

MEMO



To: Westside Sacramento Integrated
Regional Water Management
Coordinating Committee

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Subject: Report on existing institutional controls
for acting on brownfields plans

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Overview

A brownfield site is defined by the United States Environmental Protection Agency (USEPA) as "...real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." Brownfield sites may provide important advantages for developers and investors looking for desirable locations for industrial, commercial, residential, or other uses. Communities benefit because the redevelopment of brownfields sites can help bring new businesses, jobs and an improved tax base to areas where these sites have been underutilized and unproductive. Federal and state grant and loan programs are available to support brownfields site assessment and remediation to facilitate redevelopment.

Institutional controls consist of administrative measures to encourage or prevent specific activities. They provide the policy, legal backing, and procedural framework for acting on brownfields plans. Institutional controls are primarily administrative and/or legal mechanisms such as government policy controls, proprietary controls, enforcement or permit mechanisms, and informational devices. These controls serve to identify potential public or environmental health threats, and protect from these threats categorically, until further site-specific assessment is completed. Once the nature and extent of the threat(s) are understood, the ICs can be used to ensure that those threats are below established risk standards.

Identifying existing institutional controls is only the first step in this process, the second requires a multi-level approach including knowledge of what each individual County and/or municipality is willing to do, such as rezoning an area or recording deed restrictions. Many proposed (or implemented) controls are constrained socially by the idea that they could lead to court cases contesting inappropriate 'taking' of private property rights by a government. However, the brownfields program managed by USEPA is mature, has withstood numerous suits, and matches well with California's interests in redevelopment of impaired properties.

The project team worked with each participating county's staff to identify and evaluate existing controls that address brownfields. This memo reports on existing institutional controls for brownfields, which supports several other project tasks:

- Incorporate Environmental Site Assessments (ESAs) into existing databases of mine-impacted and other contaminated sites.
- Reference and address existing controls in Site Cleanup Plans.
- Consider additional controls that would support regional planning such as: (a) evaluating construction projects for brownfield status and ESA records; (b) requiring a Phase I ESA for tax-foreclosed properties with observed environmental impairment prior to public auction, for which the cost would be recovered in the auction price; and (c) updating county-wide hazardous sites maps used by local permitting agencies.
- Survey county staff to report on impacts of implemented institutional controls.

Existing Institutional Controls

Institutional controls take many forms and may even be applied without being acknowledged as formal controls. The description in this section scales from broader to site-specific applications.

Institutional controls in their broadest sense include one or more combinations of the following:

- A deed restriction or other instrument requiring that unrestricted access to mine features be prevented (implemented through posting signs, and installing and maintaining gates).
- A deed restriction or other requirement to prevent disturbing inactive mine features for documented sites, including mine waste piles (including overburden, waste rock, and tailings), processing areas such as furnaces and retorts, without first assessing potential chemical threats.
- A general requirement in the county or municipal code that all mine waste areas be maintained in such a manner as to prevent erosion (for example, by diverting water around the area, and vegetating and stabilizing topsoil).

More specifically, typical controls relevant for brownfield site cleanup plans include the following practices and requirements already in use throughout California:

- Drilling permits
- Air quality permits
- Biological assessments
- Building permits
- Grading plans and permits
- Stormwater plans and permits
- Transportation plans (hazardous waste disposal)
- Health and safety plans
- Zoning restrictions
- Noise and traffic (probably addressed in various county ordinances)

These controls are typically applied on individual sites in urban settings, on a case-by-case basis, and only when environmental contamination is documented and its risk established. Because the mining legacy is widespread, mine wastes are better suited to programmatic level screening, and

then site-specific analysis. Once the site-specific conditions are understood, then site controls can be applied to address the nature and extent of the environmental impacts at the brownfields site.

These controls may or may not be applied in settings where the land management agency is not aware of the risks, or where the coordination between agencies is not complete. Conversely, in some cases, agencies are so accustomed to these kinds of impacts, they fail to fully evaluate the potential for risks.

