CLEANING-UP ABANDONDED AND ORPHANED MINES IN CALIFORNIA

A Case Comparison: Pacific Mine (UT) and the Mount Diablo Mercury Mine (CA)

The Good Samaritan Initiative

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PREFACE

This case comparison starts with a series of conclusions and recommendations drawn from the study that follows. Given the extensive use of acronyms in the document, a list of acronyms is provided for reference on page 50. In the body of the text, our use of acronyms varies from the convention of spelling-out the name of an object, phrase, place, or organization, and then abbreviating it by using the acronym in subsequent text. For the sake of readability and comprehension, we sometimes use the entire name and its acronym more than once. This study also employs the convention of italicizing key regulatory phrases, and *terms of art*, so the reader knows there is special meaning attached to those phrases, and further research of the subject matter can be done using that phrase. Also, while every effort was made to ensure consistency in terminology across the board, the following terms were used interchangeably to refer to a potential Good Samaritan: Respondent, owner/operator, landowner/Good Samaritan, and permittee. Finally, this study includes many footnotes, and an unusual amount of information contained therein. This text was too detailed to be included within the body of the report, but too valuable to exclude. The reader is free to disregard the footnotes altogether, or to used them as starting points for further research.

Conclusions and Recommendations

Conclusions

Pacific Mine/Snowbird

(1) **Trout Unlimited Took Risks:** TU took risks as the Good Samaritan and catalyzed a remarkable effort to clean up the Pacific Mine/Snowbird site. TU seemed well aware of the technical, legal, and financial dimensions of the challenge, yet they appeared undaunted in their quest. The importance of their willingness to take risks cannot be overstated when it comes to evaluating reasons for their success. Individuals and organizations in California will need to take risks well beyond their existing comfort zones if the Good Samaritan Initiative is ever to succeed in the Golden State.

(2) **Cleanup Costs in Utah:** Congress earmarked $150,000 for the Good Samaritan effort as a budget item under NRCS' Rural Abandoned Mine Program (RAMP). TU spent $134,212 of this amount for on-the-ground actions, and the rest covered NRCS' expenses for administering the cleanup. Snowbird contributed a significant amount of labor as in-kind services for earth moving activities, provided heavy equipment to perform this work (under contract with TU), and covered the fuel costs for the machinery. The Tiffany & Co. Foundation contributed significant funds to support the Project Manager position.

(3) **The Technical Approach in Utah:** The partnership in Utah (TU, USFS, and EPA) designed and implemented a successful cleanup plan at the Pacific Mine/Snowbird site that focused on reconfiguring and isolating the waste rock in a sealed repository. Continuing discharges of acid mine drainage (AMD) emanating from a plugged adit near the Pacific Mine was diverted away from the repository and routed to USFS' oxidation ponds before eventually reaching the river. The adit was not plugged under the Good Samaritan Initiative, but had instead been previously closed with an earthen plug. The diversion of the AMD prevented its contact with the consolidated waste rock (that would have mobilized additional pollutants), and maintained the structural integrity of the repository. From a regulatory standpoint, this allowed the remedial work to proceed without triggering complex, and potentially cumbersome, permitting requirements under two key federal laws (the Clean Water Act and Superfund). The oxidation ponds holding residual flows of AMD near the American Fork Canyon (AFC) River might still pose an environmental risk, so it might be worthwhile to see if the residual flows of AMD could be reduced further, treated, or eliminated.

(4) **Regulatory Flexibility under Existing Law:** Superfund's Good Samaritan provision at CERCLA §107(d) allows Good Samaritans to cap waste rock piles without incurring liability. Furthermore, the 1987 amendments to the CWA, and the associated implementing regulations, addressed stormwater runoff from industrial and mining sites, and exempted from liability activities that divert the runoff of clean water away from waste materials. These provisions encourage sound management practices at mining sites, and would not hinder Good Samaritan efforts to divert clean water away from waste materials -- assuming the diversion structures do not come into contact with pollutants.

Likewise, without a release, or threatened release, of a hazardous substance, there is no liability under CERCLA for diverting clean surface waters away from waste materials. Assuming water diverted away from waste rock remains uncontaminated when it is released into the watershed, a release of a hazardous substance is not caused. Thus, the utilization of runoff control techniques presents no risk of CERCLA liability.

(5) **Hey, Mining Industry – We Miss You ;-):** Without federal funding, the Good Samaritan cleanup of Pacific Mine may not have happened -- despite the vision and perseverance of TU, USFS, EPA, and Snowbird. The RAMP funding from NRCS seemed to catalyze contributions from Snowbird and Tiffany. However, it appears the mining industry itself offered neither funding nor in-kind resources to the cleanup. If "voluntary" cleanups actually depend upon federal funding, then the Good Samaritan Initiative may be little more than an informal, federally-funded alternative to Superfund cleanups. As such, the ultimate scope and effect of the Initiative could be quite limited.

Mount Diablo Mercury Mine

(6) **The CWA's Citizen Suit Provisions:** It appears Good Samaritans can only be shielded from CWA citizen-suit provisions if they obtain a NPDES permit from the State of California (i.e., one of the Water Boards). Otherwise, the Good Samaritan may be vulnerable to third-party lawsuits -- even if they successfully reduce pollutant discharges into surface waters below baseline levels. Good Samaritans could avoid legal liability by only taking actions that do not result in a "discharge of pollutants" or a "release of a hazardous substance."

(7) **Discharge of a Pollutant:** The term *discharge of a pollutant* means the *addition* of any *pollutant* into *navigable waters* from any *point source*. A point source is defined as any *discernible, confined, and discrete conveyance* such as a pipe, ditch, channel, tunnel, conduit, well, and discrete fissure. Point sources also include structures where contaminated "surface runoff which is collected or channeled by man." Most abandoned/orphaned mine sites contain a discernible, confined, or discrete conveyance that could be characterized as a point source. Thus, discharges of pollution from abandoned/orphaned mines into a waterbody that is hydrologically connected with navigable waters -- including *point source discharges* from draining adits -- can be regulated under the CWA.

(8) **The *Catch 22* of Incremental Improvements:** By collecting or channeling pollutants, there is a recognizable place where those pollutants are added or introduced into a waterbody -- regardless of where the pollutants originate. Following this logic, after pollutants are initially released from a mine, every place downstream where the polluted water is collected or channeled would constitute a point source that triggers liability for whoever controls the structure(s). Given the case law, any Good Samaritan activity that can be characterized as discharging a pollutant from a point source into a navigable water will likely require a discharge permit. Moreover, from a regulatory perspective, it may be irrelevant whether a Good Samaritan intends to improve, or

actually does improve, water quality over baseline conditions if their activities ultimately result in a *discharge of pollutants*.

(9) **Legislative Fix:** Legislation introduced during the 110th Congressional session (H.R. 4011) sought to decrease or eliminate the legal vulnerability faced by Good Samaritans by amending CWA §402 to allow federal, state, and tribal governments to issue *Good Samaritan discharge permits* to qualified entities. While this bill never became law, Trout Unlimited and their partners demonstrated it was possible to achieve successful voluntary cleanups even in the absence of new legislation.

(10) **Cleanup Costs in California:** In 2006, the Contra Costa County Flood Control and Water Conservation District (District) estimated *planning* costs for the cleanup would total $960,000, and a newspaper article cited a $3 million estimate for *implementation* costs. In 2008, Congress earmarked $517,000 to be administered by the U.S. Army Corps of Engineers under the Restoration of Abandoned Mines Sites (RAMS) program. A good share of this money was awarded to the District to help cover planning costs for convening a "Technical Project Planning Process" that engaged all known stakeholders.

(11) **Missed Opportunities:** Reportedly, over the years, the landowner has spent $250,000 moving 45,000 tons of material at the Mt. Diablo Mercury Mine. It appears this site work was done without the concurrence and approval of the Water Board, and was not in accord with the Clean-up and Abatement Order issued by the Water Board in 1978. Ideally, the well-meaning work by the landowner would have brought the site into at least partial compliance with the Order.

(12) **Straightforward Cleanup Actions:** Scientists from University of California at Davis (UCD) have recommended relatively straightforward actions aimed at reducing the amount of AMD formed at the site and discharging into the Marsh Creek watershed.

(13) **Challenges Posed by Underground Workings and Draining Adits:** A network of tunnels and shafts, some collapsed, underlay the Mt. Diablo Mercury Mine. The site's condition contributes to complex drainage processes where groundwater probably creates a significant fraction of the AMD generated at the site. Theoretically, extraction wells could be installed, and perpetually operated, to intercept and divert clean groundwater before it contacted acid-forming minerals underground, but this would be a complex endeavor for a Good Samaritan. Without extensive engineering work, it might be difficult to control the underground formation of AMD, and the mine would probably continue to yield a significant volume of AMD. If, due to financial and regulatory constraints, the Good Samaritan focuses only on consolidating and sealing above-ground mine waste, and diverting the runoff of clean water away from waste materials, a significant source of the pollution would go unabated.

(14) **Impermeable Liner Versus Vegetated Cap:** An impermeable liner was used to seal the waste repository constructed for the Pacific Mine/Snowbird cleanup, and this was apparently needed for the intense weather at high elevations, and the mountainous terrain. With milder weather at the relatively low-elevation Mt. Diablo Mercury Mine, it may be

possible to achieve the same level of environmental protection through the installation of an evapotranporative, vegetated cap. A cap thicker than 4 feet would probably be needed in the Coast Range.

(15) **The State Implementation Policy (SIP):** When SWRCB developed the SIP, the State might not have anticipated how difficult it would be to regulate abandoned mine cleanups using the SIP. Consistent with the goals of the NPDES program, the SIP requires that NPDES permits contain numeric effluent limits for priority pollutants. Priority pollutants include heavy metals commonly found in AMD, e.g., aluminum, arsenic, cadmium, copper, lead, magnesium, mercury, nickel, and zinc. The SIP assumes all sources of pollution can be addressed or eliminated.

(16) **The Numeric Effluent Limit Conundrum:** The Central Valley Water Board has concluded that it might not be practical for regulators to require numeric effluent limits in NPDES permits for every proposed cleanup of every abandoned mine. Unlike industrial and municipal discharges, the discharges of AMD from abandoned mines resemble stormwater runoff as they share common characteristics influenced by storm events, i.e., variable rates of discharge and variable mixes of pollutants. In some cases, regulating discharges from abandoned mines could be tantamount to battling a full spectrum of natural forces (e.g., erosion, seepage, and landslides) – forces made more powerful by the historical plundering and destabilization of natural landscapes and watersheds.

(17) **Numeric Effluent Limits at Mt. Diablo Mercury Mine:** Given the proximity of the Mt. Diablo Mercury Mine to suburban infrastructure, the Water Board may deem it feasible to install and operate a treatment plant at the site, and to impose SIP-based numeric effluent limits on the landowner/Good Samaritan.

(18) **Numeric Limits and a BMP-based Approach:** Remarkable reductions in the discharges of AMD can be achieved by implementing a comprehensive package of BMPs (the "BMP-based approach") -- in some cases, up to 99% of the pre-project pollutant loads have been sequestered and/or prevented. While, in certain circumstances, the Water Board has allowed for the BMP-based approach in lieu of numeric effluent limits, these two approaches are not mutually exclusive. Under existing State and federal rules, the Water Board might continue to find it programmatically difficult to allow landowners/Good Samaritans to pursue the BMP-based approach in lieu of numeric effluent limits because the residual, continuing discharges might not comply with the limits derived from the SIP-based approach.

(19) **Compliance -- Past and Present:** In concept, if the landowner/Good Samaritan wished to pursue a cleanup of the Mt. Diablo Mercury Mine, the Water Board could issue a conventional NPDES permit to the landowner/Good Samaritan as an *operator* of the site. In turn, the Water Board could take enforcement action against the permittee when, and if, the numeric effluent limits are exceeded. Under this scenario, there would be no incentive for the landowner/Good Samaritan to pursue a voluntary cleanup in the first place, and to apply for a NPDES permit. Ideally, a landowner/Good Samaritan would possess the wherewithal to pursue a voluntary cleanup of the site, and the Water Board

would issue to them a unique NPDES permit -- both consistent with prevailing regulatory programs, and tailored to resolve the outstanding Clean-up and Abatement Order issued to the landowner in 1978.

(20) **Strength in Numbers:** If the landowner/Good Samaritan successfully obtains a NPDES permit from the Water Board for the Mine cleanup, and the permit authorizes some level of residual, continuous discharges of AMD, the exposure of all parties to litigation under CWA's citizen suit provisions might be minimized, but not eliminated. Perhaps no landowner/Good Samaritan can be shielded entirely from the risk of legal liability under CWA when pursuing a voluntary cleanup, but if they engage and garner support from most or all interest parties, there will be strength in numbers if the proposed project is contested. Good Samaritans must weigh the potential environmental and public health benefits of their remedial activities against unknown, potential legal risks.

(21) **Different Approaches = Different Outcomes:** The federal Coal Re-mining rule allows companies to excavate coal out of old and abandoned coal mines in exchange for the cleanup of these mines once the re-mining is completed. The Good Samaritan Initiative allows limited recycling or incidental reprocessing of historic mine tailings necessary for, and directly related to, the cleanup of a hard rock mine, but prevents the extraction of remaining ore deposits.

Compared to the Coal Re-mining Rule, the Good Samaritan Initiative lacks economic incentives that would encourage government supervised, voluntary cleanups of abandoned mines. At the same time, if agencies cannot pursue cleanups of abandoned/orphaned mines (e.g., the sites aren't designated on federal or state Superfund lists, and/or the agencies do not possess the necessary staffing and funding to take enforcement actions against potentially responsible parties), the Good Samaritan Initiative appears to lack the necessary catalyst for spurring cleanup actions at abandoned mine sites. Instead, the Good Samaritan Initiative appears to rely on altruism – a commodity as rare as any precious metal sought by prospectors.

Recommendations

<u>Mount Diablo Mercury Mine</u>

(1) **Refining the Cost Estimates:** The Contra Costa County Flood Control and Water Conservation District (District) estimated the planning phase would cost ~$960,000, but only $517,000 was earmarked by Congress. Originally, the planning phase included the preparation of liability-limiting documents, but the Model Letter and Model Agreement issued by EPA and DOJ in June 2007 addressed most, if not all of the CERLA-related liability concerns. Therefore, perhaps the cost estimates pertaining to the planning phase for the Mt. Diablo Mercury Mine cleanup could be reduced. Given the Pacific Mine/Snowbird cleanup cost $200,000+, and estimated costs for the planning and implementation of the cleanup at the Mt. Diablo Mercury Mine have been as high as $4 million, stakeholders should revisit the estimated costs for the cleanup of Mt. Diablo Mercury Mine to determine whether there is consensus around the cost estimates. (2)

Required Reading: Stakeholders should study the State's *Amendment to Water Quality Control Plan and Action Plan for Mining*, and the federal rules at 40 CFR 122.44(k)(3) as aspects of these governing documents may apply to the proposed cleanup of the Mt. Diablo Mercury Mine. Also, attention should be paid to the eventual court ruling in the lawsuit brought by the California Sportfishing Protection Alliance against the Central Valley Water Board regarding Spanish Mine to see whether the legal ruling has bearing on the potential cleanup of other abandoned mines. Finally, federal and State regulators should review EPA's regulations for the re-mining of old and/or abandoned coal deposits, and determine whether the underlying logic could be applied to the voluntary cleanup of abandoned hard rock mines.

