

# Public Comments Received on EPA's Proposed Plan for the Vapor Intrusion Pathway

Middlefield-Ellis-Whisman (MEW) Superfund Study Area  
Mountain View and Moffett Field, California

## **EPA Proposed Plan Public Meeting**

- Verbal comments received during Public Meeting – July 23, 2009

## **Residential Community**

- Comments received via e-mail – August 8, 2009, August 10, 2009, and September 28, 2009
- Comments from Center for Public Environmental Oversight (CPEO) - October 23, 2009
- Supplemental comments from CPEO comments - November 7, 2009
- Collection of input and comments from Wagon Wheel Neighborhood Association (WWNA) - November 6, 2009

## **Commercial Community**

- Comments from Symantec Corp – July 21, 2009
- Comments from Mission West Properties LP - October 31, 2009
- Comments from Gazzera-Albert - November 6, 2009
- Comments of Mountain View Commercial Owners (MCO) with attachments - November 6, 2009

## **City of Mountain View/State of California**

- Comments from Regional Water Quality Control Board, San Francisco Bay Region - November 3, 2009
- Comments from City of Mountain View with attachments - November 7, 2009

## **MEW Parties (Responsible Parties)**

- Comments from SMI Holding LLC Comments - October 27, 2009
- Comments from Raytheon Company and Schlumberger Technology Corporation - November 6, 2009

# EPA Proposed Plan Public Meeting

# July 23, 2009 Public Meeting Comments

## Proposed Plan for the Vapor Intrusion Pathway Middlefield-Ellis-Whisman (MEW) Superfund Study Area Mountain View and Moffett Field, California

**Jane Horton:** I live on Whisman Road in Mountain View, and I have a home that is under remediation for vapor intrusion; and this is kind of a off-the-cuff comment, I didn't prepare it, but one of the things that is frustrating is optimization efforts to expedite things taking decades, and really wanting -- we're going to have a separate feasibility study where other options are evaluated for the site, like groundwater. And we've seen many presentations of innovative clean-ups, bioremediations; none of those are specifically called out. It seems like -- I mean, Alana does a great job; we're really fortunate to have this group of people supporting us to get clean-up done; but the, you know, interim responses and things that are still taking decades. I would like to see incorporated in this proposal more addressing of, other than pump and treat, what can be done to actually clean up the sites so that all of these remediations are no longer necessary. Thank you.

**John Lovewell:** I'm a partner with Keenan Lovewell Ventures and owner of the Quad 464 Ellis and 369 Whisman; and we're also developer of several other projects within MEW, which is an area that we refer to as Mountain View Triangle. We have contacted all of the other commercial property owners in the Triangle, and many of whom are represented here tonight; and all of them are pleased that we've been able to work out an extension, so we can have time to carefully review the plan. Redevelopment of the region has been a great success story for all parties involved, largely because property owners, the City, responding parties, community representatives and the EPA all work to achieve a common objective, to create a first-quality research, office, retail and residential community, while providing a safe and healthy environment. As part of the rebranding effort, we renamed the MEW "Mountain View Triangle," as I mentioned earlier. Proof of our success has been the ability of owners and the City to attract new investment from developers, owner-users and lenders, as well as large and small businesses, to occupy the new buildings. We would hope that any measures in the plan will only benefit the Mountain View Triangle community more, and enhance the attractiveness of the area as an engine of commerce and a residential neighborhood and a safe place to work. We will be evaluating, with your help, the incremental benefits to health and safety, as well as the plan's cost, the logistics of its implementation and maintenance, and its potential effect on property values. We must all be careful that any new measures do not create an impression of the Mountain View Triangle which is not warranted by its actual conditions. This would be unfortunate for everyone. We look forward to reviewing the plan in detail and returning to you with our comments.

**Bob Moss:** Thank you. I'm the Co-Chair -- Community Co-Chair of the Moffett RAB; and I've been working in this area, member of the Board of Directors of the Barron Park Association for over 20 years; we have oversight of the Superfund sites in Palo Alto. So that's some history of this. I'd like to suggest some clarifications, get this procedure finalized. First, on the HVAC system, we talked about this a little bit at the RAB meeting on June 11th, it's fine when the equipment is working; and presumably, it works whenever the people are occupying the building. But you have no way of tracking that. So you have to have a way of identifying when there are both people in the building and when the system is working; and you have to be able to ensure that the system continues to work as long as the building is occupied. In your institutional controls, you talked about tracking changes of ownership of the building, but that's not sufficient. You could have changes of occupancy; and for example, you might have somebody who's occupying a building who's an ordinary office, 9:00 to 5:00, five days a week, and they leave, and some other company comes in, that works, say, in the internet, and they're 24 hours a day, seven days a week. So if the HVAC system originally only worked during normal working hours, and that's still what it does when the occupant changes, that doesn't work. So we have to have somebody tracking it. Monitoring is left wide open. You have to talk about how long you're going to monitor, how you're going to monitor differently between different types of buildings; that is, retrofit of the existing building, or a new building which is started from scratch, which has, let's say, mitigation 3 versus mitigation 4A versus mitigation 4B. How often do you monitor? A number of buildings are being built, particularly in Palo Alto, which are multi-use; they have commercial on the ground floor and residential above. So the monitoring should be identified for the worst case. And also instances where the owner only wants to monitor in the commercial space and ignore the residential space; that should be disallowed. How long is the monitoring going to go on? Annually, every five years, for five years, for ten years? Who's going to pay for it? Should a property owner be required to put money into an escrow account to receive payment for it indefinitely, or is the City going to have to pay for it, or the occupants? That's got to be established. So there's a lot of details that have to be worked out and made very clear. And it should be unambiguous to anybody, both the occupants, the owner of the building and the community, including the City government, who's supposed to be enforcing it, what has to be done, and how to know it has been done correctly. Thanks.

**Lenny Siegel:** Good evening; I'm the Executive Director for the Center for Public Environmental Oversight. We are the recipients of the EPA technical assistance grant for this site as well as for Moffett Field. Peter Strauss, our TAG consultant, will be speaking as well; and then I would like to speak some more after that. But I want to start out by -- well, first, I want to invite people here from the community to contact me if they want to give input into our comments; we will be -- the extended comments by the -- by, I guess, now, by September 8th, on all aspects of this proposal. In general, we are supportive of the kinds of mitigation that is proposed in the proposed plan. We think that in general, they are proven and can protect the occupants of the buildings. We believe, as Jane mentioned, that the plan should very clearly

state a remedial action objective of reducing the concentrations of contamination in the groundwater; but we're expecting the specific technologies to be proposed in the supplemental feasibility study, for which the work is now currently underway. One key principle of what we're going to be putting forward is that, particularly for the two most questionable mitigation approaches that are included in the proposed plan, we think a strong, long-term management plan has to be developed now, along with the proposed plan, because these mitigation strategies will only work, or we can only count on them, with that kind of support. And the two questionable provisions of this are first, the allowance of the construction of residential properties directly above concentrations of the plume; one expects this to happen particularly on NASA property, as part of the University Research Consortium; we support that development, but it's particularly important to have long-term management support of that. And also the use of heating, ventilation and air-conditioning systems as a mitigation, I think there's good evidence in the remedial investigation that that strategy can work, but it's going to take insurance in terms of long-term management. Now Peter Strauss, our technical consultant, is going to be talking about the HVAC system and about the screening of the various alternatives; then I want to come back and talk at greater length about the long-term management system. Peter.

**Peter Strauss:** I'm not sure that Lenny and I got on the same page today, so I'm going to go with my comments, and then maybe I'll talk later, if you want. For the HVAC system, I believe that there's a need to establish some operating standards for the HVAC system in the proposed plan. For instance, positive -- maintaining positive pressure, maintaining a certain exchange rate, the air exchange rate. Or as Lenny has talked about, a rigorous, long-term procedure. And this is a -- that's the rub, because we don't know -- we have no idea what that cost is going to be. And for existing buildings, should have the option, and I don't think it has in the proposed plan, of installing a sub-slab depressurization system; and that might be less expensive in the long run than monitoring for the HVAC system. I realize that the -- there's a need to develop this plan. And I would be much more comfortable if all the buildings had been -- at least had a walk-through. A total of 129 buildings, mostly north of 101, have not been sampled; and only 20 of them have been -- have had walk-throughs. By comparison, there's only -- I think it's 9th -- 78 buildings have been sampled. And I think that with this proposed plan, that the walk-throughs and sampling should take place as soon as possible. Any place that provides day care should have a residential standard, be held to the residential standard. There is a mention that EPA is going to work with NASA with the energy-issues management plan, which I've supported in the past. And -- but we've been informed that this has been -- this is being rewritten, so we don't know -- we have no idea what that -- what the rewrite is going to be. Done? All right. I'm going to come back, if there's time.

**Lenny Siegel:** As I indicated earlier, we believe that a strong, long-term site-management plan, this is Lenny Siegel again, is essential to making this set of remedies work. And we think that we have an opportunity in this community to do some trailblazing and to set a model for how this might be done nationally. A long-term site-management plan will include institutional

controls that people have been asking questions about; it'll include an operation and maintenance plan; it will include walk-throughs, site inspections and the like; but I want to focus on the monitoring, contingency plans and notice. We believe there needs to be -- we need to develop continuous monitoring, using the internet to ensure that the active mitigation systems are working, measuring operational parameters such as the air-exchange rate for the HVAC systems; and, you know, that the fans are operating and the pressure is depressurizing, for sub-site depressurization systems, that can be collected so that anybody who wants to monitor can be sure that these system are working. I think that the internet allows us to do that relatively inexpensively. We do not quite yet have the technologies for measuring indoor air in that way; however, in the next few years, there's a good chance we will have indoor air-monitoring devices that will reach those low levels necessary to do this; we think that should be integrated into the system. Secondly, there need to be contingency plans. So if either the indoor air levels exceed the target thresholds, or if the systems are not depressurizing or HVAC-ing properly, ventilating properly, then we would know what would be done, either optimization of those systems or the installation of new systems, such as if the heating, ventilation, air-conditioning systems are not bringing the levels low enough, then we would require sub-slab depressurization systems on those buildings. So contingency plan is pretty important for what to do. The other thing I want to mention, and I think that it may give pause to some of the property owners, but I think we can work it out, we believe there needs to be a notification system set up, so that the occupants of the building, the people who work in the buildings, the people who -- contractors in the building, the students in the buildings, have a way to find out what's going on; and we would propose that signs be placed on all buildings, letting people know that these buildings are subject to an environmental site-management plan, and they can access the information either in the building office or online, to find out about the potential for vapor intrusion and what's being done about it. I think we can provide something that's useful for people who are concerned about protecting their health and the health of their families, yet not scare people into thinking that this is not a safe place to work; because the idea is if these system works, and if we're monitoring them properly, it will be a safe place. Thank you.

**Peter Strauss:** I think this can be done within five minutes. There are screening levels for groundwater, and there's a demarcation of over a hundred parts per billion and less than a hundred parts per billion, that require different kinds of mitigation strategies. That's just presented in the proposed plan, without explanation. Now I talked to the gentleman before, and he gave me some kind of explanation, but I don't think that's -- that explanation is not within the record of -- the administrative record, as far as I know. So I think that it's really important that you have that, that -- those numbers firmly and -- put down and supported. I would change the remedial-action objective about "reducing the source" to "accelerating the reduction in the source." I would add a word. For new development, I agree that the sub-slab depressurization system should be the presumptive remedy. The cost estimates that I saw, between the operating -- the operating-cost estimates between passive and active systems were only \$500 a year. Therefore, I think that the active systems, which are easier to monitor, would

be preferable, and should be that -- that should be the presumptive remedy, unless it can be shown that without a doubt it's not necessary. For some of the opt-out strategies that are suggested in the plan, the plan needs to carefully define the terms "multiple lines of evidence" and "levels of concern." That's -- it's not easy to -- for me to trace where those definitions are. As background levels decrease, how does that affect the matrix of remedies? And we need to have an answer to that. And then does anybody have any idea about the Navy, intentions, whether they're going to follow this plan? And that's a question. Thank you.

**Lenny Siegel:** This is Lenny Siegel again. I'll just be real quick; just a couple of points that Peter and I talked about. These are general contingencies. The first one is, EPA may be promulgating a new standard for TCE within the next few years, and there needs to be provision in this document for how that would be responded to, if indeed the level goes down lower. If you'll remember, when EPA held the public meeting, the big public meeting in early 2003, and they told us that the punitive standard was .017 micrograms per cubic meter, well, that was never promulgated, but the National Academy of Sciences reviewed, basically, the science behind that, and said that the evidence that TCE causes cancer is actually greater than it was back in 2001. We believe that it was political intervention that got in the way of promulgation of that standard; so we are -- do think there's a reasonable chance of a more stringent standard, more stringent action level than we currently have. And secondly, the background is falling. That, you know, the levels that were in the outdoor air, in this area, most of California, were higher, 10, 20 years ago, when companies were using TCE; now TCE is still used in consumer products, but there are only a handful of companies in the entire state that report that they're currently using TCE. And so, yeah, you cannot mitigate the background with the kind of systems we're talking about; but as background goes lower, we need provisions to try to, in my opinion, if indeed the science shows that there is risk, to drive those targets lower. So there should be contingencies for that, as well as the site-specific contingencies if the systems aren't working.

**Bob Moss:** Some of the comments that Peter and Lenny made remind me of something. The action levels now are based on the groundwater contamination, as I understand it; but soil gas is also frequently measured, sometimes more often than groundwater; and I can give an example of the site where the groundwater contamination is 50 ppb of TCE, but they found soil gas of 6400, in almost the same location. So the developer of course is saying, "Well, it's only 50 ppb, so we can ignore it." And we should have an action level for both the soil gas and the groundwater. And at any time when you have a residential use 25 on your site, I think we should be looking at the residential as being the governing criteria, even if there's both residential and commercial. So that should be spelled out very clearly, so that it's very clear to the developer, the building inspector, the City Council, you know, whoever's involved in establishing and maintaining controls. The other thing you touched on very briefly was how do you select a particular mitigation for a particular site, existing building or new building; and I think it would be useful not just to list what they've got, but to say, for example, "This is preferred for this contamination level, this usage"; and let's say, for -- as an example, "4B is preferred when we have a new residential development, but we think 5 and 3 will also work;

however, if you use those, you have to go through this verification"; so the people have an option, and they understand the positive and negative of actually going with those options. I think if you only say, "This is the only thing that can be done for a particular environment," you're going to get resistance. But if you can give them the options and the reason why these options will or will not work, I think you'll get a much better reaction. So that should be spelled out. Now if you get to the point where you look at it and say, "Well, we can't make a choice," for whatever a reason, that's fine; you can say that; but then be very clear as to, "Well, we've suggested these two; and depending on your particular design, or the cost of mitigation over time, pick one of these; either one will work." But if you have a real preference, make it clear.

# Residential Community

# Emailed Comments from Residents

## Received August 8, 2009

1. What is the effect, if any, of TCE on plants grown for food, and further on health of people consuming such food. This would include vegetables, specifically tubers such as carrots and potatoes, as well as fruit trees. Please include reference studies on this topic in your response.
2. Have biofilters been used, and/or could they be used in the future, for either air or water contamination at MEW site? Please see the following for reference: "Microbial Transformation and Degradation of Toxic Organic Chemicals" by Lily Y. Young and Carl E. Cerniglia, 1995 (Pp 408, 461 and Table 12.5).
3. Have birch and other trees been considered as a form of bio remediation?
4. It was not clear from the presentation what the levels of the TCE are in the open air. It would be good to see the entire range, from - to, and concentration areas.

## Received August 10, 2009

1. Make this "irrevocable" or whatever the word is so that this plan cannot be changed without public review and input. Make it clear that this document is valid no matter who is in charge of region 9 and that there is no end date except for when the groundwater is clean.
2. Add that homeowners/renters/occupants will bear NO cost of remediation, including utilities.
3. Add or emphasize that testing results are confidential.
4. Add or emphasize that if TCE is detected in the amount that qualifies for remediation that the homeowner/renter/occupant is not required to disclose it nor is there a requirement for remediation. However, it will be disclosed if residential is sold.
5. Add some number (1,000?) for the feet from the (drawn) boundary of the plume line that indoor air testing can happen or be requested.
6. Make it clear that the Vapor Intrusion document does not take the place of clean-up. Spell it out so clearly that there is no way to misunderstand.
7. This will be a great document; thank you so much for helping this to happen!

**Received September 28, 2009**

1. While I agree in general with the suggested mitigations presented at the July 23 meeting and modified for both commercial and residential buildings August 20, 2009, there are several areas that need clarification and better definition and control. The overall approach and suggested replies have been discussed by CPEO. My comments are separate from CPEO, but I have been informed both by CPEO and by presentations made by and to EPA at the July 23 meeting.
2. The modification of August 20 regarding commercial buildings proposes allowing installation of sub-slab systems under existing buildings rather than rely mainly on HVAC systems. I agree that this is acceptable providing that after the sub-slab system is installed there must be testing and verification over time to demonstrate that the retrofitting adequately reduced indoor VOC. I suggest that any commercial building with an added sub-slab system have the indoor air tested at least bi-annually for at least 5 years to verify that the system reduces VOC to acceptable levels. I disagree with the suggestion that no particular type of sub-slab system be required, but just one that is capable of reducing VOC adequately. Being capable does not assure that the capability is obtained or enforced. If the added sub-slab system is active, not passive, the probability of reducing VOC below levels of concern is greatly increased. It seems reasonable to require commercial buildings that want to retrofit and add a sub-slab system to also be required to operate a HVAC system during working hours plus 1 hour before and after normal working hours. Both the sub-slab system and vapor barrier should be required for new construction, to provide significant redundancy.
3. New residential buildings should be required to have both an active sub-slab system and a vapor barrier. The interior of every residential unit should be tested before occupancy to establish a baseline of existing indoor VOC levels, and then twice each year for at least 5 years, and annually after that if indoor VOC levels are acceptable. Any development or building that contains both commercial and residential uses must be held to the level of acceptability for VOCs that applies to residential use, not commercial.
4. A major open issue is oversight and enforcement of any rules or monitoring. Some controls are relatively straight-forward and should be easy to enforce. Installation of vapor barriers and sub-slab systems can be controlled by making that a requirement for issuing building permits in designated areas such as MEW. Vapor barrier installation should be added to the building inspector checklist so that proper installation can be verified and checked off. This requires co-operation of the cities within which the toxic soil and groundwater contamination exists. They should be formally asked to modify building permit applications and approvals to include vapor barrier requirements, inspections needed, and final approval and check off.
5. One unresolved issue is active vs. passive sub-slab systems. Typically developers request the cheaper passive systems that can be upgraded to active. This presents several problems. First there must be regular indoor air testing at least twice each year for at least 5 years, reducing to annually if VOC levels are acceptable over time. Who is responsible for testing and who

reports the results must be established. If the developer is required to obtain the test data, there should be some oversight to assure that the sampling was done properly and the results are valid. It may be a problem getting accurate tests run with the required frequency. Assuring that the local government (almost always the city) has adequate oversight of the testing and evaluation is necessary. If the passive system or passive system plus HVAC does not reduce VOC below allowable levels, will the city have the ability to require the passive sub-slab system be converted to an active system? For these reasons it is best to require an active sub-slab system.

6. One open issue is how to require corrective actions for existing commercial buildings. Should they all be required to provide indoor air testing to verify VOC levels? If so should buildings that find excessive levels of VOC be required to take prompt corrective action? Would the corrective actions describe the potential adequacy of HVAC systems, and also suggest retrofitting with sub-slab systems? Presumably the answer is yes, but it should be explicit, not deducted from past events and statements.

7. All of these problems are accentuated for residential buildings, plus the owner or occupant of the residence must give testing permission. The city must have a system in place to encourage homeowners to agree to VOC testing of the indoor air or too many homeowners will just opt out of testing for fear it will hurt their property values, and contamination may go undetected.

8. If automated testing and reporting of indoor VOC concentrations becomes available it should be required in commercial buildings and suggested in residential buildings.

9. Any development that has both commercial and residential occupancy should be governed by residential VOC levels, testing frequency and number of samples. Testing and verification of indoor air quality should be based on residential occupancy for any mixed-use property.

10. It would help if EPA can prepare a model ordinance that describes required mitigations such as active sub-slab barriers plus vapor barriers, and on-going testing and monitoring required for existing commercial and residential buildings, mixed commercial and residential buildings, and new commercial, residential and mixed use construction. Cities such as Mountain View then would have a template that could be adopted as is or modified to address issue-specific situations.



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To: Alana Lee

From: Lenny Siegel

Subject: CPEO comments on the MEW Study Area Vapor Intrusion Proposed Plan

Date: October 23, 2009

CPEO has developed the following positions with the assistance of Peter Strauss, our technical advisor, in consultation with our Community Advisory Board. We not only agree in general with the amended version of the Proposed Plan, but we believe it can serve as a national model for addressing vapor intrusion at a large, complex site with commercial, residential, and educational buildings. However, as we explain below, we consider it essential to create an enforceable document describing plans for long-term management at this site.

Specifically, we find and recommend:

- 1 CPEO agrees that active substructure—that is, sub-slab and sub-membrane—depressurization systems can provide effective, reliable mitigation for vapor intrusion, in both large and small structures. Nevertheless, **we do support a performance-based approach for non-residential buildings, in which the responsible parties and owners of each building have some flexibility in implementing mitigation as long as they can demonstrate, through periodic or continuing monitoring, that the subsurface is sufficiently depressurized and/or the air inside the building complies with EPA’s action levels.** For example, though we have not been able to find any successful model where a sub-slab system has been drilled in from the perimeter of a building, we believe such an approach may be acceptable if it can be shown to create a suction field under the entire slab.
- 2 The Proposed Plan states, “There is a general decrease of TCE [trichloroethylene] concentrations with increasing air exchange rates. Vapor intrusion resulting in concentrations above interim action levels appear to be more likely to occur in commercial buildings in the Vapor Intrusion Study Area when HVAC systems do not provide sufficient air exchanges with outside air in all or part of a building.” In general, we consider HVAC [heating, ventilation, and air conditioning] to be a

supplement to sub-structure measures, not a stand-alone remedy, for many of the reasons that EPA stated in its August 20, 2009 “Potential Changes to Proposed Vapor Intrusion Remedy.” **But we are willing to accept HVAC systems as mitigation if they are operated and monitored to ensure protection—that is, achievement of EPA’s performance goals—whenever the building is occupied.** We propose that *if* the HVAC system is used as the primary mitigation system, *then* it should be operated for one additional hour before and after the presence of any building occupants, including security or custodial personnel. While in modern buildings with building management systems such an approach is feasible, we believe that building owners should weigh the energy costs and greenhouse gas emissions associated with longer operation of HVAC systems before agreeing to rely on them as remedies. Still, we believe that there may be buildings that normally operate HVAC systems around the clock, for which there would be no additional run time.

- 3 **Achieving indoor air concentrations based upon the long-term health effects of exposure should be the primary Remedial Action Objective or Performance Goal for the vapor intrusion remedy.** These, in turn, should comport with EPA’s latest air action levels, which are the Regional Risk Screening Levels and the modified action level based on California’s findings for TCE. Because industries in this area no longer use TCE, the much weaker occupational standards for the same chemicals are not applicable.

As suggested above, while CPEO believes that engineering controls such as substructure depressurization are the most appropriate remedies for most of the buildings in the study area, we will support other types of remedies—including podium construction—as long as they achieve the performance goals. These goals, including actual or projected target indoor air concentrations for TCE, PCE, benzene, and vinyl chloride, should be documented in the Final Plan or Decision Document. The latter two compounds are mentioned because a study by NASA in March 2005 (“Preliminary Regulatory and Cost Evaluation of Alternative Approaches to Vapor Intrusion Mitigation,” EKI) identified these compounds as potentially exceeding the Bay Area Air Quality Management District’s trigger levels for requirements that a depressurization system needs to be equipped with an air emission control device, such as granular activated carbon.

- 4 Performance goals for residential and commercial uses should be identified in the Proposed Plan. **For those buildings that serve as classrooms, house students, or have day-care centers, residential standards should be used.**
- 5 As implied above, long-term monitoring of the remedy is critical to its success. The Proposed Plan pays little attention to this aspect of the cleanup, but we have found that it is important to lay out a framework for these activities prior to approval of the remedy.

**Wherever mitigation is required, it should be supported by a long-term management plan, or what New York State calls a Site Management Plan (SMP).** This SMP should be developed along with the remediation plan and then updated as information becomes available. Because the university campus at

Moffett Field (which will house students, have classrooms, food service, and day care) falls within the boundaries of the Vapor Intrusion Study Area, the SMP is an even more essential part the long-term protection that should be provided.

The primary purpose of the SMP should be to establish a monitoring and inspection system for each structure that ensures that the performance goals are achieved and are not compromised. The plan should designate how future inspections are to be carried out, with what frequency and with what tools, and it should lay out what training is necessary for the inspectors. The draft SMP should be made available for public comment. Some of the major components are outlined below.

- a. Notice. The SMP, including a summary for lay readers, and reports (sampling, inspection, contingency activities, etc.) generated under its requirements should be available to the public, **and each entrance to a non-residential building should contain a sign or plaque reporting that the property is subject to an environmental SMP, with instructions for accessing it.** Such signs should inform current and future occupants without unnecessarily frightening them.
- b. Monitoring of Physical Parameters. **Immediately after installation, the functionality of mitigation systems should be confirmed.** Vapor barriers should be smoke tested for leaks and sealed wherever a penetration is found. Depressurization systems should be pressure-tested at distal locations and modified if the pressure differential does not meet design objectives. **Pressure testing should continue periodically for as long as there is contamination on site and the building is occupied.** Depending upon site conditions, that could be quarterly or annually.
- c. Indoor air sampling. **Indoor air sampling should be conducted immediately after installation.** Occupants of buildings also need direct confirmation that the air is safe. Although this practice may be considered to be redundant with pressure testing (assuming that sub-structure depressurization is the remedy), it is useful to conduct indoor air sampling annually. This is particularly true for buildings that are going to be used as classrooms, residential housing and dormitories, and childcare facilities, and for building that are going to rely on other remedies. **Indoor air monitoring is essential in buildings where the selected remedy is an HVAC system or passive sub-slab ventilation.** Ideally, if there is no centralized HVAC system, each distinct airspace should be sampled. Vapors under an entire slab can become concentrated inside one room if there is a preferential pathway into that room, and that will not be detected if testing is done in another room with no air connection to the first.
- d. Operations and Maintenance. **There should be an operation and maintenance plan that assigns responsibility for keeping operating equipment, such as fans, in working order.** This may include automatic alarms for reporting system failure. If HVAC systems are considered part of the mitigation system, there should be an enforceable schedule to ensure that ventilation is effective whenever the building is in use.
- e. Inspections. **There should be a tiered, regular approach to inspecting engineering controls,** including passive components of the mitigation

system, such as the visible elements of vapor barriers and the integrity of institutional controls (below). Inspections should follow a checklist, and be performed on at least a quarterly basis. The frequency of inspections and monitoring may be adjusted to account for site-specific information.

- f. Institutional Controls. **There should be clear, enforceable prohibitions on activities that would undermine remediation and mitigation systems** (such as drilling holes in the slab), as well as changes in use of the property that might increase the likelihood or severity of exposures.
  - g. Training. **All personnel charged with inspection and operation and maintenance, as well as those charged with reviewing their reports, should be trained in their tasks so they may properly determine when and to whom to report problems.** Training should explain the purpose of each activity, as well as how to conduct it.
  - h. Contingency Planning. **Each SMP should outline actions to be taken if mitigation systems or other engineering controls fail, if indoor air concentrations exceed standards, or if groundwater contamination increases, rather than decreases.** Other contingencies include fires, floods, earthquakes and other natural disasters. A contingency plan should address the most probable events that would trigger a change of approach, and it should be developed and updated by a group of interdisciplinary experts in the fields of toxicology, geology, hydrology, chemistry and the social sciences.
  - i. Continuous management. **SMPs, should, to the extent possible, use continuous monitoring tools.** Continuous management tools are emerging, based upon the widespread and inexpensive availability of Internet connections. Continuous management systems can not only be designed to demonstrate that active systems are operating, but they can report pressure data and even vapor concentration results—if the proper sensors are available. Provision should be made to incorporate new sampling technologies as they emerge.
  - j. Annual Reports. **Annual reports should be prepared for each building or groups of buildings.** Each report should summarize findings from the monitoring and inspection reports, confirm the continuing effectiveness of engineering and institutional controls, and determine whether remedial objectives or performance standards are being met. If not, it should lay out a plan for achieving those standards and for confirming that achievement.
  - k. Certification. An environmental professional or licensed engineer should be responsible for preparing the annual report, and **he or she should certify not only the annual report but also the monitoring and inspection reports for the year covered by the report.**
- 6 **CPEO supports the suggestion that the City of Mountain View promulgate a City Health and Safety Ordinance (HSO).** We believe such an ordinance should do the following: 1) regulate the operation and maintenance of the HVAC systems and other remediation methods in commercial buildings that fall within the Vapor Intrusion Study Area; 2) provide buyers or tenants of residences within the Vapor

Intrusion Study Area within the city with an opportunity to have the indoor air tested and mitigated, if necessary, at the expense of the Responsible Parties, and; 3) obligate sellers or lessors of residential property to inform potential purchasers and tenants of the opportunity to have their residence tested, if it has not been tested within the last 24 months.

The responsible parties should bear all the costs of implementing the ordinance, and we suggest that the City enter into an agreement with one or more qualified third parties to implement the ordinance as well as monitor any associated institutional controls.

To address the contingency that Mountain View does not agree to adopt a Health and Safety Ordinance, EPA should articulate in its Proposed Plan an alternative approach to ensuring that performance goals are being met. It should consider proprietary controls with third party management as well as oversight by state agencies—at the expense of the Responsible Parties.

As recommended above, owners of residential structures falling within the bright line of the Vapor Intrusion Study Area should have an opportunity to have their homes tested for vapor intrusion and an obligation when selling or leasing the residence to disclose either the results of the test, or the opportunity to have the home tested. Because California requires disclosure of proximity to Superfund Sites, this should be no extra burden on the homeowner, and it will provide them with the opportunity to have their homes tested.

If a residence does not have a vapor intrusion problem (through indoor air tests within the past 24 months, and that groundwater remediation is continuing to capture the western plume), property owners should be able to state, “To the best of our knowledge, we do not have a vapor intrusion concern.” If a mitigation system is in place, then the owner must disclose this.