In terms of that evaluation, controls should only be applied where the risk is believed to occur. That belief relies on local knowledge and understanding, and through the use of databases and data aggregating services. In particular:

- Tracking the presence or location of potential mine wastes.
- Documenting contaminated sites and their associated cleanup activities (e.g., in Geotracker/Envirostor databases).
- Reviewing land use changes (i.e., California Environmental Quality Act, development permit applications) against databases.

Land use control management systems such as these are not the final word or substitute for historic knowledge and site-specific evaluation by qualified professionals¹. The previous description is an inverted pyramid approach—site-specific controls are derived from the evaluation of the site from screening databases through to managing site conditions through restrictive covenants. At each step, controls are employed to protect public health and the environment from perceived threats and fully quantified risks. The following section describes how that assessment process is typically completed.

Typical Site Assessment Process

Institutional controls designed to protect the public from potential brownfield's impacts take several forms. The first is simply a general awareness of sites or regions that may contain legacy contaminants that could impact human health and the environment. That awareness then focuses the evaluation on the potential for those impacts and creates a pathway to the consistent evaluation of that site and its particular risks.

Many municipalities already have an informal approach to this assessment process based on historic property uses and Phase I Environmental Site Assessments (ESAs) developed for a property transaction with a lender. However, in both cases, very old impacts, such as those from mercury mining and processing, as well as sites that have not had comprehensive Phase I and Phase II ESAs targeting these more unusual contaminants, are simply not adequately evaluated. The current approach is also unlikely to identify cross-jurisdictional mercury transport issues that these brownfields present.

The typical steps in a traditional property assessment for a lender, parallel those used to identify brownfield sites in pre-Phase I Site Inventory Screenings:

¹ ITRC (Interstate Technology & Regulatory Council) (2008). An Overview of Land Use Control Management Systems. BRNFLD-3. Washington, D.C.: Interstate Technology & Regulatory Council, Brownfields Team. www.itrcweb.org. 145 pp.

- Phase I ESAs to help identify potential contaminants on a site as well as recommending clean up options. They generally involve site inspections and records searches. The Phase I ESA conducted in accordance with ASTM 1527-13 prior to purchase of a property generally fulfills the “All Appropriate Inquiry” requirement, a crucial step in protecting a future landowner’s liability with respect to contamination.
- Phase II ESAs to provide a more detailed analysis of site conditions, the cleanup required per industry standards, and any follow-up monitoring of the site post-cleanup.

But the Phase I ESA itself does not substitute for a focused assessment of its historic mining activities, nor is it an effective explanation of the need for a comprehensive approach by the land use agency (County or municipality) as identified below². County and local governments have specific roles as they relate to historic mine wastes, but often lack the cross-agency and cross-discipline communication of the potential risks associated with these sites. In many cases because of the lack of a coherent and comprehensive database, they simply do not know that a threat exists. In smaller communities, these roles may be consolidated, but the overall management is similar.

Common Roles in Local Governments

This section summarizes common roles for municipal governments in the region, insofar as they relate to identifying and controlling contamination associated with brownfields.

- **Administrator** Managing projects, recruiting business, planning, and reaching out to the community.
- **Economic Development Department** Managing projects, recruiting businesses, identifying redevelopment sites, marketing, hiring consultants, controlling Community Development Block Grant funding, conducting feasibility analyses, developing of financial incentive packages, and gathering research and statistics.
- **Planning Department** Managing development projects, land-use planning, identifying potential risk sites, managing brownfields databases, providing technical assistance, hiring consultants, reaching out to the public, education, development planning, negotiating with property owners, and ensuring compliance with comprehensive landuse planning and zoning regulations.
- **Public Works Department** Coordinating local government-owned brownfields redevelopments, managing environmental contracts, planning infrastructure, maintaining properties, facilities, and labor, and reusing local government-owned brownfields.
- **Environmental/Solid Waste Department** Administering projects, overseeing sites, developing cleanup standards, approving remedial action plans, remediation planning, monitoring site prioritization, developing technical and regulatory material to assist potential brownfields customers, stormwater planning, reaching out to the community, supervising developer activities, ensuring compliance with waste regulations, and coordinating site materials removal.