(3) **Finding a Good Samaritan:** While the District should be applauded for its stated desire to serve as a Good Samaritan, it might be impossible for federal and State regulatory agencies to deliver enough certainty to satisfy their lingering liability concerns. Eventually, Congress might pass legislation that would address the District's liability concerns, and provide a source of funding to pay for the voluntary cleanups. Alternatively, if a more immediate cleanup is desired, stakeholders should consider identifying another candidate who could serve as the Good Samaritan. This entity would need to accept the liability risk that has kept the District at bay, and possess the technical capability and fundraising expertise to help orchestrate and supervise a cleanup.

(4) **All of the Above?:** Stakeholders should discuss whether a comprehensive package of BMPs at the Mt. Diablo Mercury Mine (e.g., the capping of waste in repositories and the diversion of clean water away from waste materials) coupled with the construction and operation of extraction wells (to intercept groundwater and keep it clean) and an on-site treatment plant (to treat AMD) could collectively meet numeric effluent limits and water quality standards. Maintenance requirements might entail hiring licensed hazardous waste experts to dredge and dispose of mercury-laden sediments from the existing settling pond, or from new detention basins or constructed wetland treatment systems installed during the cleanup. Monitoring requirements might entail the hiring of scientists sample and analyze surface water, sediment, and fish tissue consistent with the prevailing scientific protocols set by the SWRCB.

Also, stakeholders should discuss whether a BMP-based approach outlined by the Water Board would be an acceptable alternative to a traditional NPDES permitting approach that specifies numeric effluent limits. The BMP-based approach would focus on achieving overall decreases in pollutant loading -- and corresponding increases in ambient water quality -- within a relatively small geographical area, e.g., an historic mining district, rather than focusing on reducing individual point-source discharges into specific stream segments. Under this scenario, EPA might ask the State to prepare a *use attainability analysis* (UAA) and *numeric site-specific water quality objectives* (SSOs), and it would be important to demonstrate how the BMP-based approach would be consistent with State's *Amendment to Water Quality Control Plan and Action Plan for Mining*, and the federal rules at 40 CFR 122.44(k)(3). Implementation of a BMP-based approach might provide a level of environmental protection unattainable through strict adherence to the tenets of the SIP-based approach, or through a traditional NPDES permit (both of which might discourage voluntary action).

(5) **Post-Project Monitoring and Site Controls (Stewardship):** The District appears unwilling to accept obligations for post-project monitoring and site controls (stewardship), and it appears the landowner does not possess the capacity for this task. The stakeholders should identify candidates willing to accept this role, and establish an endowment for perpetual funding of this stewardship role. Given the proximity of the site to Mount Diablo State Park, and several important properties managed by the East Bay Regional Parks District, and assuming the site can be stabilized and restored consistent with the goals of these conservation landscapes, a conservation-minded entity might be willing to accept this role if the terms, conditions, and financial arrangements are reasonable, and if the landowner donated an easement for the mine site to the stewardship organization[1]. If stakeholders cannot readily identify an entity for this stewardship role, then one might need to be created from scratch. In turn, regulatory agencies might need to issue a BMP-based NPDES permit to the stewardship organization that both recognizes the near inevitability of residual AMD discharges, and permanently shields the steward from legal liability.

Introduction

In June 2006, California's Department of Water Resources (DWR) awarded a grant to Sustainable Conservation to study and advance the Good Samaritan approach for cleaning-up *abandoned* mines. The grant was awarded under the CALFED Bay-Delta Watershed Program in recognition that acid mine drainage (AMD) from abandoned mines located throughout the Bay-Delta watershed present a threat to public health and the environment. While the study began with a focus on abandoned mines, we gained a appreciation of *orphaned* mines too. An abandoned mine is inactive and still held by a landowner or company, while an orphaned mine is inactive, but where ownership cannot be determined). Sometimes the status of the mine cannot be determined without a search for *potentially responsible parties* (PRPs).

In this Case Comparison, we compare the approach taken by Trout Unlimited (TU) for cleaning-up hazardous waste from abandoned mines in Utah, with the approach being taken in California to pursue remediation of the abandoned Mount Diablo Mercury Mine (Mt. Diablo Mercury Mine) in Contra Costa County.

[1] The California Department of Parks and Recreation (http://www.parks.ca.gov/); Save Mount Diablo (http://www.savemountdiablo.org/home.htm); East Bay Regional Parks District (http://www.ebparks.org/parks#ne); Center for Natural Lands Management (http://www.cnlm.org/cms/).

CERCLA (Superfund), the Clean Water Act, and the General Mining Law

CERCLA

On 11 December 1980, Congress enacted The Comprehensive Environmental Response, Compensation, and Liability Act (known as CERCLA or "Superfund") in response to a growing realization that the storage and disposal of hazardous waste nationwide was out of control[2]. CERCLA liability arises when there is a *release* of a *hazardous substance* from a *facility* by past or present *owners* or *operators* of the facility, or by any person who *arranges* for the disposal or treatment of a hazardous substance.

The U.S. Environmental Protection Agency (EPA), or states by delegation from EPA, can take cleanup actions independently and seek reimbursement from PRPs, or order PRPs to take cleanup actions under government supervision[3]. Anyone producing, storing, using, and disposing of hazardous substances could be held retroactively liable, i.e., liable for releases that occurred prior to the enactment of CERCLA[4]. CERCLA's liability framework provided government with the leverage necessary to clean up hazardous waste sites added to the National Priorities List (NPL)[5].

The *Valley of the Drums*, an infamous 23-acre site in Bullitt County, KY, circa 1979, USEPA.

CERCLA §107(d)(1) exempts Good Samaritans from liability under the Superfund statute "as a result of actions taken or omitted in the course of *rendering care, assistance, or advice* in accordance with the National Contingency Plan [NCP][6] or at the direction of

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[2] http://www.epa.gov/superfund/policy/cercla.htm
[3] McAllister, Sean T. *Unnecessarily Hesitant Good Samaritans: Conducting Voluntary Cleanups of Inactive and Abandoned Mines Without Incurring Liability.* Environmental Law Reporter (ELR) News & Analysis; 33 ELR 10249-10250. 2003. http://www.restorationtrust.org/goodsam.pdf
[4] http://www.epa.gov/superfund/contacts/sfhotlne/liab.pdf
[5] http://www.epa.gov/superfund/sites/npl/npl.htm
[6] http://www.epa.gov/oilspill/ncpover.htm

an [EPA-designated] on scene coordinator [OSC]." This liability protection was imported into the Good Samaritan Guidance and Model Agreement outlined below. While cleanups under CERCLA §107(d)(1) must comply with the substantive environmental standards in all *applicable and relevant and appropriate requirements* (ARARs), i.e., promulgated federal and state environmental protection standards, parties conducting cleanups under CERCLA are not required to obtain federal or state permits, such as discharge permits under the federal Clean Water Act (CWA)[7]. While this exemption seems to clear all the regulatory obstacles from the paths of Good Samaritans, complying with ARARs can be extremely challenging (please see page 32).

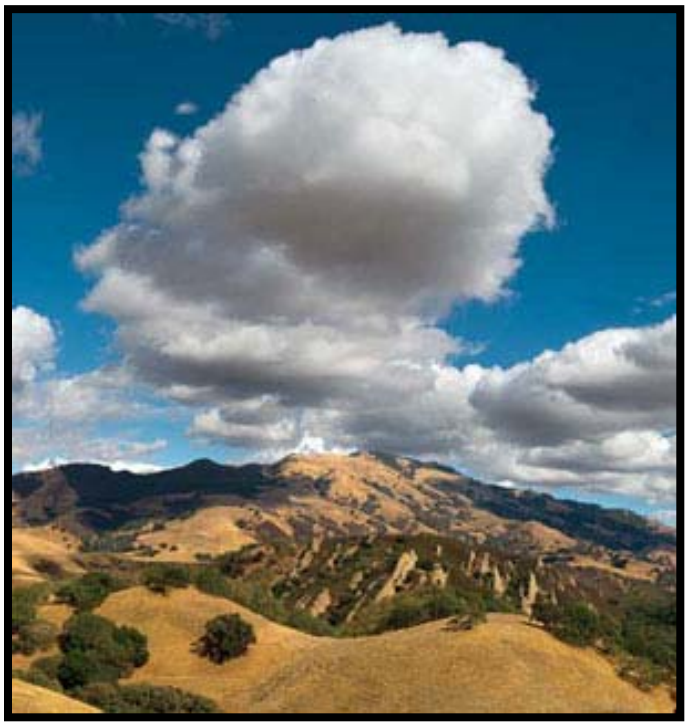
CWA

The Clean Water Act (CWA) requires EPA or the states to set water quality standards for individual water bodies with the goal of making all waterbodies in the United States *fishable or swimmable*. The process begins by setting *beneficial use designations* for individual water bodies, such as municipal and domestic supply, agricultural supply, cold freshwater habitat, and water contact recreation. Based on these designations, EPA or the states set specific *numeric*, or less-specific *non-numeric* (narrative), water quality standards to protect the designated beneficial uses.

Once water quality standards are set, the CWA empowers EPA or the states to restrict discharges of pollutants with permits under the National Pollutant Discharge Elimination System (NPDES) -- or their equivalents ("discharge permits") at the state level. Discharge permits must contain limitations tight enough to ensure compliance with applicable water quality standards, and limitations for industrial discharges are enforceable by the states, EPA, or through *citizen suits*.

Some potential Good Samaritans fear they will be liable under CERCLA and the CWA if their cleanup efforts result in the *release of a hazardous substance* under CERCLA, or in the *discharge of pollutants* under the CWA[8].

[7] McAllister, Sean T. ELR News & Analysis; 33 ELR 10256-10257. 2003.
[8] Ibid. 33 ELR 10247.



RHINE CANYON (in Mount Diablo State Park) Named for Charles Rhine[9].

Mining Laws and the Trouble with Acid Mine Drainage (AMD)

In 1872, Congress enacted the primary federal law governing hardrock mining. During this period, the federal government had undertaken programs to encourage the rapid settlement and development of the country. Congress intended the 1872 General Mining Law to encourage mining, and to transfer land from government to private ownership rather than to regulate the environmental impacts of mining. This antiquated law remains in effect today, and one of its most notable features is the complete lack of provisions relating to environmental protection. In contrast to hardrock mining, coal mining is regulated by a more modern federal statute, the Surface Mining Control and Reclamation Act (SMCRA)[10].

Acid mine drainage (AMD) forms when precipitation, surface-water, or groundwater mixes with sulfur-laden waste rock and its acid-forming minerals either above ground, or

[9] Charles Rhine (1838-1920) was a native of Poland. In 1857, he came to California and Contra Costa County where he opened a general merchandise store with partner Joel Clayton. Also, he owned and operated a 900-acre farm, and served as the postmaster in Clayton. The nearby "Rhyne [sic] Quicksilver Mine" may have been named for Charles. Mining operations commenced as far back as 1875, and helped propel the tiny community of Clayton into a thriving town. Deposits of the hard blue serpentine and red cinnabar became a valuable source of mercury for the country's munitions industry. http://rhinesville.com/graphics/thumbs/v06n03s_391.jpg

[10] Kodish, Jeffrey A. *Restoring Inactive and Abandoned Mine Sites: A Guide to Managing Environmental Liabilities.* Kodish Legal Guide.DOC; pages 102, 104. 2002.

within the underground workings of a mine. The waste rock, water, and air react to form sulfuric acid that dissolves and mobilizes heavy metals contained in the rock (e.g., aluminum, arsenic, cadmium, copper, lead, magnesium, mercury, nickel, and zinc), and this AMD can drain, leach, and seep into regulated waterbodies. When it comes to considering the legal, regulatory, and technical aspects of proposed voluntary cleanups of *abandoned*/*orphaned* mines, the discharge of AMD from adits (nearly horizontal entrances to a mine where precipitation enters, and/or AMD exits, a mine) is of critical importance. Discharges of AMD from abandoned/orphaned mines threaten to disrupt ecosystem functions and contaminate drinking water supplies for thousands of years if left unaddressed[11].

Good Samaritan Guidance and Model Agreement

Western governors, leaders of federal agencies, and members of Congress sought to remove perceived disincentives to the cleanup of abandoned mines by pursuing an approach now known as the Good Samaritan Initiative[12].

On 6 June 2007, EPA and the U.S. Department of Justice (DOJ) released *Interim Guidance for Good Samaritan Projects and a Model Settlement Agreement and Order on Consent for Removal Actions at Orphan Mine Sites* (Guidance and Model Agreement). There are distinctions between *abandoned* and *orphaned* mines, but these terms are used interchangeably in many documents pertaining to the Good Samaritan Initiative (please see page 45).

The Guidance and Model Agreement were designed to provide legal protections (liability coverage) to Good Samaritans -- including a federal covenant not to sue under CERCLA, *and* protection from third-party lawsuits[13]. The Model Agreement was fashioned after a site-specific Administrative Order on Consent (AOC) that cleared the way for cleaning-up of the Pacific Mine on the North Fork of the American Fork Canyon (AFC) River in Utah County, Utah.

<u>The Good Samaritan Guidance and Model Agreement</u>:

(1) Focus on abandoned hard rock mines;

(2) Address sites that are not of federal interest, i.e., sites not listed or proposed for inclusion on the NPL, and not the subject of ongoing or planned removal actions;

(3) Address legal uncertainties for volunteers while preserving CERLA's fundamental "polluter pays" principle; and

[11] McAllister, Sean T. ELR News & Analysis; 33 ELR 10245. 2003.
[12] http://www.epa.gov/ow/goodsamaritan/; http://goodsamaritaninfo.org/resources.htm
[13] http://www.epa.gov/water/goodsamaritan/

(4) Define a *Good Samaritan* as:

- ► a *person* rendering care, assistance, or advice in accordance with the NCP or at the direction of an OSC, by volunteering to clean up an abandoned mine site (Orphan Mine Site),
- ► a person who is not the past or current owner of the property in question, and one who has no intention of purchasing the property in the future,
- ► a person who is not potentially liable under any other federal, state, or local law for the remediation of existing contamination,
- ► individuals, corporations, non-profit organizations, states, local governments, and municipalities that meet the criteria summarized above;

(5) Allow Good Samaritan cleanups to be funded with federal funds unrelated to CERCLA such as federal grants, or special Congressional appropriations;

(6) Provide the Good Samaritan with legal protections (liability coverage) -- including a federal covenant not to sue under CERCLA[14], *and* protection from third-party lawsuits[15].

(7) Anticipate that abandoned mines affecting *waterbodies* will be targeted for cleanup under this voluntary program, and that *water quality standards* pertinent to potential discharges of pollution from these sites should be treated under CERCLA as ARARs;
(8) Require Good Samaritans "to meet site-specific workplan requirements for water quality…to ensure that the project results in environmental improvement" in cases where EPA "has determined that attainment of water quality standards is not practicable given the exigencies of the situation…;" and

(9) Allow limited recycling or incidental reprocessing of historic mine tailings necessary for, and directly related to, the cleanup, but prevent the new extraction of remaining reserves.

