

Public Involvement Plan

December 2011

BIOMONITORING
CALIFORNIA

The logo for Biomonitoring California features the words "BIOMONITORING" and "CALIFORNIA" stacked vertically. The letter "O" in "BIOMONITORING" is replaced by a blue circle with a white outline. A horizontal blue line is positioned below the word "CALIFORNIA".

Foreword

The California Environmental Contaminant Biomonitoring Program, also known as Biomonitoring California¹, was established by legislation in 2006. The legislation directs Biomonitoring California to “develop a strategy and plan to establish the framework for integrating public participation in this program.” This document presents Biomonitoring California’s Public Involvement Plan designed to address this need. To help refine the Plan and overall strategy for public involvement, we carried out a process of public review and comment on a draft version of this document. We also obtained input from the Scientific Guidance Panel, which is composed of external scientific experts who advise Biomonitoring California.

Biomonitoring California plans to revisit the Public Involvement Plan as needed to address suggestions made by stakeholders and lessons learned from activities undertaken, and as state biomonitoring efforts expand. The current document and future updates can be found on the Biomonitoring California website (www.biomonitoring.ca.gov).

¹Established by Senate Bill (SB) 1379 (Perata and Ortiz, Chapter 599, Statutes of 2006) and codified at Health and Safety Code section 105440 et seq., Biomonitoring California is a collaborative effort of the California Department of Public Health, the Office of Environmental Health Hazard Assessment and the Department of Toxic Substances Control.

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Introduction

Senate Bill 1379² established the California Environmental Contaminant Biomonitoring Program (also known as Biomonitoring California or the Program) to:

- Measure the levels of environmental chemicals in a representative sample of Californians;
- Determine how the levels of these chemicals in Californians' bodies change over time; and
- Help assess how well public health efforts and regulatory programs decrease Californians' exposures to specific chemical contaminants.

SB 1379 directs the Program to “develop a strategy and plan to establish the framework for integrating public participation in this program” and specifies requirements for several different aspects of the Program’s public involvement efforts. For example, the Program is directed to provide informational materials that are culturally appropriate and translated as needed. The legislation also directs us to engage the public at meetings and workshops to solicit feedback on the Program’s development. We do this regularly by encouraging public participation in meetings of the Program’s Scientific Guidance Panel (SGP or Panel). See Appendix 1 for additional relevant sections of the legislation.

The Program considered the legislative requirements and our ongoing experience with public participation to formulate four goals for the Public Involvement Plan:

1. Build public awareness and understanding of the Program.
2. Provide opportunities for stakeholders to contribute to Program design, implementation, and evaluation.
3. Effectively engage with the populations being biomonitored.
4. Communicate biomonitoring results in an understandable manner.

Objectives to help achieve these goals are described in this document. Specific activities that the Program is planning to carry out in the next few years are briefly outlined under each objective.

The Program’s ability to implement these public involvement activities will depend on the resources available either through the state budgetary process or external funding. As opportunities arise, the Program will continue to seek additional resources and collaborations to support public involvement efforts.

A glossary of terms and abbreviations used in this document can be found in Appendix 2.

²SB 1379 (Perata and Ortiz, Chapter 599, Statutes of 2006)

Framework for Public Involvement

The framework for integrating public participation into the Program is shown in Figure 1. The enabling legislation provides the overall direction. The four goals of the Plan form the core of the framework, while environmental justice (EJ) and public engagement principles inform the approach taken in Program activities.

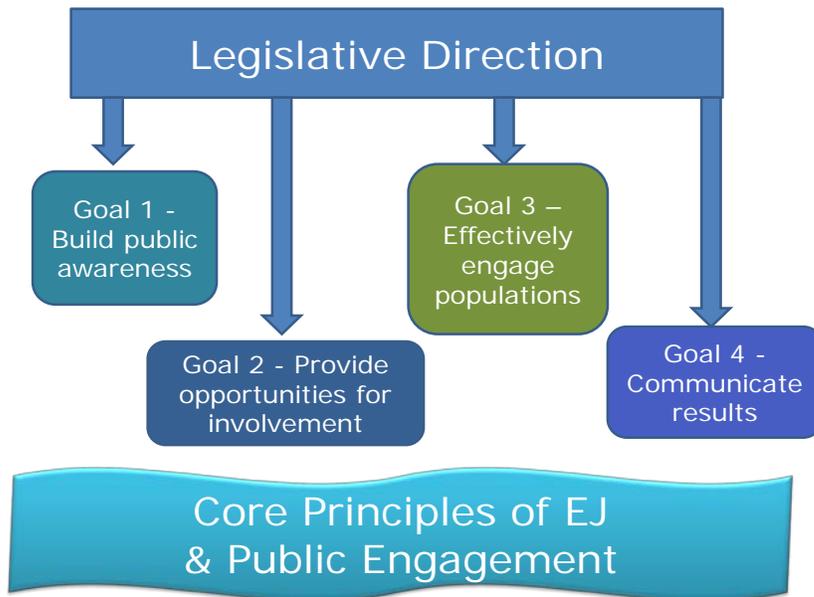


Figure 1 – Framework for Integrating Public Participation into Biomonitoring California

The enabling legislation directs the Program to refer to the California Environmental Protection Agency’s (Cal/EPA’s) Environmental Justice (EJ) Strategy and Environmental Justice Action Plan³ for direction on incorporating environmental justice principles into Program activities. The EJ Strategy lays out a mission, vision, core values, and four strategic goals intended to guide Cal/EPA boards, departments and office in integrating environmental justice into all programs and activities. The mission statement for Cal/EPA’s EJ Strategy is shown below. The EJ Action Plan describes initial activities Cal/EPA and its boards, departments and office will use “to assess different environmental scenarios, identify challenges and opportunities, explore practical application of strategies, and develop recommendations to address environmental justice issues.” Biomonitoring California is committed to carrying out our activities in ways that reflect EJ principles. Specific examples of how Biomonitoring California incorporates EJ into our activities are described in later sections of this document.