² Adapted from http://www.in.gov/ifa/brownfields/files/ICMA_2014_Brownfields_Redevelopment_Guide.pdf.

- **Housing Department** Reaching out to the community, marketing, redeveloping residential property, and promoting public housing development.
- **Public Safety Department** Reaching out to the community, identifying risk sites, providing public safety during redevelopment, and providing fire safety.
- **Engineering Department** Conducting or overseeing Phase I and Phase II ESAs, managing environmental contracts, and designing construction and infrastructure projects.
- **Transportation Department** Providing transportation planning around the brownfields site, providing traffic control at the site during remedial activities, encouraging the development of an intermodal transportation center, administering Transportation Efficiency Act for the 21st Century projects, and coordinating with state departments of transportation.
- **Health and Human Services Department** Conducting site sampling plans, coordinating with state and federal health departments, ensuring compliance with public health codes during and after redevelopment, and developing the workforce.
- **Parks and Recreation Department** Creating and maintaining greenways, parks, recreational areas, and waterways, coordinating with community groups, and parks programming.
- **Legal Department** Providing legal advice, negotiating contracts, liability consulting, and designing prospective purchaser agreements.

In summary, the needs and roles for County and municipal planning associated with brownfields can be complex, but fall within the normal scope of their duties. The challenge of brownfields is to ensure sufficient initial assessment and prioritization to ensure that the complexities of their contaminants and their potential effects on human health and the environment are not accidentally overlooked.

Summary of Existing Institutional Controls

The following summaries and references are related to existing county General Plans and associated policies, regional programs, and other relevant citations that *function* as ICs for chemical impacts, mining, and associated issues that could include brownfield and historic mine site.

Solano County

Solano County General Plan

The Solano County General Plan³ includes the following sections related to brownfields:

RS.P-34: Ensure that mineral extraction operations are performed in a manner compatible with land uses on the site and surrounding area and do not adversely affect the environment.

³ <http://www.co.solano.ca.us/civicax/filebank/blobdownload.aspx?BlobID=6494>

At the end of such operations, ensure that the site is restored to conform with Surface Mining and Reclamation Act requirements and to a use compatible with surrounding land uses. (Solano County General Plan, 2008; pp. RS-35)

“Most of the mercury mines are clustered in or near the Sulfur Springs Mountain Range east of the City of Vallejo. Mercury mines include the St. Johns Mine, Hastings Mine, Borges Prospect, Brownlie Property, Vallejo, and one unnamed location.” (Solano County General Plan, 2008; pp. RS-32)

Surface Water Resources Solano County has a variety of surface water resources including creeks, drainages, sloughs, marshes, and extensive infrastructure for delivering water for irrigation and municipal uses. Through the Solano Project, Putah Creek and Lake Berryessa provide the majority of the county’s surface water for urban and agricultural consumption. The Suisun Marsh and other marshlands located along the Bay-Delta play an important role in maintaining and protecting water quality for human and natural communities. Intact riparian corridors are also important resources in the county for the protection of water quality in urban and rural areas. Even so, many of the county’s water bodies have been identified by federal and state agencies as not meeting mandated water quality standards for total maximum daily loads (TMDLs) of certain pollutants. Of particular concern are the water bodies with high levels of pesticide (diazinon), Polychlorinated biphenyls (PCB), and mercury pollutants. (Solano County General Plan, 2008; pp. RS-72)

Mines with mercury producing ore are located in the Sulfur Springs Mountain Range east of the City of Vallejo. Human exposure most often occurs through consumption of fish that has been exposed to methylmercury. (Solano County General Plan, 2008; pp. HS-58)