- 7 We believe that the boundaries of the residential portion of the Vapor Intrusion Study Area lines on the map are not well enough delineated because relatively few monitoring wells are used to extrapolate the precise location of the 5-part-per-billion TCE-concentration contour line. **We suggest that EPA and the PRPs at least double the number of boundary monitoring wells and update this map annually.** Indoor air testing results, indicative of the extent of the groundwater plume, should be incorporated in updated maps.
- 8 **There should be an enforceable mechanism for regulating mitigation systems on federal property, similar to the local ordinance.** In particular, occupants of residential units on federal property should have the same opportunity to request testing and additional mitigation as residents in Mountain View.
- 9 **For new construction, we favor *active* sub-structure depressurization (with a vapor barrier) as the presumptive remedy.** Passive systems are unpredictable, as they rely on changing outdoor air pressure to provide a negative pressure. In warmer months and climates, ambient pressure at the roofline may be greater than the subsurface, and passive systems may provide little help. In most cases, they do not create the same pressure differential between the sub-surface and the indoor air

as an active system; they may merely vent and dilute harmful vapors intermittently. EPA reported in 1993 that passive sub-slab systems were 30 to 90 percent as efficient as active systems.

Therefore, if a passive system is to be used, a greater burden of proof is needed to demonstrate that it will prevent vapor intrusion over the long-term, including more frequent indoor air testing and other activities that would be set forth in the aforementioned SMP. Testing should be conducted in the warmest months.

Because cost estimates indicate that an active system has a very marginal operation and maintenance cost differential of \$500 per year for a single unit, less than the cost of additional sampling, we favor the more protective *active* approach.

- 10 There is an assumption in the proposed plan that the groundwater contours are the best indicator of the potential for vapor intrusion. While in general buildings overlying the higher groundwater concentrations have a higher likelihood of indoor air samples exceeding the TCE action level, **we believe that soil gas data, if available, provides a better indication of vapor intrusion potential.** Where practical, the Responsible Parties should be encouraged to conduct more soil gas samples. The Proposed Plan should include known soil gas contours and determine the levels for each of the contaminants that would be necessary to install active systems.
- 11 It appears that background—the concentration of TCE in outdoor air—has been decreasing over time. **The proposed plan should discuss what happens to remediation goals when background goes down,** as EPA uses current background as a baseline. This discussion should be included in the SMP contingency plan.
- 12 In Figures 3 and 4 of the final Proposed Plan, EPA should define “confirmation sampling” (indoor air?) and “Level of concern.”
- 13 The Proposed Plan should define exactly what “multiple lines of evidence” means, and it should establish the burden of proof for existing buildings to opt out of the remedial requirements.
- 14 Only a portion of the buildings was sampled, and the remedial design may not fit all buildings. We question how EPA is going to assure that all buildings in the study area are equipped with the appropriate mitigation systems, given that some buildings have not been tested at all.
- 15 **CPEO wants to reiterate the necessity of speeding up the groundwater remedy so that eventually vapor intrusion remedies are no longer necessary.** We expect such innovative strategies to be discussed in the “Supplemental Site-wide Groundwater Feasibility Study” for the site. It is imperative—to promote the cooperation of residents, other property owners, commercial and education tenants, and local officials in the complex web of necessary site management discussed above—that EPA affirm its commitment to this principle now.



CENTER FOR PUBLIC ENVIRONMENTAL OVERSIGHT

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To: Alana Lee

From: Lenny Siegel

Subject: Supplemental CPEO comments on the MEW Study Area Vapor Intrusion Proposed Plan

Date: November 7, 2009

On November 3, 2009, U.S. EPA published a *Federal Register* notice releasing the External Review Draft of its Toxicological Review of Trichloroethylene for public review and comment. The Review appears robust and exhaustive, and we believe it will lead to more protective standards governing exposure to TCE.

If adopted, the indoor air action level, based upon the exposure associated with a one-in-a-million excess lifetime cancer risk in a residential scenario, would likely fall from 1.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to  $.25 \mu\text{g}/\text{m}^3$  or even lower. The occupational scenario indoor air action level would fall by the same percentage.

Though it would take extra work to incorporate these proposed new numbers into the Vapor Intrusion Proposed Plan, it would take even more effort to incorporate them after the Plan's implementation.

We therefore request that EPA begin immediately to study the implications of the proposed new exposure value for the MEW site. In particular, we believe it is important to determine, based upon indoor air or soil gas sampling already conducted, if the boundaries of the Study Area should be expanded. We also suggest that the efficacy of HVAC-based mitigation be re-evaluated based upon the likely new standard. Finally, we urge EPA to re-assess Table 5 as it pertains to passive systems (Alternative 3). As it is likely that the implied attenuation factors used to develop this Table will also have to be re-evaluated (i.e., developed from groundwater concentrations), given the new information, it is important that EPA re-evaluate what it considers higher and lower concentrations.

For those structures where it is already anticipated that sub-structure depressurization systems will be used as mitigation, we believe that those systems, if installed properly, will drive indoor air contamination levels down to background (ambient outdoor air levels). Nevertheless, it will remain imperative that any such mitigation success be confirmed by sampling capable or measuring concentrations at or below the new standard.

November 6, 2009

Ms. Alana Lee  
Project Manager  
Superfund Division  
U.S. Environmental Protection Agency, Region 9  
75 Hawthorne Street, SFD-7-3  
San Francisco, CA 94105

Dear Ms. Lee,

The following is a collection of input on the EPA's Vapor Intrusion Proposed Plan for the MEW study area. This input is from property owners in the neighborhood in which the MEW vapor intrusion study area is located. You might have already received some of this input, and you might have received other input from property owners in the area. This is the input that was forwarded to the Board of the Wagon Wheel Neighborhood Association when we solicited input from our members.

Lisa Matichak  
President – Wagon Wheel Neighborhood Association

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... is it possible to get the general locations of the 17 residences or structures that have been tested so far?

My feeling is that, based on the 16 tested being below the 5 ppm, other units at the border of the study area would likely be negative also, and that is good info to have. It is the absence of data that causes concern on the part of potential buyers, and some current residents.

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If the EPA is offering monitoring & remediation to anybody within the designated intrusion area then we should seize upon it; it appears that any sort of actual ordinance is up to the city (?) and regardless, if I were purchasing a home (ie, there is a house in escrow at the corner of Flynn & Whisman), I would certainly want to know about not only the potential for vapor intrusion from prior contamination but that there are also provisions in place to remedy it, and not even at any expense to the homeowner.

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**(1) Revise EPA map to only show area that is definitely in the MEW, as to not alarm people living up to 100 feet outside who might not be affected** (aka be less conservative and more certain in your map since this is going to affect property value).

Maybe move to 50ft outside the boundary or 25 feet. It seems very un-reasonable to conservatively mark houses that "might" be contaminated causing unnecessary alarm and hurdles for houses that "might" have a problem. The map implies a black and white distinction which is not what the reality is.

(2) Change your map to clearly mark the MEW area with the boundary line and **separately delineate** areas beyond the 5ppb boundary (maybe using an asterisk/note at the bottom of the map, noting that the EPA wants people living within 100 feet to be aware that there could be some contamination in their area even though they aren't in the actual MEW boundary). Marking the actual MEW area plus the conservative "estimated" 100 feet as one area is **unfair** to home-owners beyond the boundary.

**CLEARLY delineate houses in the 5ppb area different than those in the 100 foot boundary.** Don't just include them all in one bucket to be conservative -- the cost is too high.

(3) If there is required messaging for future home-owners: (1) make sure it is not alarming and outlines the actual risk, (2) **do not require messaging (or drastically adjust messaging) for cases where house has been tested in last X years and was fine or remediated. Additionally, create a different message for properties like Classics at Evandale where proper remediation has already taken place** (if all properties had vapor management systems, then there wouldn't be an ordinance, so take this into consideration). You are already using this property as an example in your materials. Give prospective homebuyers for Classics at Evandale the same sort of assurance.

(4) **Get actual homeowner input on any messaging that they may be required to give prospective home buyers before it is finalized.**

(5) **Remove houses from map/ordinance in the buffer zone (currently 100 feet) that are tested and are shown as clean.** Why alarm people when they are safe and/or proper steps have already been taken to protect them? At this point, being conservative and including them seems misleading. What is the goal?

(6) **If you are in buffer zone, you should be called something different than those that overlay the plume.**

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1. I believe that openness and availability of information is important to us as individual residents and to all of us as a neighborhood.
2. Given the unchangeable mistakes of the past, I believe the scientific methods and approach researched and proposed by the EPA at our expense (taxpayers) is a sound and responsible approach to short and near term mitigation and long term remediation.
3. While current property owners might see detrimental effects on their property values as a result of proposed tests, mitigation procedures, and published information, I strongly believe it is better to KNOW and ACT then to willfully resist knowing and taking action.

4. That acceptance of the proposals and participation in EPA remediation program will in the long term benefit our neighborhood as eventually this problem will be fixed and go away, even if it takes years.

5. Finally, this is an important health issue to the residents at the periphery of the main underground plume, and to all of us outside the affected area, but in the vicinity and breathing the same air. And an age-old adage tells us that “we cannot control what we don’t measure” and so we should support and adopt the EPA proposals, support our neighbors, measure and take action as prescribed.

- *in toto*, I therefore support the government’s EPA proposals.
- And would also consider supporting City of MV ordinances once drafted and reviewed.

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1. I believe it is understood that the responsible parties (RPs) are to absorb the cost of installation and monitoring of vapor intrusion barrier systems. This all assumes that the responsible parties are financially viable. Perhaps the EPA should require that the RPs post a bond, at some point to be determined, to insure that the funds are available to perform their responsibilities in the event the RP faces a bankruptcy or liquidation for some reason. This is unlikely, but who knows.

2. Buffer zone properties should not have the same mitigation requirements imposed on them.

3. I think a zoning ordinance requiring the mitigation work hurts property values. It stigmatizes the area. A deed restriction or covenant hurts the same. It's a value killer. A deed restriction for this issue may make a property unsaleable. I believe a lender would likely not approve of it.

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I appreciate the EPA addressing potential vapor intrusion into residential buildings. It seems to me that the EPA is in a much better position than I am to determine the level of TCE vapor that is harmful to people. The EPA is also in a better position than I am to recommend proposed actions to remediate potential vapor intrusion into new and existing residential buildings.

However, one of my concerns is that the EPA has been very slow to provide information to the neighborhood. Property owners within the vapor intrusion study area may not know that their home is within the study area. It took the EPA far too long to compile the list of addresses within the study area. And, now that there is finally a list, what assurances do we have that the EPA has contacted every property owner?

That being said, the top concern I have is the EPA's proposed institutional control for enforcing proposed actions to remediate potential vapor intrusion. An institutional control that could result in a very negative perception of the area, and also result in lower property values is one that I vehemently oppose. A City Ordinance and/or Registered Covenants would be detrimental to the reputation of the area and result in property value declines.

In addition, enacting an institutional control on something that cannot be accurately defined is a mismatch between the issue and the solution.

- It is impossible to accurately define the boundaries of where TCE vapor intrusion is currently an issue or where it might be an issue. And, the area where it is an issue or might be an issue can change over time. How can the EPA consider using boundaries for anything when those boundaries can't accurately be defined?
- The EPA admits that it is impossible to accurately define a boundary and so defined a 100' buffer zone.
- Including homes in the buffer zone in the same institutional control as homes in the 'defined' zone unfairly penalizes these homes.

Other institutional controls should be explored. For example, installing vapor intrusion barriers could be part of the building code so that all new residential construction would be required to have a vapor intrusion remediation system.

If none of the indoor breathing zone samples pose short or intermediate term health risk, then we should work to clean up the source of the vapor before people are exposed to the vapor long term. The EPA should speed up the process to rid the area of the source of the TCE vapor using emerging methods to clean up the ground water, and therefore, the source of the vapor that is potentially intruding into homes.

The EPA should also put in place assurances that any cost to remediate potential or actual vapor intrusion will be paid for by the responsible parties. It does not make sense for property owners to have to pay for any remediation since once again it is a mismatch between the issue and the solution. And, there should not be a distinction in terms new or existing buildings. The responsible parties should pay to address remediation in all cases.

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1) CONSTRUCTIVE CRITIQUE OF 2009 MAP DIAGRAM: Currently, the 2009 map is one solid lavender colored area with Xs marking well spots. My initial impression was that the rectangular-shaped blue MEW study area of 2007 had now expanded in 2009 to a larger lavender blob. In comparing the 2009 MEW study map to the 2007 MEW study map, a layperson would logically infer that the EPA thinks that the vapors have gotten worse from 2007 to 2009 by expanding the study zone.

I understand that the EPA wants to expand due to their conservative approach, but I think the 2009 map may mislead any new home-buyer who is thinking of moving to Mountain View MEW area with an erroneous and negative impression that the vapor area has expanded in 2009 from 2007. Furthermore, a layperson without any vested interest would not take the time to learn what the Xs labeled numbers on the map. Most people are not knowledgeable about the wells or what ppb mean. I think the EPA should reconsider how they present the MEW Study Zone 2009 map by current and future Mountain View residents, as it can be misinterpreted that things have gotten worse. This perception of expanding MEW area is contrary to what the EPA has actually done, which is "to reduce" the vapor intrusion.

(2) REFINING 2009 MAP DIAGRAM: A more topological diagram showing the progression of vapor mitigation from 2007 to 2009 would probably be more helpful for public understanding. Show "what's been done, what's been happening here in Mountain View" so as to validate EPA's approach to mitigation.

Furthermore, using hatch-marks, spotted-dots, or diagonal-lines to delineate areas of interest vs. exploration would be better than a blanket solid lavender coloration. This would clearly mark areas that are definitely being tracked by EPA .. and areas unknown to the EPA that need more exploration.

Additionally, using the well data points to create a gradient/shade of color would be more educational to the public regarding their health safety in being near the vapor intrusion vicinity.

Example: Areas near wells @ 75ppb should be darker shade of purple; Meanwhile, areas near wells @ 5ppb should a lighter shade of purple. Gradient coloring would help immensely in the public's understanding of harms & risks especially for Mountain View residents living near the MEW vapor intrusion. I think a purple shading would help with the citizen's perception of what vapor might be where.

(3) RECALCULATING INTRUSION AREA: Expanding 100 feet from wells measuring over 5ppb (albeit creative) does not seem to be a very scientific method for formally laying out a study zone when vapors and waters are moving targets. The EPA has the legitimacy and technical resources to test. I as a public citizen, would like to see our Superfund dollars be spent towards a more scientific approach of assessment.

We think that the current 2009 MEW Study Map drawing seems somewhat arbitrary. EPA could have stronger support of the Mountain View community if the diagram was based on more calculated research with better data points and mathematical functions. My understanding is that EPA consists of a talented group of expert hydrologists, toxicologists, chemists, and geologists with PhDs. If this sub-team was formed to weigh-in on how to reasonably calculate the potential risk of vapor intrusion through some set of equations, I think the public citizens would believe the map to be fair and backed by a scientific approach. I would prefer that the map was determined based on mathematical equations derived from 1. porosity of the ground/clay in Mt View MEW area 2. the

groundwater resting areas and other aqua flow areas 3. the actual wells positioned at present.

I think that 3-dimensional diagram showing current vapor with overlaying potential areas of risk (extrapolated from differential equations / vectors through the lens of EPA experts in ground, water, and toxic materials) would be a better foundation for proposing a potential vapor intrusion study area.

# Commercial Community



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July 17, 2009  
Project No.: 105134-1

Mr. Derek Huffman  
Symantec Corporation  
350 Ellis Street  
Mountain View, CA 94043

**SUBJECT: Review of Proposed Plan for Vapor Intrusion Pathway  
Middlefield-Ellis-Whisman (MEW) Superfund Area  
350 Ellis Street  
Mountain View, California**

Dear Mr. Huffman:

Kleinfelder is pleased to present this letter report summarizing the review of the Proposed Plan for Vapor Intrusion Pathway, Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View and Moffett Field, California, prepared by the U.S. Environmental Protection Agency (USEPA) Region 9, dated July 2009. The review is specific to the property at 350 Ellis Street in Mountain View, California (the site). This letter report was prepared in accordance with Kleinfelder's proposal dated July 2, 2009, and approved by Symantec on July 8, 2009.

## **SITE BACKGROUND**

The site consists of a 19.6 acre parcel located at 350 Ellis Street in Mountain View, California. The previously existing facility, owned and operated by Raytheon Corporation (1959 to 1997) and Fairchild Semiconductors (1997 to 1999), was an operating semiconductor component manufacturing facility since 1959 and had used various chemicals in the manufacturing process. Over time, leaks from storage tanks, sumps, and piping resulted in the release of chemicals to soil and groundwater beneath the Site. As a result of historical chemical releases to soil and groundwater beneath the Site, the USEPA added the Site to their National Priorities List as a Superfund site and Raytheon remains the responsible party for remedial activities at the site.

The site is located within the MEW area. Soil and groundwater remedies at the MEW site were implemented in accordance with USEPA's Record of Decision (ROD) in June 1989. The MEW companies are conducting the investigation and cleanup activities in the area in accordance with the ROD, a 1990 Administrative Order, and a 1991

Consent Degree. The MEW Companies include Fairchild Semiconductor Corporation, Schlumberger Technology Corporation, NEC Electronics Corporation, SMI Holding, LLC, SUMCO USA Corporation (formerly Siltec Corporation), Vishay GSI, Inc., Intel Corporation, and Raytheon Corporation. Soil remedies at the 350 Ellis Street site have been completed and included soil excavation and soil vapor extraction. A 100-foot-deep slurry wall was installed around the 350 Ellis Street site to isolate groundwater. Groundwater extraction and treatment activities are ongoing at the 350 Ellis Street site.

The site was purchased by Veritas, a software development company, in April 1999. After demolition of the existing surface structures by early 2000, Veritas constructed their new Corporate Headquarters campus consisting of two four-story office buildings, a one-story commons building, surface parking, and a three-level aboveground parking garage, beginning in March 2000. The office buildings were constructed with slab on-grade and spread footing foundations; no piles were used. The layout of the new construction was designed to not disturb the existing 100-foot-deep slurry wall that encircles the entire site nor the groundwater monitoring and extraction wells, and groundwater treatment system. Veritas elected to install a landfill-quality vapor barrier to provide an additional level of protection. The vapor barrier was installed beneath the newly-constructed buildings sandwiched between layers of baserock and sand in May 2000. The vapor barrier was sealed around pipes using manufacturer's recommendations. A passive venting system with 11 external vents was installed in the base rock beneath the vapor barrier.

## REVIEW OF DOCUMENTS

The documents reviewed for this evaluation include the following:

- USEPA, 2009, Proposed Plan for the Vapor Intrusion Pathway, Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View and Moffett Field, California. Region 9. July.
- Haley & Aldrich and Locus Technologies, 2009, Final Supplemental Remedial Investigation for Vapor Intrusion Pathway, Middlefield-Ellis-Whisman Study Area, Mountain View and Moffett Field, California. June.
- Locus Technologies, 2009, 2008 Annual Progress report, Former Raytheon Facilities, 350 Ellis Street, Mountain View, California. April 15.

Because of recent information regarding vapor intrusion from volatile organic compounds (VOCs) in the subsurface, the MEW Companies completed a Supplemental Remedial Investigation (RI) (Haley & Aldrich and Locus Technologies, 2009) that included indoor air and foundation conduit sampling at the 350 Ellis Building, as well as sampling at other buildings within the MEW vapor intrusion area (defined as the area where trichloroethene [TCE] in groundwater exceed 5 micrograms per liter [ug/L], plus a 100-foot buffer). The 350 Ellis Street building is located within the vapor intrusion area, with recent groundwater concentrations adjacent to the building as high as 250 ug/L. The building is considered by USEPA to be in the "B" groundwater concentration zone, which corresponds to TCE in groundwater greater than 100 ug/L, but less than 1,000 ug/L. The Supplemental RI also notes that a vapor barrier was installed beneath the 350 Ellis Street building.

The next step for the MEW Companies following completion of the Supplemental RI is the identification of preferred remedial alternatives for all properties within the vapor intrusion study area. The 2009 USEPA Proposed Plan presents the selected remedial alternatives for both existing and future buildings, with options based upon groundwater conditions, indoor air sampling results, the presence of heating, ventilation and air conditioning (HVAC) systems, and the presence of engineering controls at the buildings. USEPA has identified a commercial building remedial action level of 5 ug/m<sup>3</sup> for TCE (USEPA, 2009). This value was revised from the interim remedial action level of 2.7 ug/m<sup>3</sup> identified in the Supplemental RI. USEPA has indicated that a background concentration of TCE in ambient air is typically around 0.4 ug/m<sup>3</sup>.

A review of the indoor air data for 350 Ellis Street presented in the Supplemental RI and the 2008 Annual Report for Raytheon (Locus Technologies, 2009) indicates the following:

- Samples were collected in 2003 and 2006 for the Supplemental RI.
- A total of 19 indoor air samples (including 4 duplicates), 9 outdoor air samples (including 2 duplicates), and 11 pathway samples (including 3 duplicates) were collected for the Supplemental RI. Pathway samples were air samples collected from conduits that penetrated the building slab.
- All of the Supplemental RI indoor air samples had TCE concentrations less than 1 microgram per cubic meter (ug/m<sup>3</sup>).
- With the exception of a single outdoor air sample with a concentration of 18 ug/m<sup>3</sup>, all outdoor air samples had TCE concentrations less than 1 microgram

ug/m<sup>3</sup>. The outdoor air concentrations of TCE were similar to the indoor air concentrations.

- Pathway air samples collected in May 2003 had TCE concentrations up to 48 ug/m<sup>3</sup>. Conduits in the 350 Ellis Street were reportedly sealed and subsequent pathway air samples collected in September and October 2003 had TCE concentrations less than 1 ug/m<sup>3</sup>.
- Indoor air samples collected in February 2008 were either reported as not detected above laboratory reporting limits or less than 1 ug/m<sup>3</sup>. A single pathway sample had a TCE concentration of 1.1 ug/m<sup>3</sup>, which is still less than the commercial building remedial action level of 5 ug/m<sup>3</sup>.

### **Applicability of the Preferred Remedial Alternatives**

The following conditions are present for the 350 Ellis Building:

- The building is located within the MEW Vapor Intrusion Area because groundwater concentrations are above 5 ug /L.
- A landfill-quality vapor barrier is present beneath the foundation and the building has an HVAC system.
- Air purification systems have been installed in each Intermediate Distribution Frame (IDF) and Electrical Room on the first floors of each building.
- Indoor air samples had TCE concentrations at approximately the same concentration as background concentrations and were all less than the commercial building action level of 5 ug/m<sup>3</sup>.
- Pathway samples had TCE concentrations greater than the commercial building action level of 5 ug/m<sup>3</sup>, but conduit sealing was performed in 2003 and subsequent pathway and indoor air samples were less than the commercial building action level of 5 ug/m<sup>3</sup>.

Based on all of these factors, the 350 Ellis building corresponds with Tier 2 for Existing Commercial Buildings (Table 4 of the 2009 USEPA Proposed Plan). Therefore, the proposed action is as follows:

- “If any engineered remedies are in place, continue operation and maintenance. Implement monitoring and Institutional Controls.”

The presence of the vapor barrier/ventilation system, and the air purification systems that have been installed in each IDF and electrical room are considered engineered remedies. In addition, if not already developed, an Operations and Maintenance manual may be required for the vapor barrier/ventilation system and an Institutional Control (i.e., a land use covenant regarding maintenance of the vapor barrier/ventilation system) may be required. While no sampling or mitigation measures would be required for vapor intrusion, it is possible that building access for the MEW Companies in the future will be required to collect future indoor air samples to verify that the vapor mitigation measures in place are still effective. Future activities in the 350 Ellis Building that may affect the integrity of the vapor barrier/ventilation system could impact potential TCE in indoor air concentrations and affect any necessary mitigation measures for the building.

The evaluation of the applicability of the Preferred Remedial Alternative outlined in the 2009 USEPA Proposed Plan to the 350 Ellis Street building is based on the documents reviewed. Additional information may alter the results of the evaluation. This evaluation does not apply to other buildings within the MEW Vapor Intrusion Area because of the variation in building-specific conditions.

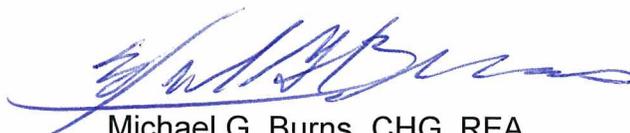
If you have any questions about this letter, please contact the undersigned.

Sincerely,

**KLEINFELDER WEST, INC.**



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10/31/09

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**Reference Middlefield-Ellis-Whisman**  
**Superfund Study Area**

**Subject: Comments On The EPAs Plan**

**Alana,**

**We have comments and objections in the following areas:**

- 1) Enacting a city ordinance specifically for the MEW area, we object to an ordinance for the following reasons:**
  - a) Property diminution.**
  - b) There are at least 5 other areas in Mountain View that have various contaminations that have equivalent impacts as the MEW area but are under no requirements.**
  - c) There are at least 10 other areas in Silicon Valley that have various contaminations that have equivalent impacts as the MEW area but are under no requirements.**
  - d) Extra time and cost burdens.**
  - e) If the EPA has a concern of not being notified of construction on any particular building, the cities all have the existing capability of flagging properties for notifications. They do this all the time in the instances of Flood Zones and Geo Hazzard zones.**
- 2) Responsible Parties should pay for all costs and provide necessary labor**
  - a) Tenants are in buildings to produce a product or service and in smaller buildings are either struggling or taxed to the limit and should not be burdened with monitoring or reporting on mitigating systems. Additionally a tenant will automatically factor any requirements into the rent that they are willing to pay.**

- b) **The Responsible Parties should be required to do all system maintenance, monitoring and maintenance on new or existing buildings.**
  - c) **Any additional requirements for new and existing buildings should be fully cost reimbursable for vapor barriers, passive systems and again provide for all system maintenance and monitoring on new or existing buildings at their expense.**
  - d) **Under slab passive systems for new and existing buildings can create additional construction costs when under slab utilities are needed to facilitate new tenant requirements. Either the under slab passive system or the new utilities will have to be modified where they intersect.**
  - e) **Responsible Parties should pay for all excess cost due to mandated programs requiring passive systems or running HVAC systems longer than normal including replacement, maintenance and energy costs.**
- 3) **Deed restrictions**
- a) **Deed restrictions should only be applied if the Responsible Parties are held liable for all property diminution.**
  - b) **Mission West's property in this area has gone vacant for a number of years due to the stigma of the MEW area.**
- 4) **EPA Responsibility to mitigate administrative impacts**
- a) **The EPA has an obligation and must consider the administrative burden caused by their actions.**
  - b) **Federal, State and local government constitutes 17 to 20 percent if not more of the total US work force, that represents a tax burden on individuals, companies and corporations**
  - c) **Federal, State and local administrations daily conjure up new regulations that burden USA industry making our products and businesses non competitive in the world market costing citizens jobs and increasing our tax burden at the same time. Think very very carefully before you proceed with any plan.**
- 5) **Eliminate the source of the problem – The EPA should work to eliminate the source of the vapor problem by more aggressive pumping and clean up of the underground source of the vapor.**

Thank you.

  
Myron Crawford

Cc:

**Submitted via electronic mail November 6, 2009**

Dear Alana:

Below are some comments regarding the EPA proposed plan for the Whisman area of Mountain View:

1. Commercial property owners strongly endorse EPA's 20 August 2009 e-mail entitled "Potential Changes to Proposed Vapor Intrusion Remedy, Middlefield-Ellis-Whisman (MEW) Study Area, Mountain View, CA." This has a strong preference for engineered subslab remedies that responsible parties (RPs) can install and monitor.
2. RPs should be responsible protecting public health and for assessing, installing, paying for, operating, maintaining, and verifying the vapor intrusion remedy in buildings at the MEW vapor study area.
3. It is unfair to ask property owners and tenants to be responsible for implementing a remedy for contamination they did not cause. The liability for implementing or verifying the vapor intrusion remedy should not be shifted to the owners or their tenants.
4. Owners will provide reasonable access to the RPs provided that the RPs work does not interfere with normal commercial occupancy and use of the building.
5. Owners do not want an ordinance or deed restriction on their properties as it will cause unnecessary stigma that can have a significant impact on the property value and the ability to lease the property.
6. The city's permit process works well and an ordinance is not needed.
7. Properties located in the buffer zone should be exempt from testing/monitoring.

Sincerely,

Steve Gazzera  
Mountain View Commercial Owner  
248 E. Middlefield Rd., Mt. View

Office - Mailing Address:  
Steve Gazzera  
Gazzera-Albert  
1134 W. El Camino Real  
Mt. View, CA 94040  
415-699-5445 Tel.

# Keenan Lovewell Ventures

November 6, 2009

Alana Lee  
Project Manager  
Environmental Protection Agency, Region 9  
75 Hawthorne Street, SFD-7-3  
San Francisco, CA 94105

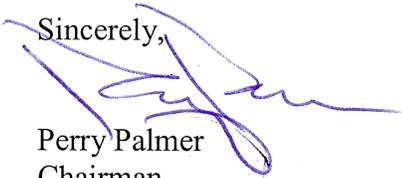
Dear Ms. Lee:

Enclosed please find the comments of the Mountain View Commercial Owners (MCO) on EPA's July 2009 *'Proposed Plan for the Vapor Intrusion Pathway, Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View and Moffett Field, California.'*

MCO appreciates the time you and Bethany Dreyfus have taken to discuss EPA's Proposed Plan with us. We hope EPA will agree with our comments and adopt the alternative proposal included therewith.

MCO remains deeply interested in EPA's plans, and would welcome the opportunity to consult with EPA further as it considers our comments and those of other stakeholders in the community.