³These documents can be found on Cal/EPA’s website: The Environmental Justice Strategy at <http://www.calepa.ca.gov/EnvJustice/Strategy/Development.htm> and the Environmental Justice Action Plan at <http://www.calepa.ca.gov/EnvJustice/ActionPlan/>.

“To accord the highest respect and value to every individual and community, by developing and conducting our public health and environmental protection programs, policies, and activities in a manner that promotes equity and affords fair treatment, accessibility, and protection for all Californians, regardless of race, age, culture, income, or geographic location.”

Environmental Justice Strategy Mission Statement – Quoted in SB 1379

Public engagement principles also guide the Program’s public involvement efforts. Table 1 lists a set of public engagement principles the Program finds useful, called the “Core Principles for Public Engagement.” . These were developed in 2009 by the National Coalition for Dialogue and Deliberation, in collaboration with the International Association of Public Participation and others. A more complete description is provided in Appendix 3.

Our public involvement plan builds on activities initiated in the first few years of the Program to engage our stakeholders. These activities are described in Appendix 4.

By “stakeholders” we mean any person or group who has an interest in the program, including but not limited to:

- The general public;
- Community members or groups;
- Environmental justice groups;
- Governmental (e.g., city, county) representatives or groups;
- Health care providers;
- Health and environmental advocacy groups;
- Industry representatives or groups;
- Labor representatives or groups;
- Program participants;
- Scientific researchers; and
- Tribal groups.

Table 1. Core Principles for Public Engagement

1. Careful Planning and Preparation
2. Inclusion and Demographic Diversity
3. Collaboration and Shared Purpose
4. Openness and Learning
5. Transparency and Trust
6. Impact and Action
7. Sustained Engagement and Participatory Culture

Source: National Coalition for Dialogue & Deliberation and others (see Appendix 3).

Public Involvement Plan

Four overarching goals form the core of the Plan. These four goals are:

1. Build public awareness and understanding about the Program.
2. Provide opportunities for stakeholders to contribute to Program design, implementation, and evaluation.
3. Effectively engage with the populations being biomonitored.
4. Communicate biomonitoring results in an understandable manner.

Program staff developed objectives as the avenues to achieve the goals. The discussion below lists these objectives and lays out specific activities that will be carried out as the first steps toward meeting them.

Goal 1. Build public awareness and understanding of the Program.

Summary of Goal 1

Program staff will develop materials and carry out activities to increase public awareness and understanding of the biomonitoring program, its findings, and related public health information. The primary ways the Program is currently addressing this goal include:

- Providing information on the Program website;
- Keeping stakeholders informed about Program activities via an email listserv;
- Making Panel meetings accessible to remote audiences via webcasting; and
- Responding to public inquiries and comments sent to the biomonitoring email address.

Continuing and expanding these efforts represent a top Program priority.

The Program will conduct additional stakeholder surveys to identify information needs and the best ways to provide that information. We will also interview representatives of various stakeholder groups. We will explore other methods for engaging in dialogue with stakeholders (for example, holding teleconferences on specific topics). We will also make efforts to increase the number and diversity of stakeholders engaged in Program activities.

Efforts to build awareness include informing potential stakeholders about the Program's purpose and scope, educating the public about biological sample collection and analysis activities, and making the findings of biomonitoring projects understandable and accessible to all stakeholders.

Goal 1 Objectives

1.1 Identify information priorities and communication preferences

An important step to move public involvement efforts forward is to identify the types of information and communication methods that best meet the needs of Program stakeholders. Program staff will periodically design and carry out surveys to assess stakeholders' needs and

preferences, and gather other information that will help us communicate effectively. The surveys are posted on the website and announced via the Program's listserv.

Examples of information gathered in these surveys include:

- The types of information that are of most interest to stakeholders (e.g., background on chemicals being studied; how pilot projects are designed);
- The methods of interaction that stakeholders consider most effective and worthwhile (e.g., fact sheets, webinars, workshops); and
- How we can identify and contact additional potential stakeholders (see Objective 2.1 below).

Staff also conduct interviews with representatives of various stakeholder groups to reach people who do not access information on-line. In addition, targeted surveys are being carried out to assess specific groups' interests and needs.

1.2 Maintain and expand electronic communications

Biomonitoring California uses a range of electronic communication approaches: the Program website, listserv and email address, and webcasting. Our website is the main portal for stakeholders to get information about Program activities. We regularly inform potential stakeholders about the Program website by including the website address in publications and documents.

Improving the website is a priority of the Program and is an ongoing process. Currently we are focusing on developing and implementing a new design for the website. The main purpose of the new design is to create a more user-friendly interface, improve readability, and increase relevance for a general audience. The revised website will incorporate modified content and a new appearance and structure. The Program is working to implement the new design over the next year. Funds from the Centers for Disease Control and Prevention (CDC) are supporting this effort.

Features of the re-designed Biomonitoring California website will include:

- A new look and structure, with "branding" to make the biomonitoring website more easily recognizable.
- An interactive, accessible version of the Program's brochure, "What is Biomonitoring? Measuring Chemicals in Our Bodies," as a multi-chapter slide show.
- An interactive timeline of Program development.
- Chemical-specific fact sheets for some biomonitored substances (e.g., lead, mercury, perfluorinated compounds).
- Easy-to-find pages focused on Program projects (e.g., population being studied, chemicals being measured, results when available).

Information of interest to the general public will be expanded on the revised website to describe, for example, why biomonitoring is important, how people are exposed to chemicals in everyday life, the connection between biomonitoring and regulatory efforts to decrease exposures to environmental contaminants, and links to additional information. The website is

being re-organized to make information easier for site visitors to find. Website access is being improved for all users, including those with visual or hearing impairments. The Program will test the accessibility and usability of the revised site prior to its launch.

Several activities are carried out regularly to maintain the Program's electronic resources. These include adding new information to the Program's website, adding listserv subscribers, sending notes to the listserv, and reviewing and responding to requests for information and other inquiries sent to the Program's email address. During public meetings and in written communications, staff encourage those potentially interested in the Program to join the listserv. Efforts to expand the number of listserv subscribers are described under Goal 2.