Brownfields are properties that are contaminated, or thought to be contaminated. Many are located in urban areas and are underused because of perceived remediation costs and liability concerns. Redeveloping brownfield properties optimizes the use of existing infrastructure, saving tax dollars and protecting natural resources. It also preserves agricultural and green spaces by slowing their conversion to residential, commercial, and industrial uses. Solano County maintains a list of all of the approximately 500 brownfield sites located within the county and works with fed. (Solano County General Plan, 2008; pp. HS-59)

HS.P-27: Work to reduce the health risks associated with naturally occurring hazardous materials such as radon, asbestos, or mercury. (Solano County General Plan, 2008; pp. HS-62)

HS.I-35: Continue to support public education programs regarding health risks associated with naturally occurring hazardous materials such as asbestos, radon, or mercury. (Solano County General Plan, 2008; pp. HS-63)

Mercury is a chemical element found in Solano County as a result of both natural processes and human activities. Natural sources of mercury include volcanoes, hot springs, and natural mercury deposits. Sources related to human activities include coal combustion and certain industrial and mining activities. Mines with mercury producing ore are located in the Sulfur Springs Mountain Range east of the City of Vallejo. Human exposure most often occurs through consumption of fish that has been exposed to methylmercury. (Solano County General Plan, 2008; pp. HS-58)

Napa County

Napa County Regional Park and Open Space District

The Napa County Regional Park and Open Space District 2012 Master Plan Update⁴ includes the following sections related to brownfields:

C.8 Oat Hill Mine Trail Interpretive Path Development

Next Steps: Evaluate the potential to interpret the mercury mining history of the area when deciding whether to open the Oat Hill Mine Trail north of Aetna Springs.

“One reason is that the road travels through the middle of three former Mercury mines. These mines need to be secured and cleaned up before public access can be safely allowed. The District has partnered with the non-profit organization Tuleyome on a grant funded cleanup of two of the mine sites and has agreed to be the lead agency under the California Environmental Quality Act for this project.

Next Steps: Continue to cooperate with the clean-up of the Twin Peaks and Corona Mines; upon completion of the clean-up, evaluate its effectiveness and decide whether to pursue opening the Oat Hill Mine Trail north. (Napa County Master Plan Update, 2012; pp. 12)

Napa County General Plan

The Napa County General Plan⁵ includes the following sections related to brownfields:

Conservation (CON):

Mineral Resources: “Despite some historic mining activities, the geologic opportunities for future mineral extraction in Napa County are not clearly known, and state mineral resource zone (MRZ) maps do not exist for the bulk of the County. There are currently three mines in Napa County designated as active by the State Department of Conservation, Office of Mine Reclamation: Napa Quarry (Syar Industries, Inc.), Pope Creek Quarry (Don Wesner, Inc.), American Canyon Quarry (Syar Industries, Inc.) (initiated reclamation in July, 2007).” (Napa County General Plan, 2008; pp. CON-18)

Goal CON-7: Identify and conserve areas containing significant mineral deposits for future use and promote the reasonable, safe, and orderly operation of mining and extraction and management activities, where environmental, aesthetic, and adjacent land use compatibility impacts can be adequately addressed. [Footnote: “The Napa River’s water quality is considered impaired due to the presence of nutrients, pathogens (disease-causing organisms), and sediment. Regionally, the Putah Creek Watershed (Lake Berryessa) is listed as impaired for mercury, and the San Pablo Bay, into which the Napa River drains, has been listed as impaired for almost a dozen reasons.”] (Napa County General Plan, 2008; pp. CON-25)

Policy CON-11: The County shall maintain and improve fisheries habitat through a variety of appropriate measures, including the following as well as best management

⁴ <http://napaoutdoors.org/documents/master-plan-update-2012/>

⁵ <http://www.countyofnapa.org/generalplan/>

practices developed over time (also see Water Resource Policies, below): m) Control sediment production from mines, roads, development projects, agricultural activities, and other potential sediment sources. (Napa County General Plan, 2008; pp. CON-26 Policy)