Sincerely,



Perry Palmer  
Chairman

Mountain View Commercial Owners

cc: Bethany Dreyfus, EPA Region 9  
Michael D. Martello, City of Mountain View  
Ellis Berns, City of Mountain View  
Kevin Woodhouse, City of Mountain View  
Chris Keele, Thomas Whitelaw & Tyler LLP (Counsel to City of Mountain View)  
Richard C. Coffin, Barg Coffin Lewis & Trapp (Counsel to Responsible Parties)  
Gordon Atkinson, Cooley Godward Kronish LLP (Counsel to Responsible Parties)  
Elie Haddad, Haley & Aldrich (Consultant to Responsible Parties)

**Comments of  
Mountain View Commercial Owners**

on

United States Environmental Protection Agency's

**Proposed Plan for the Vapor Intrusion Pathway**  
Middlefield-Ellis-Whisman (MEW) Superfund Study Area  
Mountain View and Moffett Field, California

November 6, 2009

## INTRODUCTION

### **Mountain View Commercial Owners**

The Mountain View Commercial Owners (MCO) is a group of companies that own commercial properties in the Vapor Intrusion Study Area as defined in the U.S. EPA's July 2009 "Proposed Plan for the Vapor Intrusion Pathway at the Middlefield-Ellis-Whisman (MEW) Superfund Study Area".

The founding members of MCO are Symantec Corporation, Equity Office and Keenan Lovewell Ventures. The founding members collectively own 62% of the commercial real estate square footage within the MEW Study Area. Additional MCO members include: RREEF, Spieker Investments, Renault & Handley, Portola Land Company, Balzer Family Investments, Avery Investments, WTA Middlefield, Shamrock Middlefield and Gazerra-Albert. Altogether, the members of MCO represent eighty percent (80%) of the commercial property by square footage within the MEW Study Area south of Highway 101.

In preparing these comments, MCO retained Erler & Kalinowski, Inc. (EKI) to advise on technical issues.

### **MCO Comments and Proposed Alternative**

MCO appreciates the time EPA has spent meeting with MCO members to discuss the Proposed Plan. As stakeholders directly impacted by the Proposed Plan, MCO carefully reviewed EPA's proposal to have the City of Mountain View adopt an ordinance requiring the use of HVAC in existing buildings and the installation of sub-slab systems in new buildings.

MCO does not support either an ordinance (which unfairly passes compliance obligations to property owners and tenants), or the preference for HVAC in existing buildings. Instead, EPA should use traditional and proven enforcement mechanisms to compel the Responsible Parties (RPs) to test existing buildings to assess whether mitigation measures are needed. Where such measures are needed, EPA should require engineered sub-slab solutions in *both* new and existing buildings, unless an owner specifically agrees to an HVAC remedy. MCO has prepared an alternative option, attached at **Tab 1**, that is more practical and reliable. MCO's alternative better satisfies the CERCLA criteria and better manages changing conditions in buildings over time. The MCO alternative meets EPA's objectives and addresses the concerns of commercial property owners.

### **Overview**

- **Protect Health.** MCO members are committed to protecting the health of people working in their buildings. Decisions about vapor intrusion should be conservative and based on sound science. EPA has confirmed that "there are no immediate or short-term health concerns."<sup>1</sup> It is only exposure over many, many years that could present remote risks.
- **All Stakeholders -- EPA, Owners, Tenants, City, and Responsible Parties -- Have Common Goals.** All parties involved have a common goal: to protect the health of occupants of buildings overlying the groundwater plume. There is also consensus that decisions about vapor intrusion should be

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<sup>1</sup> July 2009 Proposed Plan at p. 8.

protective and based on sound science. Stakeholders agree that building-specific decisions should be made and that a “one-size-fits-all” remedy is not appropriate. All parties, including EPA, acknowledge that Mountain View’s permit system has been effective for the past 15 years in flagging construction work that requires EPA approval. The RPs have acted responsibly in addressing contamination caused by their past operations. They have indicated a willingness to continue to do so with respect to vapor intrusion. Areas of disagreement are not on fundamental objectives, but on how best to accomplish them and who should be responsible for implementing, verifying and paying for vapor remedies on an ongoing basis.

- **RPs Must Remain Responsible.** The MEW RPs have, to date, conducted the necessary remedial work in a responsible fashion. They have indicated a willingness to cooperate with EPA and property owners in Mountain View to address the vapor issue. The RPs should continue to assess, perform, manage, verify and pay for necessary vapor mitigation measures in both existing and new buildings, where such measures are needed.
- **Engineered Remedies Strongly Preferred.** Engineered remedies (such as active or passive sub-slab systems) should be strongly favored not only in new buildings, but also in existing buildings (where needed), because they are more reliable and can be installed, operated, maintained, monitored and verified by the RPs. With respect to HVAC, we support EPA’s August 20, 2009 addendum to the Proposed Plan, which states, “the preferred alternative will be to look at a range of sub-slab Options,” and “the remedy would still allow for use of a building’s HVAC system for existing buildings *if the property/building owner agrees . . .*”
- **CERCLA Enforcement Measures.** MCO supports the use of traditional CERCLA enforcement mechanisms (the Record of Decision (ROD), consent decrees and administrative orders) to ensure the enforceability of necessary measures. MCO also supports the use of conventional measures -- contracts for access, and formalizing the City of Mountain View’s development permit process -- to ensure that vapor mitigation measures are maintained on an ongoing basis. These conventional measures have been successfully used at many other contaminated sites. With additional education and outreach, they can be effectively deployed at MEW to address vapor intrusion. An ordinance is not needed and would be problematic. We are not aware of any California or federal Superfund site where a vapor mitigation ordinance has been adopted, and the MEW site should not be treated differently.
- **Liability Cannot Be Shifted to Owners and Tenants.** MCO opposes adoption of an ordinance that would shift responsibility to building owners, tenants or the City of Mountain View to implement, maintain and verify CERCLA vapor intrusion remedies. It is unfair to require owners, tenants or the City to take on responsibility for remediating contamination they did not cause and which they lack expertise and resources to manage. There is no legitimate legal or public policy rationale for distinguishing between new and existing buildings. RPs should bear the cost of any CERCLA mandated remedy in both instances.
- **Implementation Must Be Simple.** Both EPA and the RPs have indicated that developing a remedy is complicated. One reason it is complicated is because the Proposed Plan involves parties that do not have the understanding, expertise, resources, or control to implement the remedy. EPA’s goals could be achieved with greater simplicity by relying on parties that have the relationship, expertise and responsibility to implement these solutions -- in this case EPA and the RPs.

- **Avoid Stigma.** The selected approach must avoid needlessly alarming tenants, lenders and purchasers. It must also avoid damage to property values and stigma that might unfairly impair the value of commercial properties or their marketability. Many other contaminated sites in Silicon Valley, California and nationally have similar long-term vapor intrusion issues. This site should be managed in the same way as other sites, using the same standards and procedures.
- **Keep Things in Perspective.** On June 30, 2009 the RPs sent EPA a letter commenting on EPA's required changes to the final Feasibility Study for vapor intrusion at the MEW Site. The RPs noted "*a number of instances in which EPA has deleted accurate statements that, we believe, would put the FS and the remedy into an appropriate context.*" For example, where the RPs draft FS "*had noted that 'most buildings' did not exceed action levels, those (and similar) statements were deleted.*" The RPs stated: "*[b]eing 'honest' with the public does not require [the RPs] (or [EPA]) to scare them with a biased view of the facts that ignores the relatively positive results of the investigation and analysis that have been performed.*" MCO's technical consultants have reviewed the available data collected from buildings under normal operating conditions, and it appears the RPs are accurate in stating that "*potential problems [at MEW] are confined to relatively few buildings and only limited circumstances, and the potential risks here are very low.*" It is regrettable that EPA's Proposed Plan and FS did not emphasize this important context; the result has been financial losses to owners and unnecessary alarm among tenants, lenders, city officials, and other community members.
- **Expedite the Cleanup.** MCO urges EPA to expedite completion of the groundwater cleanup. This would obviate the need for vapor controls. The underlying cause of the vapor problem is groundwater contamination that remains unremediated. Completing the cleanup should be a strong priority.

#### GENERAL COMMENTS

##### 1. **MCO Strongly Endorses EPA's August 20, 2009 Amendment to the Proposed Plan.**

- **Sub-slab Remedy for Existing Buildings.** On August 20, 2009, EPA published a proposed change to its Proposed Plan. It states that the preferred alternative for *both* existing and new buildings is a sub-slab system, an engineered remedy that can be installed and operated by the RPs. MCO strongly supports this change. As discussed below, engineered remedies are not only preferable because of their reliability, long-term effectiveness, implementability, protection of human health, and permanence, but they are technically feasible and within an acceptable cost range for existing buildings.
- **HVAC Only if Owner Agrees.** MCO strongly supports EPA's acknowledgement that HVAC cannot be required as a remedy unless a building owner specifically agrees. Absent special arrangements with RPs, HVAC is not a permanent or reliable approach to mitigating vapors. Using HVAC as a CERCLA remedy presents problems in terms of logistics, cost, increased energy usage, and uncertainty regarding long-term operation and maintenance. For example, operating HVAC above normal operations will increase a building's carbon footprint and lower the building's EPA Energy Star score. Absent a written agreement between RPs and individual property owners concerning an HVAC remedy, EPA should require engineered sub-

slab remedies (where they are needed) that can be installed, operated and maintained by the parties responsible for the contamination.

- **Clear Statement that RPs are Responsible for Vapor Remedies.** In meetings and workshops, EPA staff have repeatedly stated that RPs, not property owners, are legally responsible for remediating contamination under CERCLA. Staff have also stated that they will “look to the RPs” to implement, manage, pay for, and verify vapor mitigation measures. MCO asks that EPA state this explicitly in writing, by amending the August 20, 2009 proposed change as follows (new text underlined):

***Sub-Slab System Options for Commercial Buildings:** EPA has received information about the implementability of types of sub-slab systems that had not been identified in the Proposed Plan as the preferred alternative for existing or future commercial buildings. For existing buildings, while EPA assessed the implementability of installing sub-slab systems in existing buildings as lower than that of the HVAC system alternative due to the disruption associated with drilling through an existing building's floor and slab, we understand that installing sub-slab systems in existing buildings may in fact be feasible in many circumstances, including installing sub-slab systems by drilling in from the perimeter of the building footprint. Therefore, the preferred alternative will be to look at a range of sub-slab options for that building, not just those that are installed through the building floor and slab, and then select the sub-slab system best suited to the building that is capable of reducing volatile organic compound (VOC) concentrations to below indoor air action levels. CERCLA remedies are implemented and paid for by the parties who have been identified by US EPA as responsible and who have been ordered to perform the work identified in a Record of Decision, typically via a consent decree and/or administrative order. In this case, the RPs, not building owners or tenants, will be responsible for implementing and verifying vapor mitigation remedies in commercial buildings at the MEW site. As discussed below, the remedy would still allow for use of a building's HVAC system for existing buildings if the property/building owner agrees to use, operate, and monitor the HVAC systems in a manner consistent with the operations and maintenance plan developed for that specific building.*

## **2. MCO Proposes a More Workable, Effective Plan.**

- EPA's Proposed Plan depends on the City of Mountain View adopting a health and safety municipal ordinance or restrictive covenants that require implementation of vapor intrusion mitigation measures by unspecified parties (possibly owners or tenants who did not cause the contamination). Such a regimen is impractical and problematic for the reasons described in these comments.
- MCO's alternative, in contrast, relies on:

- **Enforceability.** An amendment to the ROD, a CERCLA consent decree, and administrative orders issued to RPs, to assure enforceability and permanence of vapor remedies;
  - **Access.** Voluntary agreements between the Responsible Parties and commercial property owners that provide needed access for vapor remedies and that are legally binding on successors and assigns, to assure permanence of protective measures;
  - **Baseline Testing.** A baseline survey, including after-hours testing, in each building to identify specific vapor mitigation measures needed to protect the health of occupants in that building;
  - **Engineered Controls.** Selection and implementation of EPA-approved vapor remedies for each building, with a strong preference for engineered sub-slab solutions in new and existing buildings (where they are needed);
  - **Written O&M Plan.** Preparation of an operation & management (O&M) plan that documents conditions in the building and building-specific vapor mitigation measures. Such a plan can be used by EPA and RPs to understand how vapors will be prevented from entering buildings and to make needed adjustments over time;
  - **Annual Inspection.** An annual inspection of each building based on a detailed checklist, together with air quality testing, to verify that vapor remedies remain effective;
  - **Annual Certification.** An annual certification that buildings remain suitable for long-term occupancy by regular workers and after-hours workers;<sup>2</sup>
  - **City Permit System.** Documentation of the City's existing municipal building permit procedures that require EPA approval when construction permits are issued in the MEW Study Area;
  - **Monitoring of Change.** Regular monitoring of changes in land use and ownership.
- MCO's alternative is practical and fair. It provides specific tools to identify environmental conditions and to address the potential for vapor intrusion where necessary and appropriate. It also better addresses real world management of changing conditions in buildings. It does so without unnecessarily stigmatizing MEW properties or devaluing them, and without placing undue liability on innocent landowners, tenants, and the City of Mountain View.

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<sup>2</sup> EPA has already found that there are no short-term or acute health risks associated with vapor intrusion at the MEW site. Thus the annual certification of suitability for occupancy should be with respect to *long-term* occupancy.

- A detailed outline of MCO’s proposed alternative is attached at **Tab 1**.

**3. EPA’s Initial Proposed Plan Improperly Shifts Obligations Onto Commercial and Residential Property Owners, their Tenants, and the City of Mountain View.**

**3.1 EPA’s Proposed Plan Improperly Places Commercial Owners and Tenants In the Chain of Liability and Imposes Costs for the CERCLA Remedy on Them.**

The risks of increased cancer incidence due to vapor intrusion at MEW are admittedly extremely low. Nevertheless, any harmful vapor intrusion is the legal responsibility of the companies that caused the contamination. EPA’s Proposed Plan would unfairly place commercial property owners and their tenants in the liability chain by making them responsible for selection, implementation, and ongoing verification of a CERCLA remedy (e.g. HVAC).

**3.2 The Proposed Plan Improperly Obliges the City of Mountain View to Pass and Enforce an Ordinance That Is Beyond Its Scope of Responsibility.**

- The City of Mountain View has repeatedly emphasized to EPA that Mountain View “does not have the jurisdiction, resources, or staffing to implement [the] kind of ongoing monitoring and enforcement program” contemplated by EPA’s Proposed Plan.<sup>3</sup>
- Landowners do not have the resources or expertise to install or manage remedies to control vapors from groundwater contamination.
- In contrast, the Responsible Parties and EPA have spent years studying the technical and scientific details of the vapor intrusion pathway at MEW. EPA should compel the RPs to assess each building and deploy an EPA-approved remedy (where a remedy is needed), with the RPs accountable to EPA (not the City of Mountain View) under consent decrees or administrative enforcement orders.
- An ordinance is not needed for access. The majority of owners have already cooperated with RPs to provide enforceable access and most will do so if they are assured that the RPs will perform the necessary mitigation work, at no cost to the owner and without interference to ongoing commercial uses of buildings.

**4. EPA’s Proposed Plan is Vague.**

**4.1 A Plan That Says *What* is Required, But Not *Who* is Liable, Is Unacceptable.**

In numerous places, EPA’s Proposed Plan sets forth requirements without specifying who is responsible for implementing (or paying for) the requirement. A ROD amendment, or any EPA supplemental remedial

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<sup>3</sup> Letter from Kevin Woodhouse to Elie Haddad and Alana Lee (Nov. 22, 2006); see also Letter from Kevin Woodhouse to Elie Haddad and Alana Lee (March 5, 2008) (“[T]he City does not have staff, resources or technical expertise to develop and implement such an ordinance and enforcement program.”).

document, that states *what* is required to be implemented for vapor intrusion mitigation, but that does not specify *who* is to do it, may wrongfully impose responsibility on commercial owners, tenants, or city officials. It is also simply confusing, and may therefore lead to disputes or even litigation. Moreover, without clarity, prospective purchasers, lenders, and tenants have to assume they will be liable for these costs. These parties will steer clear of transactions that involve this type of exposure. This could have a very significant adverse impact on the economy of the City of Mountain View and its commercial properties.

#### **4.2 It is Unclear Which Properties Are Within the Vapor Intrusion Study Area.**

- On September 21, 2009, EPA issued a notice that included an updated map showing the residential and commercial properties within the vapor intrusion study area for the MEW Site south of U.S. Highway 101, as well as lists of those properties identified by address. For a property that straddles the MEW plume boundary, it remains unclear, however, whether the portion of such a property as shown on the map is all that is encumbered by EPA's Plan, or whether it is the whole legal parcel. *For example, what would happen if the plume is under a parcel's parking lot but not under its building?*
- EPA should also develop and describe a procedure for monitoring changes to the plume boundary and changes of address, and for notifying property owners when those changes affect the status of their buildings. The RPs should ultimately be responsible for such monitoring and notification.

**4.3 The Plan Does Not Call for Written O&M Plans.** Many state agencies that have studied vapor intrusion issues require the companies responsible for contamination to prepare written, building-specific O&M plans.<sup>4</sup> It is important to document for all stakeholders -- EPA, the City, owners, tenants and occupants -- what the building conditions are and how vapors will be controlled. This documentation is critical for managing ongoing implementation of vapor mitigation measures. The requirement for an O&M Plan is an important element of the remedy that should not be "left to the design phase."

**4.4 The Plan Does Not Call for Annual Inspections.** One of the most important practical measures that can be taken to assure that vapors continue to be properly managed is to have each building inspected annually. **Tab 2** has examples of detailed inspection checklists that can be used by RPs to physically inspect buildings so that any exposure pathways can be sealed or repaired, and so that any changes to the structure can be evaluated to make

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<sup>4</sup> See, e.g., California Department of Toxic Substances Control, *Vapor Intrusion Mitigation Advisory* (April 2009).

sure that vapor mitigation measures remain protective, or that new controls are installed, as needed. For the remedy to be effective over time, permanent, and implementable, annual inspections are a critical element that should be identified in the ROD, not “left to the design phase.”

- 4.5 The Plan Does Not Call for Annual Certification of Suitability for Long-Term Occupancy.** A number of commercial owners have stated that it would be useful if the RPs would inspect and test their buildings once a year and make a simple certification that the building remains suitable for long-term occupancy in terms of vapor intrusion. Requiring this certification provides a real-world check that the companies responsible for controlling vapors have taken the needed steps to ensure ongoing compliance. It also provides important reassurance to building occupants. It addresses EPA’s core concern, which is to have procedures that will verify that vapor mitigation measures remain effective over time as environmental conditions and building uses change.
- 4.6 Type and Frequency of Monitoring Are Vague.** The Proposed Plan does not adequately address how RPs will verify that vapor mitigation measures remain effective over time. Actual monitoring of indoor air is preferred on a periodic basis to verify conditions.
- 4.7 Institutional Controls Are Not Spelled Out.** EPA’s Proposed Plan states: *“The Preferred IC to support each of these remedial alternatives is a municipal ordinance that requires implementation of the remedy within the Vapor Intrusion Study area.”*<sup>5</sup> It is unclear what would be in such a local ordinance. The public cannot meaningfully comment on such a vague plan. Nor has EPA explained what kind of ordinance it has in mind when questioned in workshops and meetings. A written O&M plan, annual inspections, legally enforceable access agreements, and annual certification of conditions are far more effective than an ordinance or land use covenant to assure that vapor mitigation continues to be managed practically on an ongoing basis.
- 4.8 The Proposed Plan Does Not Address Timing.** EPA’s Proposed Plan lacks timetables and deadlines for RPs to implement vapor measures at either existing or new buildings. In the case of new buildings, timing is paramount. At a minimum, transactions can become much more costly when there is uncertainty in timing. If a project is delayed and a tenant or financing market is missed, the project can become a financial disaster. It is very important that EPA and the RPs act promptly -- especially where properties are being redeveloped, reconstructed, re-leased, or re-financed -- in order to avoid economic losses to owners, tenants, lenders, and the City of Mountain View.

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<sup>5</sup> July 2009 Proposed Plan at p. 25.

5. **The Proposed Plan is Based on Inadequate Study of Conditions for After-Hours Workers.** The Proposed Plan appears not to have adequately considered that people are often in buildings after typical working hours when the HVAC system is usually turned off. Specific examples include security guards, janitorial staff, and daytime workers who work late or on weekends.
- 5.1 **More Testing Must Be Done to Ensure that After-Hours Workers are Protected.** Most of the available indoor air data was collected during normal business hours when the HVAC system was operational. This data may not be representative of after-hours conditions, especially at the end of a weekend. After-hours indoor air sampling for VOCs should be performed at each building so that potential risks to after-hours workers can be fully evaluated. If EPA can confirm that running HVAC only during business hours is fully protective of all employees in all buildings, including after hours employees, it should provide that analysis and conclusion in the Proposed Plan.
- 5.2 **Engineered Sub-slab Remedies Can Be Continuously Operated and Monitored and Thus Are More Reliable than HVAC.** Once a sub-slab remedy, such as sub-slab depressurization (SSD), is installed and shown to be effective, concerns about potential exposure of after-hours workers to VOCs from vapor intrusion are eliminated.
6. **RP's Must Be Responsible for Sub-slab Systems in New and Existing Buildings.**
- EPA has suggested it may be appropriate to require developers, not RPs, to pay the cost of vapor mitigation measures in new buildings. If vapor remedies are required as a CERCLA remedy, we see no valid reason why a private landowner should pay these costs. There is no supportable public policy rationale for discriminating between new and existing buildings. If EPA were building a new headquarters, would it want to pay to put in special controls for contamination that a known, solvent industrial tenant left behind because EPA is the "developer"? We think this is unlikely. Further, the RPs are responsible for ensuring their contaminants do not migrate horizontally or vertically. The RPs have installed and paid for slurry walls and a series of sophisticated extraction wells to contain contaminants horizontally; they should also contain their contaminants vertically.
  - EPA staff have explained that "in the past some developers have paid for vapor mitigation when new buildings are built." This is true. But it occurred when there was no specific agency mandate to install a vapor remedy and developers were simply trying to provide extra safeguards and added protection for their buildings. But if recent tests show evidence that vapor measures must be a formal CERCLA remedy in some buildings, RPs should pay for them -- just as they pay for the costs to clean up soil and groundwater.
  - EPA staff have also noted that at some military sites, developers have paid for some elements of cleanup. That is an entirely different situation from what has occurred at MEW. Certain California bases were auctioned off with deeds that contained very

explicit limitations on the cleanup measures the military would (and would not) undertake. All bidders were aware that they needed to factor some remedial costs into their bids. The situation at MEW is entirely different. All the MCO members bought their properties with the understanding that large, financially capable corporations were taking full responsibility for all necessary Superfund cleanup costs. That should continue to be the case for new and existing buildings.

**7. EPA's Proposed Plan Does Not Exhaust All Voluntary Measures and Does Not Meet Key CERCLA Criteria.**

**7.1 A City Ordinance Is Not Needed: Voluntary Cooperation Between the Responsible Parties and Commercial Owners Can Achieve EPA's Goals More Effectively.**

- EPA should use the same approach taken with respect to groundwater cleanups: RPs should negotiate terms of access and manage installation and maintenance of vapor remedies, just as they do for groundwater. A special ordinance is not needed.<sup>6</sup>
- These conventional measures have worked well for groundwater cleanups and are well understood by owners, tenants, occupants and lenders. There is no need for a special ordinance. Further, an ordinance is not permanent; it can be rescinded by the next elected City Council.
- EPA grossly underestimates the cost of adopting an ordinance at \$25,000.<sup>7</sup> In August 2009 the City authorized a short-term \$50,000 legal contract just to comment on EPA's Proposed Plan. The costs of evaluating and adopting an ordinance could easily cost several hundred-thousand dollars, *excluding* implementation.
- EPA has ample legal authority in the ROD and CERCLA consent decrees and administrative orders to make remedies permanent and enforceable.

**7.2 An Ordinance and Land Use Covenants Are Not Needed to Obtain Site Access: Voluntary Agreements are Legally Effective to Give RPs Access to Perform Necessary Work and to Provide Disclosure to Future Owners.**

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<sup>6</sup> In meetings with MCO, EPA asked whether EPA would be a third party beneficiary to the access agreements between the RPs and the commercial property owners. The answer is no. Although the RPs would be entitled to enforce the access agreements, EPA's enforcement mechanism is against the RPs via the ROD, consent decree, and administrative orders.

<sup>7</sup> See Feasibility Study (Section 8.3.3. Local Government Controls: Public Health and Safety Ordinances) at p. 70 ( "The MEW Companies estimate that the cost to prepare and adopt an ordinance is approximately \$25K, and the annual cost to monitor and enforce the performance of the ordinance is approximately \$23K similar to that of monitoring a covenant.").

- More than 60% of existing commercial buildings by square footage already have written agreements with RPs that provide access, are binding on successors, and disclose conditions to future owners. **Tab 3** has an example of an existing access agreement that is binding on successors and assigns and has been recorded so that it appears on a title report. This is a legally effective way of assuring permanence of a required remedy.
- EPA's Proposed Plan grossly overstates the need for special measures like an ordinance or land use covenant. With modest education -- and assurances that RPs will perform and pay for necessary work -- all or nearly all commercial owners will provide the necessary access.
- EPA stated in public workshops that an ordinance is needed to secure access. This is factually inaccurate. Some 80% or more of commercial building owners by square footage have *already* agreed to have their properties tested. The balance of owners will likely do so with modest outreach and education.

**7.3 An Ordinance and Land Use Covenants Are Not Needed to Require Disclosure of Environmental Conditions at a Site.** EPA has stated a Mountain View ordinance is needed to ensure that buyers of property in the MEW area know it is a Superfund site and has the potential for vapor intrusion. MCO disagrees. A number of laws already compel such disclosure.

- California's Civil Code<sup>8</sup> requires residential sellers and their real estate brokers/agents in connection with a sale to provide buyers with a Real Estate Transfer Disclosure Statement. The Disclosure Statement "must specify environmental hazards of which the seller is aware (e.g., asbestos, radon gas . . . , contaminated soil or water, etc.)."<sup>9</sup> In addition, any material fact that is known or should be discovered and may affect a buyer's decision must be reported.
- Further, case law provides that both sellers and listing brokers have an affirmative duty to conduct a diligent investigation and report their findings to a buyer.
- Finally, the California Health and Safety Code obligates a seller to notify a buyer if the seller knows or reasonably believes that any release of a hazardous substances has come to be located on or beneath the real property.<sup>10</sup>

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<sup>8</sup> Cal. Code Civ. Proc. §§ 1102 *et seq.*

<sup>9</sup> California Department of Real Estate, *Disclosures in Real Property Transaction*, p. 20 (6th ed. 2005), available at [http://www.dre.ca.gov/pdf\\_docs/re6.pdf](http://www.dre.ca.gov/pdf_docs/re6.pdf).

<sup>10</sup> Cal. Health & Safety Code § 25359.7.

- Thus, there are already well established laws that require sellers of property (and their agents) to disclose environmental conditions; failure to do so would expose the seller to lawsuits for damages, and the broker could also face liability for damages and potentially lose his or her license. A Mountain View ordinance would add nothing to these existing obligations of full disclosure.

**7.4 An Ordinance or Land Use Covenants Are Not Needed to Assure Notification of Change of Ownership.** EPA has also suggested an ordinance is needed to alert RPs when land is sold and when owners may make changes to buildings. As EPA is aware, there are now commercial services that can be used to track changes in land use, changes in ownership and applications for construction permits. The RPs can utilize these commercial services (such as Terradex) to track changes in ownership or use that might require adjustment of vapor remedies.

**8. EPA Should Have Included Property Owners in Discussions About Vapor Intrusion Remedies Years Ago When It Undertook These Studies.** EPA and RPs have spent years studying vapor issues but did not include property owners, even though they are clearly key stakeholders. Even with extensions, owners have had very limited time to try to understand complex data and to retain the experts necessary to make comments. EPA should take the time necessary to work out a solution that is workable and agreeable to all affected parties.

**9. The Proposed Plan is Based on Very Stringent Standards.** The indoor air Action Levels in the Proposed Plan and the supporting document, the *Final Supplemental Feasibility Study for the Vapor Intrusion Pathway*, prepared by Haley & Aldrich and dated June 2009 (FS), are based on layers of conservative assumptions. MCO supports the use of conservative standards to protect health. However, there are questions about whether these assumptions are being consistently applied by EPA and whether the MEW site is being treated evenhandedly. Specific conservative assumptions are as follows:

- Under CERCLA, the EPA acceptable lifetime incremental cancer risk range is  $10^{-4}$  to  $10^{-6}$  or one-in-ten-thousand to one-in-a-million. The Action Levels in the Feasibility Study are based on  $10^{-6}$  risk, which is at the uppermost conservative end of the EPA risk range. *Is this typical for commercial properties?*
- Recent EPA Region 5 guidance, entitled *Addendum #1 EPA Region 5 Recommendations on Vapor Intrusion Assessments at RCRA Corrective Action Sites* and dated July 2009, recommends that screening criteria be based on a target risk of  $10^{-5}$ , which is ten times less stringent than the target risk for MEW Action Levels. *Why is a different standard being applied in EPA Region 5?*
- The Action Levels for commercial use assume people work at the site 10 hours per day for 25 years, whereas EPA's default commercial exposure assumption for a "reasonable maximum exposure" is 8 hours per day for 25 years. *Is this difference based on actual data or statistics?*

- For comparison purposes, EPA has stated that its vapor intrusion standard for workplace TCE exposure is approximately “10,000 or more” times stricter than the standard that OSHA, another federal agency, applies. That is inaccurate, by an order of magnitude. In fact, EPA is apparently *109,000 times stricter* than federal OSHA’s standard, and is *27,000 times stricter* than the California Occupational Health and Safety Administration (Cal/OSHA) standard.<sup>11</sup> *Since Cal/OSHA and federal OSHA are charged with protecting worker safety, why do those agencies permit employers to expose workers to 27,000 and 109,000 times the amount of the very same chemical that may migrate into a building from an underlying groundwater plume? Is there any logic to the discrepancy between these standards, all adopted by government agencies charged with protecting human health, and all applied to people in the workplace?*

**9.1 EPA Is Treating MEW Differently.** EPA is breaking new ground at the MEW site compared with other sites in California and throughout the United States.