[14] http://www.epa.gov/superfund/policy/cercla.htm
[15] http://www.epa.gov/water/goodsamaritan/

Case Comparison

The Utah Experience

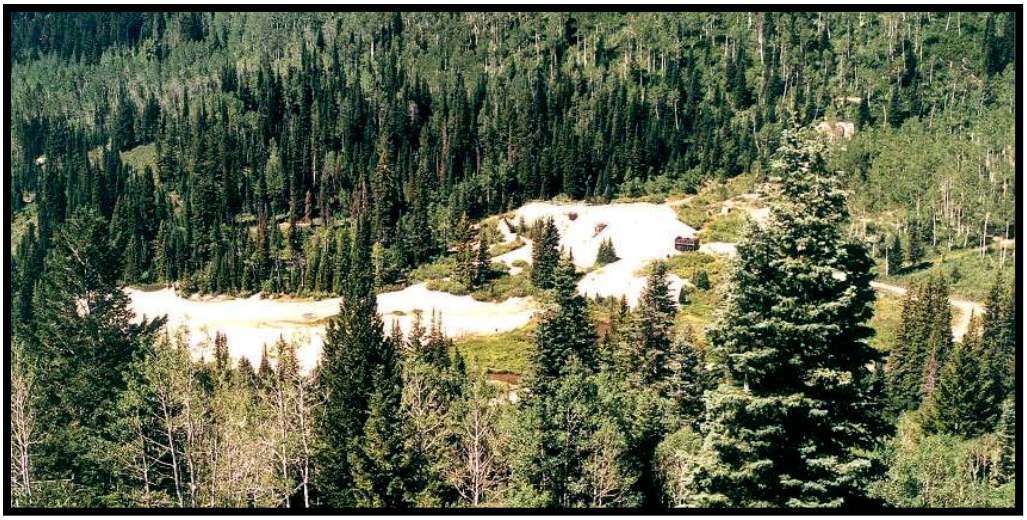
Setting

The AFC River watershed, located southeast of Salt Lake in the Wasatch Mountains, was a favorite mining area for 19th-century prospectors[16]. The area became demarcated as the American Fork Mining District within Mineral Basin, and today is encompassed by the Uinta-Wasatch-Cache National Forest (Pleasant Grove Ranger District) [17]. The ecological health of the watershed remains impaired today by the legacy of waste left behind by gold and silver mining operations. In recent times, public demand has increased for all sorts of recreational activities within the National Forest, and, remarkably, a remnant population of native Bonneville cutthroat trout (*Oncorhynchus clarki*) continues to persist in the River. This species is being studied by the US Fish and Wildlife Services for listing under the Endangered Species Act[18].

The American Fork Canyon River, Utah, M.Strozewski.

Given the ongoing risks posed by unmanaged mining wastes to human health and the environment, there was good justification to pursue the cleanup of abandoned mines within the American Fork Mining District. In 2003, the U.S. Forest Service (USFS) commenced a cleanup of a contaminated mill tailings pond and a small waste-rock pile located on its holdings within the National Forest – including parcels associated with the Pacific Mine Site and the North Fork AFC River.

[16] http://www.nytimes.com/2004/08/18/national/18mine.html?ex=1250481600&en=0d907549a505ac0a&ei=5090&partner=rssuserland
[17] http://www.fs.fed.us/r4/uwc/
[18] http://www.fws.gov/mountain-prairie/species/fish/bct/



Pacific Mine Waste Rock Pile and Mill Tailings Pond prior to cleanup in 2002
Published in *American Fork Canyon Home Rivers Project,* Ted Fitzgerald, TU, 2006

USFS consolidated the waste occurring on federal property, and placed it in a repository constructed on Dutchman Flat. However, given the bizarre patchwork of land ownership in Mineral Basin, not all the mine waste at the Pacific Mine Site was conveniently confined to federal property. Mine waste was also present on an adjacent parcel of private property owned by Snowbird Ski and Summer Resort (Snowbird). USFS did not touch the mine waste located on the Snowbird parcel. In the 1960's, Snowbird had acquired mineral-patented lands and abandoned mines in the area before the environmental threats posed by such lands, and the potential liability associated with land ownership, were fully recognized[19].

The non-profit Trout Unlimited (TU) stepped forward as an agent willing to take-on the potential risk and complications associated with the cleanup of the Snowbird parcel. In March 2003, as part of TU's Home Rivers Initiative, they initiated a cleanup of the Snowbird portion of the Pacific Mine Site as a continuation of the work commenced by USFS on the federal portion of the Site. TU's project was aimed at reducing heavy metal concentrations in the River -- waters that support the *beneficial use* of a *cold water fishery* as designated by the State of Utah. Mine waste on the Snowbird portion of the Site included a hillside and historic mill where ores were once processed, a large waste rock pile containing ~30,000 cubic yards of material, and two satellite waste rock piles of 1,000 and 3,000 cubic yards, respectively[20].

Threat to Public Health and the Environment

In a Pollution Report prepared by EPA's On-Scene Coordinator (OSC) for the Snowbird/Pacific Mine Site cleanup, high concentrations of metals were recorded at the Site in waste rock, tailings, and mine drainage from the former Pacific Mill site,

[19] http://www.cooperativeconservationamerica.org/viewproject.asp?pid=508
[20] http://www.tu.org/site/c.kkLRJ7MSKtH/b.3205851/apps/s/content.asp?ct=4398617

Scotchman 2, Blue Rock, and Pacific Mine & Mill Tailings/Rock Pile. The areal extent of this waste deposit was variously characterized by the OSC as covering ~10 acres[21], and by the Administrative Order on Consent (AOC) for the Snowbird/Pacific Mine Site as covering ~3 acres[22], hereafter referred to as the "site-specific AOC" to distinguish it from the model AOC written by EPA and DOJ for the Good Samaritan Initiative overall.

The site-specific AOC described the threat posed by the Snowbird/Pacific Mine --saying that "(h)umans and wildlife are at risk from exposure to the waste materials…[and that] current and future recreational users…may be exposed to waste materials and dust containing arsenic, cadmium, copper, lead and zinc via the inhalation and ingestion pathways...[and that]…[r]unoff from copper and zinc at these areas may impair the water quality, recreational fisheries and overall health of the American Fork River[23]."

The Pollution Report prepared by EPA's OSC indicated that mine tailings at the Site impinged on the River – in some places actually comprising the banks of the River – and contained an abundance of heavy metals in the surface soil, including arsenic (165 parts per million), barium (1,850 ppm), cadmium (44 ppm), copper (335 ppm), iron (14,000 ppm), lead (average concentration of 17,000 ppm), and zinc (6,000 ppm). Biological inventories revealed that macro-invertebrate populations in the River fell from ~14,000 individuals per square meter upstream of the Site to less than 4,000 downstream from the Site, and the diversity index of species fell from 12 to 8. Also, fish downstream of the site were burdened with an <u>average</u> of 10 times as much lead in their tissue (and a <u>high</u> of 20 times) compared with samples taken upstream of the Site[24].

Legal Framework

The site-specific AOC was prepared and entered into voluntarily by EPA Region 8 (Denver), DOJ, and TU to address "removal actions" on four waste sites on the North Fork of the AFC River -- collectively known as the Pacific Mine Site[25]. The purpose of the site-specific AOC was to "*settle and resolve…any potential liability of the Respondent under Section 101 of CERCLA…for the Existing Contamination at the Site property which might otherwise result from performance of cleanup*." Also, The site-specific AOC required that all on-Site actions attain any ARARs prescribed by State and federal laws, to the extent practicable as determined by EPA[26].

TU was named as the "*Respondent*" for the purpose of writing and executing the AOC. This term is typically reserved for parties responsible for unauthorized activities, but, in this case, the AOC designated TU as the Respondent as a way to give them the liability protection they sought as a prerequisite for pursuing the cleanup of the Snowbird/Pacific

[21] Stevenson, Peter. <u>Pollution Report: American Fork/Pacific Mine/Trout Unlimited Site</u>. EPA R8, 2006.
[22] AOC for the Snowbird/Pacific Mine Site (Part II.7.r).
[23] Ibid (Part III.13).
[24] Stevenson, Peter. <u>Pollution Report: American Fork/Pacific Mine/Trout Unlimited Site</u>. EPA R8, 2006.
[25] The executed AOC is date-stamped 2005 DEC 20, and this appears to be the effective date. The formal CERCLA Docket No. assigned by the federal government is not enumerated on the copy held by Sustainable Conservation.
[26] AOC for the Snowbird/Pacific Mine Site (Part XII.39).

Mine Site. At the same time, the AOC declared that once the Respondent (TU) executed the Order, it was responsible to complete the Work[27]. Therefore, the AOC served as a binding agreement between the agencies and TU. While Snowbird was not a formal party to the site-specific AOC, the document confirms their ownership of the affected parcel at the Pacific Mine Site, and Memorandums of Understanding (MOU) were written and signed separately between TU and Snowbird, and EPA and Snowbird[28].

In essence, the work done by USFS on the federal portion of the Pacific Mine Site was deemed "Phase 1" of the cleanup, while the work envisioned by TU on the Snowbird portion of the was deemed as "Phase 2" of the cleanup. EPA decided to release TU from liability under the site-specific AOC because TU demonstrated the willingness to perform the remedial work solely for the benefit of the environment. Specifically, EPA found that the "*resolution of any potential future liability, in exchange for work being done by the Respondent, is of substantial benefit and in the public interest*[29]."

EPA's Covenant Not to Sue Trout Unlimited: The covenant (promise) not to sue is a legal arrangement between EPA and the Respondent (TU) whereby the two parties promise not to sue each other over the cleanup of the Snowbird/Pacific Mine Site[30]. EPA promised not to sue TU for court-imposed damages or civil penalties, nor to take administrative action against TU. In exchange, TU promised to carry-out the tasks detailed in the Work Plan appended to the site-specific AOC. EPA reserved the rights to: (1) take emergency action to protect public health and the environment in the event of an accidental "release" of hazardous materials during the cleanup[31], and (2) assign liability to the Respondent (TU) in case they made the hazardous conditions at the Site worse through willful, intentional, or gross negligence[32].

Protection Against "Third-Party" Lawsuits: The site-specific AOC entitles the Respondent (TU) to "*protection from contribution actions or claims*" under CERCLA. So, while TU representatives were planning to enter the Site, and to modify the shape and location of hazardous waste materials, the federal government would not hold TU liable for the deposition and discharge of these wastes, nor for any associated environmental threats[33]. This "Contribution Protection" shielded TU from 3rd party lawsuits that might have been brought by PRPs, i.e., mining companies and their affiliates, who *did* contribute waste to the Snowbird/Pacific Mine Site. This relief from liability was important given that CERCLA liability is "retroactive, joint and several, and strict" as outlined in the chart below[34].

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[27] Ibid (Part III.16.d).
[28] Ibid (Part III.10).
[29] Ibid (Part XXIII.66).
[30] Ibid (Part XVIII.52).
[31] Ibid (Part XIX.54).
[32] Ibid (Part XIX.55.b).
[33] Ibid (Part XXIII.66).
[34] http://www.epa.gov/compliance/cleanup/superfund/liability.html

Retroactive	Parties may be held liable for acts that happened before CERCLA's enactment in 1980.
Joint and Several	Any one PRP may be held liable for the entire cleanup of the site when the harm caused by multiple parties cannot be separated.
Strict	Liability is assigned to a PRP regardless of fault, negligence, knowledge, or intent.

Importantly, while TU and other Good Samaritans were, and are, afforded Contribution Protection under the site-specific AOC and the Model Agreement, respectively; given these two documents are based on CERCLA, they do not directly shield TU and other Good Samaritans from 3rd party *citizen suits* allowed under CWA §505[35]. However, if a 3rd party would have sued TU under the CWA, the outcome in court would have likely favored TU due to: (1) TU's diligence in working collaboratively with the agencies and the landowner; (2) TU's non-profit status; (3) TU's altruistic motive to restore the watershed and not to otherwise benefit from the action; and (4) the fact that TU did not own land -- and had no plans for land acquisition -- in the affected area[36].

Give the site-specific AOC and the Model Agreement appeared to address the apparent liability faced by Good Samaritans in the CERCLA realm, the remaining regulatory obstacles appeared to lie in the CWA realm. Here, aside from the risk of citizen suits, complex questions loomed about how regulators would permit *continuing discharges* of pollutants from mines that were "cleaned up" by Good Samaritans, and the post-project obligations of these volunteers. And now, even the federal government's authority to offer liability protection to Good Samaritans in the CERCLA realm might be diminishing in the aftermath of a 2007 ruling by the U.S. Supreme Court addressing Contribution Protection and *cost recovery*[37].

Nevertheless, the focus on potential regulatory barriers for voluntary mine cleanups obscures the possibility that a lack of money may actually be the central obstacle facing the Good Samaritan Initiative due to an evasive mining industry and funding constraints at government agencies[38].

Access and Post-Project Site Control Obligations

A Memorandum of Understanding (MOU) was signed between TU and Snowbird designating TU as the lead for the cleanup, and apparently providing permission to TU to enter the site and to perform the work. A second MOU was signed between TU and USFS (known only as "Uinta National Forest" before the National Forest units were consolidated). These MOUs provided the basis for TU to explore opportunities to work with federal, State and local authorities, and non-governmental organizations to perform mine restoration activities at the Pacific Mine site.

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[35] CWA § 505, 33 U.S.C. § 1365.
[36] AOC for the Snowbird/Pacific Mine Site (Part XIX.54).
[37] *United States v. Atl. Research Corp.*, 127 S. Ct 2331, 2333 (2007)…see also U.S. Ninth Circuit Court of Appeals: Kotrous v. Bayer Cropscience, 06-15162, (04/17/2008).
[38] Lounsbury, Bart. Harv. Envtl. L. Rev. 149; Pages 4, 32. 2008.

The site-specific AOC required: (1) the Respondent (TU) to "*obtain an agreement (regarding) long-term site controls*" with Snowbird before any work was done at the site, and to govern activities at the site once the Work Plan was implemented[39]; and (2) Snowbird to grant site access to EPA (and these written agreements were appended to the site-specific AOC)[40].

Designation of Contractor, Project Coordinator, and On-Scene Coordinator

The site-specific AOC required the designation of a Contractor, Project Coordinator, and On-Scene Coordinator for the cleanup of the Pacific Mine/Snowbird Site. Therefore, the Respondent (TU) needed to hire one or more *Contractor*(s) to perform the cleanup, and to submit the name(s) and qualifications of the contractor(s) to EPA for approval within 45-days of the effective date of the AOC[41]. For *Project Coordinator*, TU named Ted V. Fitzgerald – the retired USFS employee who had managed the cleanup of the federal portion of the Pacific Mine Site. The Project Coordinator was to "be responsible for administration of all actions by Respondent required by this Order[42]". EPA Region 8 named Peter Stevenson as *On-Scene Coordinator* (OSC). The site-specific AOC gave the OSC the authority to oversee the Respondent's implementation of the Order (AOC), including the authority to halt, conduct, or direct any work required by the Order[43].

Contingency Plans

The site-specific AOC created a contingency mechanism for the federal agencies to "*takeover*" the work by authorizing NRCS to conduct the remedial work until "*the $125,000 fund has been exhausted*", or to provide the remaining funds to EPA for placement in EPA's Hazardous Substance Superfund to be used to conduct or finance response actions[44].

Funding

Funding for the project was first secured by U.S. Senator Robert Bennett (R-UT) through a $1 million earmark to the federal budget for 2005. A package of projects known as the "*Utah Conservation Initiative*" included the "*American Fork Canyon Watershed Restoration Project*". Two consecutive earmarks for fiscal years 2005 and 2006 were secured by the Senator and placed in the USDA budget for expenditure by the Natural Resource Conservation Service (NRCS) -- under their Rural Abandoned Mine Program (RAMP)[45], and did not require a non-federal match[46].

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[39] AOC for the Snowbird/Pacific Mine Site Ibid (Part VII.26).
[40] Ibid (Part IX.31 - Appendix 4).
[41] Ibid (Part VI.19).
[42] Ibid (Part VI.20).
[43] Ibid (Part XIV.42).
[44] Ibid (Part VIII.30)
[45] http://www.nrcs.usda.gov/programs/ramp/
[46] Laura Hewitt, Trout Unlimited, pers. comm., 05/02/08.

The 2005 earmark provided $50,000 to initiate mine restoration activities, and the 2006 earmark provided an additional $100,000 to complete the restoration project. Language in the earmarks set aside 10% of both amounts for retention by NRCS to cover administrative costs, leaving $135,000 available to TU. These funds were sufficient to complete all the prescribed work when combined with contributions made by others including Snowbird, TU, and TU's *Project Manager*[47].