The Panel meetings (held three times per year) currently serve as a primary method for providing information to stakeholders. The public is encouraged to attend these meetings. While the Program would like to hold Panel meetings in various locations throughout the state, they are currently held either in Sacramento or the San Francisco Bay Area due to resource limitations. To ensure broad public access, the Program webcasts the meetings or holds them via webinar as often as possible. People viewing the Panel meetings remotely are able to ask questions via email during the meeting. Staff will explore the possibility of creating audio feeds or files (e.g., MP3) to allow those interested to listen to the meetings via handheld devices.

1.3 Develop informational materials

Informational materials, such as fact sheets, are being developed as needed, as resources allow. In developing new materials, staff work to address Program stakeholders' concerns as identified in needs assessments (see Objective 1.1). Making sure the materials are easy to read, culturally appropriate for various audiences, and tailored where appropriate to the needs of the groups being biomonitoring is important to the Program's success. The Program uses methods such as focus groups to gain insight into the type of messages and images that are understood and accepted by different cultural groups,

With CDC funding, the Program developed a basic Program brochure at a reading level appropriate for the general public. The brochure, "What is Biomonitoring? Measuring Chemicals in Our Bodies" is available in hard copy and online. English, Spanish, and Chinese versions have been developed. The Program places a high priority on translation of additional Program information into languages other than English in order to reach more groups within California's diverse population.

For the website, we are exploring the possibility of creating multimedia content on specific topics (e.g., video clips on understanding biomonitoring results) and interactive materials for specific audiences (e.g., health care providers).

1.4 Media outreach

The Program will conduct appropriate outreach to the media, including developing press releases and other relevant materials, to make published biomonitoring findings available to a wider audience. Stakeholders are also being consulted on effective ways to disseminate the Program's findings.

Goal 2. Provide opportunities for stakeholders to contribute to Program design, implementation and evaluation.

Summary of Goal 2

SB 1379 directs the Program to provide opportunities for “public participation and community capacity building with meaningful stakeholder input.” The legislation does not specify how this should be done beyond, at a minimum, “conducting stakeholder meetings and workshops to solicit relevant information, data, suggestions and feedback for the development and implementation of the Program.”

The Program’s approach to providing such opportunities includes conducting workshops, holding public meetings in person and through teleconferences, and communicating via email to those on the Program’s listserv (see Appendix 4). We are working to expand the listserv to include more stakeholders. In addition, the Program is taking steps to identify areas where additional public involvement could provide the greatest benefit. For example, we are focusing on developing partnerships with existing community organizations and agencies. One challenge is to find effective and resource-wise methods for engaging stakeholders. The Program is exploring ways to build community capacity on a small scale in pilot projects. To encourage stakeholders to provide feedback on the Program, an online comment form, accessible on the website, is being developed. We also convene focus groups or stakeholder workgroups to provide input on specific aspects of a project, as resources allow.

Goal 2 Objectives

2.1 Identify additional stakeholders

The Program would like to increase the number and diversity of Program stakeholders. For example, there are very few groups or individuals from Southern California who have subscribed to the Program listserv. One step we are taking is to review who is currently engaged with the Program (e.g., listserv subscribers, participants at Program meetings) and identify ways we could reach out to a more diverse audience. We want to think broadly about the range of stakeholders who may be interested in the Program. For example, the Program is working on effective methods for reporting results back to participants, which may be of interest to those involved in other types of health education or risk communication efforts. Researchers and others in fields such as green chemistry and risk assessment may also have common interests with biomonitoring. The Program is building networks with scientists, researchers and public health professionals to broaden public awareness of our activities. We are also reaching out to organizations that have a focus on environmental or occupational exposures (e.g., environmental justice groups).

Efforts are underway to expand and diversify Program stakeholders by adding subscribers to the Program listserv. Program staff provide sign-up sheets for the listserv at Panel meetings and other events. Information about joining the listserv is also shared during presentations made at conferences and other venues. As part of the surveys and interviews described under Objective 1.1, we ask existing stakeholders to identify other individuals and groups with potentially overlapping interests and invite them to join the listserv. We are following up on the many helpful suggestions we received from stakeholders who reviewed the draft version of this plan, such as ideas on new ways to reach interested audiences.

The effort to increase the number of Program stakeholders also includes outreach to additional groups and other email lists such as those operated by State agencies, including the Cal/EPA EJ listserv.

We are evaluating the possibility of establishing a social media presence, such as on Facebook, as another avenue for engaging additional stakeholders. As resources allow, other activities may be carried out to broaden our base of stakeholders. For example, we could reach out to potential partners in academic institutions and health and environmental organizations to inform them about our activities and encourage their involvement. We could work to establish links to the Program website on websites of organizations with activities related to biomonitoring. We are also exploring ways to reach people who may not have access to the internet.

2.2 Find effective and resource-wise methods for engaging stakeholders

Many aspects of the Program could benefit from public involvement. Examples include:

- The design of pilot projects, such as selecting the chemicals to measure and the populations to biomonitor;
- Design of recruitment strategies for project participants; and
- The development of materials to communicate biomonitoring results to participants, communities, and the public at large.

We are continuing to work on identifying how, where, and when we can most effectively involve the public in the Program. We are looking for areas where providing input will be most helpful to the Program and worthwhile for those who take the time to get involved.

Current efforts to engage stakeholders are focused on Panel meetings (see Appendix 4) and pilot projects (see Goal 3). Starting in 2011, the Program established an open public comment period at Panel meetings to allow time for members of the public to address the Panel on topics other than those on the agenda. Commenters can participate either in person at the meeting venue or via email. The public can also comment on matters concerning the Program at any time by submitting an email to biomonitoring@oehha.ca.gov.

Efforts to expand stakeholder involvement beyond the existing venues of Panel meetings and email communication will be shaped by feedback received via stakeholder surveys and interviews (Objective 1.1). For example, to encourage feedback on the draft version of this Public Involvement plan, we held teleconferences and online surveys, as described in Appendix 4. We will continue to gather ideas from existing and potential stakeholders as to the method(s) for interaction that they would consider worthwhile and in which they would want to participate (e.g., teleconferences; online surveys; in-person events), and the topics of most interest to them.