- **No Other Federal Vapor Intrusion Sites Have Ordinances.** We are not aware of any other federal Superfund sites where an ordinance is used to require and enforce a vapor intrusion remedy. *Can EPA assure the City of Mountain View and commercial owners in Mountain View that the MEW site is being regulated by the same standards and using the same tools that apply to the thousands of other similar sites across the country?* This is very important because the perception of a difference can have a significant impact on the marketability of property, its value and the City’s economy.
- **EPA Treats the MEW Site Differently Than Other Silicon Valley Sites.** At other sites in Silicon Valley (some of which are also federal Superfund sites), California state agencies direct the cleanup, and they have not asked cities to adopt vapor mitigation ordinances. Some commercial tenants have already indicated an unwillingness to bring their business to Mountain View, and have gone elsewhere instead because of the way EPA has chosen to single out MEW. *What is the rationale for treating MEW differently from these other sites? Has EPA factored these significant costs into its fiscal analysis?*
- **EPA Treats NASA and the Navy Differently.** NASA and Navy properties sit on top of the same MEW plume as the commercial and residential property owners in Mountain View. Yet NASA would not be subject to the ordinance EPA is recommending and is free to follow its own plan. We also understand that the Navy “does not believe in vapor intrusion”

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<sup>11</sup> Cal/OSHA’s permissible exposure limit (PEL) for exposure to trichloroethylene (TCE) in the workplace is 25 ppm (or **135,000** ug/m<sup>3</sup>). Federal OSHA’s PEL is 100 ppm (or **545,000** ug/m<sup>3</sup>). EPA’s TCE Action Level for commercial buildings at the MEW site is **5** ug/m<sup>3</sup>. The PEL is the level below which no personal protective equipment is required.

and thus is not subject to the proposed ordinance or mandate for vapor mitigation measures. *Why is this so?* This is unfair, especially when NASA leases much of its property to commercial and residential tenants in direct competition with the other property owners in Mountain View.

- **HVAC is Not Considered a “Remedy” if the Building Has Been Sampled Under Normal Operating Conditions.** In our experience, at other sites where indoor air has been sampled under normal operating conditions, no remedial action is required if the VOC concentrations are less than the site-specific action levels. Under the same circumstances at the MEW site, EPA is identifying HVAC as an “engineered remedy.”

**10. EPA’s Proposed Plan Does Not Sufficiently Account for Economic Harm to Mountain View and the City’s Commercial Property Owners.**

**10.1 Uncertainty Has an Impact on Property Values, Financing and Leasability.**

- Prospective tenants, lenders or purchasers expect certainty in their financial transactions. They will not provide a defined amount of funding in the case of a loan or purchase, or “bet the company” in the case of a lease, where the timing is uncertain or conditions vague. These prospects will go elsewhere or, at a minimum, withdraw. This would leave an existing building unoccupied and unfinanced. Since the value of real estate is based on cash flow, a building with no cash flow will suffer a great decrease in value. Additionally, existing loans with approaching maturity dates cannot be replaced because no new replacement lender will provide funding due to this uncertainty. This will result in the lender filing a Notice of Default and possible foreclosure.
- Although leases are commercial transactions, they have many similarities to a consumer product. Tenants want simplicity, a predictable environment, traditional operating practices and to feel good emotionally about their decision. In using an automobile analogy for the HVAC remedy, tenants are not interested in being educated about whether the catalytic converter is operational while they are in the car, monitoring the catalytic system to ensure it stays operational, or reporting their results to a third party; they just want to drive the car and know that engineers have made it safe. Again, the longer there is uncertainty about whether a tenant may be operationally or financially responsible for these activities, the more it provides further negative impact on value and leasability.

**10.2 Land Use Covenants May Trigger Foreclosure on Existing Loans or Make Properties Difficult to Finance.**

- Recorded Land Use/Restrictive Covenants are encumbrances against title. Security Instruments (Deeds of Trust) for traditional real estate

loans contain a covenant that “Borrower shall keep the Property free from liens and encumbrances other than the lien of this Deed of Trust.” If there is a default in the performance of this covenant, it is an “Event of Default,” allowing the Lender to, “without notice, declare all Debt immediately due and payable.” Thus, the imposition of land use covenants could force properties into foreclosure. This significant economic consequence is nowhere discussed in EPA’s evaluation of institutional controls.

**10.3 An Ordinance Could Impact Value and Leasability.** An MEW ordinance would be unique to the area. It would stand out to real estate brokers, lenders, tenants, and purchasers as a warning they need to be especially careful in consummating a transaction in this area. Most professionals are familiar with the MEW site’s history and the fact vapor intrusion was a discussion topic a number of years ago. Many will assume that, for there to be a sudden push to cause the City to enact an ordinance that points to properties in this area and no other, the conditions must have become significantly worse. Word spreads quickly and the public’s perception becomes what they hear rather than what they might learn by reading 1,200 pages of technical information.

**10.4 The Proposed Plan Is Unnecessarily Stigmatizing.** The Proposed Plan seems to have its origins in elevated detections of VOCs in a handful of the commercial buildings south of the 101 Freeway. These buildings have all been identified. Some of them are slated for demolition and vapor conditions in the others have been remediated. Currently all tested occupied buildings are at acceptable levels. The RPs are in compliance with their CERCLA orders. It seems EPA’s and the City of Mountain View’s policies and procedures are working satisfactorily. By publishing a plan that is vague as to specifics and timing, but that appears to flag a unique problem, the business community is left only to speculate. Seasoned business professionals do not want to make decisions based on speculation or uncertainty.

**11. EPA’s Proposed Plan Is of Doubtful Legal Authority.**

**11.1 EPA Cannot Compel Mountain View To Adopt an Ordinance.** EPA itself acknowledges that it cannot compel Mountain View to adopt an ordinance.<sup>12</sup>

**11.2 Commercial Property Owners and their Tenants Cannot Be Required to Operate HVAC as a CERCLA Remedy.**

- There are several problems with EPA’s initial suggestion that commercial property owners or their tenants should be obligated to operate HVAC in

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<sup>12</sup> See EPA July 2009 Proposed Plan at p. 18.

their buildings *for the purpose of remediating the vapor intrusion pathway.*<sup>13</sup>

- First, the requirement to operate mechanical ventilation was never intended to be a CERCLA remedy for preventing vapors from groundwater contamination from entering buildings. Instead, regulations governing the operation of mechanical ventilation are based on considerations of “energy efficiency” and “occupant comfort.”<sup>14</sup>
- Second, the Energy Code and the Cal/OSHA regulations do not contemplate operating mechanical ventilation all day, every day, or when any single person is in a building for any given length of time. Rather, the Energy Code applies only when buildings are “normally used by humans,” or “when the space is usually occupied” or “normally occupied.”<sup>15</sup> The California Energy Commission itself interprets these terms to refer “to spaces where people can be reasonably expected to remain for an extended period of time” rather than for “brief and intermittent” periods.<sup>16</sup> The Cal/OSHA regulations similarly apply only “during working hours.”<sup>17</sup> And the Building Standards that Section 5142 cross-references similarly require mechanical ventilation only for spaces that are “customarily occupied by human beings.”<sup>18</sup> In other words, the words

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<sup>13</sup> See EPA *Final Supplemental Feasibility Study for Vapor Intrusion Pathway: Middlefield-Ellis-Whisman Study Area: Mountain View and Moffett Field, California* (June 2009) (Feasibility Study) at p. 49 (“The California State Energy Code and OSHA regulations provide operating requirements for commercial building HVAC operation.”) In particular, EPA points to Section 121 of the California Energy Code (CCR Title 24, Part 6, Subchapter 3, Section 121), and Section 5142 of California’s OSHA regulations (8 CCR § 5142). Feasibility Study at 49. Title 8 CCR Section 5142 only requires HVAC to be operated “during working hours,” and contemplates numerous exceptions when HVAC need not be operated. Section 5142 cross-references the State Building Standards Code, Title 24, Part 2 to determine the quantity of air that must be supplied. In 2001, the relevant portion of the Building Standards Code was located at Section 1202.2.1. Section 1202.2.1 required that enclosed portions of certain types of buildings that are “customarily occupied” by humans shall be either naturally or mechanically ventilated, and if mechanically ventilated, the ventilation system “shall be capable of supplying a minimum of 15 cubic feet per minute (7L/s) of outside air per occupant in all portions of the building during such time as the building is occupied.” The Building Standards Code was revised in 2007, and Section 1202.2.1 was replaced with Section 1203.1, which provides for mechanical ventilation “in accordance with the *California Mechanical Code*.” The Mechanical Code, found at CCR Title 24, Part 4, still requires that mechanical ventilation systems “shall operate so that all rooms and spaces are continuously provided with the required ventilation rate while occupied.” Cal. Mech. Code § 402.3.

<sup>14</sup> See California Energy Commission, 2005 Building Energy Efficiency Standards: Nonresidential Compliance Manual (Nonresidential Compliance Manual) § 1.4 (Rev. 3 March 2005).

<sup>15</sup> Energy Code §§ 121(a)(1), (c)(1), and (c)(2) (emphasis added).

<sup>16</sup> Nonresidential Compliance Manual § 4.3.

<sup>17</sup> 8 CCR § 5142(a)(2) (emphasis added).

<sup>18</sup> 24 CCR § 1202.2.1 (2001) (emphasis added).

*usually, normally, customarily, and during working hours* do not mean *always*.

- Third, the State of California, and its cities, do not enforce the Energy Code in the same manner they would enforce safety-driven regulations. As the City of Mountain View explained, “the City does not verify HVAC system functionality as part of the building inspection and permitting process. Furthermore, the City does not have the jurisdiction, resources, or staffing to implement this kind of ongoing monitoring and enforcement program; this would be an entirely new, unfunded program requiring legislative authority and enforcement power, resources, and fees.”<sup>19</sup>
- Fourth, the Energy Code does not require the operation of *HVAC* per se; rather, it requires the operation of “mechanical ventilation” where there is inadequate natural ventilation.<sup>20</sup> Thus it is also inaccurate to suggest that the Energy Code requires commercial building owners to operate expensive *HVAC* systems when there may be other, less expensive *mechanical ventilation* systems available. Depending on how fan systems or *HVAC* systems are installed, they can be compliant with the Energy Code but can create a negative pressure, which would actually increase the potential for vapor intrusion rather than decrease it. Thus compliance with the Energy Code is no assurance that *HVAC* could be used as a CERCLA vapor intrusion remedy.
- Finally, operating *HVAC* for remedial purposes, if required for more than usual business hours, could be very costly for owners and tenants. It would also be highly energy intensive and, by using green house gases, have an adverse impact on global warming, surely an unintended (and ironic) result in a CERCLA remedy. Further, it would be impossible for owners to guarantee the remedy (short of running *HVAC* 24 hours a day *every day*), because employees are not always predictable about the times they will occupy a building, or reliable about ensuring *HVAC* is on at all. Absent special arrangements with RPs, *HVAC* is not permanent or reliable as formal “remedy” for mitigating vapors.

## **12. EPA should Expedite Cleanup of the Groundwater.**

- 12.1 The Vapor “Remedies” Do Not Address the Underlying Problem.** In CERCLA terminology, the vapor intrusion “remedy” in the Proposed Plan does nothing to reduce toxicity, volume and mobility of contaminants. Active remediation of soil and groundwater is needed for that. Vapor intrusion is best controlled by completing cleanup of the site and eliminating the underlying source of VOCs in soil and groundwater.

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<sup>19</sup> Letter from Kevin Woodhouse to Elie Haddad and Alana Lee (Nov. 22, 2006).

<sup>20</sup> Energy Code §121.

- 12.2 EPA should Respond to the RPs' Proposals.** We understand the RPs have submitted pilot study work plans to assess innovative groundwater cleanup options to EPA that have not received a response or comments for nearly a year. MCO encourages EPA to review and approve expeditiously all efforts by the RPs to accelerate the cleanup.
- 13. EPA's Proposed Plan Has Not Received Community Acceptance.** CERCLA requires EPA to formally consider whether a proposed remedy is acceptable to the community. For all the reasons noted, the July 2009 Proposed Plan is not acceptable to MCO, key stakeholders comprising eighty percent (80%) of the commercial owners by square footage at the MEW site.
- 14. Comments Submitted by the Center for Public Environmental Oversight.** MCO was provided with an October 23, 2009 memorandum to Alana Lee from Lenny Siegel of the Center for Public Environmental Oversight (CPEO), containing CPEO's comments on EPA's Proposed Plan. A copy is attached hereto at **Tab 4**. MCO agrees with many of CPEO's comments, as discussed below.
- 14.1 Areas of General Agreement.** MCO generally agrees with the following CPEO comments, identified by paragraph number: **No. 3** (goals based on long-term health effects); **No. 4** (performance goals); **No. 5** (long-term monitoring); **5(b)** (monitoring of physical parameters); **5(c)** (indoor air sampling); **5(e)** (inspections); **5(g)** (training); **5(h)** (contingency planning); **5(j)** (annual reports); **5(k)** (certification); **No. 7** (poorly delineated plume boundaries); **No. 11** (plan should address changes in background TCE concentrations); **Nos. 12 and 13** (plan should define vague terms); **No. 14** (each building should be tested); and **No. 15** (groundwater remedy should be accelerated and prioritized).
- 14.2 Areas of Disagreement or Comment.**
- **No. 1.** MCO disagrees with CPEO comment No. 1 to the extent it is vague and can be interpreted to obligate innocent commercial owners to implement mitigation and demonstrate its effectiveness. The responsibility must clearly lie with the RPs.  
  
In addition, installation of a sub-slab remedy through the building's perimeter foundation system is an approach recommended by EPA for radon mitigation (EPA, July 1991, EPA/625/6-91/029). MCO agrees that the effectiveness of such a system should be verified through pressure measurements and sampling data.
  - **No. 2 (HVAC).** MCO disagrees with CPEO comment No. 2 to the extent it calls for HVAC as a mitigation measure that is not predicated on owner consent, and to the extent it does not clearly place responsibility on the RPs for implementation and operation costs.

- **No. 5(a) (Notice).** MCO disagrees with CPEO comment No. 5(a). There is no need to alarm the general public by placing placards at the entrance to non-residential buildings warning them of extremely remote vapor intrusion risks. It will be damaging to Mountain View’s economy if its commercial properties are negatively branded with placards not required elsewhere.
- **No. 5(d) (Operations and Maintenance).** MCO agrees with CPEO that an operations and maintenance (O&M) plan is needed. However, it should be clear that the RPs are responsible for implementing the O&M Plan.
- **No. 5(f) (Institutional Controls).** MCO disagrees with CPEO comment No. 5(f). MCO does not support institutional controls that would contain “enforceability prohibitions” on the use of private property. Instead, MCO, in its Proposed Alternative, recommends a mechanism whereby the RPs would be notified of any owner planned construction activity that would breach a slab or otherwise require adjustment to a vapor mitigation measure; this will allow the RPs to respond in a timely manner to ensure the appropriate repairs are made, where needed. Instead of prohibiting land uses, RPs should be required to install vapor remedies and adapt them to changing conditions.
- **No. 5(i) (Continuous Management).** MCO agrees that continuous monitoring tools are appropriate for systems that have regular human interaction relating to the building operation, such as an HVAC system (e.g., people adjusting the HVAC for comfort reasons). However, for sub-slab systems, continuous monitoring is not necessary because the blowers are highly reliable and only people who are knowledgeable of the system would have access to it.
- **No. 6 (Ordinance).** MCO disagrees with CPEO comment No. 6. As explained throughout MCO’s comments, a health and safety municipal ordinance is not acceptable.
- **No. 9 (Active Sub-structure Depressurization).** MCO also generally favors sub-structure systems. However, we understand that vapor barriers are not necessary for active sub-slab systems.<sup>21</sup> MCO agrees that active systems are more effective than passive systems, but passive systems can be appropriate, so long as adequate monitoring is performed to demonstrate the system’s effectiveness. Such monitoring could be sub-slab to show that concentrations do not exceed the indoor air Action Level adjusted with an appropriate sub-slab-to-indoor-air attenuation factor. Although the FS cost estimates only show a \$500 per year differential for an active system compared with a passive system at a residential building the Bay Area Air Quality Management District

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<sup>21</sup> DTSC, *Vapor Intrusion Mitigation Advisory* (April 2009).

(BAAQMD) typically requires active systems to be permitted and the discharge to be monitored. The FS cost estimates do not account for these BAAQMD compliance costs.

- **No. 10 (Preference for Reliance on Soil Gas Data).** MCO agrees that soil gas data are a useful indicator for vapor intrusion potential. However, sub-slab data are also useful indicators. Therefore, MCO does not support any single type of sampling as a “better” indicator for vapor intrusion.

### **TECHNICAL COMMENTS**

**15. Sub-slab and Sub-grade Remedies Can Be Installed at Existing Buildings.** The RPs have expressed concerns about the technical feasibility of installing sub-slab or sub-grade remedies at existing buildings, citing foundations and utilities as constraints. EKI reviewed the foundation plans and met with the general contractor who constructed nine of the buildings at the MEW site in the mid-to-late 1990s. For these buildings, it should be feasible to install an SSD system through the perimeter foundation. This approach is an option provided by EPA for radon mitigation.<sup>22</sup> EKI also spoke with a contractor who has installed sub-grade mitigation systems underneath building foundations using horizontal drilling techniques. Key technical considerations that demonstrate the feasibility of installing such systems under the existing buildings are as follows:

- The newer buildings only have a single utility, the sanitary sewer, that runs under the building. The location of the sanitary sewer line can be readily located.
- The newer buildings are underlain by a gravel layer installed as a water vapor break.
- The newer buildings do not generally have an extensive grade beam network that would limit the effectiveness of SSD.
- For older buildings that may not have a gravel layer or have an extensive grade beam network, a sub-grade system can be installed using horizontal drilling techniques. MCO is aware of such a system that was installed for vapor intrusion mitigation at a 40,000 square foot building in the Los Angeles area for a capital cost of approximately \$300,000 and has been effective at reducing VOC concentrations in indoor air below the site-specific action level.
- The RPs have indicated that, in some circumstances, sub-slab remedies will not be effective because the primary pathway for vapor intrusion is through a conduit. This concern highlights the need for adequate and representative baseline testing to identify and address the source of conduit vapor, if it exists. Moreover, follow-up

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<sup>22</sup> EPA, July 1991, *Sub-slab Depressurization for Low-Permeability Fill Material, Design and Installation of a Home Radon Reduction System*, EPA/625/6-91/029.

indoor air testing should be performed after installation of the sub-slab remedy or conduit mitigation to verify that the remedy is effective.

**16. The Only Sub-slab Building Retrofit Included in the FS Cost Estimates Were Alternatives that Penetrated the Floor.** A building retrofit for SSD that penetrates the floor may be appropriate for some buildings, but not the newer buildings or occupied buildings. MCO's evaluation of potential costs to install SSD in an existing building shows that the cost to retrofit a building through the exterior perimeter foundation is similar to penetrating the slab. A summary of these cost estimates is provided below and provided in more detail at **Tab 5**.

- The capital cost to install SSD through the perimeter foundation for a 35,000 square foot building footprint is estimated to be \$120,000 without contingencies (Alternative 3 in **Tab 5**). The 30-year net present worth cost to install, operate, and monitor the system is estimated to be \$280,000 (excluding contingencies and using a 7% discount rate to be consistent with the cost estimates in the Proposed Plan). The net present worth cost to install SSD in an existing building in the Proposed Plan is \$325,000.
- As indicated in the prior comment, a sub-grade system can be installed using horizontal drilling techniques if it is not feasible to install a system through the perimeter foundation (Alternative 4 in **Tab 5**). The capital cost and 30-year net present worth cost to install, operate, and monitor a sub-grade depressurization system are estimated to be \$260,000 and \$600,000, respectively (again, excluding contingencies and using a 7% discount rate).
- These alternatives can be installed and monitored without disturbing the building interior.

**17. The Application of the Tiering System and Remedy Selection Is Not Clear.** The core of EPA's July 2009 Proposed Plan is the remedy selection process for a given building, as presented in Table 4 (Tiering System) and Figure 3 (Decision Flowchart). However, the table and figure are inconsistent. Specific examples are provided below:

- 17.1** For Tier 2, Table 4 indicates that (a) in place engineered remedies should continue to be operated, (b) monitoring should be performed, and (c) institutional controls should be implemented. However, Figure 3 only calls for monitoring and institutional controls.
- 17.2** If an existing building overlies "high" volatile organic compound (VOC) concentrations in groundwater and VOC concentrations in indoor air are at or less than background, the proposed remedy is not clearly identified in Table 4.
- 17.3** Tier 3 represents a low-risk scenario: a building that overlies "low" VOC concentrations in groundwater and VOC concentrations in indoor air that are at or less than background. In this scenario, the Proposed Plan calls for an Institutional Control (IC) to notify future owners. The nature of the IC and

the purpose of the notice are not discussed. Is it unclear whether ICs are needed only to make sure that the preferred remedy is implemented for future buildings.

- 17.4** For Tier 4, the Proposed Plan indicates that multiple lines of evidence can be used to show there is no potential for vapor intrusion above levels of concern. However, the Proposed Plan provides no guidance as to the types of evidence that may be acceptable. RPs, owners and tenants would like a clear understanding of when buildings do not require add-on vapor control measures.
- 18. Target Risk Level at Which Mitigation is Required is Not Clearly Defined.** The Proposed Plan indicates that a building is classified as Tier 1 if VOC concentrations in indoor air are greater than or equal to its respective Action Levels. The Proposed Plan and FS suggest that the TCE Action Level is based on the full EPA risk range of  $10^{-4}$  to  $10^{-6}$ , whereas the Action Levels for other VOCs are based on  $10^{-6}$  risk. *Is mitigation required when a VOC other than TCE exceeds its Action Level at  $10^{-6}$  risk?*
- 19. Inadequate Criteria to Determine if Mitigation is Required Based on Indoor Air Sampling Results.**
- 19.1 The Proposed Plan and FS Do Not Identify an Approach if Single Concentrations are Greater than the Action Level.** *If a single concentration is greater than an Action Level does this necessitate mitigation or will alternative data evaluations be used (e.g., statistical analyses at an individual location or throughout a building, data trends, etc.)?*
- 19.2 The Proposed Plan and FS Do Not Discuss VOC Detections Other than TCE that are Above the Action Levels.** Currently, the FS does not provide discussion of other chemicals, such as tetrachloroethylene (a.k.a. perchloroethylene or PCE), that have been detected in indoor air at concentrations that exceed Action Levels. More specifically, PCE exceeded its commercial Action Level of  $2 \text{ ug/m}^3$  in 14 buildings at the MEW Site south of Highway 101. The Proposed Plan and FS do none of the following: (a) discuss these incidents; (b) indicate if mitigation is required with respect to PCE; (c) indicate if the PCE hits are believed to be from other sources; or (d) provide some other rationale with regard to PCE. If the Proposed Plan is taken literally, mitigation should be implemented at these buildings.
- 20. Cost Estimates in the Draft Proposed Plan for an Ordinance are Unrealistic.** The cost of adopting and implementing an ordinance would likely vary significantly based on the details contained in the ordinance and the degree of acceptance by interested stakeholders. Moreover, the cost estimate for the ordinance does not include an estimate of the diminution of property values and other foreseeable economic consequences of such a measure.
- 21. Some Buildings May Operate Under Negative Pressure.** The preferred alternative of HVAC in the Proposed Plan does not consider that some buildings or portions of buildings may operate under negative pressure. Typically, facilities that include

laboratory spaces, kitchens, and even bathrooms operate under negative pressure. Vapor intrusion may be significantly higher in areas with negative pressure compared to areas operating under typical HVAC conditions.

## **22. HVAC is Problematic as a Remedy.**

**22.1 HVAC is Not an Implementable Alternative Because it Puts an Undue Burden and an Unachievable Remedy on Owners and Tenants.** The RPs caused the contamination at the MEW site, which is the source of vapor intrusion; the RPs should be implementing the remedy. Specific examples that highlight inadequacy of the evaluation of the HVAC alternative are as follows:

- At least one development with two buildings at the MEW Site contains 30 independent HVAC systems in the building that are the responsibility of 30 individual tenants. Under the Proposed Plan, the owner of a property with 30 independent HVAC systems, each operated by a separate tenant, would be responsible for verifying operation of these HVAC systems, which would be logistically impossible.
- The cost estimates for the HVAC alternatives do not consider the cost of running the HVAC; they only include capital costs for a one-time modification of the system. Nor do they include the costs for accelerated depreciation and early replacement if HVAC has to be run all the time. If HVAC is considered by EPA to be an “engineered remedy,” then the cost to operate the HVAC should be part of the cost of the alternative.
- The cost estimates for the HVAC remedy do not include periodic maintenance costs such as sealing cracks and other conduits given that the efficiency of the HVAC remedy may change with time as a building ages or as new tenant improvements are installed.
- The HVAC remedy does not indicate the amount or type of verification that would be required to confirm that the system is operating effectively.
- The HVAC remedy does not consider the effect of additional greenhouse gases released as a result of running systems beyond standard operating hours.

**22.2 The FS Did Not Include Adequate Costs for Sampling.** Whether the remedy is an HVAC remedy or a sub-slab remedy, the monitoring cost estimates included in the Proposed Plan and the FS are insufficient to adequately verify that the remedy is effective. More specifically, the cost estimates in the FS assume \$400 per sampling event per building. The analytical cost for a single indoor air sample using EPA Method TO-15 SIM (to get adequate reporting limits) is approximately \$350 per sample, not including the cost to perform the sampling. One sample per event per building cannot be considered

adequate to verify that a remedy is operating effectively, especially if HVAC is the remedy.

- 23. The Proposed Plan does Not Provide the Basis for the 100 Micrograms per Liter (ug/L) Concentration Trigger in Groundwater.** The Proposed Plan's tiering system distinguishes between buildings that overlie lower VOC concentrations in groundwater (less than 100 ug/L TCE or PCE in commercial areas) and higher VOC concentrations in groundwater (greater than 100 ug/L TCE or PCE in commercial areas). However, no technical basis is provided in the Proposed Plan or the FS to support the 100 ug/L concentration trigger.
- 24. No Criteria are Provided to Demonstrate "No Action Required."** As discussed in Comment 16.4, the Proposed Plan does not provide guidance on the types of information that may be required under the "multiple lines of evidence" test to classify a site as "no action required." In addition to the types of information, EPA should provide criteria that can be used to indicate that there is no longer the potential for vapor intrusion.

Tab 1

**MCO's PROPOSED ALTERNATIVE  
TO EPA'S PROPOSED PLAN FOR THE VAPOR INTRUSION PATHWAY AT MEW**

**Protect Health.** MCO's principal concern is protecting the health of occupants of buildings located in the MEW area. Decisions about vapor intrusion should be conservative and based on sound science. They should also be consistent with the policy and procedures applied at other sites, including others in Silicon Valley with similar vapor intrusion issues.

**RPs Must Remain Responsible for the Remedy.** The MEW responsible parties (RPs) have conducted the cleanup to date in a responsible fashion. They should continue to identify, perform, manage, verify and pay for necessary vapor intrusion mitigation measures. MCO supports the use of traditional CERCLA mechanisms (ROD amendment/consent decree/administrative order) to assure enforceability. An ordinance is not necessary and would be problematic.

**Conventional Measures.** The RPs have indicated their willingness to cooperate and implement a vapor intrusion remedy at the MEW site. MCO supports the use of voluntary measures, contracts for access, and formalizing the City of Mountain View's development permit process to assure the implementation and ongoing effectiveness of these remedies. These conventional measures used at many other contaminated sites have been very successful to date in commercial areas of MEW. With additional education and outreach, they can be effectively deployed throughout MEW. The selected approach must also avoid damage to property values and stigma that might unfairly impair the value of commercial properties or their marketability. It must also be prompt and within a defined period that does not hold up commercial transactions such leases, financing and redevelopment.

**Preference for Engineered Remedies.** EPA, in addressing vapor intrusion, should strongly favor engineered remedies (such as subslab depressurization systems or active vapor venting systems) because they can be installed, operated, maintained, and monitored/verified directly by the RPs. The operation and maintenance of a remedy should not rest with commercial property owners and tenants who did not cause the contamination and who should not have to shoulder responsibility for cleanup of a Superfund site. We support EPA's August 20, 2009 addendum to the Proposed Plan, which states "the preferred alternative will be to look at a range of sub-slab Options," and "the remedy would still allow for use of a building's HVAC system for existing buildings *if the property/building owner agrees . . .*"

**Liability Cannot Be Shifted to Owners and Tenants.** It is unfair to require building owners, tenants or the city to take on responsibility for implementing remedies for contamination they did not cause and which they lack expertise and resources to manage. Liability should *not* be shifted (either expressly or impliedly) to commercial owners, tenants or the City of Mountain View for selection, implementation or ongoing verification of measures to protect against vapor intrusion. A ROD amendment, or any EPA supplemental remedial document, that states *what* is required to be implemented for vapor intrusion mitigation but does not specify *who* is to do it may wrongfully impose the responsibility for vapor intrusion measures on the commercial owners, tenants or city officials.

**Tailored Remedies.** What mitigation measures are appropriate will vary widely from building to building, depending on the type of construction and the level of underlying contamination. 'One-size-fits-all' is not an acceptable approach. Instead technically competent decisions must be made at each building based on actual conditions and established data. MCO advocates confirmation that vapor intrusion is being managed appropriately, including by periodic monitoring of actual indoor air conditions.

**ESSENTIAL ELEMENTS OF MCO'S PROPOSED ALTERNATIVE**

- **ROD Amendment** – The starting point is an amendment to the ROD, enforceable against the RPs via the current consent decree and/or administrative order on consent.
- **Responsible Party Obligations** – The ROD Amendment would compel the RPs to:
  - **Survey** each occupied building as a baseline before implementing remedial measures
  - **Test indoor air** in each occupied building (during normal business hours and after hours):
    - As a **baseline**, before selecting mitigation measures for that building, and
    - **Annually** on an ongoing basis
  - **Identify** the appropriate, *building-specific* remedy (mitigation measures) based on the ROD decision matrix, distinguishing between *existing buildings* and *new buildings*
  - Obtain **EPA approval** of mitigation measure
  - **Select, implement and pay for** the appropriate, building-specific mitigation measures in new and existing buildings
    - There is a very strong preference for engineered remedies that can be installed and managed by RPs
    - HVAC should be a remedy only if an owner agrees in writing
  - Prepare an **Operation & Management (O&M) plan** for each building (or cluster of similar buildings)
  - **Inspect, verify and monitor** annually
  - **Certify** that property is suitable for occupancy annually to owners, tenants and EPA
  - Use a commercial service (e.g. **Terradex**) to regularly identify:
    - Change in ownership
    - Excavation clearance
    - Demolition/construction/building permits
    - Change in land use
  - Contact building owners and arrange for appropriate **modifications**, if any, to the mitigation measures in accordance with the ROD in the event of the above changes.
    - **Note:** *Annual indoor air monitoring, inspection and certification is far more likely to identify and manage changing site conditions and ensure that vapor controls continue to be evaluated regularly and implemented than an ordinance or land use covenants (deed restrictions). Deed restrictions once recorded are not typically referred to and thus are ineffective to assure ongoing implementation of mitigation measures. They may also adversely affect value and may interfere with the ability to obtain or keep financing.*

- **City of Mountain View Obligations**

- Document the existing procedures in the building department to notify permit applicants and RPs that EPA approval must be obtained for new buildings and modifications to existing buildings requiring permits.