Policy CON-39: Resource extraction activities (e.g., mining and geothermal development) shall fully address environmental implications, such as air pollution, visual distractions, siltation of nearby streams, increase in surface runoff, removal of underground water by pumping, increase in erosion or landslide hazard, disposal of chemical wastes, creation of impervious layers and surface compaction, extent of vegetation removal, and site rehabilitation procedures. (Napa County General Plan, 2008; pp. CON-33)

Policy CON-40: Encourage the ongoing reclamation of sand and gravel mining areas through the implementation of reclamation plans. In conformance with state law, all mining operations shall have up-to-date reclamation plans and adequate financial assurances to the satisfaction of the County. (Napa County General Plan, 2008; pp. CON-33)

Policy CON-47: The County shall comply with applicable Water Quality Control/Basin Plans as amended through the Total Maximum Daily Load (TMDL) process to improve water quality. In its efforts to comply, the following may be undertaken: g) Addressing effects related to past and current mining, grazing, and other activities to the extent feasible. (Napa County General Plan, 2008; pp. CON-38)

Safety (SAF):

Manmade Hazards, “which include the sometimes hazardous chemicals used in modern businesses, traffic hazards, and the electromagnetic fields caused by high voltage electricity.” No mention of mines or relevant geochemical or chemical hazards. (Napa County General Plan, 2008; SAF-4)

Policy SAF-2: Geologic hazards are identified as landslides, liquefaction, floods and earthquakes. “The Safety Element contains information about potential natural and human-caused hazards, incorporating by reference the County’s Hazard Mitigation Plan.” No mention of naturally occurring or enhanced chemicals or threats from mining. (see HMP below) (Napa County General Plan, 2008; SV-6)

Policy SAF-31: “All development projects proposed on sites that are suspected or known to be contaminated by hazardous materials and/or are identified in a hazardous material/waste search shall be reviewed, tested, and remediated for potential hazardous materials in accordance with all local, state, and federal regulations.”

(Napa County General Plan, 2008; pp. SAF-21)

Community Character (CC):

Historic Resources: “Outside of its urban centers, Napa County’s built environment contains historic remnants of its agricultural past such as farmsteads, barns, wineries, grange halls, water tanks, and walls. In addition, there are historic spas and resorts, mines and mine roads, and picturesque stone bridges and landscapes (including historic vineyards).” (Napa County General Plan, 2008; pp. CC-5)

Recreation and Open Space Element (ROS):

The reclamation of mine sites could lead to the use of the site as open space, or as a feature in a trail complex, such as a parking lot, a dog park, or as part of the trail system itself. The County General Plan identifies these uses as desirable in the following Goal and Policy. The reuse of these sites as open space or recreational use is consistent with the policies and in several cases, aligns with the figure of desired trail corridors (Figure ROS-4): Napa County Trail network. (Napa County General Plan, 2008; pp. ROS-27)

Goal ROS-2: To create and maintain a high-quality system of parks, trails, and recreational, interpretive, and environmental education facilities. (Napa County General Plan, 2008; pp. ROS-32)

Policy ROS-11: Recreation and Open Space Element- Increase by 2030 the amount of dedicated open space available, improved, and managed or nature-based recreation by the general public by improving access to existing public lands and by selective public acquisition from willing landowners of fee title ownership, easements, and/or license agreements over high priority open space lands.

Another nearly 200 miles of non-motorized trails within Napa County and its incorporated areas have been proposed or are under active consideration by one or more of the public agencies and trail planning organizations active in the county. These include incomplete segments of the San Francisco Bay Trail and Bay Area Ridge Trail, former roads now closed to the public such as the Oat Hill Mine Road and the upper portion of the Aetna Springs Road, and other potential new trails, all on existing public lands.