Having a social media presence for Biomonitoring California would provide a variety of opportunities for engaging with stakeholders.

2.3 Build community capacity

The enabling legislation directs the Program to create opportunities for community capacity-building as a method to enable “meaningful input” from the public. Creating

opportunities for people from specific communities to gain knowledge, skills and experience relevant to biomonitoring is a challenge for the Program, given current resource constraints. In pilot projects, we will consider offering job opportunities as part of the effort (e.g., hiring and training local people to conduct interviews of project participants). The Program is committed to finding ways to build community capacity beyond these efforts as additional resources become available.

We interview and survey stakeholders for input on specific community needs for knowledge, skills and experience relevant to biomonitoring and worthwhile ways to build this capacity. We are looking for opportunities to partner with relevant organizations and community groups to conduct outreach for future projects. One example of an area we are interested in exploring is carrying out trainings for and collaborating with community partners on issues related to understanding biomonitoring results. Potential partners include community-based organizations and local health departments such as those in counties where we have or will recruit participants for pilot projects (e.g., San Francisco, Orange, Sacramento, Stockton, Modesto, Merced, Madera and Fresno counties).

2.4 Provide opportunities for stakeholders to offer feedback

The Program's website is the primary method for conveying information to the public about the Program. An online comment form, accessible on the website, is being developed to allow website visitors to offer ongoing feedback and suggestions on the revised website as well as other Program activities and materials. In addition, an open public comment period was added to the Panel meetings to allow time for people to raise issues about the Program that are unrelated to the meeting's agenda.

In the future, as resources allow, the Program will continue to identify people who are part of a particular community, population of interest, or stakeholder organization to provide input on specific aspects of a project. Focus groups provide one way to learn about people's views on important aspects of a project. For example, we have invited mothers to participate in a focus group on how best to communicate with them about their biomonitoring results. As a second example, firefighters were asked to provide feedback on specific questions about their job duties. The Program may also convene stakeholder workgroups. A workgroup would typically be charged with reviewing a specific issue, hold multiple meetings over a period of time, and include individuals who represent a wide range of interests.

Goal 3. Effectively engage with the populations being biomonitored.

Summary of Goal 3

Biomonitoring California is carrying out collaborative community-based studies as well as a regionally representative biomonitoring study. We are planning to expand these efforts by carrying out additional regionally representative studies as resources allow. Public involvement activities conducted as part of these pilot projects enable the Program to test its protocols and procedures. Methods developed in these pilot studies for reaching out to potential participants and the broader communities in which they live and work will inform our efforts in future larger studies that are more representative of California's diverse population.

Raising public awareness and understanding of the Program is a critical first step in engaging with the populations from which people will be recruited for a biomonitoring project. A community that is aware of and understands the Program and its activities is more likely to support its goals, participate in partnerships, and have higher participation rates in biomonitoring projects. Effective communication with the people to be biomonitored is an integral part of developing this awareness and understanding of the Program. Engaging these populations throughout each project, from the early stages of project development through the reporting of results and beyond will help ensure that our efforts benefit those involved.

Goal 3 Objectives

3.1 Develop a recruitment strategy

The participant recruitment strategy for the Program's biomonitoring projects varies depending on the target population and whether or not the project is based in a specific geographic location. At the beginning of a project in any community, we work to identify and gain the support of key stakeholders as time and resources allow. The Program builds awareness and understanding of its projects by identifying and forming partnerships with individuals or organizations trusted by the community. Trusted individuals may include community leaders, health care providers, and others working on behalf of community well-being. Community organizations may include local health departments, clinics, labor unions, environmental groups, local business associations, schools, local media organizations, and others as appropriate. We seek these organizations' perspectives on how best to approach potential participants.

Conferring with these key stakeholders early in the planning phases helps us to develop effective recruitment strategies. The Program may enlist the help of community partners for recruitment or other project activities and provide training as needed. When feasible, we build community capacity through training community partners to assist in project activities (e.g., focus groups, recruitment, interviews, etc.).

The type of project model influences the recruitment strategy that the Program develops. For example, if recruitment takes place through an existing health clinic, the strategy may involve training clinic staff to assist with identifying potential project participants.

3.2 Prepare suitable program materials to be used by field staff

We develop a range of materials to inform, recruit, and retain participants, such as outreach and educational materials, informed consent forms, questionnaires, and results communication pieces. Some of the important elements to be considered in developing these materials include purpose, format, length, literacy level, cultural relevance, language, and graphics. All materials must be reviewed and approved by the designated Institutional Review Boards (IRBs). The IRB review helps ensure that participants are well informed about the project and are treated ethically, and that the confidentiality of their personal information is protected.

The Program works to develop project materials that are suitable for the specific study population. The development process takes into account educational and literacy levels of the participants, cultural relevance, and translation needs. Materials are initially developed by a designated Program working group, drawing on staff expertise, previous materials used in similar studies, and input from community partners. As resources allow, we also obtain review of the draft materials by health literacy experts.

Materials are field-tested for readability, reader comprehension, and usability. Representatives of the working group meet with either some of the project participants or a population that closely resembles the participants (i.e., similar socioeconomic status, literacy and educational levels, language, occupation etc.) to review draft materials. These meetings generally take the form of focus groups and/or one-on-one interviews with individuals. Individuals will be asked to evaluate whether the materials are understandable, useful, attractive, and user-friendly. Individuals taking part in this review also provide feedback on the length and format of the materials, and whether translated materials are understandable in the individual's primary language.

For example, in a new project in California's Central Valley region, the Biomonitoring Exposures Study (BEST) (described in Appendix 5), Program staff conducted field tests of survey materials used in the project. We tested these materials, including for example a questionnaire about potential exposures, with a small subset of project participants.