- **Owner Obligations**

- **Voluntary Agreements** - On a voluntary basis, RPs would seek to enter into simple agreements with commercial owners, by offering a standard form of agreement contained in the ROD.
- **Standard Agreement** – Most owners would sign a simple, standard agreement. Under the standard agreement, the **owner** would agree to:
  - **Give reasonable access** provided the RP's work does not unduly interfere with normal commercial occupancy and use of the building, and
  - **Notify RPs of and reasonably coordinate with them regarding:**
    - Planned landlord or tenant work involving breaching of the slab so that the RPs can evaluate and take necessary corrective measures.

In exchange, the **RPs** would agree to:

- **Identify, implement, manage and verify vapor intrusion mitigation measures** in accordance with the requirements of the ROD and to certify compliance annually.

**Binding Nature** – Agreement would be binding on successors and assigns of both RPs and owners to assure ongoing access and ability to maintain vapor mitigation measures.

***Note:** Contracts that are binding on successors and assigns are a legally valid, fully effective way to make vapor intrusion mitigation measures enforceable on an ongoing basis. They are preferable to an ordinance, which is subject to change and which might shift the duty to implement or verify vapor mitigation measures to owners, tenants or the City. Recording access agreement, or notices of the agreements, with the County Recorder is an effective legal means to ensure that future owners continue to provide the access needed to install and maintain vapor remedies.*

- **NOTE:** 70% or more of the commercial buildings in the MEW area have already been made available to RPs for testing and mitigation, with future access provided on an ongoing basis. With modest education and outreach, other property owners are very likely to follow suit.

- **ROD Contingencies for Access Problems** – Where an owner won't grant access, the RPs would enlist assistance of City of Mountain View and EPA in tiered approach, using, in the following order:
  - Education/Outreach
  - Letters from agencies
  - Meetings
  - Mediation

**ANNUAL INSPECTION AND CERTIFICATION  
COMMERCIAL BUILDINGS  
MEW VAPOR INTRUSION**

**Today's Date:** \_\_\_\_\_ **Date of Last Inspection:** \_\_\_\_\_  
**Property Address:** \_\_\_\_\_  
**Owner:** \_\_\_\_\_  
**Tenant(s):** \_\_\_\_\_  
**Responsible Party:** \_\_\_\_\_

**Remedy Selected:**  Sub-slab Passive Ventilation & Vapor Barrier + Monitor  
 Sub-slab Depressurization + Monitor  
 Sub-membrane Depressurization + Monitor  
 Sub-slab Pressurization & Vapor Barrier + Monitor  
 HVAC + Monitor  
 Monitor Only

**O&M Plan:**  Yes  No **Date Prepared:** \_\_\_\_\_ **Date Updated:** \_\_\_\_\_

**Annual Inspection Results:** \_\_\_\_\_

**Demolition or construction requiring breach of slab since last inspection:**  Yes  No  
If yes, explain: \_\_\_\_\_

**Verification of Remedy:** \_\_\_\_\_

**Results of Annual Air Monitoring:**

Normal Hours:  < 5 ug/m<sup>3</sup> with no HVAC  < 5 ug/m<sup>3</sup> with HVAC  > 5 ug/m<sup>3</sup> with HVAC  
After Hours:  < 5 ug/m<sup>3</sup> with no HVAC  < 5 ug/m<sup>3</sup> with HVAC  > 5 ug/m<sup>3</sup> with HVAC

**Additional Comments:** \_\_\_\_\_

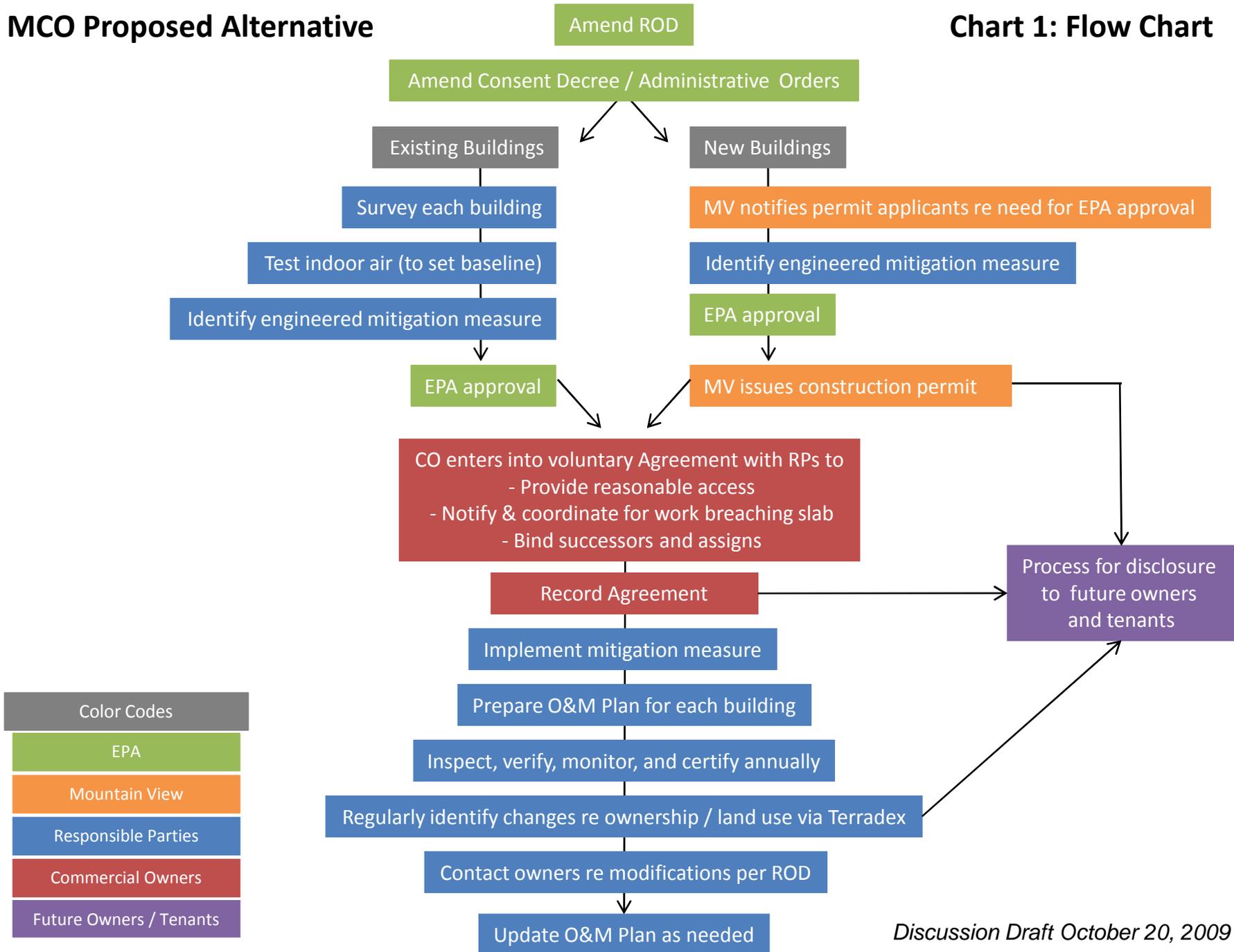
**CERTIFICATION**

I, \_\_\_\_\_ [name], on behalf of \_\_\_\_\_ [Responsible Party], certify that I have done an annual evaluation of vapor intrusion issues at this property and I certify that the building has been inspected and found suitable for occupancy in accordance with the requirements of EPA ROD for occupants during normal business hours and after hours.

Date: \_\_\_\_\_ Signed: \_\_\_\_\_  
Company/Title: \_\_\_\_\_

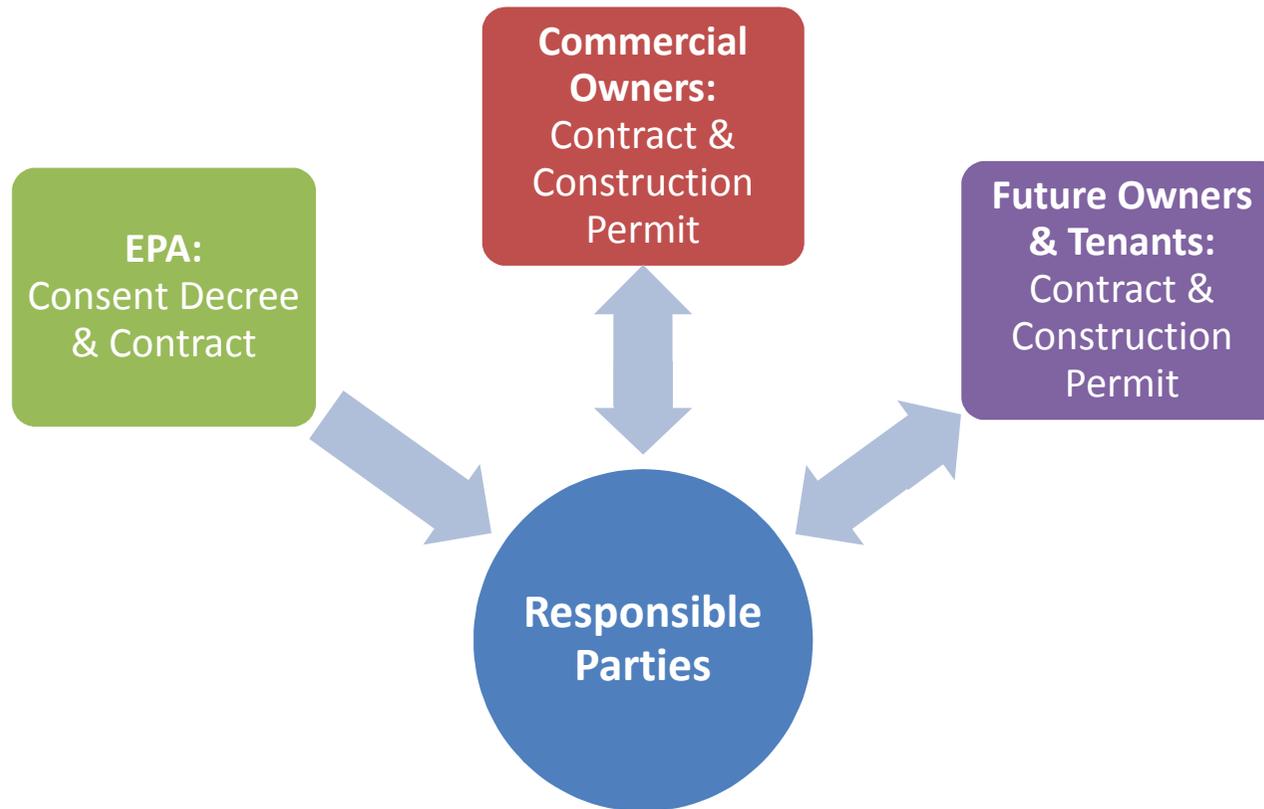
# MCO Proposed Alternative

# Chart 1: Flow Chart



## MCO Proposed Alternative

## Chart 2: Enforceability

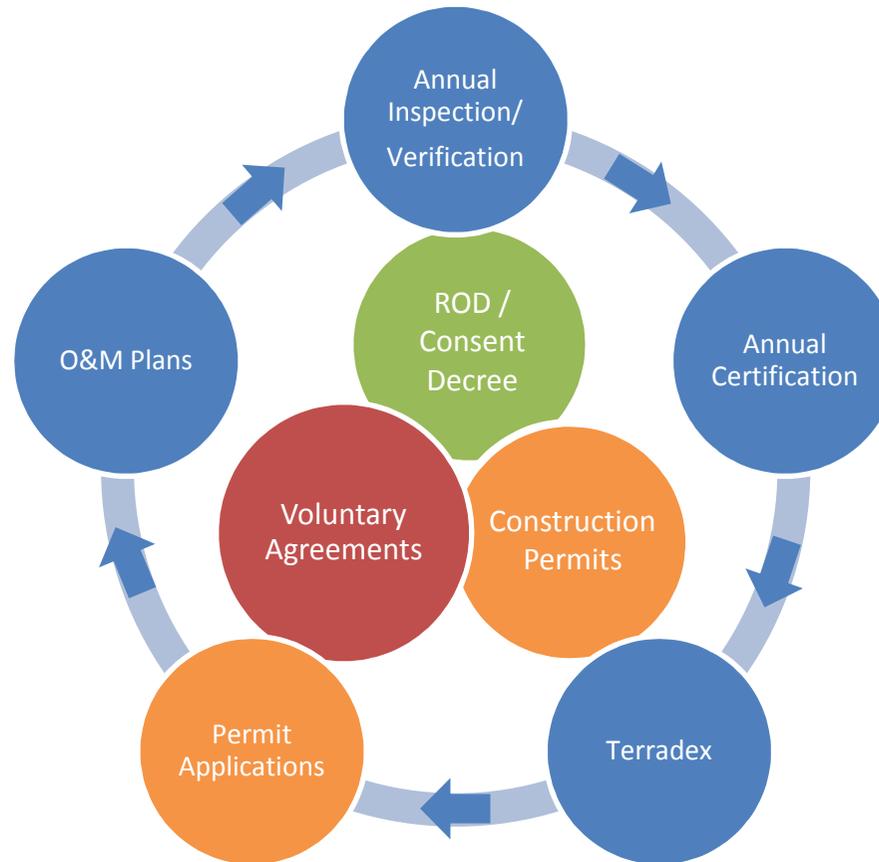


The vapor intrusion mitigation remedies and access are enforceable:

- Against the **RPs** via CERCLA consent decree and administrative orders and contracts with commercial owners
- Against **commercial owners** via contracts and construction permits
- Against **future owners and tenants** via contracts and construction permits
  - Contracts will be recorded and be binding on successors and assigns

## MCO Proposed Alternative

## Chart 3: Ongoing Implementation and Disclosure



**Future owners and tenants** will be notified of the need for vapor mitigation measures via:

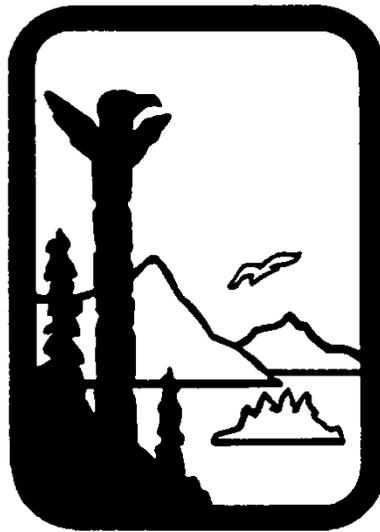
- Contract between the current **commercial owners** and the **responsible parties**
  - Recorded and binding on successors and assigns
- Terradex notices of changes in land ownership or use (monitored by **RPs**)
- **Mountain View's** building permit procedures

Step	Task	Party Responsible	Protection of Human Health and the Environment	Implementability: Disclosure to Future Owners / Tenants	Implementability: Enforceability	Long-term Effectiveness and Permanence: Ongoing Implementation / Management of Change
1	Survey each building	RPs	x			x
2	Baseline indoor air tests	RPs	x			x
3	Identify appropriate building-specific mitigation measure (remedy) per ROD	RPs	x			x
4	Obtain EPA approval of mitigation measure	RPs, EPA	x		x	x
5	Enter into voluntary agreement to: - Provide reasonable access - Notify & coordinate with RPs re work involving slab breach - Bind successors and assigns	COs, RPs	x	x	x	x
6	Record agreement with County Recorder	COs		x	x	x
7	Implement and pay for mitigation measure	RPs	x		x	x
8	Prepare O&M Plan for each building	RPs	x		x	x
9	Inspect, verify and monitor annually	RPs	x		x	x
10	Certify suitability for occupancy annually - To owners, tenants and EPA	RPs	x		x	x
11	Regularly identify (via Terradex): - Change in ownership - Excavation clearance - Demolition/construction/building permits - Change in land use	RPs	x	x		x
12	Contact owners to arrange for modifications per ROD if necessary under Step 11.	RPs	x	x		x
13	Document procedures to notify permit applicants re need for EPA approval	MV	x	x		x
14	EPA approval of mitigation measures	EPA	x		x	x
15	Issue permits following EPA approval	MV	x	x	x	x
15	Overcome access problems by enlisting EPA and MV's help through a tiered approach involving - Education / outreach - Letters from agencies - Meetings - Mediation	RPs, EPA, MV			x	x

Tab 2

**DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION**

**Division of Spill Prevention and Response  
Contaminated Sites Program**



**DRAFT VAPOR INTRUSION GUIDANCE FOR  
CONTAMINATED SITES**

**July 2009**

**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
BUILDING INVENTORY AND INDOOR AIR SAMPLING QUESTIONNAIRE**

This form should be prepared by a person familiar with indoor air assessments with assistance from a person knowledgeable about the building. Complete this form for each building in which interior samples (e.g., indoor air, crawl space, or subslab soil gas samples) will be collected. Section I of this form should be used to assist in choosing an investigative strategy during workplan development. Section II should be used to assist in identification of complicating factors during a presampling building walkthrough.

Preparer's Name \_\_\_\_\_ Date/Time Prepared \_\_\_\_\_

Preparer's Affiliation \_\_\_\_\_ Phone No. \_\_\_\_\_

Purpose of Investigation \_\_\_\_\_

**SECTION I: BUILDING INVENTORY**

**1. OCCUPANT OR BUILDING PERSONNEL:**

**Interviewed: Y / N**

Last Name \_\_\_\_\_ First Name \_\_\_\_\_

Address \_\_\_\_\_

County \_\_\_\_\_

Phone No. \_\_\_\_\_

Number of Occupants/persons at this location \_\_\_\_\_ Age of Occupants \_\_\_\_\_

**2. OWNER or LANDLORD: (Check if same as occupant \_\_\_\_)**

**Interviewed: Y / N**

Last Name \_\_\_\_\_ First Name \_\_\_\_\_

Address \_\_\_\_\_

County \_\_\_\_\_

Phone No. \_\_\_\_\_

**3. BUILDING CHARACTERISTICS**

**Type of Building:** (Circle appropriate response)

Residential  
Industrial

School  
Church

Commercial/Multi-use  
Other \_\_\_\_\_

**If the property is residential, type?** (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other _____

**If multiple units, how many?** \_\_\_\_\_

**If the property is commercial, type?**

Business Types(s) \_\_\_\_\_

Does it include residences (i.e., multi-use)? Y / N                      If yes, how many? \_\_\_\_\_

**Other characteristics:**

Number of floors \_\_\_\_\_                      Building age \_\_\_\_\_

Is the building insulated? Y / N                      How air tight? Tight / Average / Not Tight

**Have occupants noticed chemical odors in the building?**                      Y / N

If yes, please describe: \_\_\_\_\_  
\_\_\_\_\_

**4. AIRFLOW**

**Use air current tubes, tracer smoke, or knowledge about the building to evaluate airflow patterns and qualitatively describe:**

Airflow between floors  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Airflow in building near suspected source  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Outdoor air infiltration  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Infiltration into air ducts  
\_\_\_\_\_  
\_\_\_\_\_

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**5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)**

- a. Above grade construction:** wood frame    log    concrete    brick  
constructed on pilings with enclosed air space    constructed on pilings with open air space
- b. Basement type:** full    crawlspace    slab-on-grade    other \_\_\_\_\_
- c. Basement floor:** concrete    dirt    stone    other \_\_\_\_\_
- d. Basement floor:** unsealed    sealed    sealed with \_\_\_\_\_
- e. Foundation walls:** poured    block    stone    other \_\_\_\_\_
- f. Foundation walls:** unsealed    sealed    sealed with \_\_\_\_\_
- g. The basement is:** wet    damp    dry
- h. The basement is:** finished    unfinished    partially finished
- i. Sump present?** Y / N
- j. Water in sump?** Y / N / not applicable

**Basement/Lowest level depth below grade** \_\_\_\_\_ (feet)

**Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)**

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**6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)**

**Type of heating system(s) used in this building:** (Circle all that apply – not primary)

- |                     |                  |                     |
|---------------------|------------------|---------------------|
| Hot air circulation | Heat pump        | Hot water baseboard |
| Space Heaters       | Stream radiation | Radiant floor       |
| Electric baseboard  | Wood stove       | Outdoor wood boiler |
|                     |                  | Other _____         |

**The primary type of fuel used is:**

- |             |          |          |
|-------------|----------|----------|
| Natural Gas | Fuel Oil | Kerosene |
| Electric    | Propane  | Solar    |
| Wood        | Coal     |          |

**Domestic hot water tank fueled by** \_\_\_\_\_

**Boiler/furnace located in:**                      Basement                      Outdoors                      Main Floor                      Other \_\_\_\_\_

**Do any of the heating appliances have cold-air intakes?** Y / N

**Type of air conditioning or ventilation used in this building:**

- |             |              |              |      |
|-------------|--------------|--------------|------|
| Central Air | Window units | Open Windows | None |
|-------------|--------------|--------------|------|

Commercial HVAC      Heat-recovery system      Passive air system

**Are there air distribution ducts present?**                      Y / N

**Describe the ventilation system in the building, its condition where visible, and the tightness of duct joints. Indicate the locations of air supply and exhaust points on the floor plan.**

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**Is there a radon mitigation system for the building/structure?** Y / N Date of Installation \_\_\_\_\_

**Is the system active or passive?**              Active/Passive

**7. OCCUPANCY**

**Is basement/lowest level occupied?**      Full-time              Occasionally              Seldom      Almost Never

**Level**              **General Use of Each Floor (e.g. family room, bedroom, laundry, workshop, storage)**

Basement      \_\_\_\_\_

1<sup>st</sup> Floor      \_\_\_\_\_

2<sup>nd</sup> Floor      \_\_\_\_\_

3<sup>rd</sup> Floor      \_\_\_\_\_

**8. WATER AND SEWAGE**

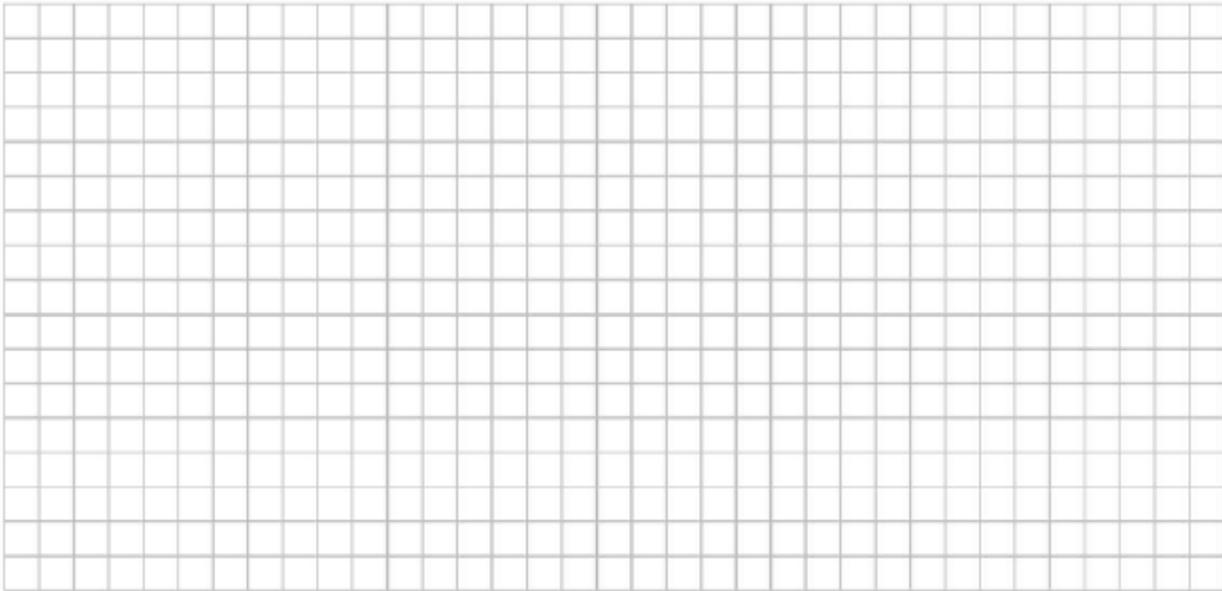
**Water Supply:**      Public Water      Drilled Well      Driven Well      Dug Well      Other \_\_\_\_\_

**Sewage Disposal:**      Public Sewer      Septic Tank      Leach Field      Dry Well      Other \_\_\_\_\_

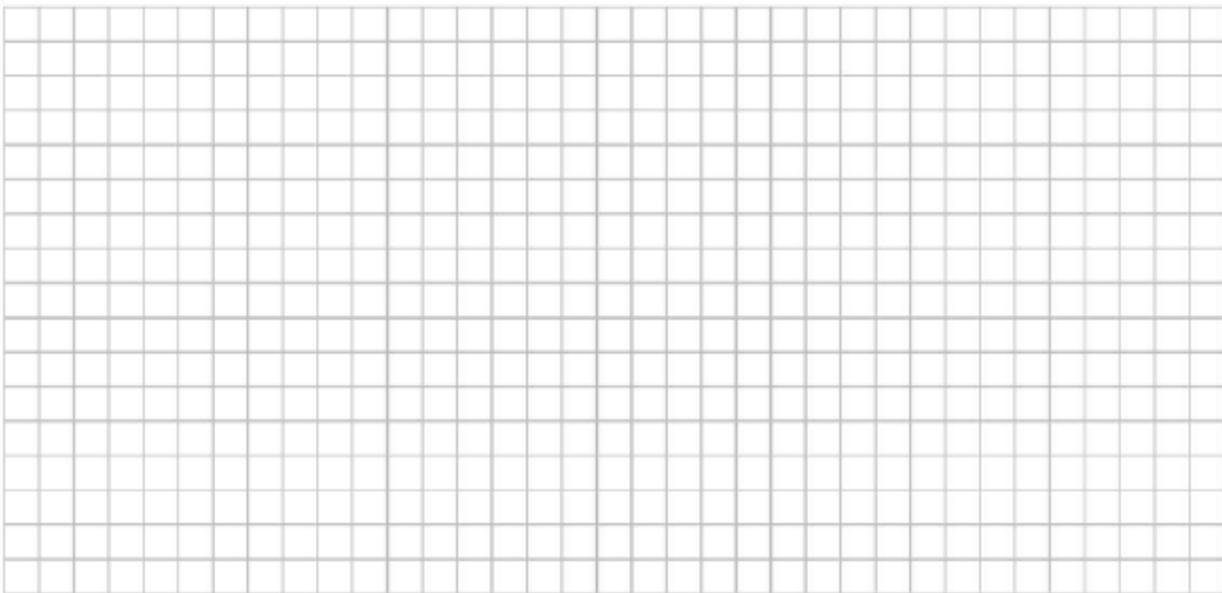
**9. FLOOR PLANS**

**Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.**

**Basement:**



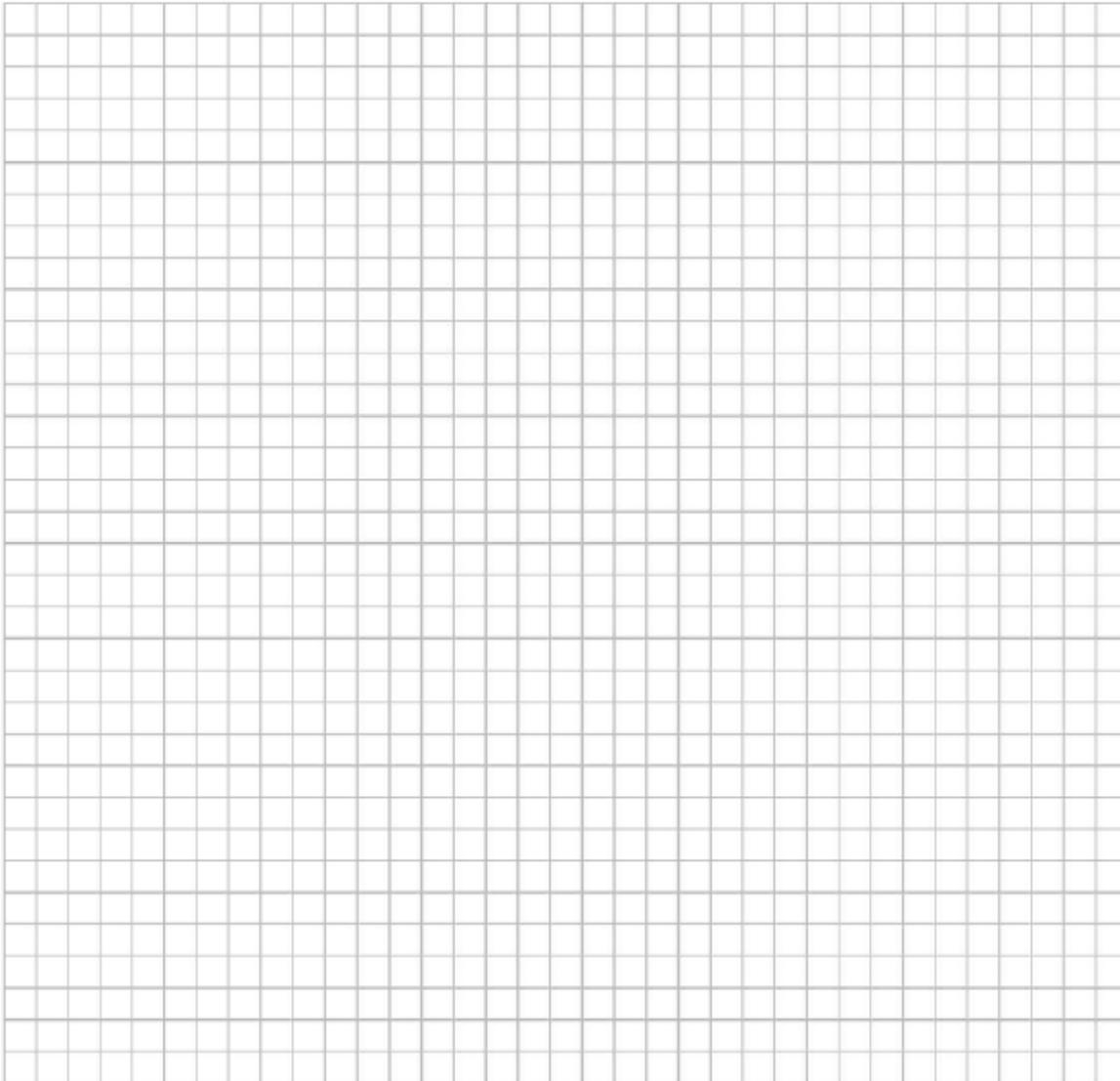
**First Floor:**



**10. OUTDOOR PLOT**

**Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.**

**Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.**



## **SECTION II: INDOOR AIR SAMPLING QUESTIONNAIRE**

This section should be completed during a presampling walkthrough. If indoor air sources of COCs are identified and removed, consider ventilating the building prior to sampling. However, ventilation and heating systems should be operating normally for 24 hours prior to sampling.