These connecting corridors are important to creating an integrated network of open spaces providing a high-quality system of outdoor recreational opportunities. At the same time, however, these connecting corridors present the greatest challenge to implement, since they often traverse private property and thus require a public agency to acquire either land or trail easements or licenses from willing property owners without the use of pressure or coercion. (Napa County General Plan, 2008; pp. ROS-24):

Ag-Land Use Element (AG/LU):

This element does not describe any considerations for mines, mining, brownfields and their reuse. However, there is a policy which could extend to the reclamation and reuse, if the land would otherwise be suitable for ag use. In all likelihood, given their typical condition, rehabilitated mine sites could be used for storage, ag equipment maintenance, and processing of ag products.

The following standards shall apply to lands designated as Agriculture, Watershed, and Open Space on the Land Use Map of this General Plan.

Intent: To provide areas where the predominant use is agriculturally oriented; where watersheds are protected and enhanced; where reservoirs, floodplain tributaries, geologic hazards, soil conditions, and other constraints make the land relatively unsuitable for urban development; where urban development would adversely impact all such uses; and where the protection of agriculture, watersheds, and floodplain tributaries from fire, pollution, and erosion is essential to the general health, safety, and welfare. (Napa County General Plan, 2008; pp. AG/LU-16 Policy AG/LU-20)

Other Napa County plans reviewed, but which could use additional mercury or brownfields descriptors:

Napa County Hazard Mitigation Plan (HMP) Pg. 183 describes generic chemical hazards from chemical storage. No mention of naturally occurring or enhanced chemicals or threats from mining.

Napa County, Town of Napa Hazard Mitigation Plan (HMP) No mention of naturally occurring or enhanced chemicals or threats from mining. http://hazardmitigation.calema.ca.gov/docs/approved_lhmps_under_2008_fema_guidance/Napa%20City%20of%20revised.pdf

Yolo County

Yolo County General Plan

The Yolo County General Plan⁶ includes the following sections related to brownfields:

Action CO-A47 Ensure that mined areas are reclaimed to a usable condition that is readily adaptable for alternative land uses, such as agriculture, wildlife habitat, recreation, and groundwater management facilities. Responsibility: Parks and Resources Department (Policy CO-3.1) Timeframe: Ongoing (Yolo County General Plan, 2009; pp. CO-48)

Policy CO-5.8 Support efforts to reduce the accumulation of methylmercury in fish tissue in Cache Creek and the Delta, as well as the consumption of fish with high levels of methylmercury. (Yolo County General Plan, 2009; pp. CO-71)

Policy CO-5.24 Pursue funding to remediate historic mines and other sources of mercury contamination on the Cache Creek watershed. (Yolo County General Plan, 2009; pp. CO-72)

The Cache Creek Area Plan is comprised of the Off-Channel Mining Plan and the Cache Creek Resources Management Plan, which together regulate and protect the area and manage the Creek as an integrated system. It protects water supply and aquatic habitat from contamination associated with mining. This plan, last updated in 2002, focuses on regulating off channel aggregate mining, improving channel stability, reducing erosion, maintaining flood capacity and restoring habitats. (Yolo County General Plan, 2009; pps. CO-66 to 67)

Policy CO-9.3 Pursue the establishment of dedicated state and federal funding sources to remediate mercury, in the various sources located in the upper Cache Creek watershed, in the sediments and waterways of both Cache Creek (including the Settling Basin) and the Yolo Bypass, and where it methylates in the Delta. (Yolo County General Plan, 2009; pp. CO-98)

Policy CO-5.21 Encourage the use of water management strategies, biological remediation, and technology to address naturally occurring water quality problems such as boron, mercury, and arsenic. (Yolo County General Plan, 2009; pp. CO-72)

⁶ <http://www.yolocounty.org/home/showdocument?id=14464>

Lake County

Lake County General Plan

The Lake County General Plan⁷ includes the following sections related to brownfields:

Policy OSC-4.1 All mining operations shall be required to take precautions that prevent contamination from wastes or incidents related to the storage and disposal of hazardous materials, or general operating activity at the site. (Lake County General Plan, 2008; pp. 9-11)

Tuleyome Mercury Mine Remediation Program

The Tuleyome Mercury Mine Remediation Program⁸ includes the following objectives for its Corona Twin Peaks Mine Drainage Treatment Project, which would broadly apply to any mine site cleanup project that Tuleyome would support:

Project objectives are to (1) improve the effectiveness of existing mine drainage treatment systems for the Boiler House and Twin Peaks entrances [referred to as “adits”]; (2) minimize leaching and mobilization of nickel and acid drainage from the mined ore body through the Corona Drain Tunnel; and (3) address physical and chemical hazards on the site.

State and Federal Controls

Public notifications (selected projects under the state’s Department of Toxic Substances Control or USEPA). Both agencies understand the technical and social issues associated with these sites. Agencies generally require project proponents to provide lists of applicable public agencies and adjacent parcels or parcels that might otherwise be impacted by project implementation. Examples might include non-adjacent parcels along a traffic path or down-wind/downstream of a project site. Public notification generally runs from 30 to 60 days depending on agency and project. Public notification is similarly required prior to a finding of no-further action (site closure) to ensure that applicable agencies such as building departments and the public are aware of the specifics of the finding. This requirement is particularly important when a no-further action letter is prepared for a risk-based closure where institutional controls (land use covenants) or engineering controls (paving) may have been requirements for the determination.

Streambed alteration agreements by California Department of Fish and Wildlife, 401 Certifications by the Regional Water Quality Control Board, or US Army Corps of Engineers (ACOE) permits may be required if waterways are impacted. However, these agencies do not typically check the mining databases and few staff routinely deal with brownfields.

⁷ <http://www.co.lake.ca.us/Page3939.aspx>

⁸ <http://tuleyome.org/projects/mercury-mine-remediation-program/>

Additional Institutional Control Options

The above summaries portray a high degree of understanding regarding mercury and mining, as well as complex natural and human impacts associated with both. However, it is clear that additional polices that could inform better understanding of brownfields and mercury-associated hazards specifically would be helpful. In this section, we consider additional ICs which would support regional brownfields planning, and assist municipalities in complying with California Environmental Quality Act as they: (a) evaluate construction projects for brownfield status and ESA records; (b) require Phase I ESAs for tax-foreclosed properties with observed environmental impairment prior to public auction, for which the cost would be recovered in the auction price; and (c) update county-wide hazardous sites maps used by local permitting agencies.

Model Policy Language

One means by which to identify potentially impacted sites is to help put into effect a more protective public policy. A sample code and plan language is provided as an illustration. The policy is intended to identify potential brownfields prior to completing a land use plan, and to effectively identify and evaluate suspected sites prior to ground disturbance. This policy statement, if adopted in some form, would represent an institutional control for brownfield-type sites in each county.

Natural springs and mineral bodies found in the Coastal Range and their tributaries can contain cinnabar or mercury. Mercury has several chemical forms, of which methylmercury is the most toxic to wildlife and humans, particularly during fetal development. In the majority of places, the concentrations are well below drinking water standards, but the mercury bioaccumulates and concentrates up the food chain in fish. Human exposure most often occurs through consumption of fish that has been exposed to methylmercury. Mines with mercury producing ore, their processing sites (mills), piles of waste material, and associated drainage are located in this region and have been abandoned or partly remediated.

Brownfields are properties that are contaminated, or thought to be contaminated. Many are located in areas that are underused because of perceived remediation costs and liability concerns. Redeveloping brownfield properties optimizes the use of existing infrastructure, saving tax dollars and protecting natural resources. It also preserves agricultural and green spaces by slowing their conversion to residential, commercial, and industrial uses. Brownfields, however, can be remediated such that they can be reused and become community assets again.