The funding from The Tiffany & Co. Foundation provided program support for the Project Manager position. Tiffany awarded to TU a start-up grant of $50,000, and then a much more substantial grant to support the completion of work at the AFC River site, and to initiate two other AMD remediation projects in Colorado and Idaho[48].

Costs and Expenditures

TU spent a total of $134,212, and NRCS reimbursed them for that amount. Snowbird contributed a significant, yet unquantified amount of labor as in-kind services for earth moving activities and, under contract with TU, provided heavy equipment to perform the work. TU covered the cost of using this equipment ($55,631.28), using the funds awarded to them by NRCS. Snowbird rented the heavy equipment from Wheeler Machinery at a 20% discount (savings were passed on to the remedial project), and provided all the fuel necessary for the heavy equipment[49]. Per the site-specific AOC, TU paid EPA for the costs of their work, and that of their contractors (direct and indirect costs -- up to $8,000)[50]. These payments were made into the American Fork Canyon Site Special Account established under EPA's Hazardous Substance Superfund.

Work Plan Preparation and Implementation

While the site-specific AOC did not anticipate the need for the off-site disposal of waste materials from the Pacific Mine Site, it nevertheless provided the Respondent (TU) with the flexibility to ship waste material off-site if the need arose, as long as proper notifications were made, and only if the receiving waste disposal facility was operating in compliance with federal regulations[51]. On 11 October 2005, TU implemented a "removal action" on the Pacific Mine/Snowbird parcel involving the consolidation, shaping, stabilization, and the capping of the mine wastes with uncontaminated soils from nearby private lands[52]. On 27 September 2006, the OSC from EPA, and representatives from TU, Snowbird, and NRCS conducted an on-site inspection of the Site, and, together, they determined the removal action had been completed properly. The removal action was deemed complete when TU issued a Final Construction Report on 17 November 2006.

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[47] Fitzgerald, Ted. *Final Construction Report, American Fork Canyon Home Rivers Project*. Trout Unlimited. Page 3. 2006.

[48] http://query.nytimes.com/gst/fullpage.html?res=9800E5DD113FF93BA2575BC0A9629C8B63&scp=1&sq=american+fork+canyon+mining+cleanup&st=nyt; also Laura Hewitt, Trout Unlimited, pers. comm., 05/02/08.

[49] Fitzgerald, Ted. *Final Construction Report, American Fork Canyon Home Rivers Project*. TU. 2006.

[50] AOC for the Snowbird/Pacific Mine Site (Part XV.43).

[51] Ibid (Part VII.29.a-c).

[52] http://www.tu.org/site/c.kkLRJ7MSKtH/b.3205851/apps/s/content.asp?ct=4398617

In order for TU to secure funding under the aforementioned 2006 earmark, it needed to effectively use the money secured under the 2005 earmark to demonstrate the potential for a successful project implementation. TU informed NRCS that the project could be initiated with funding from the 2005 earmark, but only without significant disturbance of the potentially toxic materials, and that work would not be extensive enough to expend the full $45,000 budget. NRCS responded by itemizing a set of deliverables under a contract with TU[53], and agreed to carry-over the remaining 2005 funds into 2006 when a second, forthcoming earmark would provide adequate funds for a complete cleanup.

The project was split into two phases of construction. Phase 1 - project initiation work to be completed in 2005. The actual removal actions and repository construction were accomplished as Phase 2 in 2006. Accordingly, work plans, construction plans and specifications were developed by TU, and Phase 1 was completed in October 2005.

The 2005 AOC was issued October 3, 2005 just as the work was to begin on Phase 1. A second AOC was issued in August 2006 after the second earmark provided NRCS with the balance of funds needed to complete the project[54]. Construction equipment and personnel moved onto the project site on August 7, 2006 to perform the designated removal actions and construct the Pacific Repository.

In 2000, a groundwater monitoring well had been installed through the Pacific Mine waste rock pile extending ~20 feet below the mine waste into the soil profile. Over the years, periodic well water monitoring indicated that groundwater did not come in contact with the waste rock pile. Therefore, the existing footprint of the Pacific Mine waste rock pile was selected as the site for the Pacific Repository.

Four separate mine and mill sites were identified for removal from Snowbird's land with the wastes to be consolidated at the existing Pacific Mine waste rock pile. The sites included the Pacific Mine waste rock pile, the Pacific Mill site, the Blue Rock Mine waste rock pile, and the Scotchman #2 mine waste rock pile.

The fine grained material within the Blue Rock mine waste was the last material added to the repository as a cap, upon which a composite liner was placed. The liner extended up the hillside at the back of the repository to form an interceptor ditch to drain overland flow away from the repository. The liner also prevented precipitation from percolating down into the waste material and saturating the waste deposits. The liner and the unlined face of the repository was covered with ~3 feet of uncontaminated soil obtained from a borrow site on private land ¼ mile up canyon from the repository.

[53] Contract #65-8D43-5-5.
[54] Fitzgerald, Ted. *Final Construction Report, American Fork Canyon Home Rivers Project*. TU. Pages 3-4 (reference to Contract #69-8D45-6-1). 2006.

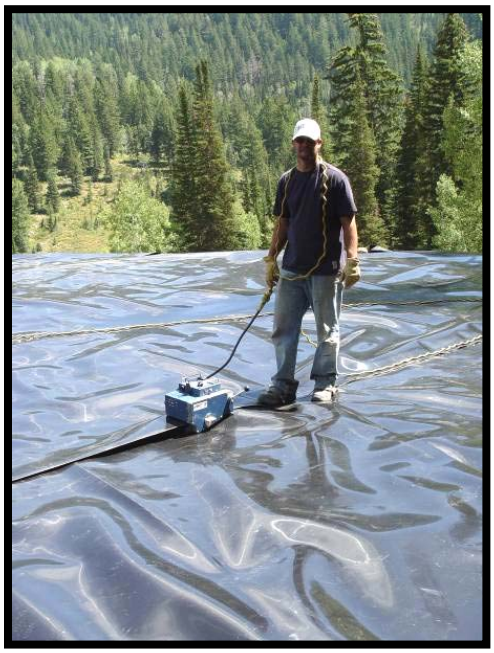
After the cover material was uniformly spread over the top of the repository, riprap was placed in the interceptor ditch so water draining from the hillside, or through the drainage blanket under the cover soils, could flow to the low edge of the repository without erosion occurring. The interceptor ditch was designed to slope toward a plugged adit discharging mine drainage from the Pacific Mine.

The adit was not plugged by the partnership (TU, USFS, and EPA) under the Good Samaritan Initiative[55], instead, the Pacific Mine had been previously closed with an earthen plug that discharged a continuous flow of acid mine drainage (AMD) from the mine at ~2 cubic feet per second[56]. Any water draining from the repository top would enter the ditch carrying the mine drainage and flow around the repository to the USFS' oxidation ponds before eventually reaching the river[57].

Erosion control blankets were installed over the face of the Repository after planting with a native seed mix, and this same treatment was given to the mine and mill sites where wastes had been removed, and where the excavated sites had been stabilized[58].

[55] Carol Russell, EPA Region 8 (Denver), and Laura Hewitt, TU (Madison), pers. comm. 04/08/09.
[56] Ted V. Fitzgerald, per message conveyed by Laura Hewitt, pers. comm. 04/08/09.
[57] Fitzgerald, Ted. *Final Construction Report, American Fork Canyon Home Rivers Project*. TU. Pages 6, 17.
[58] Ibid. Pages 4-7, 17, and 20.

Pictured below is the installation procedure for the composite liner on top of the Pacific Repository that was capped with uncontaminated soil and erosion control blankets, and an aerial view of the Pacific Repository as it appeared in 2006.



Pacific Mine Repository Constructed by Trout Unlimited and Snowbird, 2006.
Published in *American Fork Canyon Home Rivers Project*, Ted V. Fitzgerald, TU, 2006.

The California Experience

Setting

California's Department of Conservation (DOC) estimates that over 47,000 abandoned mines exist in California, and ~5,200 of these present environmental hazards. Of these, approximately 900 are located within the nine county region of the Bay-Delta proper. Approximately 67% of the abandoned mines in California occur on federal lands, while 31% of the mines occur on private lands. The remaining 2% of the mines occur on State or local properties[59]. Only a fraction of these sites will ever be formally identified, characterized, listed, or cleaned up by State or federal agencies.

The "Mount Diablo quicksilver mining district" was located in Contra Costa County -- low on the eastern side of the north peak of Mount Diablo. Deposits of quicksilver (mercury) occurred only in the Franciscan formation, and in deposits of serpentine and silica-carbonate rock[60]. The most distinctive characteristics of the Mount Diablo "district" are the relative abundance of metacinnabar, "sulphates," and gases. During a period between 1875 and 1877, the "Ryne" mine produced as much as 85 flasks of quicksilver per month (1 flask = 34.7 kilograms). During the three year period between 1937 and 1939, the Bradley Mining Co. extracted 3,149 flasks of quicksilver. The "underground workings" include the "Rhyne" tunnel developed and used in the late 1870's, and the Jones tunnel, the lower of the two, developed in the mid-1930's[61].

Metacinnabar: HgS; Mt. Diablo Mercury Mine, Contra Costa County, CA © Rob Lavinsky[62].

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[59] http://www.conservation.ca.gov/omr/abandoned_mine_lands/Pages/Index.aspx plus Sarah Reeves, DOC, pers. comm. 06/17/08. See also *California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State, Volume I*. DOC, Office of Mine Reclamation, Abandoned Mine Lands Unit. 2000.

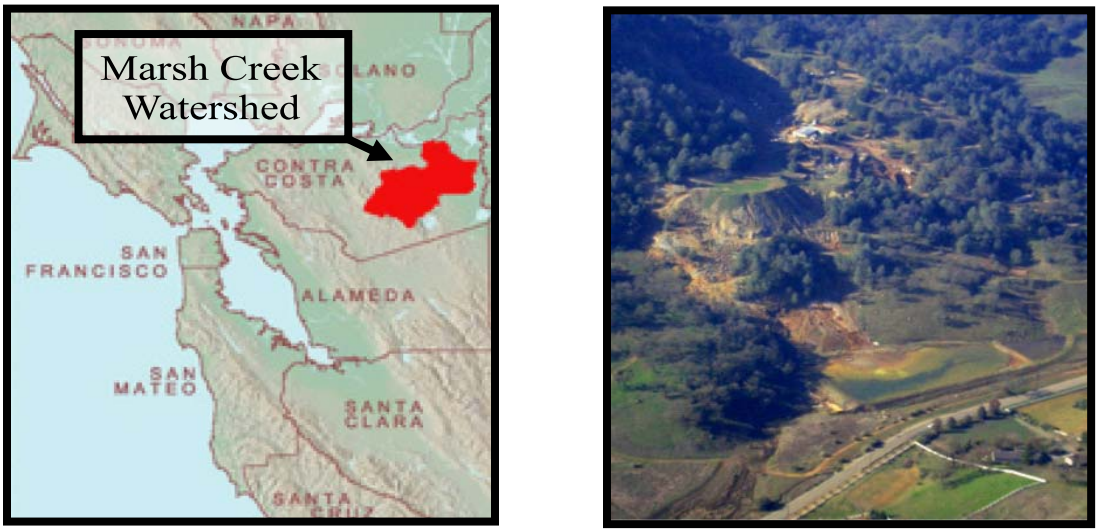
[60] http://www.conservation.ca.gov/cgs/information/publications/cgs_notes/note_14/Pages/Index.aspx

[61] Ross, Clyde R. "Quicksilver Deposits of the Mount Diablo District, Contra Costa County, California." *Strategic Minerals Investigations*. Bulletin 922-B (Pages 31-54). 1940.

[62] http://www.mindat.org/min-2670.html

Marsh Creek's headwaters are in the Morgan Territory foothills east of Mount Diablo's summit, and the creek flows northeasterly toward Big Break in the Sacramento-San Joaquin Delta (Delta) near Oakley. The watershed drains 128 square miles of rangeland, farmland, and suburban settlements[63], and constitutes the second largest watershed in Contra Costa County. The Marsh Creek watershed includes 40,000 residents, and 94% of the channels within the watershed are natural -- making it the least developed watershed in the County and the one with the most potential for conservation[64].

The "Mount Diablo Quicksilver Mine" operated intermittently for 100 years (between 1870-1970) in the proximity of lower Dunn Creek, a tributary of Marsh Creek[65]. Below, an aerial photograph shows the ~14-acre Mt. Diablo Mercury Mine, with a settling pond and lower Dunn Creek visible in the foreground[66]. The parcel encompassing the Mine covers 97-acres is owned by Jack Wessman[67], and is bounded on three sides (north, west, and south) by Mount Diablo State Park. Tributaries to Marsh Creek flow across the mine site and drain eastward away from the State Park holdings.



This map and aerial picture of the Mt. Diablo Mercury Mine were prepared by the County of Contra Costa.

In the 1950s, floods caused a significant amount of destruction in the cities of Brentwood and Oakley that had been built within the Marsh Creek floodplain. In response, the Soil Conservation Service (known today as the aforementioned NRCS) channelized lower Marsh Creek, and built the Marsh Creek Reservoir as a flood control structure. Over the years, sediments contaminated with mercury collect in the reservoir. The lower zone of the Marsh Creek watershed extends for ~11 miles from the outfall of the Marsh Creek Reservoir through the cities of Brentwood and Oakley and into the Delta.

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[63] Cain, John R. *et al*. *The Past and Present Condition of the Marsh Creek Watershed*. NHI, 2003.
[64] Anonymous. "Will You Help Protect Marsh Creek-I?," *Diablo Watch*. No. 44. Fall 2007.
[65] Central Valley Regional Water Quality Control Board, Clean-up and Abatement Order, 20 NOV 1978.
[66] Images courtesy of the Contra Costa County Flood Control District.
[67] Huff, Ryan. "Mercury mine field: County seeks liability protection before diving into tainted water." *The Contra Costa Times*. 07 January 2007.

Threat to Public Health and the Environment

The Contra Costa County Department of Public Works contracted with the Mercury Biogeochemistry Research Group at the University of California at Davis (UCD) to produce the *Marsh Creek Watershed 1995 Mercury Assessment Project*[68]. The report found that the mine site represents the overwhelming, ongoing source of mercury in the watershed. Approximately 95% of the total input of mercury to the upper watershed derives from Dunn Creek, with an estimated 88% traceable specifically to the current exposed tailings piles of the Mt. Diablo Mercury Mine. Flows emanating from the tailings were "massively contaminated", with levels ranging from 25,000 – 60,000 nanograms per liter.

The mercury in exposed, processed, cinnabar tailings material is exceptionally available for downstream transport in water, and most of the mercury load emanating from the tailings is mobilized in the dissolved state. Mercury dissolves readily into water in the vicinity of the tailings due to the characteristic presence of ore sulfides. As noted above, this sulfurous rock, when exposed to rainwater and air, forms sulfuric acid, and this acid dissolves the constituents of the cinnabar ore -- including mercury – into AMD.