### **a) 1. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY**

- Is there an attached garage?** Y / N
- Does the garage have a separate heating unit?** Y / N / NA
- Are petroleum-powered machines or vehicles stored in the garage** (e.g., lawnmower, ATV, car) Y / N / NA  
Please specify \_\_\_\_\_
- Has the building ever had a fire?** Y / N When? \_\_\_\_\_
- Is a kerosene or unvented gas space heater present?** Y / N Where? \_\_\_\_\_
- Is there a workshop or hobby/craft area?** Y / N Where & Type \_\_\_\_\_
- Is there smoking in the building?** Y / N How frequently? \_\_\_\_\_
- Has painting/staining been done in the last 6 months?** Y / N Where & When? \_\_\_\_\_
- Is there new carpet, drapes or other textiles?** Y / N Where & When? \_\_\_\_\_
- Is there a kitchen exhaust fan?** Y / N If yes, where vented? \_\_\_\_\_
- Is there a bathroom exhaust fan?** Y / N If yes, where vented? \_\_\_\_\_
- Is there a clothes dryer?** Y / N If yes, is it vented outside? Y / N
- Are cleaning products, cosmetic products, or pesticides used that could interfere with indoor air sampling?** Y / N  
If yes, please describe \_\_\_\_\_
- 
- 

**Do any of the building occupants use solvents at work?** Y / N

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? \_\_\_\_\_

If yes, are their clothes washed at work? Y / N

**Do any of the building occupants regularly use or work at a dry-cleaning service?** (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No

Yes, use dry-cleaning infrequently (monthly or less) Unknown

Yes, work at a dry-cleaning services

**2. PRODUCT INVENTORY FORM** (For use during building walkthrough)

**Make & Model of field instrument used** \_\_\_\_\_

**List specific products found in the residence that have the potential to affect indoor air quality:**

Location	Product Description	Site (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y/N

\* Describe the condition of the product containers **as Unopened (UO), Used (U), or Deteriorated (D)**  
\*\* Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

This form modified from:  
ITRC (Interstate Technology & Regulatory Council). 2007. *Vapor Intrusion Pathway: A Practical Guideline*. VI-1. Washington, D.C.: Interstate Technology & Regulatory Council, Vapor Intrusion Team. [www.itrcweb.org](http://www.itrcweb.org).

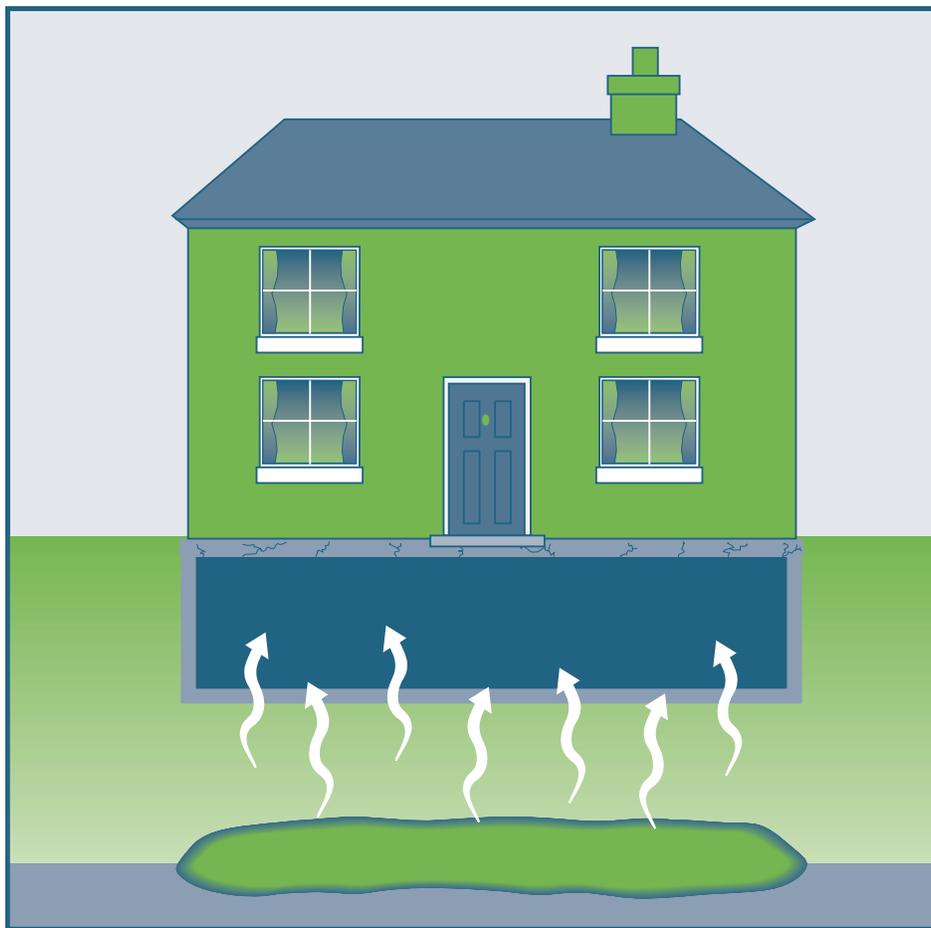
The Alaska Department of Environmental Conservation's Contaminated Sites Program protects human health and the environment by managing the cleanup of contaminated soil and groundwater in Alaska. For more information, please contact our staff at the Contaminated Site program closest to you:  
Juneau: 907-465-5390 / Anchorage: 907-269-7503  
Fairbanks: 907-451-2153 / Kenai: 907-262-5210

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# Technical and Regulatory Guidance

## Vapor Intrusion Pathway: A Practical Guideline



January 2007

Prepared by  
The Interstate Technology & Regulatory Council  
Vapor Intrusion Team

## **APPENDIX G**

### **Indoor Air Sampling Questionnaire**

**NEW YORK STATE DEPARTMENT OF HEALTH  
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY  
CENTER FOR ENVIRONMENTAL HEALTH**

This form must be completed for each residence involved in indoor air testing.

Preparer's Name \_\_\_\_\_ Date/Time Prepared \_\_\_\_\_

Preparer's Affiliation \_\_\_\_\_ Phone No. \_\_\_\_\_

Purpose of Investigation \_\_\_\_\_

**1. OCCUPANT:**

**Interviewed:** Y / N

Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_

Address: \_\_\_\_\_

County: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Office Phone: \_\_\_\_\_

Number of Occupants/persons at this location \_\_\_\_\_ Age of Occupants \_\_\_\_\_

**2. OWNER OR LANDLORD: (Check if same as occupant \_\_\_)**

**Interviewed:** Y / N

Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_

Address: \_\_\_\_\_

County: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Office Phone: \_\_\_\_\_

**3. BUILDING CHARACTERISTICS**

**Type of Building:** (Circle appropriate response)

Residential  
Industrial

School  
Church

Commercial/Multi-use  
Other: \_\_\_\_\_

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: _____

If multiple units, how many? \_\_\_\_\_

If the property is commercial, type?

Business Type(s) \_\_\_\_\_

Does it include residences (i.e., multi-use)? Y / N      If yes, how many? \_\_\_\_\_

Other characteristics:

Number of floors \_\_\_\_\_      Building age \_\_\_\_\_

Is the building insulated? Y / N      How air tight? Tight / Average / Not Tight

#### 4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

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Airflow near source

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Outdoor air infiltration

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Infiltration into air ducts

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**5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)**

- a. Above grade construction:    wood frame    concrete    stone    brick
- b. Basement type:                    full            crawlspace    slab    other \_\_\_\_\_
- c. Basement floor:                    concrete    dirt    stone    other \_\_\_\_\_
- d. Basement floor:                    uncovered    covered    covered with \_\_\_\_\_
- e. Concrete floor:                    unsealed    sealed    sealed with \_\_\_\_\_
- f. Foundation walls:                  poured    block    stone    other \_\_\_\_\_
- g. Foundation walls:                  unsealed    sealed    sealed with \_\_\_\_\_
- h. The basement is:                    wet            damp    dry    moldy
- i. The basement is:                    finished    unfinished    partially finished
- j. Sump present?                        Y / N
- k. Water in sump?                      Y / N / not applicable

Basement/Lowest level depth below grade: \_\_\_\_\_ (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

---



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**6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)**

Type of heating system(s) used in this building: (circle all that apply – note primary)

- |                     |                  |                     |             |
|---------------------|------------------|---------------------|-------------|
| Hot air circulation | Heat pump        | Hot water baseboard |             |
| Space Heaters       | Stream radiation | Radiant floor       |             |
| Electric baseboard  | Wood stove       | Outdoor wood boiler | Other _____ |

The primary type of fuel used is:

- |             |          |          |
|-------------|----------|----------|
| Natural Gas | Fuel Oil | Kerosene |
| Electric    | Propane  | Solar    |
| Wood        | Coal     |          |

Domestic hot water tank fueled by: \_\_\_\_\_

Boiler/furnace located in:    Basement    Outdoors    Main Floor    Other \_\_\_\_\_

Air conditioning:                    Central Air    Window units    Open Windows    None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

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### 7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)

Basement	_____
1 <sup>st</sup> Floor	_____
2 <sup>nd</sup> Floor	_____
3 <sup>rd</sup> Floor	_____
4 <sup>th</sup> Floor	_____

### 8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- a. Is there an attached garage? Y / N
- b. Does the garage have a separate heating unit? Y / N / NA
- c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA  
Please specify \_\_\_\_\_
- d. Has the building ever had a fire? Y / N When? \_\_\_\_\_
- e. Is a kerosene or unvented gas space heater present? Y / N Where? \_\_\_\_\_
- f. Is there a workshop or hobby/craft area? Y / N Where & Type? \_\_\_\_\_
- g. Is there smoking in the building? Y / N How frequently? \_\_\_\_\_
- h. Have cleaning products been used recently? Y / N When & Type? \_\_\_\_\_
- i. Have cosmetic products been used recently? Y / N When & Type? \_\_\_\_\_

- j. Has painting/staining been done in the last 6 months? Y / N Where & When? \_\_\_\_\_
- k. Is there new carpet, drapes or other textiles? Y / N Where & When? \_\_\_\_\_
- l. Have air fresheners been used recently? Y / N When & Type? \_\_\_\_\_
- m. Is there a kitchen exhaust fan? Y / N If yes, where vented? \_\_\_\_\_
- n. Is there a bathroom exhaust fan? Y / N If yes, where vented? \_\_\_\_\_
- o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N
- p. Has there been a pesticide application? Y / N When & Type? \_\_\_\_\_

Are there odors in the building? Y / N  
 If yes, please describe: \_\_\_\_\_

Do any of the building occupants use solvents at work? Y / N  
 (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? \_\_\_\_\_

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

- |  |         |
|--|---------|
| Yes, use dry-cleaning regularly (weekly)             | No      |
| Yes, use dry-cleaning infrequently (monthly or less) | Unknown |
| Yes, work at a dry-cleaning service                  |         |

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: \_\_\_\_\_  
 Is the system active or passive? Active/Passive

**9. WATER AND SEWAGE**

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: \_\_\_\_\_  
 Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: \_\_\_\_\_

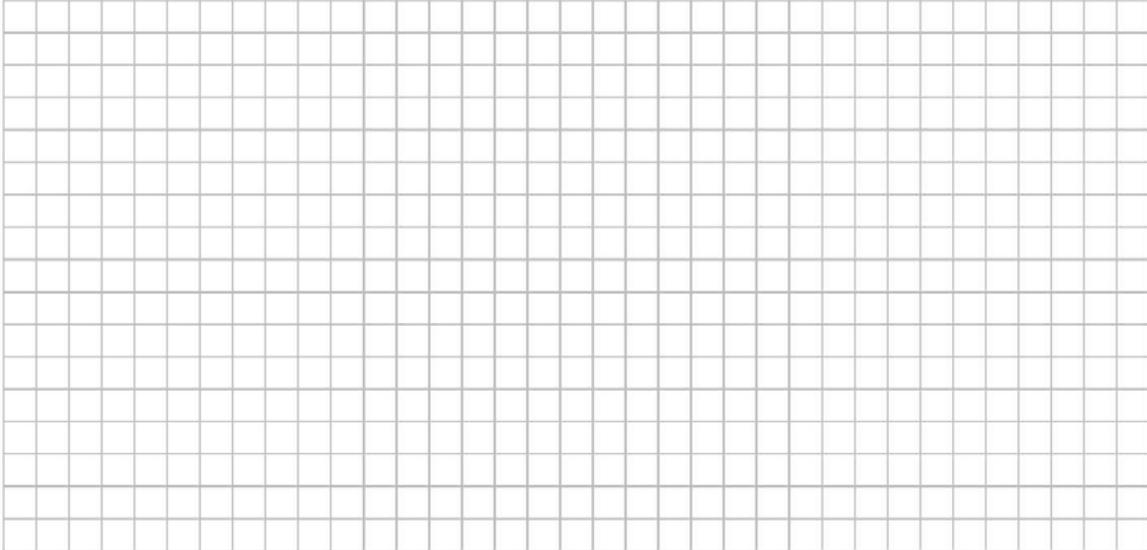
**10. RELOCATION INFORMATION (for oil spill residential emergency)**

- a. Provide reasons why relocation is recommended: \_\_\_\_\_
- b. Residents choose to: remain in home    relocate to friends/family    relocate to hotel/motel
- c. Responsibility for costs associated with reimbursement explained? Y / N
- d. Relocation package provided and explained to residents? Y / N

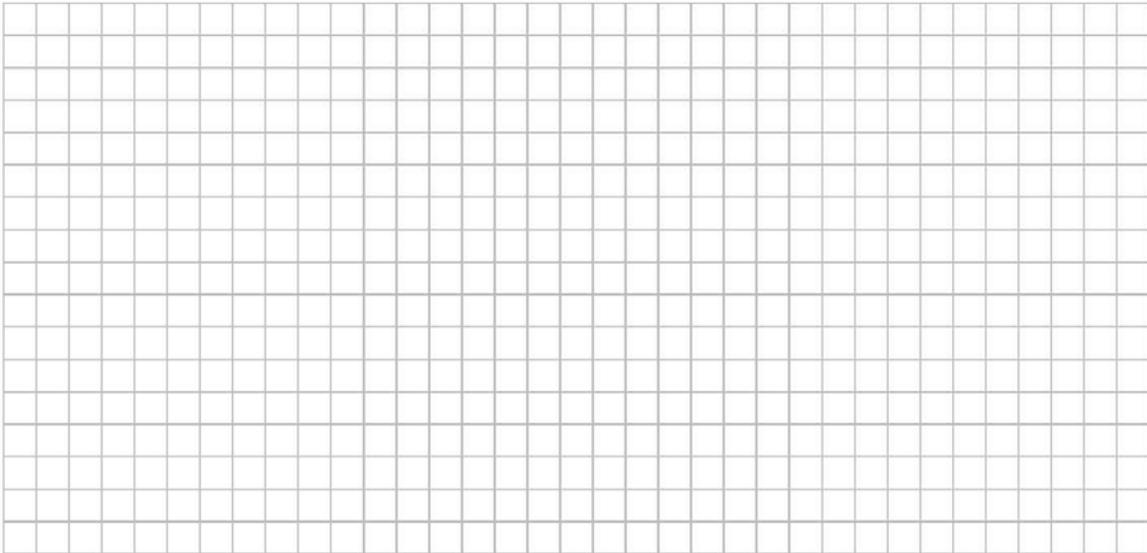
**11. FLOOR PLANS**

**Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.**

**Basement:**



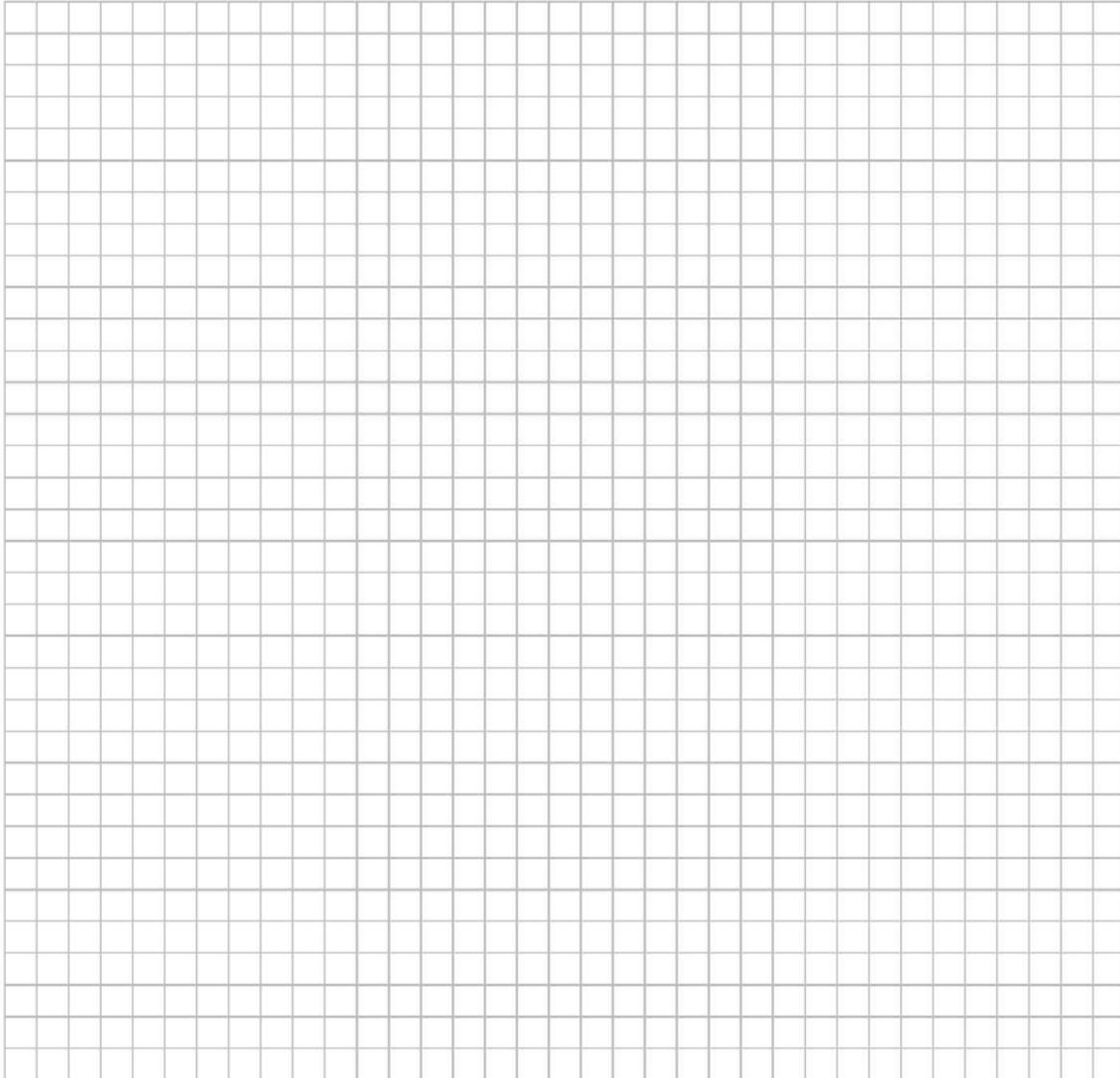
**First Floor:**



**12. OUTDOOR PLOT**

**Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.**

**Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.**



**13. PRODUCT INVENTORY FORM**

Make & Model of field instrument used: \_\_\_\_\_

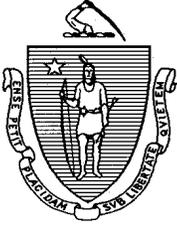
List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y/N

\* Describe the condition of the product containers as Unopened (UO), Used (U), or Deteriorated (D)

\*\* Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

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COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**

ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

JANE SWIFT  
Governor

BOB DURAND  
Secretary

LAUREN A. LISS  
Commissioner

## **INDOOR AIR SAMPLING AND EVALUATION GUIDE**

**WSC POLICY #02-430**

**Office of Research and Standards  
Department of Environmental Protection  
1 Winter Street  
Boston, MA 02108**

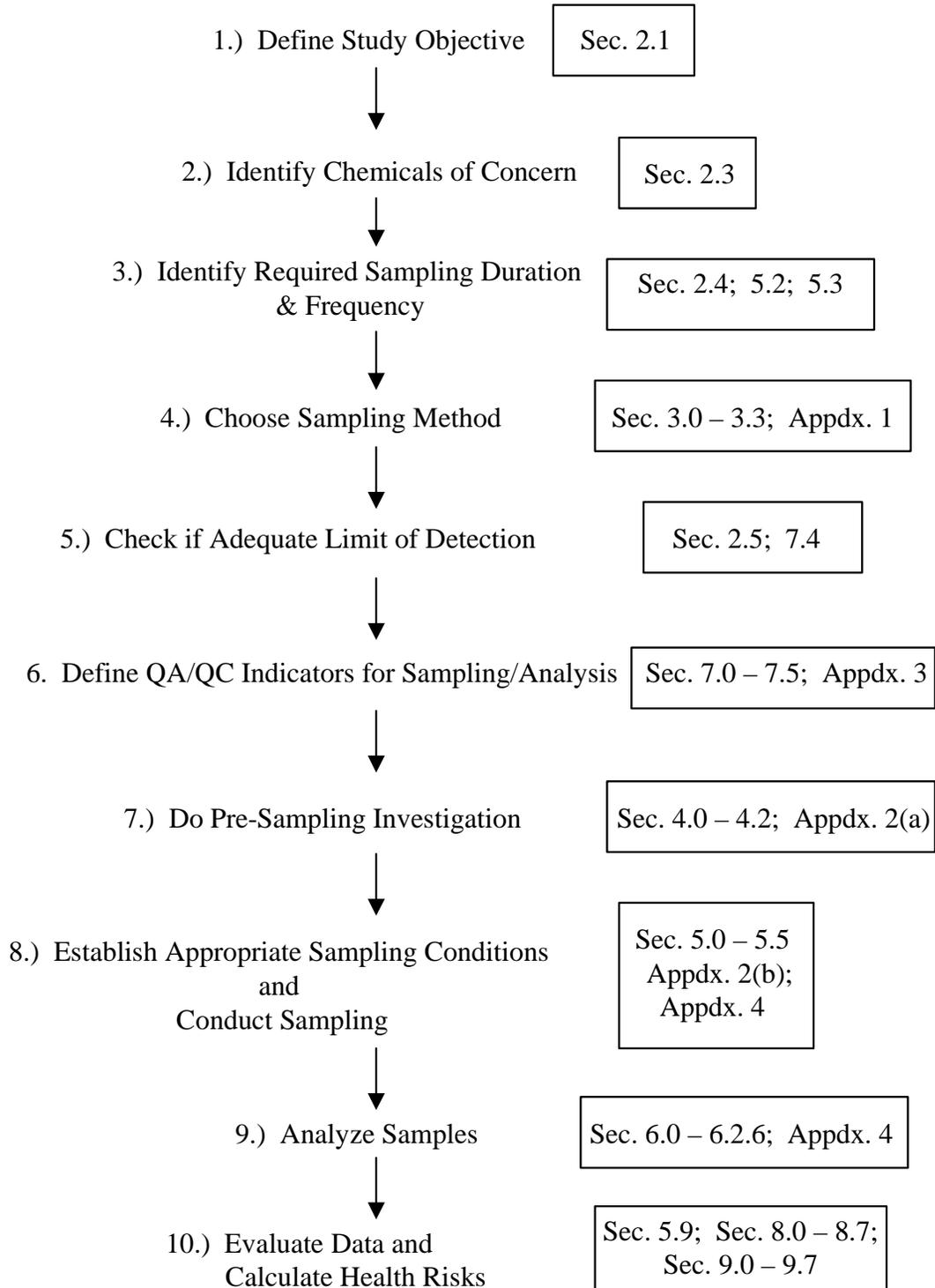
**April, 2002**

**This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.**

DEP on the World Wide Web: <http://www.mass.gov/dep>

 Printed on Recycled Paper

**Figure 1. Indoor Air Study Approach**



**INDOOR AIR SAMPLING STUDY CHECKLIST**

**1.) DEFINE STUDY OBJECTIVE(S). —▶ See Sec. 2.1**

A.) Screening Study

- to determine if indoor air (or associated groundwater and/or soil gas) is contaminated;
- to confirm the presence of contaminants;
- to trace contaminants to the source;
- to compile a preliminary list of contaminants at a site;

B.) Refined Sampling Study

- to quantify concentrations of contaminants in indoor air over acute, subchronic and/or chronic periods of time;
- to detect concentrations of indoor air contaminants at levels which may be health-relevant;

**2.) DEVELOP A LIST OF TARGET COMPOUNDS AND PARAMETERS. —▶ See Sec. 2.3**

- Include:
- compounds which have been found in previous indoor air studies of the building;
  - contaminants found in associated groundwater and/or soil gas;
  - contaminants which have been identified in any screening studies;
  - compounds which are known constituents of the contamination in question (e.g., petroleum);
  - compounds associated with historical uses of the site
  - breakdown products of above compounds

**3.) DETERMINE WHICH EXPOSURE DURATION(S) NEED TO BE EVALUATED. —▶ See Sec. 2.4 and 5.2**

- For evaluation of acute exposures/health effects.....grab samples to 1 hour duration
- for evaluation of subchronic, chronic or lifetime exposures/threshold and/or non-threshold health effects.....samples of 2-24 hour duration; possibly supplemented with longer-term (e.g., 3-week passive) and seasonal sampling (depending on situation and resources)

4.) **CHOOSE SAMPLING METHOD.** —▶ See Sec. 3.0-3.3; Appendix 1

Screening:

- Organic Vapor Analyzer
- Photo-ionization Detector

Refined:

- EPA Toxic Organic (TO) Methods
- EPA Indoor Air (IP) Methods
- MADEP Air-Phase Petroleum Hydrocarbon (APH) Methods

5.) **CHECK THAT THE PRACTICAL QUANTITATION LIMIT IS ADEQUATE TO MEET THE OBJECTIVES OF THE STUDY.**  
—▶ See Sec. 2.5 and 7.4

- Compare the Practical Quantitation Limits (PQLs) for individual compounds to their available toxicity criteria
- Compare the PQLs to literature values representing typical background concentrations of those compounds in indoor air.

6.) **DEFINE QUALITY ASSURANCE/QUALITY CONTROL INDICATORS FOR SAMPLING/ANALYSIS.** —▶ See Sec. 7.0-7.5; Appendix 3

Sampling QA/QC

- Maintain chain of custody records for all samples.
- Include at least one set of collocated samples in the sampling design.
- Include at least one field blank in the study.
- with cartridge sampling, include at least one site where series sampling (i.e., the attachment of two or more cartridges in series) is conducted
- an oversampling strategy is recommended for the passive badge samplers, in which three collocated samplers can be placed at each sampling point.

Analytical QA/QC

- Include at least one instrument blank and one method blank during analysis.
- Include at least one set of duplicate analyses.
- with canister sampling, provide documentation of clean canisters by submitting results of chemical analysis of one representative canister in each batch.
- Include analysis of at least one spiked sample.
- with passive samplers, an oversampling strategy prescribes taking at least three collocated samplers at each sampling location. Two of the three replicate samples can be analyzed initially and the third can be analyzed if the two initial data points differ by more than about 15%.
- Calculate percent recovery data using standard reference material.

7.) **CONDUCT PRE-SAMPLING SURVEY.** —→ See **Sec. 4.0-4.2; Appendix 2(a)**

Check for:

Other Indoor Sources

- any use of sprays, solvents, pesticides, personal products?
- any storage/emissions of paints or other hobby supplies?
- any scented natural products (e.g., Christmas trees, wreaths, potpourri, scented wood, etc.)
- any other scented product (e.g., air fresheners, burning candles, etc.)
- any gasoline and/or fuel storage tanks?
- any tobacco smokers?
- any other combustion sources (e.g., wood stoves, etc.)?
- any freshly dry-cleaned clothing?
- is there a solvent storage area?
- any other pollutant-generating activity occurring in the building?

Building Issues

- any new construction/remodeling/painting?
- any new carpeting or other furnishings?
- what type of foundation: (slab-on-grade) (crawl space) (basement)
- any cracks in the foundation in contact with soil?
- does the building have an attached garage?
- what is the space usage of the basement: (finished) (workshop) (rough)
- is there a forced hot air heating system?

Outdoor Sources

- is the building near any outdoor stationary source(s) (e.g., gas stations, industrial stacks, etc.)?
- is the building near any outdoor mobile source(s) (e.g., idling vehicles, highways, airports, etc.)
- are there any pollutant-generating activities in the vicinity of the building (e.g., lawnmowing, asphaltting, painting, sanding)?

If feasible, an effort should be made before sampling is conducted to remove, to the extent possible, all potential contaminant sources from the indoor environment at least 24 hours prior to sampling.

Material Safety Data Sheets (MSDS) (which must be submitted by industry to the consumer upon request under the Federal Emergency Planning and Community Right To Know Act (EPCRTKA)) can be consulted for additional information on emissions from products.

Sampling should not be conducted until new building products have been given time to off-gas VOCs for a period of at least six months.

All pollutant-generating activities should be suspended for a period of at least 24 hours before sampling is conducted. An effort should also be made to conduct sampling during a period in which outdoor stationary and mobile sources will not be operating or will be operating at a minimum output.