- I. New development should reuse brownfields sites first. In order to secure reuse, the agency should support the regional assessment of brownfield sites to understand the nature and extent of any contamination, and establish a prioritization program for cleanup and funding.
- II. Property transactions at sites that have had historic mining should assess for mercury and other heavy metal impacts.
- III. Prior to authorizing projects, agencies should examine

- USGS (ngmdb.usgs.gov/maps/topoview/viewer/#4/39.98/-100.06),
- CA Dept. of Conservation (www.conservation.ca.gov/dmr),
- Geotracker (geotracker.waterboards.ca.gov/) and
- Envirostor (www.envirostor.dtsc.ca.gov/public/).

to determine site history and potential threats or mitigation measures. Examples of site dangers that must be understood might include adits or other subsurface voids as well as runoff, slope stability and the presence of site contamination.

- IV. Agencies should examine title records for any proposed project site to understand if land use restrictions have been recorded by state of federal agencies
- V. In order to reduce the health risks associated with naturally occurring hazardous materials such as radon, asbestos, or mercury, the agency should seek support for public education programs regarding health risks associated with exposure, including fish consumption, to these chemicals.

Sample California Environmental Quality Act Language

The following language could be added to the Hazards (or Geology) section of Municipal Code and/or County General Plan.

Historic mining and processing of minerals occurred throughout the Coast Range. Particular concerns over this legacy are the threats to public safety from decaying structures and open shafts and pits, as well as pollutants on site and released in air and water. In most cases these sites are suitable for reuse and redevelopment if their specific threats are properly assessed and addressed. Hazards include public health from chronic or acute contamination, and consumption of impacted fish: The Department of Public Health, Office of Environmental Health Hazards Assessment has issued fish consumption advisories (www.oehha.ca.gov).

In order to better understand the nature and extent of these potential threats, if the property has been identified in the U.S. Geologic Survey topographic map (ngmdb.usgs.gov/maps/topoview/viewer/#4/39.98/-100.06), and the California Department of Conservation (www.conservation.ca.gov/dmr) as a mine site, a Registered Geologist shall perform a site assessment to identify potential hazardous chemical and geologic threats. If such threats are determined to be significant, the agency will determine the appropriate mitigation.

Land Use Controls Tracking Tool

To assist with cost-effective program development, the Interstate Technology & Regulatory Council has developed a downloadable tool (institutionalcontrols.itrcweb.org/) that can be used to document critical information about a brownfield site. This tool can help to create a lasting record of the site that includes the regulatory authority, details of the controls required, the responsibilities of all parties, a schedule for monitoring performance of the control, and much more relevant information. The tool generates an editable Long-Term Stewardship Plan in Microsoft Word.

Guidance Manual for Landowners

The Natural Resources Conservation Service (www.nrcs.usda.gov/wps/portal/nrcs/site/ca/home/) provides numerous publications on constructing features in a natural environment. Most such documents are focused on erosion control which would be applicable to mercury contaminated soils.

One regional example focused on mercury contamination is Santa Clara Valley Water District's Community Projects Review Unit's *Stream-bank Repair Guidance Manual for the Private Landowner, Guadalupe and Alamos Creeks*⁹. The District prepared the manual to help landowners understand the mercury issues in their watershed, and to repair stream-banks that contain mining-legacy mercury. Use of the Manual does not imply responsibility, the Manual is not enforceable, nor does it imply participation in such projects by the District or other authorities. Thus, it is not an institutional control so much as a guide for landowners on how to physically control legacy pollution. The District also developed a mechanism for private landowners to document their contributions to reducing mercury in the watershed. The reporting form can be used to report mercury quantities removed from the watershed, which could be useful when developing policies, programs or projects for reducing mercury in the watershed.

⁹ Weiss Associates (2005). *Stream-bank Repair Guidance Manual for the Private Landowner, Guadalupe and Alamos Creeks*. Prepared for Santa Clara Valley Water District.
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/guadalupe_river_mercury/GuidanceManualStream-bankRepair.pdf. 46 pp.