Results from the field-testing activities are brought back to the working group planning the project and developing the materials. The feedback is used to help the Program refine the materials to be responsive to the needs of those who may participate in the project. The process of materials review and revision is sometimes repeated to address issues raised by scientists and reviewers representing the community. The Program's goal is to develop final materials that are scientifically valid as well as relevant to and understandable by project participants.

3.3 Create and maintain points of contact that allow Program participants easy access to relevant information

Contact information (i.e., email address, phone number) for relevant Program staff is provided to participants on Program materials. Arrangements are made to enable non-English speakers to speak with staff with appropriate language skills.

Program materials relevant to participants will also be available on the website. Program staff will explore the feasibility of developing a secure website for participants to access their results and other confidential data. Implementation of the secure website will depend on the availability of adequate resources.

Participants will also be able to contact Program staff through local community organizations collaborating with the Program to carry out the study. For example, in some studies participants will be able to contact the Program through a local clinic participating in a Biomonitoring California project.

3.4 Help Program participants make the link between biomonitoring projects and exposure to chemicals in their community

The Program provides informational materials to participants about where specific chemicals are found, possible health concerns, and possible ways to reduce exposure. We also provide suggestions of additional resources that participants can consult to obtain more information. In addition, we will offer background information to help participants develop a greater understanding of current chemical regulations and what is being done to change the regulatory and policy environment (e.g., green chemistry).

Goal 4. Communicate biomonitoring results in an understandable manner.

Summary of Goal 4

A distinctive feature of Biomonitoring California is the legislative requirement that biomonitoring results be returned to study participants who request them. Because the health implications of these results may be scientifically uncertain, finding the best way to communicate these results is especially challenging. The Program is exploring what methods work best for this purpose. The Program strives to communicate results following best practices tailored to the specific needs of the participant population and relevant stakeholders. The best practices framework will be continuously updated as new information is learned from the efforts of the Program, other state and federal biomonitoring initiatives, and the published literature. The Program is also developing methods for communicating the results of our projects more widely, to all Program stakeholders, including the general public. We will consult on an ongoing basis with the Panel and others on the Program's approach to communicating biomonitoring results.

Goal 4 Objectives

4.1 Develop and test methods for communicating results to participants

The Program is conducting a number of pilot biomonitoring projects (described in Appendix 5). As part of these projects, we are testing specific approaches to conveying individual results and assessing the effectiveness of these approaches. This includes carrying out the legislative directive for the Program to consult with an individual and recommend appropriate follow-up steps when "either physiological or chemical data obtained from a participant indicate a significant known health risk." The Program seeks the assistance of health care providers and other technical experts in communicating biomonitoring results and providing needed follow-up or referral. Findings from the pilot efforts contribute to the development of a framework of best practices for results communication.

As part of these pilot studies, we are exploring:

- Why participants want to be involved in biomonitoring studies;
- What participants want to know about environmental chemical contaminants;
- How much and what type(s) of written information are appropriate for participants;
- Which visual tools best aid in the understanding of personal results;
- What types of information health care providers and others consider important in discussing environmental chemical contaminants with participants;
- What the most effective ways are to inform participants about their chemical levels;
- When follow up is needed; and
- What additional challenges will need to be addressed as we return results to individual participants.

As another element of communicating results to participants, we are beginning to explore ways to reach out to health care providers to find out what information they might need to provide advice on biomonitoring results to their patients. The Program is also interested in understanding what methods health care providers might find most useful for learning (e.g., online tutorials, webinars).

4.2 Develop a best practices framework for communicating results with participants

The Program is using results communication findings from the pilot projects (described in Appendix 5) to develop, update and refine the Program's results communication "best practices" framework. These findings include lessons learned regarding successful strategies for communicating results to participants. Program staff are incorporating the findings, lessons learned, and useful principles from evaluation efforts and reflections on our experience into the results communication framework to guide the Program's future efforts. We are also using information from staff research into methods and practices used by others (see Objective 4.3) to refine our approach. Future projects will continue to develop and refine the best practices framework.

Factors that guide how project-specific results are communicated include, for example:

- The overarching goals of the project;
- The chemicals sampled and the analytical methods used;
- Availability of appropriate comparison levels in blood or urine;
- The population that is being sampled and its particular needs;
- Whether sources of measured chemicals can be identified;
- Whether we can identify ways for individuals to reduce exposures of potential concern or if public health action is needed; and
- Availability of resources for traditional health education activities, such as needs assessments, focus groups and development of informational materials (e.g., fact sheets).

Biomonitoring California has developed a draft report back template, refined through a series of usability tests. This draft template represents the initial "best practices framework" for reporting results in the Program. The effectiveness of these materials in conveying information to study participants is being evaluated through follow-up interviews with a subset of participants.

The Program's draft template for reporting results gives the participants multiple ways to access and understand the information. The materials provide an overview of their results in a text description and on a chart. For those interested, the information includes more details about the chemicals being tested, including where the chemical is found, possible health concerns, and possible ways to reduce exposure. The materials explain the uncertainties in the chemical-specific information. The information also includes additional resources, such as links to other websites and phone numbers they can call, if they wish to learn more. All materials intended for participants, including those related to reporting results, are submitted to the appropriate IRBs for each project before they are distributed to participants.

4.3 Research methods, practices and frameworks for communicating results to participants and the general public

The Program consults with the Scientific Guidance Panel and others with relevant experience or expertise on the best practice and strategies for communicating biomonitoring results. The Program has held and will continue to hold discussions of results communication issues at Panel meetings and public workshops.

Several other state and federal biomonitoring programs have developed their own approaches and strategies for communicating biomonitoring results. Program staff have consulted with other states on specific aspects of results return and follow up. Program staff have also met with individuals from nongovernmental organizations that have carried out biomonitoring efforts, to learn from their experiences and the approaches they have used. We will continue to identify and consult with individuals from other states and organizations to discuss their results communication approaches, strategies, and lessons learned. These various consultations allow the Program to learn about successes and challenges in communicating the results of biomonitoring projects and studies.