Ventilation

- are windows open/closed?
- any mechanical ventilation system operating in the building (e.g., central air conditioning, air-to-air heat exchangers, bathroom ventilation fan, kitchen range/hood)?
- is the building weatherproofed (e.g., storm windows, energy-efficient windows, insulation) or is it drafty?
- is there any ventilation between sampling zones (e.g., a closed door between cellar and living quarters or open exchange)?

Steps should be taken to simulate typical season-specific ventilation and heating conditions for the building.  
**NOTE:** A worst-case condition may be presented when the building is sealed by closing windows and doors and (in winter) when the heating system is operating.

Meteorology

- a.) what is the inside temperature relative to the outside temperature?
- b.) any recent precipitation changes in the last 12 hours?
- c.) any recent barometric pressure changes in the last 12 hours?
- d.) is the wind speed steady and is it greater than about 5 mph?

**NOTE:** A worst-case condition in terms of meteorology may be presented when the inside temperature is at least 10°F warmer than the outside temperature and the windspeed is steady and greater than about 5 mph. Sampling should generally not be conducted in situations in which there have been significant barometric pressure or precipitation fluctuations in the preceding 12 hours although volatilization of chemicals from groundwater to indoor air is often greatest during the spring when the water table is the highest.

**8.) CONDUCT SAMPLING USING APPROPRIATE SAMPLING CONDITIONS → See Sec. 5.0-5.5; Appendix 2(b);**

- to obtain a representative estimate of building occupants' exposure;
- to obtain a worst-case estimate of contaminant concentration from the source area;
- to establish whether levels are present above a background condition, indicating the existence of a Substantial Release Migration;

Sampling should be timed as scheduling allows to coincide with appropriate meteorological conditions. Ventilation and heating parameters should simulate typical conditions for that building. The sampler should be located in the breathing zone in the center of the room. Samples should be taken on multiple floors in the living area, including the area in which the suspected source emits its contamination (e.g., the basement for groundwater/soil gas contamination). Representative areas should be selected based on high activity use areas and near potential pathways.

- 9.) **CONDUCT ANALYSIS AS PER CHOSEN METHOD.** —▶ See **Sec. 6.0-6.2.6; Appendix 4**
- 10.) **EVALUATE DATA AND CALCULATE HEALTH RISKS.** —▶ See **Sec. 8.0-8.7; Sec. 9.0-9.7**
- Perform a data usability/data validation analysis;
  - Compare data to typical indoor air background concentrations of the chemicals of interest;
  - Evaluate data to determine whether the contaminant situation triggers a Substantial Release Migration and/or a Critical Exposure Pathway;
  - Calculate non-cancer and cancer health risks.

Tab 3

11

First American Title Company  
Recorder No. [REDACTED]

DOCUMENT: [REDACTED]



Titles: 1 / Pages: 14  
Fees 46.00  
Taxes  
Copies  
AMT PAID 46.00

RECORDING REQUESTED BY  
AND  
WHEN RECORDED, RETURN TO:

BRENDA DAVIS  
SANTA CLARA COUNTY RECORDER  
Recorded at the request of  
First American Title Company

RDE # 0:0  
10/08/1997  
8:00 AM

[REDACTED]

DECLARATION OF RESTRICTIONS AND ACCESS AGREEMENT

THIS DECLARATION OF RESTRICTIONS AND ACCESS AGREEMENT (this "Declaration") is made this 8th day of October, 1997, by and between [REDACTED], a corporation ([REDACTED]) and [REDACTED], a limited liability company ("Purchaser").

DEFINITIONS AND RECITALS

A. The following words, when capitalized in this Declaration, shall have the meanings set forth below:

"Agency" shall mean Region IX of the U.S. Environmental Protection Agency ("EPA") and any other governmental agency having jurisdiction over Hazardous Materials at the Property.

"Environmental Laws" shall have the meaning specified below.

"Hazardous Materials" shall mean and include any and all substances, chemicals, wastes, sewage or other materials that are now or hereafter regulated, controlled or prohibited by any local, state or federal law or regulation requiring removal, warning or restrictions on the use, generation, disposal or transportation thereof including, without limitation, (a) any substance defined as a "hazardous substance", "hazardous material", "hazardous waste", "toxic substance", or "air pollutant" in the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. §9601, et seq., the Hazardous Materials Transportation Act, 49 U.S.C. § 1801, et seq., the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §6901, et seq., the Federal Water Pollution Control Act ("FWPCA"), 33 U.S.C. §1251 et seq., the Toxic Substances Control Act ("TSCA") 15 U.S.C. §2601 et seq.; or the Clean Air Act ("CAA"), 42 U.S.C. §7401 et seq., all as amended and amended hereafter; and (b) any hazardous substance, hazardous waste, toxic substance, toxic waste, hazardous material, waste, chemical, or compound described in any other federal, state, or local statute, ordinance, code, rule, regulation, order, decree

or other law now or at any time hereafter in effect regulating, relating to or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous substance, chemical, material, compound or waste. As used herein, the term "Hazardous Materials" also means and includes, without limitation, asbestos; flammable, explosive or radioactive materials; gasoline or gasoline additives; oil; motor oil; waste oil; petroleum (including, without limitation, crude oil or any component thereof); petroleum-based products; paints and solvents; lead; cyanide; DDT; printing inks; acids; pesticides; ammonium compounds; polychlorinated biphenyls; and other regulated chemical products. The statutes, regulations, court and administrative agency decisions and other laws now or at any time hereafter in effect described in clauses (a) and (b) above are herein collectively referred to as "Environmental Laws".

"Indemnity Agreement" shall mean that certain Environmental Indemnification Agreement of even date herewith, by and between [REDACTED] and Purchaser.

"Property" shall mean that certain real property and all improvements located thereon addressed at such real property being more particularly described in Exhibit A attached hereto and made a part hereof.

"Remedial Work" shall mean those investigatory, remedial or other actions that are necessary for [REDACTED] to carry out its obligations under the Indemnity Agreement.

B. Certain Hazardous Materials have been discovered in the soil and groundwater underlying, and in the vicinity of, the Property. In the Indemnity Agreement, [REDACTED] has agreed to carry out the Remedial Work at [REDACTED]'s expense, but without waiving any right [REDACTED] may have to contribution or indemnification for the costs of the Remedial Work from any other person.

C. Purchaser has been fully informed of the nature and scope of the Remedial Work and acknowledges and agrees that it will be necessary for [REDACTED] and [REDACTED]'s agents, employees, consultants, contractors and subcontractors to enter upon the Property in the course of [REDACTED]'s performance of the Remedial Work.

D. The parties agree that it is in their mutual best interest to use and operate the Property in a manner to minimize the risk of future harm due to Hazardous Materials.

E. [REDACTED] would not have entered into the Indemnity Agreement but for Purchaser's agreement to enter into this Declaration.

## AGREEMENT

NOW, THEREFORE, in consideration of the foregoing and the mutual promises contained herein and for other valuable consideration, the receipt and adequacy of which are hereby acknowledged, Purchaser and [REDACTED] agree as follows:

1. Incorporation of Recitals. The foregoing Recitals are true, correct and are incorporated herein by reference.

2. Purchaser's Covenant. Purchaser agrees that it shall obtain the written consent of [REDACTED] prior to making any improvements or alterations (other than (a) the underground improvements described in the plans listed in Exhibit B, attached hereto, or (b) other work that does not affect the Remedial Work or the footprint of the structures then located on the Premises). Purchaser's foregoing covenants are for the mutual benefit of Purchaser and [REDACTED] and all of the Property, of every portion thereof, of any present and future improvements thereon, and of the present and future owners thereof, and shall run with the land and shall inure to the benefit of and pass with each and all portions of the Property and which shall apply to and bind the respective successors-in-interest thereof.

3. Access Agreement. Purchaser, for itself and its successors and assigns, hereby grants to [REDACTED], and its successors and assigns, an irrevocable right of access to the Property, or any portion thereof at any time for the purpose of carrying out the Remedial Work. The right of access granted hereby shall extend to (i) all of [REDACTED]'s agents, employees, consultants, contractors and subcontractors in connection with their duties with respect to the Remedial Work, (ii) such other parties identified by the EPA currently or in the future as a potentially responsible party at the Federal Middlefield-Ellis-Whisman Superfund Site (including, without limitation, [REDACTED]) as [REDACTED] may by written notice to Purchaser designate as requiring access to the Property for, in connection with or arising out of the Remedial Work, and (iii) such other parties as STC may by written notice to Purchaser designate as requiring access to the Property for the performance of investigatory, remedial or other actions required by any Agency for, in connection with or arising out of any regional or areawide investigation or remediation of Hazardous Materials. The right of access granted hereby shall terminate on the date which is two (2) years after the date on which the EPA determines that no further Remedial Work regarding currently existing Hazardous Materials in the soil and groundwater at the Property is necessary pursuant to its Administrative Order for Remedial Design and Remedial Action U.S. EPA Docket No. 91-4 issued November 29, 1990, as it may be amended from time to time or any

other order for remediation of the currently existing Hazardous Materials issued by any other Agency. By the time of such termination, [REDACTED] shall, so long as permitted by all Environmental Laws and any Agency having jurisdiction, have removed all above ground facilities and equipment previously installed by [REDACTED] in connection with the Remedial Work and shall have sealed or otherwise secured any below ground facilities and equipment in accordance with all applicable laws. [REDACTED] agrees to repair any damage to the Property or any improvements situated thereon, including paved and landscaped areas, caused by any Remedial Work and to backfill all excavations and trenching, all in accordance with applicable legal standards so that the Property is repaired substantially to its prior condition.

If [REDACTED] determines that those groundwater wells designated in Exhibit C to this Declaration, which are located within fifteen feet of buildings existing on the Property (as of the date such wells are proposed to be removed), may lawfully be sealed only by drilling them out, rather than by pressure grouting and [REDACTED] reasonably determines that the drill out operations risk damage to such buildings, [REDACTED] may elect to give written notice to Purchaser, together with the reasonable estimate of the cost of the drilling work (including the cost to reasonably protect such buildings), requesting that Purchaser elect (by written notice to [REDACTED] delivered within thirty (30) days after the notice to Purchaser) to either (i) allow [REDACTED] to perform such work, in which case [REDACTED] shall not be liable for the anticipated damage to such buildings, so long as [REDACTED] makes a reasonable attempt to protect the same or (ii) be paid such estimated amount, in which case Purchaser shall be responsible for contracting for drilling out such wells and for any damage to such Buildings in connection therewith.

The benefits and burdens, and the covenants, rights and obligations expressed in this Section 3 are for the benefit of [REDACTED] and the rights of [REDACTED] herein created and granted and until the date of termination hereof, shall burden the fee ownership interest of Purchaser herein described, and shall benefit and be binding upon each successive owner, during its ownership, of any portion of such Property and upon each person having any interest therein derived through any owner thereof. [REDACTED] shall use its right of access to the Property hereto in a manner that (i) minimizes to the extent reasonably practicable any interference with Purchaser's and all space tenants' use and occupancy of the Property, (ii) is in compliance with notice, log-in or other security requirements reasonably required by Purchaser or Purchaser's tenants, and (iii) is in compliance with applicable laws and regulations.

4. Binding Effect. This Declaration shall bind and inure to the benefit of the successors and assigns of the parties hereto.

5. No Admission. In performing or agreeing to perform the Remedial Work upon the Property, [REDACTED] does not admit or acknowledge, nor shall [REDACTED] be deemed to have admitted or acknowledged, any liability for the presence of any Hazardous Materials or any other substances or chemicals in the soil or groundwater at the Property.

6. Attorneys' Fees. In the event any action or proceeding at law or in equity is commenced by any party (including, without limitation, an action or proceeding between one of the parties hereto and the trustee or debtor in possession while the other party is a debtor in a proceeding under the Bankruptcy Code (Title 11 of the United States Code or any successor statute to such Code)) to enforce or interpret any provisions of this Agreement or to protect or establish any right or remedy of any party hereunder, the unsuccessful party to such action or proceeding shall pay to the prevailing party all costs and expenses, including, without limitation, reasonable attorneys' and paralegals' fees and expenses and court costs incurred by such prevailing party in such action or proceeding and in any postjudgment motions, contempt proceedings, discovery, bankruptcy, or appeal in connection therewith, whether or not such action, motion, proceeding or appeal is prosecuted to judgment or other final determination, together with all costs of enforcement and/or collection of any judgment (including garnishment, levy, and debtor and third-party examinations) or other relief. If such prevailing party shall recover judgment in any such action, motion, proceeding or appeal, such attorneys' and paralegals' fees and costs and court costs shall be included in and shall be a part of such judgment, and any judgment or order entered in any such action, motion, proceeding or appeal shall contain a specific provision for the recovery of any such fees, costs and expenses incurred in enforcing such judgment of order.

7. Entire Agreement; Modification. This Declaration and the Indemnity Agreement contains the entire understanding and agreement among the parties with respect to the easement granted herein and all prior understandings and agreements between Purchaser and [REDACTED], whether oral or written, are merged within the above-listed instruments and are of no further force or effect. This Declaration may be modified only by a writing signed by Purchaser and [REDACTED].

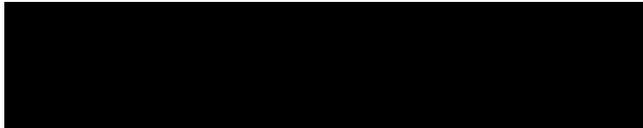
8. Governing Law. This instrument shall be governed by and construed in accordance with the laws of the State of California.

9. Notice. All notices, demands, consents, approvals and requests given by either party to the other under this Agreement shall be in writing and shall be sent by either registered or certified mail, return receipt requested, or by a nationally recognized overnight courier service, all postage or overnight courier fees prepaid, at the following addresses:

If to [REDACTED]:



If to Purchaser:



Any party may at any time change its address for notices by sending written notice to the other parties of such change in the manner for sending notices provided for herein. Notices shall be deemed to be given on the third business day after mailing or the first business day after delivery with the overnight courier service, as the case may be.

10. Severability. If any term, provision, covenant or condition of this Declaration is held by a court of competent jurisdiction to be invalid, void or unenforceable, the rest of

this Declaration shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

IN WITNESS WHEREOF, Purchaser and STC have executed this Declaration as of the date and year first above written.

█:

█

By:

Its:

█

PURCHASER:

█

By:

█

[All Signatures Must Be Acknowledged.]

this Declaration shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

IN WITNESS WHEREOF, Purchaser and [REDACTED] have executed this Declaration as of the date and year first above written.

[REDACTED]:

[REDACTED]

By:

[REDACTED]

Its:

PURCHASER:

[REDACTED]

By:

[REDACTED]

[All Signatures Must Be Acknowledged.]

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**First American Title**  
**1737 North First Street, Suite 100**  
**San Jose, CA 95112**



Escrow Officer: Linda Tugade  
Phone: (408) 451-7800

Buyer: [REDACTED]

Owner: [REDACTED]

Property: [REDACTED] Mountain View, CA

**PRELIMINARY REPORT**

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage of said Policy or Policies are set forth in Exhibit A attached. Copies of the Policy forms should be read. They are available from the office which issued this report.

**Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.**

**It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.**

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of June 30, 2005 at 7:30 A.M.

The form of Policy of title insurance contemplated by this report is:

To Be Determined

A specific request should be made if another form or additional coverage is desired.

Title to said estate or interest at the date hereof is vested in:

[REDACTED] a [REDACTED] limited liability company

The estate or interest in the land hereinafter described or referred to covered by this Report is:

Fee Simple

The Land referred to herein is described as follows:

(See attached Legal Description)

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

ALTA Owner's Policy (10-17-92)

1. General and special taxes and assessments for the fiscal year 2005-2006, a lien not yet due or payable.
2. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.
3. The lien of bonds and assessment liens, if applicable, collected with the general and special taxes.
4. An easement for the transmission and distribution of electricity and incidental purposes in the document recorded March 16, 1932 as Book 609, Page 43 of Official Records.
5. An easement for poles, overhead and underground electrical and telephone wires, wire clearance, other utility facilities and incidental purposes in the document recorded January 8, 1960 as Book 4659, Page 627 of Official Records.

An assignment of rights in favor of Pacific Telephone and Telegraph Company recorded September 20, 1960 in Book 4922, Page 472, Official Records.

6. An easement shown or dedicated on the map filed or recorded June 16, 1960 as Book 121, Page 40 through 44 of Parcel Map  
For: public utility and incidental purposes.

A portion of said land.

7. An easement for street, sanitary sewers, water mains, storm drains, gas mains, poles overhead and underground electrical and telephone wires, electroliers, municipal and incidental purposes in the document recorded October 22, 1962 as Book 5762, Page 295 of Official Records.
8. An easement for pipelines for the transmission of gaseous nitrogen and incidental purposes in the document recorded August 18, 1982 as Book G972, Page 166 of Official Records.
9. The terms and provisions contained in the document entitled "Grant Deed" recorded October 8, 1997 as Document No. 13890672 of Official Records.
10. The terms and provisions contained in the document entitled "Agreement and Covenant Not to Sue" recorded October 8, 1997 as Document No. 13890673 of Official Records.

11. The terms and provisions contained in the document entitled "Declaration of Restrictions and Access Agreement" recorded October 8, 1997 as Document No. [REDACTED] of Official Records.

12. An easement for street, public utility and incidental purposes in the document recorded January 21, 1998 as Document No. 14019042 of Official Records.
13. An easement for sidewalk and incidental purposes in the document recorded January 21, 1998 as Document No. 14019043 of Official Records.
14. The terms and provisions contained in the document entitled "Storm Drain Hold-Harmless Agreement" recorded January 26, 1998 as Document No. 14024995 of Official Records.
15. The terms and provisions contained in the document entitled "Street Improvement Agreement" recorded January 26, 1998 as Document No. 14024996 of Official Records.
16. A Deed of Trust to secure an original indebtedness of \$15,250,000.00 recorded June 23, 2004 as Document No. 17863639 of Official Records.

Dated: June 21, 2004  
Trustor: [REDACTED] a [REDACTED] limited liability company  
Trustee: [REDACTED]  
Beneficiary: [REDACTED] an [REDACTED] corporation

A document entitled "Assignment of Leases and Rents" recorded June 23, 2004 as Document No. 17863640 of Official Records, as additional security for the payment of the indebtedness secured by the deed of trust.

The terms and provisions contained in the document entitled "Subordination, Non-Disturbance and Attornment Agreement" recorded June 23, 2004 as Document No. 17863641 of Official Records.

17. Rights of parties in possession.

**INFORMATIONAL NOTES**

1. Taxes for proration purposes only for the fiscal year 2004-2005 (Secured).  
First Installment: \$190,655.56, PAID  
Second Installment: \$190,655.56, PAID  
Tax Rate Area: 05-000  
APN: 160-54-026
  
2. According to the latest available equalized assessment roll in the office of the county tax assessor, there is located on the land a(n) Commercial Structure known as 313-323 Fairchild Drive, Mountain View, California.
  
3. According to the public records, there has been no conveyance of the land within a period of twenty-four months prior to the date of this report, except as follows:  
  
None
  
4. This preliminary report/commitment was prepared based upon an application for a policy of title insurance that identified land by street address or assessor's parcel number only. It is the responsibility of the applicant to determine whether the land referred to herein is in fact the land that is to be described in the policy or policies to be issued.
  
5. Should this report be used to facilitate your transaction, we must be provided with the following prior to the issuance of the policy:
  - A. WITH RESPECT TO A CORPORATION:
    - a. A certificate of good standing of recent date issued by the Secretary of State of the corporation's state of domicile.
  
    - b. A certificate copy of a resolution of the Board of Directors authorizing the contemplated transaction and designating which corporate officers shall have the power to execute on behalf of the corporation.
  
    - c. Requirements which the Company may impose following its review of the above material and other information which the Company may require.
  
  - B. WITH RESPECT TO A CALIFORNIA LIMITED PARTNERSHIP:
    - a. A certified copy of the certificate of limited partnership (form LP-1) and any amendments thereto (form LP-2) to be recorded in the public records;
  
    - b. A full copy of the partnership agreement and any amendments;
  
    - c. Satisfactory evidence of the consent of a majority in interest of the limited partners to the contemplated transaction;

- d. Requirements which the Company may impose following its review of the above material and other information which the Company may require.
- C. WITH RESPECT TO A FOREIGN LIMITED PARTNERSHIP:
- a. A certified copy of the application for registration, foreign limited partnership (form LP-5) and any amendments thereto (form LP-6) to be recorded in the public records;
  - b. A full copy of the partnership agreement and any amendment;
  - c. Satisfactory evidence of the consent of a majority in interest of the limited partners to the contemplated transaction;
  - d. Requirements which the Company may impose following its review of the above material and other information which the Company may require.
- D. WITH RESPECT TO A GENERAL PARTNERSHIP:
- a. A certified copy of a statement of partnership authority pursuant to Section 16303 of the California Corporation Code (form GP-I), executed by at least two partners, and a certified copy of any amendments to such statement (form GP-7), to be recorded in the public records;
  - b. A full copy of the partnership agreement and any amendments;
  - c. Requirements which the Company may impose following its review of the above material required herein and other information which the Company may require.
- E. WITH RESPECT TO A LIMITED LIABILITY COMPANY:
- a. A copy of its operating agreement and any amendments thereto;
  - b. If it is a California limited liability company, a certified copy of its articles of organization (LLC-1) and any certificate of correction (LLC-11), certificate of amendment (LLC-2), or restatement of articles of organization (LLC-10) to be recorded in the public records;
  - c. If it is a foreign limited liability company, a certified copy of its application for registration (LLC-5) to be recorded in the public records;
  - d. With respect to any deed, deed of trust, lease, subordination agreement or other document or instrument executed by such limited liability company and presented for recordation by the Company or upon which the Company is asked to rely, such document or instrument must be executed in accordance with one of the following, as appropriate:

- (i) If the limited liability company properly operates through officers appointed or elected pursuant to the terms of a written operating agreement, such documents must be executed by at least two duly elected or appointed officers, as follows: the chairman of the board, the president or any vice president, and any secretary, assistant secretary, the chief financial officer or any assistant treasurer;
  - (ii) If the limited liability company properly operates through a manager or managers identified in the articles of organization and/or duly elected pursuant to the terms of a written operating agreement, such document must be executed by at least two such managers or by one manager if the limited liability company properly operates with the existence of only one manager.
- e. Requirements which the Company may impose following its review of the above material and other information which the Company may require.

F. WITH RESPECT TO A TRUST:

- a. A certification pursuant to Section 18500.5 of the California Probate Code in a form satisfactory to the Company.
- b. Copies of those excerpts from the original trust documents and amendments thereto which designate the trustee and confer upon the trustee the power to act in the pending transaction.
- c. Other requirements which the Company may impose following its review of the material require herein and other information which the Company may require.

G. WITH RESPECT TO INDIVIDUALS:

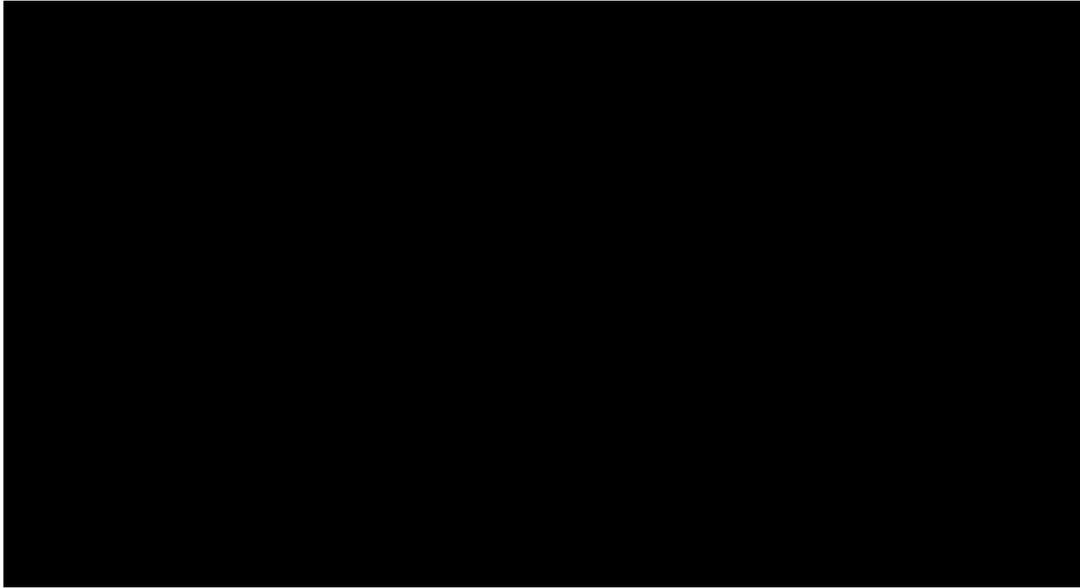
- a. A statement of information.

The map attached, if any, may or may not be a survey of the land depicted hereon. First American expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

**LEGAL DESCRIPTION**

Real property in the City of Mountain View, County of Santa Clara, State of California, described as follows:

BEING PARCEL ONE AND PARCEL TWO, AS SAID PARCELS ARE DESCRIBED IN THAT CERTAIN GRANT DEED RECORDED FEBRUARY 1, 1973 IN BOOK 219, AT PAGE 279, OFFICIAL RECORDS OF SANTA CLARA COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:



APN: 160-54-026

**NOTICE I**

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

If you have any questions about the effect of this new law, please contact your local First American Office for more details.

**NOTICE II**

As of January 1, 1991, if the transaction which is the subject of this report will be a sale, you as a party to the transaction, may have certain tax reporting and withholding obligations pursuant to the state law referred to below:

In accordance with Sections 18662 and 18668 of the Revenue and Taxation Code, a buyer may be required to withhold an amount equal to three and one-third percent of the sales price in the case of the disposition of California real property interest by either:

1. A seller who is an individual with a last known street address outside of California or when the disbursement instructions authorize the proceeds be sent to a financial intermediary of the seller, OR
2. A corporate seller which has no permanent place of business in California.

The buyer may become subject to penalty for failure to withhold an amount equal to the greater of 10 percent of the amount required to be withheld or five hundred dollars (\$500).

However, notwithstanding any other provision included in the California statutes referenced above, no buyer will be required to withhold any amount or be subject to penalty for failure to withhold if:

1. The sales price of the California real property conveyed does not exceed one hundred thousand dollars (\$100,000), OR
2. The seller executes a written certificate, under the penalty of perjury, certifying that the seller is a resident of California, or if a corporation, has a permanent place of business in California, OR
3. The seller, who is an individual, executes a written certificate, under the penalty of perjury, that the California real property being conveyed is the seller's principal residence (as defined in Section 1034 of the Internal Revenue Code).

The seller is subject to penalty for knowingly filing a fraudulent certificate for the purpose of avoiding the withholding requirement.

The California statutes referenced above include provisions which authorize the Franchise Tax Board to grant reduced withholding and waivers from withholding on a case-by-case basis.

The parties to this transaction should seek an attorney's, accountant's, or other tax specialist's opinion concerning the effect of this law on this transaction and should not act on any statements made or omitted by the escrow or closing officer.

The Seller May Request a Waiver by Contacting:  
Franchise Tax Board  
Withhold at Source Unit  
P.O. Box 651  
Sacramento, CA 95812-0651  
(916) 845-4900

Tab 4



CENTER FOR PUBLIC ENVIRONMENTAL OVERSIGHT

A project of the Pacific Studies Center

278-A Hope Street, Mountain View, CA 94041

Voice: 650-961-8918 or 650-969-1545 Fax: 650-961-8918 <[lsiegel@cpeo.org](mailto:lsiegel@cpeo.org)>

<http://www.cpeo.org>

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To: Alana Lee

From: Lenny Siegel

Subject: CPEO comments on the MEW Study Area Vapor Intrusion Proposed Plan

Date: October 23, 2009

CPEO has developed the following positions with the assistance of Peter Strauss, our technical advisor, in consultation with our Community Advisory Board. We not only agree in general with the amended version of the Proposed Plan, but we believe it can serve as a national model for addressing vapor intrusion at a large, complex site with commercial, residential, and educational buildings. However, as we explain below, we consider it essential to create an enforceable document describing plans for long-term management at this site.

Specifically, we find and recommend:

- 1 CPEO agrees that active substructure—that is, sub-slab and sub-membrane—depressurization systems can provide effective, reliable mitigation for vapor intrusion, in both large and small structures. Nevertheless, **we do support a performance-based approach for non-residential buildings, in which the responsible parties and owners of each building have some flexibility in implementing mitigation as long as they can demonstrate, through periodic or continuing monitoring, that the subsurface is sufficiently depressurized and/or the air inside the building complies with EPA’s action levels.** For example, though we have not been able to find any successful model where a sub-slab system has been drilled in from the perimeter of a building, we believe such an approach may be acceptable if it can be shown to create a suction field under the entire slab.
- 2 The Proposed Plan states, “There is a general decrease of TCE [trichloroethylene] concentrations with increasing air exchange rates. Vapor intrusion resulting in concentrations above interim action levels appear to be more likely to occur in commercial buildings in the Vapor Intrusion Study Area when HVAC systems do not provide sufficient air exchanges with outside air in all or part of a building.” In general, we consider HVAC [heating, ventilation, and air conditioning] to be a

supplement to sub-structure measures, not a stand-alone remedy, for many of the reasons that EPA stated in its August 20, 2009 “Potential Changes to Proposed Vapor Intrusion Remedy.” **But we are willing to accept HVAC systems as mitigation if they are operated and monitored to ensure protection—that is, achievement of EPA’s performance goals—whenever the building is occupied.** We propose that *if* the HVAC system is used as the primary mitigation system, *then* it should be operated for one additional hour before and after the presence of any building occupants, including security or custodial personnel. While in modern buildings with building management systems such an approach is feasible, we believe that building owners should weigh the energy costs and greenhouse gas emissions associated with longer operation of HVAC systems before agreeing to rely on them as remedies. Still, we believe that there may be buildings that normally operate HVAC systems around the clock, for which there would be no additional run time.

- 3 **Achieving indoor air concentrations based upon the long-term health effects of exposure should be the primary Remedial Action Objective or Performance Goal for the vapor intrusion remedy.** These, in turn, should comport with EPA’s latest air action levels, which are the Regional Risk Screening Levels and the modified action level based on California’s findings for TCE. Because industries in this area no longer use TCE, the much weaker occupational standards for the same chemicals are not applicable.