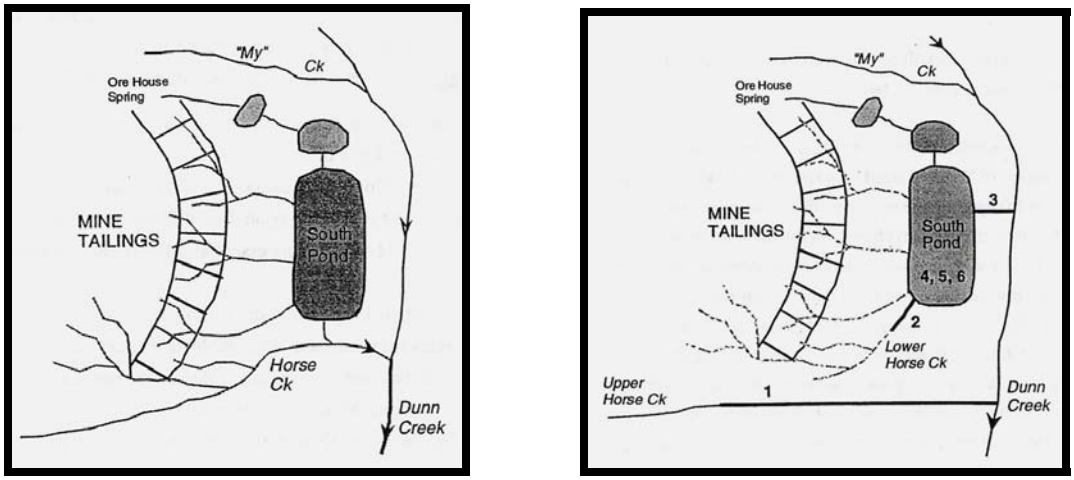
Horse Creek is a tributary to Dunn Creek that collects AMD from both the tailings and from a settling pond (a.k.a. South Pond) just upstream from the confluence of the two creeks (see drawings on page 29). The mercury measured in the outflow from the pond was in a dissolved state and identical to the seepage flowing into the pond. Therefore scientists concluded the pond is not effectively settling-out a significant portion, if any, of the aqueous mercury solution.

Two views of the main seep at the Mt. Diablo Mercury Mine from across the settling pond. In both cases, the photographers may have stood on the berm separating the pond from Dunn Creek. At left, the mine as it appeared in 1994 from the archives of R.W. Graymer, D.L. Jones, and E.E. Brabb; USGS Open-File Report 94-622. At right, the mine as it appeared on 31 July 2008 courtesy of John Hillenbrand, US EPA. http://www.uwsp.edu/geo/projects/geoweb/participants/dutch/VTrips/MountDiablo.HTM

[68] Slotten, Darrell *et al*. Marsh Creek Watershed 1995 Mercury Assessment Project. UCD, 1996. Pages v, 1, 17-22, 29, 33, 37-38, 49, and 62-63.

Dunn Creek below the mine is contributing the vast majority of mercury to the downstream reaches of Marsh Creek. While 18 grams per day of mercury moved through Dunn Creek to Marsh Creek, all other Marsh Creek tributaries combined contributed only 1 gram per day of mercury into the system. Though Dunn Creek carried the bulk of the watershed's source mercury, this small tributary delivered less that 7% of the total water volume and less than 4% of the suspended solids load.

Stream invertebrates (e.g., mayflies, stoneflies, hellgrammites) were analyzed as they are excellent monitors of mercury bioavailability. These species incorporate mercury into their bodies throughout their lives, and provide a time-integrated measure of stream conditions compared to a standard, point-in-time water sample. The mercury incorporated into local aquatic biota is, by definition, specifically the bioavailable fraction, which can be of paramount importance for management considerations.



Suggested "before" and "after" illustrations (summarized on page 49) courtesy of Slotten, *et al*. 1996.

The trend within the watershed for bioavailable mercury generally parallels that seen for aqueous mercury concentrations. Massive concentrations of mercury were apparent in Dunn Creek invertebrates immediately below the inflows from the mine site (27-35 ppm, dry weight). Above the mine, samples from upper Dunn Creek showed accumulated mercury in invertebrates at two orders of magnitude lower than near-mine samples (0.06-0.24 ppm). Mercury concentrations generally increased with feeding level, with predatory stoneflies typically containing higher levels than herbivourous mayflies, and the large predatory hellgrammites generally having the greatest concentrations.

Marsh Creek Reservoir with Mt. Diablo beyond in a photograph furnished by the County of Contra Costa.

Downstream, dissolved mercury loads "sedimented-out" of the water column through incorporation into the mineral matrix of particles and through surface adsorption. The particles bound with mercury came to rest as sediment with the Marsh Creek Reservoir (pictured above), and within the Delta itself.

During the 30+ year history of the Reservoir, depositional sediments remained fairly consistent in their character, ranging from 0.53-0.80 parts per million (ppm). Mercury in edible fish from the Reservoir measured above the 0.5 ppm health standard in all samples of "keeper" sized bass and bluegill. Fish accumulate mercury in their muscle tissue almost entirely in the methyl form. Methyl mercury is naturally produced from inorganic mercury mainly as a metabolic byproduct of certain bacteria, and a significant proportion of the methyl mercury accumulating in Reservoir fish is produced within the Reservoir from inorganic mercury associated with depositional sediments. The organic forms of mercury are generally more toxic to aquatic organisms and birds than the inorganic forms[69].

Legal Framework

In June 2007, EPA and DOJ released The Good Samaritan Guidance and Model Agreement that includes a Model Comfort/Status Letter (Model Letter) and a Model Settlement Agreement and Order on Consent (Model Agreement). These documents were written so they could be adapted by Good Samaritans nationwide to the site-specific circumstances of their abandoned mine cleanup projects.

[69] Boening, Dean. Ecological effects, transport, and fate of mercury. Lockeed Martin, 1999.

Model Letter: The Model Letter was designed as a straightforward, non-negotiable document that could be issued quickly by an EPA Regional Office to a Good Samaritan, thereby:

(1) Encouraging Good Samaritans to do sound, voluntary work without needing to invest time and resources in negotiating a formal settlement agreement with the federal government;

(2) Triggering the involvement of EPA's designated OSC in reviewing the work plan prepared by the Good Samaritan, and in overseeing the remedial work being done by the Good Samaritan at the abandoned mine site;

(3) Relieving the Good Samaritan of the burden to reimburse EPA for the work performed by the designated OSC (these costs are to be borne by EPA through their normal internal budgetary process);

(4) Documenting and declaring that the attainment of water quality standards as a result of the work is *not practicable* given the exigencies of the situation, and the limited scope of the removal action, as a method for complying with ARARs; and

(5) Providing *protection against third-party "contribution" lawsuits* (among other things) via EPA's offer to enter into a Settlement Agreement with the Good Samaritan.

Model Agreement: The Model Agreement may be best suited to a scenario where site conditions and the proposed cleanup strategy are technically complicated and/or when there is a risk of third-party litigation.

Under the Model Agreement, *the federal government covenants not to sue the Good Samaritan*[70], and it provides the Good Samaritan with *protection against third-party "contribution" lawsuits* in exchange for the voluntary cleanup of an abandoned mine site[71]. By the same token, *the Good Samaritan covenants not to sue the federal government* or assert a claim or cause of action against the United States, or its contractors or employees[72]. The Model Agreement also gives the federal government liability protection by allowing it to avoid any *liability for injuries or damages to persons or property resulting from any acts or omissions of the Good Samaritan*[73]."

The Model Agreement permits remediation only on sites "for which, despite reasonable and diligent efforts, no financially viable party (except [an innocent landowner]) is potentially liable to perform or pay for, or has been required to perform or pay for, environmental cleanup actions under applicable law[74]." To use the Model Agreement for cleaning-up the Mt. Diablo Mercury Mine, EPA would require the Good Samaritan to

[70] Model Good Samaritan Settlement Agreement, June 2007 (Part XVII.39).
[71] Ibid (Part XXI.48).
[72] Ibid (Part XIX.43).
[73] Ibid (Part XX.44).
[74] Lounsbury, Bart. Harv. Envtl. L. Rev. 149; Pages 16. 2008.

provide evidence of their financial capacity to conduct a cleanup -- either with up-front financial assurances, or a description of financial assurances that would be obtained after an Agreement is signed, and before work commences[75,76].

The National Pollutant Discharge Elimination System: Under the Model Agreement, all on-site actions must comply with applicable or relevant and appropriate requirements (ARARs). ARARs encompass the constellation of local, State, and federal laws and regulations applicable to the cleanup abandoned mine sites – most significantly, the federal CWA. The National Pollutant Discharge Elimination System (NPDES) is the arguably the most significant part of the federal CWA pertaining to the cleanup of abandoned mines. The NPDES program regulates *point sources* of pollutants *discharging* into *waters of the United States*[77].

The term *discharge of a pollutant* means the *addition* of any *pollutant* into *navigable waters* from any *point source*[78]. A point source is defined as any *discernible, confined, and discrete conveyance* such as a pipe, ditch, channel, tunnel, conduit, well, and discrete fissure[79]. Point sources also include structures where contaminated "surface runoff which is collected or channeled by man." Collecting or channeling contaminated surface water includes any "effort to change the surface, or otherwise impede [water's] progress." Waters of the United States include navigable waters and any waterbody adjacent to, or hydrologically connected with, navigable waters.

Courts have held that sediment basins, lagoons, and leachate collection ponds also constitute point sources, along with groundwater seeps traceable to mine waste piles. Also, EPA views runoff from mine waste piles as a point source because the mine waste piles are a discernible conveyance from which pollutants are discharged. Most abandoned/orphaned mine sites contain a discernible, confined, or discrete conveyance that could be characterized as a point source. Thus, discharges of pollution from abandoned/orphaned mines into a waterbody that is hydrologically connected with navigable waters -- including *point source discharges* from draining adits and discernible, confined, and discrete conveyances -- can be regulated under the CWA[80].

Total Maximum Daily Loads: The CWA separates pollution sources into two categories: (1) point sources regulated with discharge permits; and (2) *nonpoint sources* addressed in part by using *best management practices* (BMPs). Abandoned/orphaned mines can produce both point source and nonpoint source pollution.

Under CWA §303(d), states are charged with the responsibility to identify *impaired* waterbodies where controls on point source pollutants are not sufficient to meet water quality standards. For these impaired waterbodies, states or EPA must develop Total

[75] Model Good Samaritan Settlement Agreement, June 2007 (Part XXII.53).
[76] *Interim Guiding Principles for Good Samaritan Projects*…EPA memo dated 6 June 2007. Page 7.
[77] CWA §402.
[78] CWA §502(12).
[79] CWA §502(14).
[80] McAllister, Sean T. ELR News & Analysis; 33 ELR 10248. 2003.

Maximum Daily Loads (TMDLs) -- conceptual tools that identify acceptable loadings of pollutants a waterbody can absorb from point sources, nonpoint sources, and natural background sources and still meet water quality standards. States must identify the specific pollutants in each impaired segment that are causing, or expected to cause, exceedances of applicable water quality standards. In theory, where a waterbody is impaired by pollution from an abandoned/orphaned mine, government agencies would allocate or assign acceptable pollutant loads from the mine (and all other pollutant sources within the watershed), and use enforcement authority to implement the TMDL and achieve water quality standards for the waterbody[81].

Adding, Transmitting, Re-depositing, and Distributing Pollutants:
The definition of *discharge of pollutants* suggests that for a discharge to occur, one must *add* pollutants (not there previously) to a navigable water. Good Samaritans might argue that their remedial activities do not add pollutants to waterbodies, per se; and that these discharges are instead comprised of residual contamination from previous releases. Some courts have held that a discharge of pollutants occurs when pollutants "from the outside world" are added to a waterbody -- and that merely transmitting pollutants from one waterbody to another does not constitute a discharge. Other courts have held that the discharge of pollutants occurs when surface water runoff containing pollutants is collected or channeled by human activity. By collecting or channeling pollutants, there is a recognizable place where those pollutants are added or introduced into a waterbody -- regardless of where the pollutants originate. Following this logic, after pollutants are initially released from a mine, every place downstream where the polluted water is collected or channeled would constitute a point source that triggers liability for whoever controls the structure(s)[82].

This result is consistent with several courts' interpretations of the term "discharge" in the context of regulations governing wetlands where the *re-deposition* of fill material triggers regulations under CWA §404 – even if the fill material is indigenous to the site. Similar to the NPDES program, CWA §404 prohibits the discharge of dredge and fill material into jurisdictional wetlands without a permit. The judicial interpretations regarding the term "discharge" under CWA §404 lend weight to the idea that parties can be liable for the re-deposition of pollutants already in the watershed[83].

Given the case law, any Good Samaritan activity that can be characterized as discharging a pollutant from a point source into a navigable water will likely require a discharge permit. Moreover, from a regulatory perspective, it may be irrelevant whether a Good Samaritan intends to improve, or actually does improve, water quality over baseline conditions if their activities ultimately result in a discharge of pollutants. Even though Good Samaritans might be improving water quality, if their actions result in the escape of pollutants into watersheds, regulatory agencies, and perhaps the courts, would conclude that they are using jurisdictional waters for *waste distribution*[84].

[81] Ibid. 33 ELR 10261.
[82] Ibid. 33 ELR 10249.
[83] Ibid; 33 ELR 10254.
[84] Ibid; 33 ELR 10254.

Abandoned Mines and California's NPDES Program: If states and/or tribes demonstrate they are qualified to administer the NPDES program, EPA is authorized to *delegate* the program from the federal level to the state or tribal level. When EPA delegated the NPDES program to the State of California, the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (Water Boards) accepted the lead for program administration[85]. Consistent with the goals of the NPDES program, SWRCB prepared a State Implementation Policy (SIP) requiring NPDES permits to contain *numeric effluent limits* for *priority pollutants*, and the SIP assumes all sources of pollution can be addressed or eliminated. *Priority pollutants* include heavy metals commonly found in AMD, e.g., aluminum, arsenic, cadmium, copper, lead, magnesium, mercury, nickel, and zinc.

Water Boards use Different NPDES Permits to Cover Different Activities:
Water Boards use *construction stormwater permits* to regulate discrete discharges of pollutants into surface waters during short-term construction activities at development sites, and *industrial discharge permits* to regulate discrete discharges of pollutants into surface waters from active mining operations. However, industrial discharge permits were not designed to authorize *continuing discharges* of AMD from abandoned/orphaned mines that might persist after voluntary cleanups.

In 1993, EPA (Region 8) wrote a memo to the State of Montana regarding the regulation of hard rock mines under CWA §402 -- both historic and active. EPA concluded that mine adits are "quite clearly" point sources as defined under CWA §502(14), and, if pollutants are being discharged into jurisdictional waters, then *traditional* NPDES permits (not *stormwater* permits) are required. Furthermore, EPA found that seeps and other subsurface flows, emanating from active or inactive mines, and hydrologically connected with surface waters, are discharges of pollutants from point sources and subject to regulation under the NPDES program[86]. While these conclusions provided the regulatory context for the cleanup of the Pacific Mine in Utah, and they were not technically applicable to circumstances in California (encompassed by EPA Region 9), the regulatory framework is useful to consider regarding circumstances at the Mt. Diablo Mercury Mine.

Permitting Voluntary Mine Cleanups under NPDES – *"Can we get there from here?"*:
With neither CERCLA nor the CWA specifically written to address abandoned/orphaned mines, and given the NPDES program was not designed to address theses mines nor their discharges of pollutants, coordinating the permitting to comply with these regulatory frameworks under the Good Samaritan Initiative is complex -- but not impossible (the flow chart on page 41 illustrates some potential pathways to compliance). When it comes to permitting the cleanup abandoned/orphaned mines in California, perhaps the central challenge facing regulatory agencies is how to best adapt the NPDES program to advance the cleanup of these mines, and how to legally authorize cleanup actions that modify

[85] http://cfpub.epa.gov/npdes/
[86] Dodson, Max H., Director, Water Management Division, EPA Region 8, memo to Dan Fraser, State of Montana, re: NPDES Permit Issues – Hard Rock Mines, 12/22/93.

draining adits, but do not completely eliminate residual, post-project, continuing discharges of AMD.

Actually, you can "get there from here" -- it's just complicated (model homes in Osaka, Japan).