4.4 Share biomonitoring results with Program stakeholders

The Program will share the results of its biomonitoring projects with the public and the broader scientific community. Information on Program results will be made available in a variety of formats and in multiple languages, when possible. The Program will work with media organizations to convey an understandable message to the public. When relevant, these efforts will be carried out in collaboration with other organizations as appropriate and as resources allow.

Other methods the Program will use to share information about activities related to a given project or specific findings include:

- Making presentations to the SGP;
- Posting updates on the Program's website, including summaries for non-technical audiences;
- Holding community meetings to discuss findings with the groups tested, when appropriate;
- Presenting Program findings to professional audiences and at scientific conferences; and
- Submitting articles for publication in scientific journals and public literature.

4.5 Evaluate the effectiveness of activities designed to communicate results

Evaluating the impact and effectiveness of our efforts to communicate biomonitoring results is a critical step in developing successful strategies. For example, after results are returned to individuals, Program staff may assess the extent to which participants understood their results and how learning about chemicals measured in their bodies affected them (e.g., whether it created anxiety; actions participants took to reduce exposure). After making results available to the public, the Program will check with various stakeholders (e.g., via the listserv) to find out how the information was used and what we might do differently in the future (e.g., improvements needed to any graphics). We will update and modify the results communication framework as appropriate.

Concluding Remarks

The purpose of the Plan is to set a course for the Program to broaden and deepen our public engagement efforts. These efforts have four goals: 1) to build awareness of the Program, 2) to provide opportunities for stakeholder involvement, 3) to effectively engage with the populations being biomonitored, and 4) to communicate biomonitoring results in an understandable manner. The Plan sets out a modest and practical approach for accomplishing these goals using basic tools. Some of the proposed activities will require more resources than are currently available. As opportunities arise, Program staff will continue to seek resources to expand public involvement activities.

Using the approach laid out in the Plan, we can gradually build the profile of the Program and expand its reach into California's public health infrastructure, so that the findings of biomonitoring projects will inform both individual and regulatory actions to reduce chemical exposures. As the Program evolves, we will adjust and expand our public involvement efforts as we identify new needs. We will look to our stakeholders to help guide us as we move forward.

Appendix 1 – Sections of Enabling Legislation Related to Public Involvement Activities

Excerpts of Senate Bill 1379, Perata and Ortiz, Chapter 599, Statutes of 2006, codified at Health and Safety Code sections 105440 et seq.

105443. (a) All participants shall be evaluated for the presence of designated chemicals as a component of the biomonitoring process. Participants shall be provided with information and fact sheets about the program's activities and its findings. Individual participants may request and shall receive their complete results. Any results provided to participants shall be subject to the Institutional Review Board protocols and guidelines. When either physiological or chemical data obtained from a participant indicate a significant known health risk, program staff experienced in communicating biomonitoring results shall consult with the individual and recommend followup steps, as appropriate. Program administrators shall receive training in administering the program in an ethical, culturally sensitive, participatory, and community-based manner.

(b) Individuals selected to participate in the biomonitoring program shall reflect the age, economic, racial, and ethnic composition of the state. Other selection criteria may be applied, as appropriate, for studies of specific populations.

(c) Informational materials and outreach activities directed to program participants and communities shall, to the extent possible, be culturally appropriate and translated as needed. Educational materials shall be adapted to the biological specimens being used.

105444. (a) The program shall develop guidelines and model protocols that address the science and practice of biomonitoring to implement this chapter, including, but not limited to, study design, subject recruitment, and data collection and management, and that accomplish all of the following:

- (1) Ensure confidentiality and informed consent.
- (2) Communicate findings to participants, communities, and the general public.
- (3) Emphasize all aspects of the program in a culturally sensitive manner.
- (4) Serve as a guide for other biomonitoring programs supported by state funds.

105451. (a) As appropriate, the program shall utilize the principles of the agency's Environmental Justice Strategy and Environmental Justice Action Plan developed pursuant to Sections 71110 to 71113, inclusive, of the Public Resources Code, so that the activities of the panel and the implementation of the program provide opportunities for public participation and community capacity building with meaningful stakeholder input. This strategy and plan shall accord the highest respect

and value to every individual and community by developing and conducting public health and environmental protection programs, policies, and activities in a manner that promotes equity and affords fair treatment, accessibility, and protection for all Californians, regardless of race, age, culture, income, or geographic location.

(b) (1) To carry out this section, the program shall develop a strategy and plan that are to be followed in the implementation of the program. This strategy and plan shall be used to establish the framework for integrating public participation in this program. The department may utilize models used by boards, departments, and offices at the agency for community outreach pursuant to this section.

(2) Public participation shall include, but need not be limited to, conducting stakeholder meetings and workshops to solicit relevant information, data, suggestions, and feedback for the development and implementation of the program.

105459. (a) By January 1, 2010, and every two years thereafter, the department, in collaboration with the agency, the office, and DTSC, shall submit a report to the Legislature containing the findings of the program, and shall include in the report additional activities and recommendations for improving the program based upon activities and findings to date.

Copies of the report shall be made available via appropriate media to the public within 30 calendar days following its submission to the Legislature.

(b) The department shall provide the public access to information which they are required to release pursuant to the California Public Records Act (Chapter 3.5 (commencing with Section 6250) of Division 7 of Title 1 of the Government Code).

(c) The department and the office shall disseminate biomonitoring findings to the general public via appropriate media, including governmental and other Web sites in a manner that is understandable to the average person.

(d) Any health and environmental exposure data made available to the general public shall be provided in a summary format to protect the confidentiality of program participants. The data shall be made available, after appropriate quality assurance and quality control, by July 1, 2010, and at least every two years thereafter.

Appendix 2 – Glossary of Terms and Abbreviations Used in this Document

Comparison level – A level of a chemical in blood or urine that can be used to provide context for biomonitoring results or evaluate possible concerns. For example, levels in blood or urine measured in the US national biomonitoring program are useful for providing context. As a second example, CDC has set levels of concern for lead in blood of adults and children, which California uses to evaluate blood lead levels for possible medical follow up.

Building community capacity – Creating opportunities within the Program for people in a specific location or group to gain knowledge, skills and experience (e.g., learning to conduct interviews of project participants).

