report identifies several sources of mercury – both anthropogenic and natural – to Sulphur Creek, and identifies an approach toward mercury cleanup and management that begins with, but does not end with, addressing the existing mine waste as a source of that mercury. In the course of discussing the inputs of mercury to the creek, that TMDL Report, consistent with the many underlying technical studies of Sulphur Creek, Bear Creek and the larger Cache Creek Watershed, acknowledges the uncertainty in many of the estimates of mercury loading to the Creek. The CAOs also call for characterization studies as a prelude to development of cleanup plans intended to meet a target for mercury levels in Sulphur Creek.

Accordingly, the Regional Board should delay setting the deadline for preparation of the workplan for site characterization to allow time for the noticed parties to form a joint effort to fund and develop an adequate Conceptual Site Model. It should then establish the timeline for development and implementation of a site characterization plan after that Conceptual Site Model has been submitted to and approved by Regional Board staff, i.e., when there is a better appreciation of the level of effort required to properly address coordinated site characterization at all of the locations along Sulphur Creek.

2. **Determination of Background.**

A critical initial step in the investigative process under these orders should be the characterization of all sources of mercury loading to Sulphur Creek, including reliable estimates of loading from natural background and non-mining anthropogenic sources.

The CAOs adopt the TMDL objective of returning the Sulphur Creek watershed to pre-mining baseline conditions. The TMDL Report identifies better estimates of background soil mercury concentrations as a "first step" in the development of a cleanup plan." (TMDL, p. 31), and the draft CAOs incorporate characterization of background levels as a central part of the mining waste characterization. (CAO's pars. 2, 5, 9) That first step should include not simply better characterization of background mercury concentrations, but also a much better understanding of the significance of mining waste in relation to natural and other anthropogenic activities in contributing mercury to Sulphur Creek.

That level of characterization is required if the Regional Board is going to develop an appropriate response through this CAO. Certainly we need to know what mining waste is there, what pathway exists for mercury in that waste to reach the creek, the conditions under which mercury in that waste would move down that pathway, and in what volumes. Without that information, we cannot know what impact removing the waste or the pathway would have in terms of loading to the stream.

But if the objective of the CAO is to return Sulphur Creek to pre-mining conditions, we need to have greater certainty than the current reports provide regarding the total mercury level in Sulphur Creek contributed by mining. We will have little assurance that time and money expended addressing the existing mining waste will improve conditions in the creek without significantly better information not just on the fate and transport of mercury

from the mining waste, but also on the mercury contributions from other anthropogenic activities and natural processes.

This is not because little is known about general conditions in the Sulphur Creek Watershed. It is because the level of contribution now assumed ignores or does not give appropriate weight to several characteristics central to effective management of mercury within the Sulphur Creek watershed.

- Sulphur Creek is an intermittent stream, with continuous flow in the fall and winter months, but no or only sporadic flow in the rest of the year, e.g., the staff reports that there is no surface flow in Sulphur Creek upstream of the West End mine in the summer. (Amendment to Basin Plan for Sulphur Creek WQO, p. 9) The base stream flow from April to November comes from geothermal springs and totals less than 2 cfs (TMDL report, p. 22).
- The natural quality of the water in the creek is poor. As the Regional Board staff acknowledged at the May 6th meeting, the draft CAO was in error in identifying the beneficial uses of Sulphur Creek, and the staff agree that the beneficial uses are highly limited due to the natural quality of the water, and do not include municipal, domestic or industrial water supply, or habitat for fish.²
- The Sulphur Creek watershed is a highly mineralized zone, with mercury and other metals entering the creek from geothermal springs and erosion of non mine related soil and rock naturally high in metals.
- The geothermal springs are significant contributors to the total mercury load to Sulphur Creek. (TMDL report, pp. 22-23.) The TMDL reports also identify other anthropogenic factors, e.g., erosion due to road cuts, road maintenance and grazing, and atmospheric deposition, as significant contributors of mercury. However, the reports quantify those factors only very generally, and, in estimating the contribution from hot springs located throughout the watershed,

² "Sulphur Creek has never supported these uses [the beneficial uses of municipal and domestic water supply (MUN) and human consumption of aquatic organisms] due to naturally occurring conditions that prevent them from being attained." Staff Report on Amendment of Basin Plan, p. 3.

used only the potential surface flows from the hot springs, which may represent a minor portion of the actual contribution from those sources to Sulfur Creek.