EPA outlined three permitting options for states and tribes to use toward authorizing continuing discharges within the context of the NPDES program: (1) *variance procedures*; (2) *numeric site-specific water quality objectives* (SSOs); and (3) a *use attainability analysis* (UAA)[87]. Variance procedures allow modification to, or waiver of, numeric effluent limits -- or deadlines for meeting these limits -- and they allow for the establishment of alternate limits based on fundamentally different factors[88]. Where receiving waters do not meet water quality objectives, but nevertheless do support beneficial uses, numeric SSOs for water quality can be formulated and implemented to protect those beneficial uses.

Alternatively, the federal CWA and the SIP allow Water Boards to prepare a UAA to demonstrate that beneficial uses cannot be attained. Based on the outcome of a given UAA, a Water Board would prepare SSOs for the impaired waterbody to be affected by the newly regulated activity (presumably to prevent its further degradation), and the SSOs would be incorporated into the relevant Basin Plan as an "amendment[89]."

[87] Tinger, John, EPA Region 9, Pers comm., 10/03/08.

[88] Variance procedures are allowed under Sections 301 or 316 of the CWA or under 40 CFR Part 125, or in the applicable "effluent limitations guidelines."

[89] Woodward, Phil. "Regulation of Surface Water Discharges from Abandoned Mines." Staff report to the Central Valley Water Board. 31 July 2008; page 8. A use attainability analysis (UAA) is a scientific investigation of the watercourse that attempts to demonstrate that the assigned beneficial uses cannot be attained. Then, site specific objectives (SSOs) are developed to protect the uses that do exist, and these

However, from the perspective of the Central Valley Water Board (Water Board), none of the three permitting options outlined by EPA is viable for the following reasons: (1) variance procedures provide only temporary regulatory relief, and do not resolve the environmental problem nor the regulatory conundrum in the long-term; (2) pursuing preparation of SSOs and UAAs could be complex, costly, and time-consuming, and might not be an efficient use of the State government's resources[90]; and (3) the Water Board is uncertain whether EPA would accept the SSOs and UAAs once they are done[91].

Applying Available Permitting Methodologies to the Mt. Diablo Mercury Mine:
If the Water Board chose to use the aforementioned regulatory tools to authorize post-cleanup, continuing discharges of AMD from the Mt. Diablo Mercury Mine within the context of the NPDES program, some stakeholders might view their actions as contrary to the federal CWA and SIP (because AMD discharges were not cut to zero), and the State could be exposed to a third-party lawsuit. This is because the receiving waters associated with the Mine, i.e., Marsh Creek and the greater Bay-Delta Estuary, are *listed* by the State as *impaired* for mercury under CWA §303(d)[92]. Therefore, it might be legally difficult for the Water Board to authorize a voluntary cleanup that allows for continuing discharges of AMD, albeit reduced, into impaired receiving waters – even if these inputs represent a mere fraction of the pre-project mercury loads (please recall the legal reasoning on page 33 regarding the "addition" of pollutants, and the potential irrelevance from a regulatory perspective about whether a cleanup improves water quality over baseline conditions).

Given the mine constitutes the overwhelming source of mercury for Marsh Creek, a successful cleanup of the mine might allow the State to de-list the creek for mercury

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SSOs are incorporated into a Basin Plan Amendment. Also, at 40 CFR 131.10(g), the CWA allows states to remove a designated use which is *not* an existing use, or to establish sub-categories of a use if the State can demonstrate that *attaining* the designated *use* is not feasible.
http://law.justia.com/us/cfr/title40/40-21.0.1.1.18.2.16.1.html.

[90] Tinger, John; EPA Region 9; pers. comm. 12/11/08. Preparing SSOs and UAAs are not meant to be cumbersome tasks. The proposed cleanup of the Mt. Diablo Mercury Mine could be linked with the TMDL for mercury, and the Water Board could write a NPDES permit saying reductions in pollutant discharges achieved through a voluntary cleanup are consistent with reductions sought by the TMDL.
Russell, Carol; EPA Region 8; pers. comm.. 04/07/09. There may be a wealth of existing data that State regulators could use in preparing UAAs and SSOs. The permitting approach should focus on achieving overall decreases in pollutant loading -- and corresponding increases in ambient water quality -- within a relatively small geographical area, e.g., an historic mining district, rather than focusing on reducing individual point-source discharges into specific stream segments.

[91] Woodward, Phil. "Regulation of Surface Water Discharges from Abandoned Mines." Staff report to the Central Valley Water Board. 31 July 2008. Pages 8.
http://www.swrcb.ca.gov/centralvalley/board_decisions/tentative_orders/0807/abandoned_mine/abandoned_mine_final.pdf
Also, Woodward, Phil, pers. comm. 12/11/08:
Exemptions, Variances, and BMPs are three separate entities and potential approaches.
(1) Exemptions – exempts a permittee under certain conditions for a long time, if not forever.
(2) Variances – provides a temporary extension to a permittee (a few years) which gives them time to come into compliance with permit conditions. When the variance expires, the permit process starts anew.
(3) BMPs – neither exemptions or a variance, simply another approach for writing conditions into a permit. Instead of imposing numeric effluent limits, the State replaces the limits with rigorous BMPs.

[92] http://www.swrcb.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r5_06_303d_reqtmdls.pdf

impairments. However, the Bay-Delta Estuary will remain impaired by mercury regardless of the mine cleanup because Marsh Creek is a relatively minor tributary to the larger estuarine system, and just one of many mercury sources. Nevertheless, a successful cleanup of the mine could measurably advance the implementation of SWRCB's 70-year mercury cleanup plan (summarized on page 46), and provide a model for addressing other abandoned mines across the vast Bay-Delta region.

The CWA requires either the *owner/operator* of a *facility* to obtain a NPDES permit to regulate discharges from their particular facility. If the landowner/Good Samaritan engages in cleanup activities at the Mt. Diablo Mercury Mine by constructing facilities at the site, or modifying the site, they would be viewed as owners/operators by federal and State regulatory agencies, and the mine would be viewed as their facility. As such, the owner/operator would need to secure a *unique* NPDES permit from the Water Board, i.e., something new and different from a construction stormwater permit or an industrial discharge permit.

As draining adits are considered point-sources, owners/operators face the dual prospect of becoming responsible for: (1) obtaining a unique NPDES permit from a Water Board; and (2) perpetually treating the continuing discharges of AMD if the flows do not meet applicable water quality standards -- even if cleanup actions significantly decrease the net volume of pollutants draining into *receiving waters*.

Good Samaritans could avoid the necessity of obtaining a NPDES permit by only taking actions that do not result in a "discharge", i.e., actions that do not modify draining adits or underground workings. TU accomplished this feat by reconfiguring, isolating, and capping waste rock in a sealed repository, and diverting up-gradient clean rainwater and snowmelt away from waste rock -- all while not touching the draining adit at the Pacific Mine.

Superfund's Good Samaritan provision at CERCLA §107(d) allows Good Samaritans to cap waste rock piles without incurring liability[93]. Furthermore, the 1987 amendments to the CWA, and the associated implementing regulations, addressed stormwater runoff from industrial and mining sites, and exempted from liability activities that divert the runoff of clean water away from waste materials. These provisions encourage sound management practices at mining sites, and would not hinder Good Samaritan efforts to divert clean water away from waste materials -- assuming the diversion structures do not come into contact with pollutants[94]. Likewise, without a release, or threatened release, of a hazardous substance, there is no liability under CERCLA for diverting clean surface

[93] Lounsbury, Bart. Harv. Envtl. L. Rev. 149; Pages 5, 44 [FN 137].
[94] McAllister, Sean T. ELR News & Analysis; 33 ELR 10251. 2003;
and 33 USC 1342(l)(2) [CWA discharge] permits shall not be required for discharges of storm water runoff from mining operations . . .composed entirely of flows which are from conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of such operations. http://frwebgate.access.gpo.gov/cgi-bin/usc.cgi?ACTION=RETRIEVE&FILE=$$xa$$busc33.wais&start=3303234&SIZE=44797&TYPE=TEXT

waters away from waste materials. Assuming water diverted away from waste rock remains uncontaminated when it is released into the watershed, a release of a hazardous substance is not caused. Thus, the utilization of runoff control techniques presents no risk of CERCLA liability[95].

The Water Board's *Past* Approach to Regulating Abandoned Mines:
In the past, when the Water Board issued NPDES permits to owners/operators of abandoned mines for discharges of AMD, the State allowed these permittees to select their preferred regulatory route; either: (1) *numeric effluent limits* adapted from the rules governing active mines; or (2) *non-numeric (narrative) effluent limits* and BMPs adapted from the rules governing *non-point source* discharges of *stormwater*.

To succeed with numeric effluent limits, owners/operators would almost certainly need site access, electric power, and the means to construct and operate a treatment facility. To succeed with non-numeric effluent limits, owners/operators would need to implement BMPs encompassing a variety of measures, e.g., consolidating and capping waste rock piles in designated repositories, routing watercourses around the repositories, sealing-off mine adits and portals, injecting neutralizing chemicals (e.g., limestone) into underground workings, and constructing wetland treatment systems to intercept and passively treat residual AMD[96].

Regardless of the chosen regulatory route, the Water Board issued Cease and Desist Orders (CDOs) to the *permittee* (the transitional term for the owner/operator once they are brought into the regulatory compliance system) requiring them to achieve compliance with NPDES permit conditions within the 5-year permitting cycle – including compliance with *receiving water limits* contained in the Water Board's *Basin Plan*[97].

[95] McAllister, Sean T. ELR News & Analysis; 33 ELR 10251. 2003.
[96] Woodward, Phil. "Regulation of Surface Water Discharges from Abandoned Mines." Staff report to the Central Valley Water Board. 31 July 2008. Pages 5-6. Passive treatment systems do not require electricity or chemical feedstock, or continuous oversight and maintenance. These systems include anoxic limestone drains, sulfate reducing bio-reactors, constructed wetlands, and oxidation ponds.
[97] Ibid. Each Water Board prepares a *Basin Plan* to govern all the watersheds encompassed by the jurisdiction of that Water Board. The term *receiving waters* refers to any stream, estuary, or bay that receive flows and/or pollutants from an upstream/inland source.

Non-numeric effluent limits were expressed as targeted reductions in the amount of pollutants being discharged into receiving waters, e.g., 99% reductions in the average annual discharge rates of mercury measured in pounds/day and compared to pre-project conditions. It was incumbent upon a permittee to conduct a detailed investigation of the abandoned mine in question, and to formulate site-specific remedial actions consistent with the aforementioned BMPs. This was an iterative process whereby specific actions were taken, results were evaluated, and additional measures were designed and implemented to further reduce the residual discharges of AMD[98].

The Water Board's *Current* Approach to Regulating Abandoned Mines:
Currently, while the SIP requires NPDES permits to contain numeric effluent limits for priority pollutants, the Central Valley Water Board has essentially concluded that it is not always *feasible* to regulate abandoned mines with numeric effluent limits because: (1) access to remote sites is limited; (2) constructing a treatment plant in a remote area is logistically and financially challenging; (3) electrical infrastructure is not always available to run a treatment plant; and (4) the rates of AMD discharges, and the mixes of pollutants therein, are highly variable.

While recent NPDES permits for abandoned mines have been accompanied by CDOs or SIP-based compliance schedules, even diligent permittees have had trouble meeting numeric effluent limits. In some cases, passive treatment systems could not consistently clean AMD to desired levels. In other cases, the permittee could not attain water quality objectives for receiving waters because these waters were impacted by pollutant loads from background, non-point sources throughout a given watershed, and these loads were often beyond the control of the permittee.

Waterbodies within historical mining districts are typically deluged with AMD from multiple abandoned mines. Often, these waterbodies are designated by the State as *impaired*[99] because pollutant levels (e.g., metals, sediment, temperature) exceed *water quality standards*, and therefore, do not support *beneficial uses* (e.g., fisheries, water supply, recreation). Even if a landowner/Good Samaritan cleans up an abandoned mine, and reduces residual concentrations of AMD-related pollutants within continuing discharges so the effluent itself meets water quality standards, uncertainties remain about how the State could legally authorize discharges of this effluent into impaired waterbodies. Theoretically, under the SIP, the Water Board could impose even stricter, virtually unattainable, numeric effluent limits on permittees. However, incorporating these strict limits into NPDES permits would place many owners/operators in constant violation of their permits, and it might compel the State to impose mandatory minimum penalties (MMPs) on these permittees[100].

[98] Ibid; page 4.
[99] Per listing procedures specified under CWA §303(d)
[100] Woodward, Phil. "Regulation of Surface Water Discharges from Abandoned Mines." Staff report to the Central Valley Water Board. 31 July 2008. Pages 3 and 7.

The Central Valley Water Board has proposed using a *BMP-based approach* to control or abate the discharges of AMD via non-numeric effluent limits whereby BMPs are written into NPDES permits for owners/operators of abandoned mines (presuming these individuals can be found)[101]. In contrast to the framework articulated by EPA in 1993 for regulating hard rock mines (please see page 34), the BMP-based approach is an adaptation of the Water Board's approach for regulating non-point source discharges of *stormwater*. Underpinning the BMP-based approach is the observation that stormwater and AMD share common characteristics, i.e., the rates of AMD discharges, and the mixes of pollutants therein, are highly variable. Previously, the Water Board determined that numeric effluent limits were not feasible for regulating stormwater, and the State explicitly excluded stormwater discharges from coverage by the SIP's numeric effluent limits[102].

The Water Board has found remarkable reductions in discharges of AMD can be achieved by implementing a BMP-based approach in lieu of numeric effluent limits. In some cases, up to 99% of the pre-project pollutant loads from abandoned mines can be sequestered and/or prevented. These BMP-based reductions are consistent with the *Amendment to Water Quality Control Plan and Action Plan for Mining* contained in the Water Board's *Basin Plan*. In addition, the rules for implementing the federal CWA appear to acknowledge the regulatory conundrum presented by abandoned mines, and BMPs are suggested in lieu of numeric effluent limits to control or abate discharges of pollutants when "numeric effluent limitations are *infeasible*"[103, 104].

A Federal Approach to Regulating Old and/or Abandoned Coal Mines: The Water Board's BMP-based approach shares some similarities with a rule approved by EPA for regulating the *re-mining* of coal from old and/or abandoned coal mines. In 2002, EPA issued a final rule governing the *re-mining* of abandoned surface- and sub-surface coal mines, and associated coal refuse piles. The purpose of the rule was to encourage the re-mining of coal reserves left behind, reduce hazards associated with abandoned mines, and improve water quality in areas where pollutant discharges were defined as *pre-existing*.

EPA's approach requires implementation of the *best available technology* (BAT) for cleaning-up re-mined coal deposits, and seems to counter the logic that residual, post-project pollutant discharges be considered "additional" pollution. The BAT encompasses pollution abatement plans that incorporate BMPs tailored to the re-mining of coal deposits, and a combination of numeric and non-numeric effluent limits.