Cal/EPA – California Environmental Protection Agency

CECBP – California Environmental Contaminant Biomonitoring Program, also known as Biomonitoring California

CDC – Centers for Disease Control and Prevention

CDPH – California Department of Public Health

Community –The legislation defines the term “community” to include location-based populations, as well as populations that share characteristics of interest and may share common chemical exposures. A location-based community includes people living in a particular city, county or other specific geographic area. A community that is not location-based could include people who have similar occupations or comparable consumption habits, lifestyle, or product use. Other examples of communities that are not location-based include subpopulations that share ethnicity, age, or gender, or those experiencing a common health outcome.

DTSC – Department of Toxic Substances Control

EJ – Environmental Justice

Focus group – A small number of people (generally from 5 to 15) brought together with a moderator to offer their opinions on important aspects of a project. The focus group may include project participants, a population similar to the project participants, and/or experts in a particular subject area. A moderator meets in person with the group to discuss specific questions about the project.

IRB – Institutional Review Board

NHANES – National Health and Nutrition Examination Survey

OEHHA – Office of Environmental Health Hazard Assessment

Panel –The Scientific Guidance Panel for Biomonitoring California. More details on the Panel can be found here: <http://www.oehha.ca.gov/multimedia/biomon/sqpbios.html>.

Program – Biomonitoring California, also known as the California Environmental Contaminant Biomonitoring Program (CECBP). Biomonitoring California is a collaborative effort of the California Department of Public Health, the Office of Environmental Health Hazard Assessment and the Department of Toxic Substances Control.

Program participant – Individual who has been enrolled by the Program in a biomonitoring project.

Results – Levels of chemicals measured in samples of human blood, urine, or other biological specimens. Results will be presented publicly only in summary format to protect the confidentiality of participants. Results for a Program participant will be returned to that individual upon his or her request.

SB – Senate Bill

SGP – Scientific Guidance Panel

Stakeholder(s) – Any person or group who has an interest in the Program, including but not limited to:

- The general public;
- Community members or groups;
- Environmental justice groups;
- Governmental (e.g., city, county) representatives or groups;
- Health care providers;
- Health and environmental advocacy groups;
- Industry representatives or groups;
- Labor representatives or groups;
- Program participants;
- Scientific researchers; and
- Tribal groups.

Target population – The larger group of people from which a study population is drawn. The study population is intended to represent those in this larger group. The target population may be defined geographically (e.g., residents of a town, county, state) or based on other characteristics such as life stage (e.g., pregnant women), disease state (e.g., children with asthma), occupation (e.g., firefighters), or activity leading to a shared chemical exposure (e.g., use of a specific consumer product).

UCB – University of California at Berkeley

Appendix 3 – Core Principles for Public Engagement

The Public Engagement Principles Project was launched in mid-February 2009 with the goal of creating clarity about the fundamental components of quality public engagement. The Core Principles listed below were developed collaboratively by members and leaders of the National Coalition for Dialogue & Deliberation (NCDD), the International Association of Public Participation (IAP2), the Co-Intelligence Institute, and others. The NCDD began in 2002 and currently includes more than 1,200 organizations and professionals from across the U.S. and other countries (www.ncdd.org). The NCDD “actively promotes learning and collaboration among practitioners, public leaders, scholars and organizations involved in dialogue, deliberation, and other innovative group processes that help people tackle complex issues.”

To access the Principles online, visit www.ncdd.org.

The Core Principles for Public Engagement

These seven recommendations reflect the *common* beliefs and understandings of those working in the fields of public engagement, conflict resolution, and collaboration. In practice, people apply these and additional principles in many different ways.

1. Careful Planning and Preparation

Through adequate and inclusive planning, ensure that the design, organization, and convening of the process serve both a clearly defined purpose and the needs of the participants.

2. Inclusion and Demographic Diversity

Equitably incorporate diverse people, voices, ideas, and information to lay the groundwork for quality outcomes and democratic legitimacy.

3. Collaboration and Shared Purpose

Support and encourage participants, government and community institutions, and others to work together to advance the common good.

4. Openness and Learning

Help all involved listen to each other, explore new ideas unconstrained by predetermined outcomes, learn and apply information in ways that generate new options, and rigorously evaluate public engagement activities for effectiveness.

5. Transparency and Trust

Be clear and open about the process, and provide a public record of the organizers, sponsors, outcomes, and range of views and ideas expressed.

6. Impact and Action

Ensure each participatory effort has real potential to make a difference, and that participants are aware of that potential.

7. Sustained Engagement and Participatory Culture

Promote a culture of participation with programs and institutions that support ongoing quality public engagement.

Appendix 4 – Public Involvement Activities Initiated in the First Few Years of the Program

Biomonitoring California has involved the public in the Program from its inception by:

- Developing electronic communication avenues (website, listserv, email address);
- Maintaining ongoing communication with a broad array of different stakeholders;
- Encouraging public participation in Panel meetings; and
- Carrying out a major public awareness campaign.

These early and ongoing efforts are discussed below as a backdrop to the activities planned for the future.

Website

New materials are regularly added to the website. These materials include meeting agendas, background documents, and presentations. While most of the website content is in English, some basic program information, such as “Frequently Asked Questions,” is available in Spanish as well.

Maintaining ongoing communication with stakeholders

As of December 2011, the biomonitoring listserv had approximately 800 active subscribers. Email messages are sent to these subscribers whenever new content is added to the website, or as events (e.g., Panel meetings) are scheduled. The Program’s email address is always available for anyone interested in contacting the Program (biomonitoring@oehha.ca.gov).

To broaden opportunities for stakeholders throughout California to participate in the Program’s development and implementation, Panel meetings have been made available as live video or audio webcasts when possible. All but two of the Panel meetings held through November 2011 have been either webcast or made available as a webinar. Links to archived versions of the video webcasts are posted on the Program’s website, for those meetings for which they are available.