- The existence and volume of mine waste is identified at several locations within the watershed, but those locations are in some cases well away from the streambanks, so that contribution of mercury from the waste rock or tailings to the stream, if it occurs at all, would take place only after very heavy storm events. Where the waste or tailings piles are near the streams, they are often characterized as “vegetated,” which would also significantly reduce the erosion of mercury-bearing waste into the creek.³ Accordingly, depending on the particular location, the removal or sequestration of the identified material may have little or no impact on the mercury loading in Sulphur Creek.

In sum, while there may be no question that mining waste is a source of mercury to Sulphur Creek, there is also no question that it is only one of several sources, and the proportions contributed by each are uncertain and are likely highly variable. The total mercury loading estimates cited in the draft CAOs give an appearance of certainty to estimates that, in the original documents, are more properly considered qualitative than quantitative, presenting broad ranges based on assumptions that may not be well-founded given the actual conditions at the sites.⁴ Reliance on those estimates would create a high likelihood that attaining the “goal” – a return to pre-mining conditions in terms of mercury entering the creek⁵ – will not produce the

³ As the TMDL report itself states, “the actual amount of mercury delivered to the creek from all runoff is unknown,” not least because the amount of mercury actually entering Sulphur Creek can be affected by the fact that “erosion from these features may be immobilized by grass cover and redeposit on the hillsides.” TMDL Report, p. 18.

⁴ The estimates of mercury contribution from various sources often cover an order of magnitude from low to high. See, e.g., estimates from two reports on mining contribution in Table 4-1 of the 2003 TetraTech Engineering Evaluation and Cost Analysis for the Sulphur Creek Mining District.

⁵ “The goal for the mine sites is to eliminate all mercury inputs affected by mining.” (TMDL Report, p. 38.) The Report further states that reducing total mercury is intended to allow achievement of the methylmercury goals for fish in Bear and Cache Creeks. (TMDL Report, p. 39). The difficulty in remedy selection resulting from uncertainty about the volume of mercury entering the creek from mine waste sources is compounded by the lack of correlation between reductions in total mercury in sediment and reductions in the level of methylmercury in fish tissue.

targeted reduction of mercury levels in the creek surface water, simply because the mining waste may well not have been the source of the assumed 78% of the mercury entering the creek in this watershed (Table 5.1, TMDL Report).

3. **Scope of the CAOs.**

The provisions in the Wide Awake and Central Mine orders requiring plans to address “all remaining anthropogenic mercury impacts on Sulphur Creek” should be deleted from the proposed orders.

These CAOs solely address historical mining operations, and are based solely upon releases from the mining waste located upon the properties and their impact on Sulphur Creek. It is not appropriate for these orders to require that parties addressing the mining waste also be saddled with addressing all remaining anthropogenic mercury impacts on Sulphur Creek, once any existing mining waste is removed or sequestered, as now proposed in two of the three draft CAOs (Par. 14 of the Orders for the Wide Awake and Central Mine, et al. Revised Draft CAOs).⁶ The critical first step in the implementation of the CAO should be to come up with reliable estimates of mercury loading to Sulphur Creek for mining, other anthropogenic sources, and natural sources. With that information, remediation of the mining waste can be appropriately addressed.

Once the mining remedy has been implemented and evaluated, the Regional Board can make an informed determination and, if it finds it is necessary, issue a separate order addressing whether further action on other anthropogenic or natural sources ought to be required, and what parties should be responsible. In the alternative, it can address through separate orders now the implementation of restrictions on current activities in the watershed, such as limitations on grazing, or requirements for road maintenance and slope stabilization which properly should be the responsibility of the current landowners.

⁶ Without explanation, the order in the Revised Draft CAO for the Elgin Mine, which otherwise tracks the other two draft CAO's, does not include that provision.

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Conclusion

Homestake is willing to work with the Regional Board staff and the other noticed parties to address the issues raised in the draft CAOs about mercury loading from mining waste in the Sulphur Creek watershed. However, Homestake expects that this would be a joint effort by all of the parties, and that it will be appropriately designed and implemented to achieve the specific objectives of those orders.

Nothing in the many reports on Sulphur Creek suggests a need for immediate removal of all mining waste to protect human health and the environment from mercury in the Sulphur Creek watershed. The initial efforts toward implementation should build on the existing body of information to establish an agreed Conceptual Site Model and then more completely and reliably characterize the background soil levels and hot springs input, as well as the mining waste piles, and the erosion processes operating along the creek. With that information, the Regional Board, working with all parties, can determine the most cost effective approach and the most fair allocation of responsibility for addressing the issue of mercury present from both natural and anthropogenic sources in the watershed.

Respectfully submitted:



Gerald F. George
Pillsbury Winthrop Shaw Pittman LLP

Counsel for Homestake Mining Company of California

cc: Patrick Palupa, Esq.
Victor J. Izzo
Patti Turner