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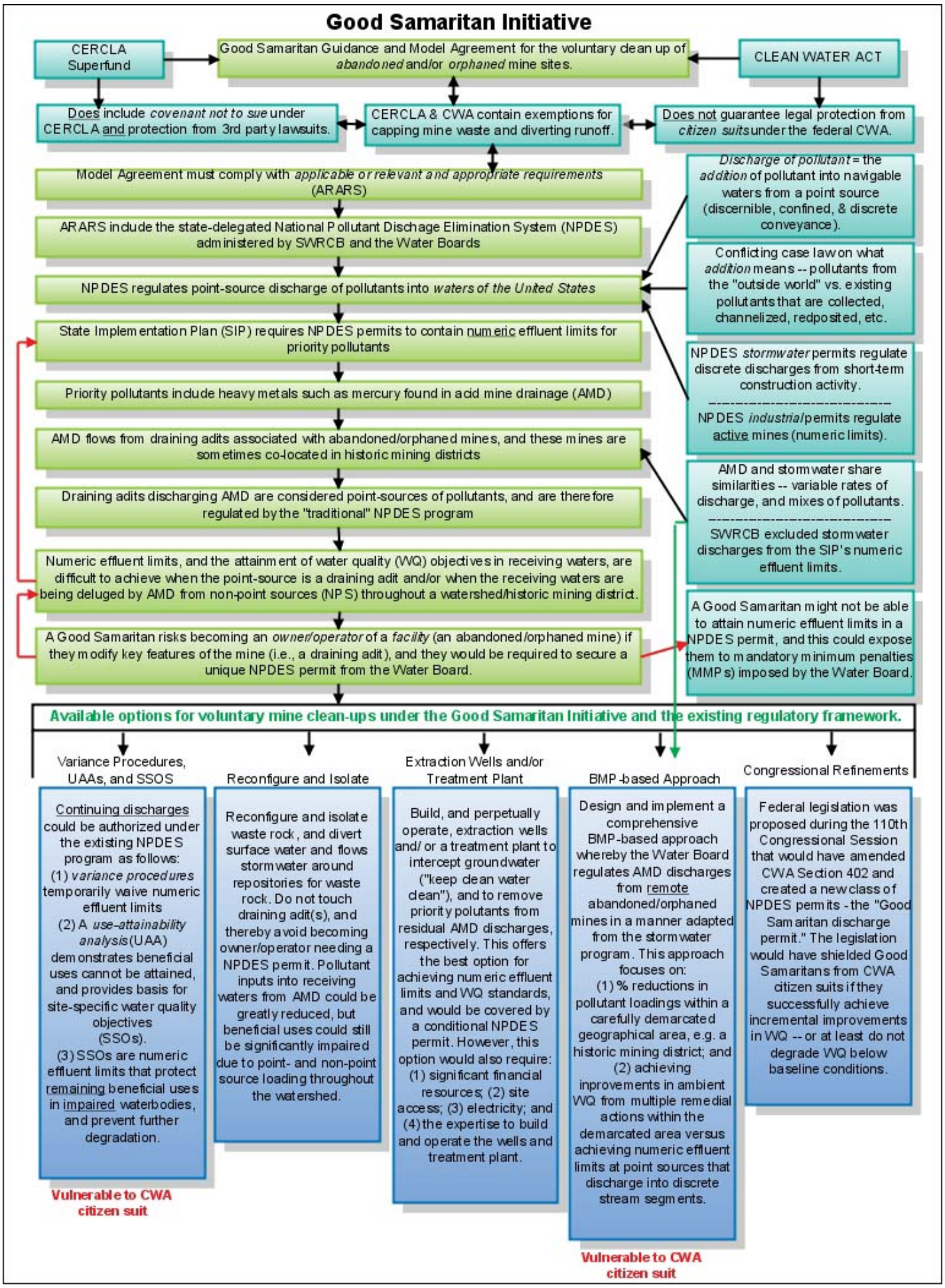
[101] Flexibility to impose non-numeric limits instead of "infeasible" numeric limits is afforded by federal regulations at 40 CFR 122.44(k)(3); and by the Basin Plan approved by the Central Valley Water Board at Resolution No. 79-149: *Amendment to Water Quality Control Plan and Action Plan for Mining*.

[102] Woodward, Phil. "Regulation of Surface Water Discharges from Abandoned Mines." Staff report to the Central Valley Water Board. 31 July 2008. Pages 3-6.

[103] Ibid. Pages 3, 5; Pers comm. with P. Woodward (10/09/08); and Water Board Resolution No. 79-149.

[104] See 40 CFR 122.44(k)(3) at the Electronic Code of Federal Regulations http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=e92971ec37c3624339d80e5139f444bd&rgn=div8&view=text&node=40:21.0.1.1.12.3.6.4&idno=40


Good Samaritan Initiative
CERCLA Superfund
Good Samaritan Guidance and Model Agreement for the voluntary clean up of abandoned and/or orphaned mine sites.
CLEAN WATER ACT
Does include covenant not to sue under CERCLA and protection from 3rd party lawsuits.
CERCLA & CWA contain exemptions for capping mine waste and diverting runoff.
Does not guarantee legal protection from citizen suits under the federal CWA.
Model Agreement must comply with applicable or relevant and appropriate requirements (ARARS)
ARARS include the state-delegated National Pollutant Dischage Elimination System (NPDES) administered by SWRCB and the Water Boards
NPDES regulates point-source discharge of pollutants into waters of the United States
State Implementation Plan (SIP) requires NPDES permits to contain numeric effluent limits for priority pollutants
Priority pollutants include heavy metals such as mercury found in acid mine drainage (AMD)
AMD flows from draining adits associated with abandoned/orphaned mines, and these mines are sometimes co-located in historic mining districts
Draining adits discharging AMD are considered point-sources of pollutants, and are therefore regulated by the "traditional" NPDES program
Numeric effluent limits, and the attainment of water quality (WQ) objectives in receiving waters, are difficult to achieve when the point-source is a draining adit and/or when the receiving waters are being deluged by AMD from non-point sources (NPS) throughout a watershed/historic mining district.
A Good Samaritan risks becoming an owner/operator of a facility (an abandoned/orphaned mine) if they modify key features of the mine (i.e., a draining adit), and they would be required to secure a unique NPDES permit from the Water Board.
Discharge of pollutant = the addition of pollutant into navigable waters from a point source (discernible, confined, & discrete conveyance).
Conflicting case law on what addition means -- pollutants from the "outside world" vs. existing pollutants that are collected, channelized, redposited, etc.
NPDES stormwater permits regulate discrete discharges from short-term construction activity.
NPDES industrial permits regulate active mines (numeric limits).
AMD and stormwater share similarities -- variable rates of discharge, and mixes of pollutants.
SWRCB excluded stormwater discharges from the SIP's numeric effluent limits.
A Good Samaritan might not be able to attain numeric effluent limits in a NPDES permit, and this could expose them to mandatory minimum penalties (MMPs) imposed by the Water Board.
Available options for voluntary mine clean-ups under the Good Samaritan Initiative and the existing regulatory framework.
Variance Procedures, UAAs, and SSOS
Continuing discharges could be authorized under the extisting NPDES program as follows:
(1) variance procedures temporarily waive numeric effluent limits
(2) A use-attainability analysis (UAA) demonstrates beneficial uses cannot be attained, and provides basis for site-specific water quality objectives (SSOs).
(3) SSOs are numeric effluent limits that protect remaining beneficial uses in impaired waterbodies, and prevent further degradation.
Vulnerable to CWA citizen suit
Reconfigure and Isolate
Reconfigure and isolate waste rock, and divert surface water and flows stormwater around repositories for waste rock. Do not touch draining adit(s), and thereby avoid becoming owner/operator needing a NPDES permit. Pollutant inputs into receiving waters from AMD could be greatly reduced, but beneficial uses could still be significantly impaired due to point- and non-point source loading throughout the watershed.
Extraction Wells and/or Treatment Plant
Build, and perpetually operate, extraction wells and/ or a treatment plant to intercept groundwater ("keep clean water clean"), and to remove priority polutants from residual AMD discharges, respectively. This offers the best option for achieving numeric effluent limits and WQ standards, and would be covered by a conditional NPDES permit. However, this option would also require: (1) significant financial resources; (2) site access; (3) electricity; and (4) the expertise to build and operate the wells and treatment plant.
BMP-based Approach
Design and implement a comprehensive BMP-based approach whereby the Water Board regulates AMD discharges from remote abandoned/orphaned mines in a manner adapted from the stormwater program. This approach focuses on:
(1) % reductions in pollutant loadings within a carefully demarcated geographical area, e.g. a historic mining district; and
(2) achieving inprovements in ambient WQ from multiple remedial actions within the demarcated area versus achieving numeric effluent limits at point sources that discharge into discrete stream segments.
Vulnerable to CWA citizen suit
Congressional Refinements
Federal legislation was proposed during the 110th Congressional Session that would have amended CWA Section 402 and created a new class of NPDES permits - the "Good Samaritan discharge permit." The legislation would have shielded Good Samaritans from CWA citizen suits if they successfully achieve incremental improvements in WQ -- or at least do not degrade WQ below baseline conditions.

Importantly, EPA issued numeric effluent limits under the rule to ensure pollutant levels for net acidity, iron, manganese, sulfate, and solids do not exceed baseline levels as a result of re-mining activities. Under this rule, EPA concluded that there are no more stringent technologies that are economically achievable. These technology-based limits are in contrast to traditional water quality-based limits under the NPDES program[105].

Consequently, reductions in pollutant loads are not considered additions of pollutants, and permittees are not punished for achieving net improvements in water quality as they pursue re-mining activities under the BAT. At the same time, there is no punishment for the permittee if they re-mine an area and pollutant levels remain the same – even though a stated purpose of the rule is to improve water quality. In short, the permittee complies with this regulatory program as long as they implement the BAT, and post-project pollutant levels do not exceed pre-project baseline levels.

Testing the BMP-Based Approach in Shasta County: The federal CWA and the SIP allow for case-by-case exemptions from numeric limits if receiving waters do not meet water quality objectives, but beneficial uses are not affected (by post-project, residual discharges of AMD). The Water Board deemed such exemptions appropriate for authorizing the cleanup of multiple sites within the relatively remote West Shasta Copper Mining District.

Receiving waters within this mining district remain severely impacted by AMD discharges from historical mining operations, and the waters cannot support beneficial uses designated in the Water Board's Basin Plan. The Water Board used a BMP-based permitting strategy to authorize the remediation of abandoned mines in the mining district at West Squaw Creek. Specifically, the Water Board identified a potentially responsible party (PRP) and compelled them to cover all *reasonable* costs for cleanup actions. The PRP spent ~$12 million to remove over 90% of the metals being discharged in the form of AMD. The Water Board estimated that many millions more dollars would need to be spent to remove the residual loads of pollutants[106].

While net reductions in pollutant loads resulting from the cleanup of a given mine, or complex of mines, within this mining district might not improve the quality of receiving waters enough to support beneficial uses, the net reductions are still advantageous from a regional perspective that considers all downstream waters – especially if remedial actions are being taken elsewhere in the basin to clean up abandoned mines and to cumulatively reduce the overall volume of AMD.

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[105] http://www.epa.gov/fedrgstr/EPA-WATER/2002/January/Day-23/w106.htm; *Coal Mining Point Source Category; Amendments to Effluent Limitations Guidelines and New Source Performance Standards.*

[106] Woodward, Phil. "Regulation of Surface Water Discharges from Abandoned Mines." Staff report to the Central Valley Water Board. 31 July 2008. Pages 7-8.

Testing a BMP-Based Approach in Nevada County: On 31 July 2008, when the Water Board tested their BMP-based approach at Spanish Mine, the California Sportfishing Protection Alliance (Alliance) filed a petition against the State saying the Water Board was wrong to cite 40 CFR 122.44(k)(3) as a rational for allowing BMPs to control and abate pollutant discharges in lieu of numerical effluent limits[107]. The petition also alleged the State: (1) inappropriately attempted to redefine the meaning of "abandoned" as any non-operating mine when a landowner, the Soper Company, had been identified in the permit as the responsible party; (2) incorrectly concluded that electricity is not available to warrant operation of a treatment system when generators could be used for power; and (3) violated the California Toxics Rule by failing to contain effluent limitations for cadmium, cobalt, copper, iron, lead, manganese, nickel, and zinc[108]. The Alliance and the Water Board disagreed previously in the late 1970s in the complex case involving Penn Mine, and the outcome of that case continues to influence the way regulators and potential Good Samaritans approach the challenge of cleaning-up abandoned mines[109].

When Numeric Effluent Limits Trump the BMP-Based Approach: Using BMPs in lieu of numeric effluent limits for regulating discharges from abandoned mines will not be appropriate for all cases. When AMD discharges occur in close proximity to populated areas, the State may wish to impose numeric effluent limits rather than BMPs. The

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[107] In the Matter of Waste Discharge Requirements For Soper Company, Spanish Mine; California Regional Water Quality Control Board – Central Valley; Region Order No. R5-2008-0104; NPDES No. CA0085286.

[108] http://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/petitions/a1948petition.pdf

[109] The Penn Mine in Calaveras County, California, once discharged large quantities of aluminum, cadmium, copper, iron, zinc, and sulfuric acid into the Mokelumne River above Camanche Reservoir – a drinking water supply for 1.2 million customers within the East Bay Municipal Utility District (EBMUD). In 1978, the California Regional Water Quality Control Board (Central Valley Water Board) and EBMUD constructed facilities that, according to the State, reduced copper discharges from 64,000 lbs/year to 13 lbs/year. While the State and EBMUD believed their effort was beneficial to the environment, others concluded the effort exacerbated the environmental problem, and increased discharges of AMD into the Mokelumne River.

The Committee to Save the Mokelumne, and the California Sportfishing Protection Alliance sued EBMUD under the citizen suit provisions of CWA §505, and the parties alleged that the constructed facilities were discharging pollutants without a NPDES permit. EBMUD denied that the treatment system was adding or discharging pollutants to the river, claiming instead that the historic mine was adding pollutants to the river, and the treatment system was actually removing pollutants from the water. District Court Judge Lawerence Karlton (Eastern District of California) ruled, and the Ninth Circuit Court of Appeals upheld the ruling, that EBMUD was liable under the federal CWA because its treatment system "collected or channeled" historic pollution, and discharged pollutants from a point source without a NPDES permit in violation of the CWA. The Court deemed it irrelevant that the treatment system released a reduced amount of pollution into the watershed. Ultimately, EBMUD, the Water Board, EPA and local stakeholders developed a remedial plan to address site contamination. The cleanup effort cost EBMUD and the Water Board ~$10 million.

Please see:
(1) the *Memo from William H. Crooks to the Honorable Tom Torlakson. 1 February 1995*;
(2) Lounsbury, Bart. Harv. Envtl. L. Rev. 149; Pages 8-9. 2008;
(3) McAllister, Sean T. ELR News & Analysis; 33 ELR 10252. 2003: and
(4) http://home.sandiego.edu/~jminan/waterlaw/Committ.html

State's rationale for this approach includes the underlying assumptions that: (1) numeric limits are feasible in populated areas given the availability of infrastructure, e.g., roads and electrical utilities; and (2) it would be logistically feasible to build and operate a wastewater treatment plant in those locations[110].

At the Mt. Diablo Mercury Mine, given the scale of the site and the unstable nature of the collapsed underground workings, even if BMPs were implemented to their fullest degree, it is unlikely that discharges of AMD from the adits can ever be completely stopped. The Mine abuts Marsh Road and is near infrastructure, and the discharges of AMD are impairing a creek that flows through populated areas downstream. Given these circumstances, the Water Board may deem it feasible to install and operate a treatment plant on-site, and to impose numeric effluent limits on the landowner/Good Samaritan. However, imposing numerical limits could entail complex financial, technical, and logistical challenges, and the construction and operation of a treatment plant could push the scale of the proposed cleanup beyond that contemplated by the Good Samaritan Initiative.

State and federal regulators should discuss whether a comprehensive package of BMPs -- coupled with the construction and operation of a treatment plant -- would be feasible and effective in controlling and abating AMD discharges from the Mt. Diablo Mercury Mine, and whether such a remedial approach falls within the scope of the Good Samaritan Initiative.