Panel meetings

Because the Program’s SGP meets three times per year, these meetings present a regular opportunity for people who are interested in the Program to stay involved. To publicize these Panel meetings, announcements are sent to the listserv and information is posted on the Program’s website. Sign-up sheets at the meetings are used to follow up with attendees who express an interest in being added to the Program’s listserv.

At the SGP meetings, time is allotted for public comment after each major topic area. Some commenters have given brief presentations on specific topics to the Panel. Individuals watching the meetings via webcast can provide comments via email, which are read into the record by the Panel chair. Meeting transcripts are available on the Program’s website.

Public participation campaigns

As of January 2011, the Program has undertaken two public participation campaigns.

One campaign was a major effort designed to raise public awareness about biomonitoring in general and Biomonitoring California in particular, and to gather ideas and suggestions from the public with regard to the selection of chemicals to be included in the Program. This first effort included four main elements, all taking place during the months of March and April 2008:

- 1) Public workshops held in three different locations around the State (Los Angeles, Oakland, Fresno) (71 participants)
- 2) Public teleconferences (three) (more than 32 participants)
- 3) An online survey (approximately 300 respondents)
- 4) Comments via email (18 sets)

A report on these 2008 activities is available online⁴. The Program gained valuable information from these efforts, including specific suggestions on chemical selection from those who participated as well as experience in the relative effectiveness and costs of the different methods we used for engaging the public.

The second effort was designed to elicit suggestions for the public involvement activities that the Program is carrying out. This second effort included five elements, with most held in November and December 2010:

- 1) One survey asked Program stakeholders about their interests in participating in workshops and teleconferences (95 respondents).
- 2) A second survey described Program efforts included in the draft public involvement plan, and asked for suggestions on a wide range of related topics (55 respondents).
- 3) Two teleconferences were held (26 participants).
- 4) Discussions of the draft plan took place at two Scientific Guidance Panel meetings (May and November 2010) with the public participating.
- 5) Comments via email (5 sets).

The extensive feedback the Program received in 2010 through these methods (more than 200 specific suggestions) has been very useful and has informed the further development of this public involvement plan.

⁴The report on the 2008 efforts can be found at <http://oehha.ca.gov/multimedia/biomon/pdf/PublicParticipationreport021909.pdf>

Appendix 5 – Pilot Studies

Pilot efforts being carried out by Biomonitoring California include:

- **Chlorpyrifos Project in Tulare County**

The Program collaborated with the California Environmental Health Tracking Program (CEHTP) to learn about for the best methods to effectively communicate the results of biomonitoring chlorpyrifos, a pesticide, to participants. Materials and methods were developed and evaluated in a participatory fashion in consultation with community members, project participants, and the Tulare County Health and Human Services, including through focus groups and interviews. Some of the early findings of this effort can be viewed online at <http://www.rwif.org/files/research/63378.pdf>.

- **Perchlorate Exposure Project in Imperial County**

In another collaboration with the CEHTP and other organizations, the Program evaluated methods and materials used to communicate perchlorate biomonitoring results to community members. Perchlorate is a chemical that occurs both naturally and through manufacturing. CEHTP staff used multiple approaches to inform and develop the results communication strategy for this project, including focus groups with participants before and after biomonitoring, as well as interviews with the health care providers. The purpose of the evaluation was to assess the effectiveness of the participant engagement process, and the results communication materials and process. The evaluation also included an assessment of the benefits and challenges of engaging in a biomonitoring project from the perspectives of the participants, local health care providers, and other community and nongovernmental organization collaborators.

- **Maternal and Infant Environmental Exposure Project (MIEEP), also known as Chemicals in Our Bodies Project**

The Program is conducting a pilot biomonitoring project of approximately 100 pregnant women in San Francisco in collaboration with staff at the Program for Reproductive Health and the Environment at the University of California, San Francisco and the School of Public Health at the University of California, Berkeley. The project includes collecting and analyzing maternal urine and blood samples and umbilical cord blood samples for about 100 environmental chemicals. Information on the use of consumer and personal care products, diet, occupation, and other possible sources of chemical exposures was collected through questionnaires and in-person interviews. Medical information was also collected through the questionnaire and from medical records. Methods and materials to report biomonitoring results back to participants were developed based on an approach previously used and validated by other researchers. The materials were modified to meet the needs of this project and then usability testing was carried out (two rounds in English, four in Spanish). This testing included an interview conducted with these participants in the clinic. In addition, after individual results are returned, an interview will be conducted with each project participant in her own home to evaluate the report-back process.

- **Firefighter Occupational Exposures (FOX) Project**

The FOX Project is a collaborative effort of the Program, the University of California, Irvine and the Orange County Fire Authority. The goal of this pilot project is to measure about 75 chemicals in the blood and urine of approximately 100 Orange County firefighters, as well as in dust from selected Orange County firehouses. Information was also collected on possible occupational chemical exposure sources and includes evaluating work history, firehouse characteristics and personal protective equipment use. Program staff tested how well project materials for reporting back results were understood by a small set of Orange County firefighters. The testing investigated how well firefighters could navigate through the packet, what their preferences were in terms of how results were summarized and displayed, and what additional information they might find useful. Feedback from the firefighters was used to improve the report-back materials. In addition to reporting individual results to participants, the overall findings from the FOX project will be provided to the joint labor-management Orange County Fire Authority Wellness and Fitness Oversight Committee.

- **The Biomonitoring Exposures Study (BEST)**

The Biomonitoring Exposures Study (BEST) is a pilot project with a goal to learn about levels of environmental chemicals in Californians. The project is a collaboration with Kaiser Permanente Northern California (KPNC) Research Program on Genes, Environment and Health. Using a stratified random sampling method, BEST is recruiting 100 English-speaking KPNC adult members living in the Central Valley. Levels of environmental chemicals are being measured in study participants' blood and urine. BEST will help establish the protocols and procedures for a larger Biomonitoring California effort, including: participant recruitment and exposure assessment; specimen collection, transport, processing, and analysis; and reporting back of biomonitoring results to participants. This pilot project will also provide preliminary information on levels of selected environmental chemicals in adult KPNC members in the Central Valley.