Historical and Future NPDES Permitting at the Mt. Diablo Mercury Mine: In 1978, the Water Board issued a Clean-up and Abatement Order (#78-114) to the then and present-day landowner of the Mt. Diablo Mercury Mine, but the landowner never complied with the Order despite doing a significant amount of earth-moving at the site. Going forward, the landowner/Good Samaritan might need to comply with this historical Order, plus any new NPDES permit issued by the Water Board. Conceivably, the Water Board might fold the relevant terms and conditions from the historical Order into whatever new permitting strategy they devise.

The terms and conditions of any NPDES permit tailored to the voluntary cleanup of the mine might require the owner/operator to maintain and monitor the site in perpetuity. These terms and conditions would need to be revisited and renewed anytime the NPDES permit expires (at ~5 year intervals), and would change over time consistent with emerging treatment technologies and upgrades in monitoring programs.

If the landowner/Good Samaritan successfully obtains a NPDES permit from the Water Board for the cleanup of the mine, and the permit authorizes some level of residual, continuous discharges of AMD into receiving waters, the exposure of all parties to litigation under CWA's citizen suit provisions might be minimized, but not eliminated. One can understand the motivations of a Good Samaritan toward seeking exemptions from provisions of the CWA to avoid the burden and liability associated with obtaining,

[110] Woodward, Phil. "Regulation of Surface Water Discharges from Abandoned Mines." Staff report to the Central Valley Water Board. 31 July 2008. Page 6.

and adhering to, NPDES permits. It is likely that Good Samaritans would only be interested in addressing abandoned/orphaned mines that both pose environmental risks, and those same mines are likely to trigger NPDES requirements, i.e., they add pollution to navigable waters from one or more point sources[111].

Perhaps no landowner/Good Samaritan can be shielded entirely from the risk of legal liability under CWA when pursuing a voluntary cleanup, but if they engage and garner support from most or all interest parties, there will be strength in numbers if the proposed project is contested. Good Samaritans must weigh the potential environmental and public health benefits of their remedial activities against unknown, potential legal risks.

Legislative Efforts by Congress: While the Model Agreement provides Good Samaritans with a relatively effective shield from liability under one applicable federal law (CERCLA), it continues to leave them somewhat exposed to liability under another applicable federal law (CWA). In 2007, legislation introduced during the 110th Congressional session would have amended CWA §402 to allow federal, state, and tribal governments to issue *Good Samaritan discharge permits* to qualified entities[112]. While this bill never became law, it is worthwhile exploring this effort to address the CWA's citizen suit provisions as it pertains to voluntary mine cleanups.

Under this legislative scenario, Good Samaritans would be required to prepare *remediation plans* to demonstrate that proposed cleanups will not result in water quality conditions worse than documented baseline conditions, and will improve water quality conditions as close as possible to the attainment of applicable water quality standards.

Therefore, the CWA would shield Good Samaritans from citizen suits if they achieved *incremental improvements in water quality*, even if continuing discharges caused exceedences in prevailing water quality standards. It appears the overarching goal of the proposed legislation would be to reward, or at least not penalize, landowners/Good Samaritans who seek to improve water quality, even if the ultimate result is not perfect[113]. This approach bears some similarity to EPA's chosen approach to regulating the re-mining of old and/or abandoned coal deposits.

Abandoned versus *Orphaned* Mine Sites:
For the Mt. Diablo Mercury Mine, EPA and the U.S. Army Corps of Engineers (Corps) are searching for PRPs so they can definitively determine whether the site should be classified as *abandoned* (i.e., an inactive mine still held by a landowner or company), or *orphaned* (i.e., an inactive mine whose ownership status cannot be determined)[114]. If a

[111] Lounsbury, Bart. Harv. Envtl. L. Rev. 149; Pages 18. 2008.
[112] H.R. 4011: *Good Samaritan Cleanup of Abandoned Hardrock Mines Act of 2007*.
http://www.govtrack.us/congress/bill.xpd?bill=h110-4011
See Section 1(c)(2): The purpose of the Act is *to allow a person not legally responsible for environmental conditions relating to inactive or abandoned mine sites to improve water quality affected by past mining activities at the site without incurring liability under the Federal Water Pollution Control Act in order to make further progress toward the goal of meeting water quality standards in all waters of the United States*. See also Section 2(r)(4)(E)(i)(I)(cc).
[113] Hillenbrand, John. EPA Region 9. Pers comm. 17 January 2008.
[114] http://www.epa.gov/aml/index.htm

viable PRP can be found, federal and State regulators may compel the PRP to clean up the site by exercising existing enforcement authorities, and there would be no need for a voluntary cleanup under the Good Samaritan Initiative.

Linking the NPDES Program with the TMDL Program: The Water Board will likely evaluate how a cleanup of the Mt. Diablo Mercury Mine will help reduce overall inputs of mercury into the Bay-Delta Estuary attributable to watersheds within Contra Costa County. On 19 July 2007, SWRCB approved the Water Boards' Basin Plan amendment establishing new water quality objectives for mercury in the tissues of Bay fish, and a Total Maximum Daily Load (TMDL) for mercury in San Francisco Bay. On 12 February 2008, EPA approved the Basin Plan amendment and an implementation plan to achieve the TMDL. This 70-year mercury cleanup plan ratchets-down mercury loadings into the Bay from mercury sources associated with our "mining legacy" and ongoing AMD inputs (i.e., Bed Erosion, the Central Valley, and the Guadalupe River) from 992 kilograms/year (2003 baseline) to 552 kg/yr[115]. Total mercury loads into the Bay would be cut from 1,200 kg/yr to 700 kg/yr[116].

The Contra Costa County Flood Control and Water Conservation District (District) has expressed interest in serving as the Good Samaritan for the cleanup of the Mt. Diablo Mercury Mine[117]. However, even with the Model Letter and Model Agreement produced by EPA and DOJ, the District believes they are exposed to an unacceptable level of liability risk in both the federal and State regulatory arenas. Also, it appears the District is seeking "credit" from the Water Board for cleaning-up the mine – credits they wish to apply toward the County's obligation to reduce mercury loads under the State-mandated, basin-wide mercury reductions for the Bay/Delta ecosystem[118]. It is not clear whether the State would agree to "award" these "credits" to an entity serving as the Good Samaritan, nor whether the District's interest in serving as the Good Samaritan hinges on a *quid pro quo* from the Water Board.

Access and Post-Project Site Control Obligations

Under the Model Agreement, EPA expects the Good Samaritan to obtain necessary site access agreements before reaching an overall Settlement Agreement[119]. Also, the Model Agreement recommends determining post-project sampling and site control obligations on a case-by-case basis, and this would be presumably done beforehand. Given Good Samaritans cannot own the property in question, and, in most cases, will not have long-term control over the property, the Model Agreement recommends that agencies and the

[115] http://www.swrcb.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/sfbaymercurytmdl.shtml S.F. Bay Water Board, Approved Basin Plan amendment, Table 4-v, Appendix A-9, 1 August 2006.
[116] http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/07/19/BAGVGR310S1.DTL
[117] Mt. Diablo Mercury Mine Cleanup Agreement – Outline of Anticipated Process. Contra Costa County Flood Control District, 1 September 2006.
[118] Comments made by the Contra Costa County Flood Control and Water Conservation District (Mitch Avalon) at the "Technical Project Planning" meeting convened by the Sacramento Corps District; Clayton, CA, 08/21/08.
[119] Model Good Samaritan Settlement Agreement, June 2007 (Part IX).

Good Samaritan address post-project site control obligations *with the party that maintains ownership and/or control* of the site[120].

Maintenance requirements might entail hiring licensed hazardous waste experts to dredge and dispose of mercury-laden sediments from the existing settling pond, or from any new detention basins or constructed wetland treatment systems installed during the cleanup. Monitoring requirements might entail the hiring of scientists sample and analyze surface water, sediment, and fish tissue consistent with the prevailing scientific protocols set by the SWRCB. Obviously, this constitutes a significant technical and financial responsibility for the landowner/Good Samaritan, and stakeholders should discuss the need to establish a stewardship endowment to cover the perpetual costs of maintenance and monitoring at the site.

Designation of Contractor, Project Coordinator, and On-Scene Coordinator

The Model Agreement outlines procedures for EPA to select an OSC who will work with the Good Samaritan on planning and implementing the cleanup. Prior to starting work, the Good Samaritan must submit to EPA for review and approval the names and qualifications of contractors, subcontractors, and a Project Coordinator to do the remedial work, unless the Good Samaritan themselves plan to do the work[121]. Presumably, the Good Samaritan would need to hire one or more engineering firms to plan and implement the cleanup, and they would need to partner with the federal OSC to supervise the work of the contractor(s).

Contingency Plans

Under the Model Agreement, EPA reserves the right to assume the performance of all or any portion of the work as EPA deems necessary to protect human health or the environment[122].

Funding

Three Congressional offices in the East Bay are working together to advance the cleanup of the Mt. Diablo Mercury Mine[123]. Under the 2007 Water Resources Development Act (WRDA), Congress earmarked money to be administered by the Corps under the Restoration of Abandoned Mines Sites (RAMS) program, and this money was specifically intended for the Mt. Diablo Mercury Mine[124]. In the past, the Corps has used RAMS money in Western States to cover the planning costs for the cleanup of abandoned mines on public lands. On 1 February 2008, the *San Francisco Chronicle* reported that Congress earmarked $517,000 from the Corps' budget, and this money was awarded to

[120] Ibid (Part VII.24).
[121] Ibid (Part VII.17)
[122] Ibid (Part XVIII.42)
[123] Reps. Jerry McNerney, George Miller, and Ellen Tauscher inserted funding into the 2007 WRDA bill.
[124] https://ekopowered.usace.army.mil/ecop/what_we_do/restoration_abandoned_mines_sites/

the District to help cover the planning costs for the cleanup of the Mine[125]. The District hired a consulting firm, and during the course of 2008, a "Technical Project Planning Process" was convened to engage all the stakeholders concerned with the Mine.

In 2008, legislation introduced during the 110th Congressional session would have established an Abandoned Mine Cleanup Fund to cover remediation costs at abandoned mine sites using revenues generated by fees charged to mining companies for all new and existing hardrock mines. Under the 1872 Mining Law, hardrock mining companies were not charged royalties for extracting minerals from public lands, and they remain the only major mining sector not obligated to pay royalties to the government.

The proposed fee structure contained three elements: (1) a new 0.3% reclamation fee on all hardrock mining modeled after the Surface Mining Control and Reclamation Act of 1977; (2) a 4% royalty charged to mining companies for *existing* operations on federal lands, and a 8% royalty charged to mining companies for *new* operations on private lands; and (3) increased maintenance fees for hardrock mines. These fees would provide a reliable and steady stream of funding for the cleanup and restoration of land and water resources adversely affected by past hardrock mining activities[126].

Costs and Expenditures

In 2006, the District estimated that $960,000 would be enough to cover the planning costs for the Mine cleanup, and the preparation of a remedial design for the site, and the associated permits and authorizations. A funding application prepared by the Contra Costa County Department of Public Works proposed a *planning* and *implementation* strategy consistent with the one formulated by UCD (see below) that would cost $1.4 million over 3 years[127]. On 7 January 2007, the *Contra Costa Times* cited a $3 million estimate for the *cleanup* alone, and reported that the landowner, Jack Wessman, had spent $250,000 to clean up the site, and move 45,000 tons of dirt to cover mine tailings.

The Model Agreement contains a provision whereby EPA may ask the Good Samaritan to negotiate the reasonable reimbursement of all or part of EPA's oversight costs, e.g., an up-front, not-to-exceed amount based on the Good Samaritan's available resources, and nature and extent of EPA's oversight activities. Given these potential reimbursement costs were not factored-in to the budget prepared by the District, they should be addressed if and when the budget is revised.

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[125] http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2008/02/01/BAG4AUQDEG.DTL

[126] S. 2750: *Abandoned Mine Reclamation Act of 2008*.
http://www.govtrack.us/congress/bill.xpd?bill=s110-2750
http://feinstein.senate.gov/public/index.cfm?FuseAction=NewsRoom.PressReleases&ContentRecord_id=a513f878-a591-828c-dd98-d1ae049f5b6c

[127] Williams, Tom and Bulkeley, Linda. Mt. Diablo Mercury Mine Site Remediation and Mercury Export Reduction Project. Undated (potentially circa 1997).

Work Plan Preparation and Implementation

While the District acknowledges that mercury-laden sediments have accumulated in the Marsh Creek Reservoir, and that there is a potential risk for the release of these sediments into the Delta, their efforts to date have focused on reducing mercury loadings at their source -- the Mt. Diablo Mercury Mine.

Under the Model Agreement, the Good Samaritan must submit to EPA for review and approval a work plan that describes proposed work at the site, and addresses compliance of the cleanup with ARARs[128]. EPA will review and approve this work plan, and incorporate it by reference into the Settlement Agreement. The Model Agreement anticipates that it might be necessary to remove, transport, and dispose of hazardous waste from the site, so it requires documentation to ensure these materials are properly handled and tracked[129].

UCD's Mercury Biogeochemistry Research Group recommended a number of mitigation actions for reducing the flows of AMD into Dunn Creek and the Marsh Creek watershed, and these actions are summarized below. These recommendations were made without the benefit of geotechnical engineering studies of the site, so they might best be viewed as a starting point for remedial planning discussions[130].

► Divert the flow of runoff away from the zone of tailings.

► Divert *upper* Horse Creek directly into Dunn Creek so it bypasses the tailings.

► Reduce the flow of precipitation into the tailings by covering the tailings with a layer of clean soil to both absorb average levels of winter precipitation, and to support the growth of vegetation planted to keep the soil layer dry through evapotranspiration.

► <u>Increase the effectiveness of the settling pond as follows</u>:

- ✪ Divert *lower* Horse Creek into the settling pond;
- ✪ Relocate the outlet away from where the inflow enters the pond, i.e., from the southwest corner to the east side if the pond.
- ✪ Consider deepening the pond to increase the capacity for deposition of precipitating solids and rendering them less susceptible to sediment re-suspension.
- ✪ Consider applying lime periodically to the pond to reduce the acidity of the AMD, and to promote rapid precipitation and deposition of dissolved solids.
- ✪ Consider occasional dredging and removal of the accumulated depositional material from the pond during the dry season.

[128] Model Good Samaritan Settlement Agreement, June 2007 (Parts VIII.21-21)
[129] Ibid (Part VIII.26).
[130] Slotten, Darrell *et al*. Marsh Creek Watershed 1995 Mercury Assessment Project. Pages 61-62. UCD. 1996.

ACRONYMS

AFC River (American Fork Canyon River)
AMD (acid mine drainage)
AOC (Administrative Order on Consent)
ARARs (applicable or relevant and appropriate requirements)
BAT (best available technology)
BMPs (best management practices)
CDOs (Cease and Desist Orders)
CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)
CWA (Clean Water Act)
DOC (California Department of Conservation)
DOJ (U.S. Department of Justice)
DWR (California's Department of Water Resources)
EBMUD (East Bay Municipal Utility District)
EPA (U.S. Environmental Protection Agency)
MMPs (mandatory minimum penalties)
MOU (Memorandum of Understanding)
NCP (National Contingency Plan)
NPDES (National Pollutant Discharge Elimination System)
NPL (National Priorities List)
NRCS (Natural Resources Conservation Service)
OSC (On-Scene Coordinator)
PRPs (Potentially Responsible Parties)
RAMP (Rural Abandoned Mine Program)
RAMS (Restoration of Abandoned Mines Sites)
SIP (State Implementation Policy)
SSO (numeric site-specific water quality objectives)
SWRCB (State Water Resources Control Board)
TMDL (Total Maximum Daily Load)
TU (Trout Unlimited)
UAA (use attainability analysis)
UCD (University of California at Davis)
USFS (U.S. Forest Service)
Water Board (Regional Water Quality Control Board)
WRDA (Water Resources Development Act)