As suggested above, while CPEO believes that engineering controls such as substructure depressurization are the most appropriate remedies for most of the buildings in the study area, we will support other types of remedies—including podium construction—as long as they achieve the performance goals. These goals, including actual or projected target indoor air concentrations for TCE, PCE, benzene, and vinyl chloride, should be documented in the Final Plan or Decision Document. The latter two compounds are mentioned because a study by NASA in March 2005 (“Preliminary Regulatory and Cost Evaluation of Alternative Approaches to Vapor Intrusion Mitigation,” EKI) identified these compounds as potentially exceeding the Bay Area Air Quality Management District’s trigger levels for requirements that a depressurization system needs to be equipped with an air emission control device, such as granular activated carbon.

- 4 Performance goals for residential and commercial uses should be identified in the Proposed Plan. **For those buildings that serve as classrooms, house students, or have day-care centers, residential standards should be used.**
- 5 As implied above, long-term monitoring of the remedy is critical to its success. The Proposed Plan pays little attention to this aspect of the cleanup, but we have found that it is important to lay out a framework for these activities prior to approval of the remedy.

**Wherever mitigation is required, it should be supported by a long-term management plan, or what New York State calls a Site Management Plan (SMP).** This SMP should be developed along with the remediation plan and then updated as information becomes available. Because the university campus at

Moffett Field (which will house students, have classrooms, food service, and day care) falls within the boundaries of the Vapor Intrusion Study Area, the SMP is an even more essential part the long-term protection that should be provided.

The primary purpose of the SMP should be to establish a monitoring and inspection system for each structure that ensures that the performance goals are achieved and are not compromised. The plan should designate how future inspections are to be carried out, with what frequency and with what tools, and it should lay out what training is necessary for the inspectors. The draft SMP should be made available for public comment. Some of the major components are outlined below.

- a. Notice. The SMP, including a summary for lay readers, and reports (sampling, inspection, contingency activities, etc.) generated under its requirements should be available to the public, **and each entrance to a non-residential building should contain a sign or plaque reporting that the property is subject to an environmental SMP, with instructions for accessing it.** Such signs should inform current and future occupants without unnecessarily frightening them.
- b. Monitoring of Physical Parameters. **Immediately after installation, the functionality of mitigation systems should be confirmed.** Vapor barriers should be smoke tested for leaks and sealed wherever a penetration is found. Depressurization systems should be pressure-tested at distal locations and modified if the pressure differential does not meet design objectives. **Pressure testing should continue periodically for as long as there is contamination on site and the building is occupied.** Depending upon site conditions, that could be quarterly or annually.
- c. Indoor air sampling. **Indoor air sampling should be conducted immediately after installation.** Occupants of buildings also need direct confirmation that the air is safe. Although this practice may be considered to be redundant with pressure testing (assuming that sub-structure depressurization is the remedy), it is useful to conduct indoor air sampling annually. This is particularly true for buildings that are going to be used as classrooms, residential housing and dormitories, and childcare facilities, and for building that are going to rely on other remedies. **Indoor air monitoring is essential in buildings where the selected remedy is an HVAC system or passive sub-slab ventilation.** Ideally, if there is no centralized HVAC system, each distinct airspace should be sampled. Vapors under an entire slab can become concentrated inside one room if there is a preferential pathway into that room, and that will not be detected if testing is done in another room with no air connection to the first.
- d. Operations and Maintenance. **There should be an operation and maintenance plan that assigns responsibility for keeping operating equipment, such as fans, in working order.** This may include automatic alarms for reporting system failure. If HVAC systems are considered part of the mitigation system, there should be an enforceable schedule to ensure that ventilation is effective whenever the building is in use.
- e. Inspections. **There should be a tiered, regular approach to inspecting engineering controls,** including passive components of the mitigation

- system, such as the visible elements of vapor barriers and the integrity of institutional controls (below). Inspections should follow a checklist, and be performed on at least a quarterly basis. The frequency of inspections and monitoring may be adjusted to account for site-specific information.
- f. Institutional Controls. **There should be clear, enforceable prohibitions on activities that would undermine remediation and mitigation systems** (such as drilling holes in the slab), as well as changes in use of the property that might increase the likelihood or severity of exposures.
  - g. Training. **All personnel charged with inspection and operation and maintenance, as well as those charged with reviewing their reports, should be trained in their tasks so they may properly determine when and to whom to report problems.** Training should explain the purpose of each activity, as well as how to conduct it.
  - h. Contingency Planning. **Each SMP should outline actions to be taken if mitigation systems or other engineering controls fail, if indoor air concentrations exceed standards, or if groundwater contamination increases, rather than decreases.** Other contingencies include fires, floods, earthquakes and other natural disasters. A contingency plan should address the most probable events that would trigger a change of approach, and it should be developed and updated by a group of interdisciplinary experts in the fields of toxicology, geology, hydrology, chemistry and the social sciences.
  - i. Continuous management. **SMPs, should, to the extent possible, use continuous monitoring tools.** Continuous management tools are emerging, based upon the widespread and inexpensive availability of Internet connections. Continuous management systems can not only be designed to demonstrate that active systems are operating, but they can report pressure data and even vapor concentration results—if the proper sensors are available. Provision should be made to incorporate new sampling technologies as they emerge.
  - j. Annual Reports. **Annual reports should be prepared for each building or groups of buildings.** Each report should summarize findings from the monitoring and inspection reports, confirm the continuing effectiveness of engineering and institutional controls, and determine whether remedial objectives or performance standards are being met. If not, it should lay out a plan for achieving those standards and for confirming that achievement.
  - k. Certification. An environmental professional or licensed engineer should be responsible for preparing the annual report, and **he or she should certify not only the annual report but also the monitoring and inspection reports for the year covered by the report.**
- 6 **CPEO supports the suggestion that the City of Mountain View promulgate a City Health and Safety Ordinance (HSO).** We believe such an ordinance should do the following: 1) regulate the operation and maintenance of the HVAC systems and other remediation methods in commercial buildings that fall within the Vapor Intrusion Study Area; 2) provide buyers or tenants of residences within the Vapor

Intrusion Study Area within the city with an opportunity to have the indoor air tested and mitigated, if necessary, at the expense of the Responsible Parties, and; 3) obligate sellers or lessors of residential property to inform potential purchasers and tenants of the opportunity to have their residence tested, if it has not been tested within the last 24 months.

The responsible parties should bear all the costs of implementing the ordinance, and we suggest that the City enter into an agreement with one or more qualified third parties to implement the ordinance as well as monitor any associated institutional controls.

To address the contingency that Mountain View does not agree to adopt a Health and Safety Ordinance, EPA should articulate in its Proposed Plan an alternative approach to ensuring that performance goals are being met. It should consider proprietary controls with third party management as well as oversight by state agencies—at the expense of the Responsible Parties.

As recommended above, owners of residential structures falling within the bright line of the Vapor Intrusion Study Area should have an opportunity to have their homes tested for vapor intrusion and an obligation when selling or leasing the residence to disclose either the results of the test, or the opportunity to have the home tested. Because California requires disclosure of proximity to Superfund Sites, this should be no extra burden on the homeowner, and it will provide them with the opportunity to have their homes tested.

If a residence does not have a vapor intrusion problem (through indoor air tests within the past 24 months, and that groundwater remediation is continuing to capture the western plume), property owners should be able to state, “To the best of our knowledge, we do not have a vapor intrusion concern.” If a mitigation system is in place, then the owner must disclose this.

- 7 We believe that the boundaries of the residential portion of the Vapor Intrusion Study Area lines on the map are not well enough delineated because relatively few monitoring wells are used to extrapolate the precise location of the 5-part-per-billion TCE-concentration contour line. **We suggest that EPA and the PRPs at least double the number of boundary monitoring wells and update this map annually.** Indoor air testing results, indicative of the extent of the groundwater plume, should be incorporated in updated maps.
- 8 **There should be an enforceable mechanism for regulating mitigation systems on federal property, similar to the local ordinance.** In particular, occupants of residential units on federal property should have the same opportunity to request testing and additional mitigation as residents in Mountain View.
- 9 **For new construction, we favor *active* sub-structure depressurization (with a vapor barrier) as the presumptive remedy.** Passive systems are unpredictable, as they rely on changing outdoor air pressure to provide a negative pressure. In warmer months and climates, ambient pressure at the roofline may be greater than the subsurface, and passive systems may provide little help. In most cases, they do not create the same pressure differential between the sub-surface and the indoor air

as an active system; they may merely vent and dilute harmful vapors intermittently. EPA reported in 1993 that passive sub-slab systems were 30 to 90 percent as efficient as active systems.

Therefore, if a passive system is to be used, a greater burden of proof is needed to demonstrate that it will prevent vapor intrusion over the long-term, including more frequent indoor air testing and other activities that would be set forth in the aforementioned SMP. Testing should be conducted in the warmest months.

Because cost estimates indicate that an active system has a very marginal operation and maintenance cost differential of \$500 per year for a single unit, less than the cost of additional sampling, we favor the more protective *active* approach.

- 10 There is an assumption in the proposed plan that the groundwater contours are the best indicator of the potential for vapor intrusion. While in general buildings overlying the higher groundwater concentrations have a higher likelihood of indoor air samples exceeding the TCE action level, **we believe that soil gas data, if available, provides a better indication of vapor intrusion potential.** Where practical, the Responsible Parties should be encouraged to conduct more soil gas samples. The Proposed Plan should include known soil gas contours and determine the levels for each of the contaminants that would be necessary to install active systems.
- 11 It appears that background—the concentration of TCE in outdoor air—has been decreasing over time. **The proposed plan should discuss what happens to remediation goals when background goes down,** as EPA uses current background as a baseline. This discussion should be included in the SMP contingency plan.
- 12 In Figures 3 and 4 of the final Proposed Plan, EPA should define “confirmation sampling” (indoor air?) and “Level of concern.”
- 13 The Proposed Plan should define exactly what “multiple lines of evidence” means, and it should establish the burden of proof for existing buildings to opt out of the remedial requirements.
- 14 Only a portion of the buildings was sampled, and the remedial design may not fit all buildings. We question how EPA is going to assure that all buildings in the study area are equipped with the appropriate mitigation systems, given that some buildings have not been tested at all.
- 15 **CPEO wants to reiterate the necessity of speeding up the groundwater remedy so that eventually vapor intrusion remedies are no longer necessary.** We expect such innovative strategies to be discussed in the “Supplemental Site-wide Groundwater Feasibility Study” for the site. It is imperative—to promote the cooperation of residents, other property owners, commercial and education tenants, and local officials in the complex web of necessary site management discussed above—that EPA affirm its commitment to this principle now.

Tab 5

**Table 1**  
**Comparison of MEW Commercial Owner (MCO) Preliminary Estimated Conceptual Costs for Alternative Vapor Intrusion Mitigation Measure**  
**to Responsible Parties (RPs) Feasibility Study Cost Estimates for Commercial Buildings**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Alt. No.	MCO Cost Estimates (a)				RPs Cost Estimates (e)			
	Vapor Intrusion Mitigation System Description	Preliminary Cost Estimates (b, c)			Vapor Intrusion Mitigation System Description	Preliminary Cost Estimates		
		Const. Capital	Annual Operating, Mon & Rptng	Present Worth (d) (30 yrs, 7%)		Const. Capital	Annual Operating, Mon & Rptng	Present Worth (30 yrs, 7%)
	<b>New Commercial Buildings</b>				<b>New Commercial Buildings</b>			
1	<u>Sub-Slab Depressurization</u> Install vapor extraction piping below the slab during construction of a new building. Extend pipes below grade to a central location and connect to a single blower. Assumes no vapor treatment. (f)	\$110,000	\$12,900	\$270,000	<u>Sub-Slab Depressurization</u>	\$100,000 - \$120,000	\$7,000 - \$12,000	\$200,000 - \$290,000
	<b>Existing Commercial Buildings</b>				<b>Existing Commercial Buildings</b>			
2	<u>Retrofit Existing Passive System to Active SSD</u> Manifold existing system and install blower to provide active SSD.	\$116,000	\$12,900	\$280,000	Not available	--	--	--
3	<u>Sub-Slab Depressurization</u> Install vapor extraction points through the perimeter footing, with suction pits beneath the floor slab at locations not accessible from the perimeter. Extend pipes below grade to a central location and connect to a single blower. Assumes no vapor treatment. (f)	\$120,000	\$12,900	\$280,000	<u>Sub-Slab Depressurization</u> Install vapor extraction points at 25 locations throughout an existing warehouse building.	\$130,000 - \$220,000	\$9,000 - \$13,000	\$250,000 - \$400,000
4	<u>Subgrade Depressurization, With Vapor Treatment</u> Install horizontal wells below building and draw vacuum on soil with the blower exhaust treated with granular activated carbon (GAC).	\$260,000	\$31,000	\$600,000	<u>Soil Vapor Extraction, With Vapor Treatment (g)</u>	\$330,000 - \$410,000	\$50,000	\$1,100,000

**Table 1**  
**Comparison of MEW Commercial Owner (MCO) Preliminary Estimated Conceptual Costs for Alternative Vapor Intrusion Mitigation Measure to Responsible Parties (RPs) Feasibility Study Cost Estimates for Commercial Buildings**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Notes

- (a) For MCO cost estimating, a "typical" building is assumed to be a two-story with a 35,000 square foot footprint with slab-on-grade construction. Additional costs may be incurred if sub-slab foundation structure is more "complicated" than assumed.
- (b) MCO preliminary cost estimates are shown in Tables 2 through 10. Costs assume baseline sampling, including sampling with and without HVAC system operating, has been conducted. Baseline sampling costs are not included in these estimates.
- (c) To be comparable to the Haley & Aldrich cost estimates (June 2009), EKI has not included a contingency on the cost estimates. EKI typically applies a contingency of 25 to 30 percent to both capital and annual costs to account for uncertainties that are inherent at this level of estimating.
- (d) Present worth costs are calculated assuming 30 years of annual costs and an annual discount rate of 7% to allow comparison to the estimates prepared by Haley & Aldrich. EKI typically uses the discount rate published by the Federal Office of Management and Budget, which is currently 2.7%. Present worth costs would decrease if operations or monitoring activities last less than 30 years.
- (e) RPs cost estimates obtained from Haley & Aldrich, *Final Supplemental Feasibility Study for Vapor Intrusion Pathway, Middlefield-Ellis-Whisman Study Area, Mountain View and Moffett Field, California*, June 2009. RPs cost estimates are generally based on a 20,000 square foot building, which may result in lower costs than estimated by MCO. RPs cost estimates are rounded to 2 significant figures.
- (f) Based on available soil gas data for trichloroethylene, treatment of SSD vapors is not anticipated to be required. If SSD vapor treatment is required, the incremental capital and operational costs could be on the order of \$75,000 and \$4,000 more, respectively, than those shown.
- (g) RPs estimate for soil vapor extraction with horizontal drilling obtained from Locus Technologies, *Revised Supplemental Feasibility Study for Vapor Intrusion*, dated 24 January 2008.

Abbreviations

EKI: Erler & Kalinowski, Inc.  
GAC: granular activated carbon  
MCO: MEW Commercial Owners  
RPs: Responsible Parties  
SSD: sub-slab depressurization

**Table 2**  
**Summary of Preliminary Estimated Conceptual Costs for Alternative Vapor Intrusion Mitigation Measures in "Typical" Commercial Buildings (a)**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Alt. No.	Vapor Intrusion Mitigation System Description	System Descriptions / Components				Preliminary Cost Estimates (b, c)			
		Sub-Slab or Subgrade System	Vapor Treatment	Indoor Air Testing	Emissions Testing	Const. Capital	Operating Annual	Mon. & Rptng. Annual	Present Worth (d) (30 yrs, 7%)
<b>New Commercial Buildings</b>									
1	<u>Sub-Slab Depressurization</u> Install vapor extraction piping below the slab during construction of a new building. Extend pipes below grade to a central location and connect to a single blower. Assumes no vapor treatment. (e)	Active	None	5 YR	Quarterly	\$110,000	\$3,200	\$9,700	\$270,000
<b>Existing Commercial Buildings</b>									
2	<u>Retrofit Existing Passive System to Active SSD</u> Manifold existing system and install blower to provide active SSD.	Active	None	5 YR	Quarterly	\$116,000	\$3,200	\$9,700	\$280,000
3	<u>Sub-Slab Depressurization</u> Install vapor extraction points through the perimeter footing, with suction pits beneath the floor slab at locations not accessible from the perimeter. Extend pipes below grade to a central location and connect to a single blower. Assumes no vapor treatment. (e)	Active	None	5 YR	Quarterly	\$120,000	\$3,200	\$9,700	\$280,000
4	<u>Subgrade Depressurization, With Vapor Treatment</u> Install horizontal wells below building and draw vacuum on soil with the blower exhaust treated with granular activated carbon (GAC).	Active	Carbon	5 YR	Monthly	\$260,000	\$16,000	\$15,000	\$600,000

**Table 2**  
**Summary of Preliminary Estimated Conceptual Costs for Alternative Vapor Intrusion Mitigation Measures in "Typical" Commercial Buildings (a)**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Notes

- (a) For cost estimating, a "typical" building is assumed to be a two-story with a 35,000 square foot footprint with slab-on-grade construction. Additional costs may be incurred if sub-slab foundation structure is more "complicated" than assumed.
- (b) The preliminary cost estimates are shown in Tables 3 through 10. Costs assume baseline sampling, including sampling with and without HVAC system operating, has been conducted. Baseline sampling costs are not included in these estimates.
- (c) To be comparable to the Haley & Aldrich cost estimates (June 2009), EKI has not included a contingency on the cost estimates. EKI typically applies a contingency of 25 to 30 percent to both capital and annual costs to account for uncertainties that are inherent at this level of estimating.
- (d) Present worth costs are calculated assuming 30 years of annual costs and an annual discount rate of 7% to allow comparison to the estimates prepared by Haley & Aldrich. EKI typically uses the discount rate published by the Federal Office of Management and Budget, which is currently 2.7%. Present worth costs would decrease if operations or monitoring activities last less than 30 years.
- (e) Based on available soil gas data for trichloroethylene, treatment of SSD vapors is not anticipated to be required. If SSD vapor treatment is required, the incremental capital and operational costs could be on the order of \$75,000 and \$4,000 more, respectively, than those shown.

Abbreviations

EKI: Erler & Kalinowski, Inc.  
GAC: granular activated carbon  
SSD: sub-slab depressurization

**Table 3**  
**Preliminary Estimated Conceptual Cost for Alternative 1:**  
**Sub-Slab Depressurization (SSD) in New Slab-on-Grade Building, No Vapor Treatment**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Estimated Costs				Sub-Totals
	Unit	Quantity	Unit Cost	Line Cost	
<b>ESTIMATED CAPITAL COSTS</b>					
[Basis: 35,000 sf footprint, two-story building, L-shaped with 200 ft x 200 ft long sides, 90 ft x 90 ft short sides, slab-on-grade]					
<b>Construct SSD System</b>					
• Contractor mobilization / demobilization	ls	1	\$5,000	\$5,000	
• Excavate trench adjacent to one side of building [2'(W) x 3'(D) x 200lf]					
Excavate trench	bcy	50	\$10	\$500	
[Assume trench spoils are clean and can be used as fill at Site; no disposal cost]					
• Place sleeves for 4-inch diameter pipe in perimeter and interior footings	ea	5	\$400	\$2,000	
• Place sleeves for 2-inch diameter monitoring probes through perimeter footings	ea	5	\$400	\$2,000	
• Install 1-inch diameter monitoring pipe in each monitoring hole					
1-inch non-perforated Sch. 40 PVC (10 lf per point)	lf	50	\$0.75	\$38	
Install suction pipes and seals (2 person crew)	day	1	\$1,000	\$1,000	
• Install SSD collection manifold and header pipes below building					
4-inch perforated HDPE	lf	180	\$3.50	\$630	
6-inch solid HDPE	lf	420	\$9.90	\$4,158	
Tees and fittings	ea	10	\$100	\$1,000	
Installation (2 laborers, 1000 lf/day)	day	1	\$1,000	\$1,000	
6-inch non-perforated Sch. 40 PVC (outside perimeter foundation)	lf	300	\$7.75	\$2,325	
Tees to 3-inch suction pipes (6x6x44)	ea	5	\$70	\$350	
Valves and valve box (flush to grade) for each suction pipe	ea	5	\$100	\$500	
Coarse sand for pipe bedding [2'(W) x 2'(D)]	ton	70	\$30	\$2,100	
Assume native soil for trench backfill above sand (no material costs)					
Installation (2 laborers, 100 lf/day)	day	3	\$1,000	\$3,000	
• Install SSD Blower System					
Excavate and install subgrade vault	ls	1	\$5,000	\$5,000	
Purchase centrifugal blower system (700 cfm @ 10 in-WC; 2 hp)	ls	1	\$7,500	\$7,500	
Install blower, electrical, and controls	ls	1	\$5,000	\$5,000	
Piping around vault	ls	1	\$2,500	\$2,500	
<i>Subtotal: Construct SSD System:</i>					\$46,000
<b>Engineering</b>					
• Pre-Design Foundation Inspection and SSD Testing	ls	1	\$30,000	\$30,000	
• SSD system design, plans and specifications	ls	1	\$7,500	\$7,500	
• Construction observation	ls	1	\$7,500	\$7,500	
• Startup coordination, vacuum propagation verification, sample collection	ls	1	\$3,000	\$3,000	
Sample analyses to measure initial emission rates (VOCs, EPA TO-15)	ea	3	\$200	\$600	
• Evaluate and report startup and sampling data	ls	1	\$3,000	\$3,000	
• Monitoring (first 6 months)					
Monthly site visit for maintenance, observation, sampling	ea	6	\$500	\$3,000	
Monthly emissions sample analysis - VOCs (EPA TO-15)	ea	6	\$200	\$1,200	
• Obtain BAAQMD Permit labor and fees (a)	ls	1	\$7,500	\$7,500	
<i>Subtotal: Engineering:</i>					\$63,000
<i>Subtotal</i>					\$109,000
<b>Estimated Total Capital Costs</b>					<b>\$110,000</b>
<i>Estimated capital costs, per square foot:</i>					<i>\$3.14</i>

**Table 3**  
**Preliminary Estimated Conceptual Cost for Alternative 1:**  
**Sub-Slab Depressurization (SSD) in New Slab-on-Grade Building, No Vapor Treatment**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Estimated Costs				
	Unit	Quantity	Unit Cost	Line Cost	Sub-Totals
<b>ESTIMATED ANNUAL OPERATING COSTS</b>					
<ul style="list-style-type: none"> <li>• Electrical power <ul style="list-style-type: none"> <li>SSD Blower (2 hp)</li> </ul> </li> <li>• Replacement parts and maintenance supplies</li> <li>• Annual BAAQMD Permit to Operate fee</li> </ul>	kwh	13,200	\$0.15	\$1,980	
	ls	1	\$200	\$200	
	ea	1	\$1,000	\$1,000	
<i>Subtotal</i>					\$3,200
<b>Estimated Annual Operating Costs</b>					<b>\$3,200</b>
<b>ESTIMATED ANNUAL MONITORING COSTS</b>					
<b>Annual Monitoring</b>					
<ul style="list-style-type: none"> <li>• Monitoring <ul style="list-style-type: none"> <li>Quarterly site visit for maintenance, observation, sampling</li> <li>Quarterly emissions sample analysis - VOCs (EPA TO-15)</li> <li>Quarterly data reduction and documentation</li> </ul> </li> <li>• Indoor air sampling to assess air quality (every 5 years) <ul style="list-style-type: none"> <li>Sampling, data evaluation and reporting</li> <li>Sample analyses (VOCs, EPA TO-15 SIM) HVAC On (6 samples)</li> <li>Sample analyses (VOCs, EPA TO-15 SIM) HVAC Off (6 samples)</li> </ul> </li> <li>• Annual inspection and documentation of subslab pressure monitoring and building penetrations</li> </ul>	ea	4	\$500	\$2,000	
	ea	4	\$200	\$800	
	ea	4	\$500	\$2,000	
	ls	0.2	\$4,000	\$800	
	ea	1.2	\$350	\$420	
	ea	1.2	\$350	\$420	
	ea	1	\$1,000	\$1,000	
<i>Subtotal: Annual Monitoring:</i>					\$7,400
<i>Subtotal</i>					\$7,400
<b>Estimated Annual Monitoring Costs</b>					<b>\$7,400</b>

Notes

- (a) For this cost estimate, it is assumed that the SSD system is considered by BAAQMD to be a soil vapor extraction ("SVE") system, therefore requiring an Authority to Construct and Permit to Operate. If the SSD system is not classified as an SVE system, permitting may not be required and monitoring requirements may be reduced.
- (b) To be comparable to the Haley & Aldrich cost estimates (June 2009), EKI has not included a contingency on the cost estimates. EKI typically applies a contingency of 25 to 30 percent to both capital and annual costs to account for uncertainties that are inherent at this level of estimating.

Abbreviations

See Abbreviations List on Unit Price Table (Table 11).

**Table 4**  
**Preliminary Estimated Conceptual Annual Monitoring and Reporting Costs for Alternative 1**  
**Sub-Slab Depressurization (SSD)**

Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Assumed Inflation Rate: 1.0%  
 Assumed Return on Investment: 8.0%  
 Real Discount Rate: 7.0%

Year	Monitoring	Annual Cost (2009 dollars)	Future Value (future dollars)	Present Worth of Future Value (2009 dollars) (a) (b)
1	Indoor Air, Effluent, & Inspection	\$18,200	\$18,382	\$17,020
2	Effluent & Inspection	\$7,500	\$7,651	\$6,559
3	Effluent & Inspection	\$7,500	\$7,727	\$6,134
4	Effluent & Inspection	\$7,500	\$7,805	\$5,737
5	Effluent & Inspection	\$7,500	\$7,883	\$5,365
6	Indoor Air, Effluent, & Inspection	\$18,200	\$19,320	\$12,175
7	Effluent & Inspection	\$7,500	\$8,041	\$4,692
8	Effluent & Inspection	\$7,500	\$8,121	\$4,388
9	Effluent & Inspection	\$7,500	\$8,203	\$4,103
10	Effluent & Inspection	\$7,500	\$8,285	\$3,837
11	Indoor Air, Effluent, & Inspection	\$18,200	\$20,305	\$8,709
12	Effluent & Inspection	\$7,500	\$8,451	\$3,356
13	Effluent & Inspection	\$7,500	\$8,536	\$3,139
14	Effluent & Inspection	\$7,500	\$8,621	\$2,935
15	Effluent & Inspection	\$7,500	\$8,707	\$2,745
16	Indoor Air, Effluent, & Inspection	\$18,200	\$21,341	\$6,229
17	Effluent & Inspection	\$7,500	\$8,882	\$2,401
18	Effluent & Inspection	\$7,500	\$8,971	\$2,245
19	Effluent & Inspection	\$7,500	\$9,061	\$2,100
20	Effluent & Inspection	\$7,500	\$9,151	\$1,963
21	Indoor Air, Effluent, & Inspection	\$18,200	\$22,430	\$4,456
22	Effluent & Inspection	\$7,500	\$9,335	\$1,717
23	Effluent & Inspection	\$7,500	\$9,429	\$1,606
24	Effluent & Inspection	\$7,500	\$9,523	\$1,502
25	Effluent & Inspection	\$7,500	\$9,618	\$1,404
26	Indoor Air, Effluent, & Inspection	\$18,200	\$23,574	\$3,187
27	Effluent & Inspection	\$7,500	\$9,812	\$1,228
28	Effluent & Inspection	\$7,500	\$9,910	\$1,149
29	Effluent & Inspection	\$7,500	\$10,009	\$1,074
30	Effluent & Inspection	\$7,500	\$10,109	\$1,005
<b>Total Estimated Present Worth in 2009 Dollars (c):</b>				<b>\$120,000</b>
<b>Annual Cost of Estimated Present Worth in 2009 Dollars:</b>				<b>\$9,700</b>

**Notes:**

(a) Present worth costs are calculated assuming 30 years of annual costs and an annual discount rate of 7% to allow comparison to the estimates prepared by Haley & Aldrich. EKI typically uses the discount rate from the published by the Federal Office of Management and Budget, which is currently 2.7%. Present worth costs would decrease if operations or monitoring activities last less than 30 years.

(b) Calculation assumes annual costs begin in Year 1, after construction and other capital costs are completed in Year 0.

(c) Totals may not sum exactly due to rounding.

**Table 5**  
**Preliminary Estimated Conceptual Cost for Alternative 2:**  
**Retrofit Existing Passive System to Active Sub-Slab Depressurization (SSD)**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Estimated Costs				Sub-Totals
	Unit	Quantity	Unit Cost	Line Cost	
<b>ESTIMATED CAPITAL COSTS</b>					
[Basis: 35,000 sf footprint, two-story building, L-shaped with 200 ft x 200 ft long sides, 90 ft x 90 ft short sides, slab-on-grade]					
<b>Retrofit SSD System</b>					
• Contractor mobilization / demobilization	ls	1	\$5,000	\$5,000	
• Excavate trench adjacent to two sides of building [2'(W) x 3'(D) x 200lf] x 2					
Sawcut and remove asphalt or other ground cover over trench	sf	1,200	\$3	\$3,600	
Excavate trench	bcy	90	\$10	\$900	
[Assume trench spoils are clean and can be used as fill at Site; no disposal cost]					
• Core 2-inch diameter holes through perimeter footings (for monitoring)	ea	5	\$400	\$2,000	
• Install 1-inch diameter monitoring pipe in each monitoring hole					
1-inch non-perforated Sch. 40 PVC (10 lf per point)	lf	50	\$0.75	\$38	
Install suction pipes and seals (2 person crew)	day	2	\$1,000	\$2,000	
• Install SSD collection manifold and header pipe in trenches adjacent to building					
6-inch non-perforated Sch. 40 PVC	lf	600	\$7.75	\$4,650	
Tees to 2-inch suction pipes (6x6x2)	ea	5	\$70	\$350	
Valves and valve box (flush to grade) for each suction pipe	ea	5	\$100	\$500	
Coarse sand for pipe bedding [2'(W) x 2'(D)]	ton	140	\$30	\$4,200	
Assume native soil for trench backfill above sand (no material costs)					
Installation (2 laborers, 100 lf/day)	day	6	\$1,000	\$6,000	
Repair ground surface to pre-existing surface (e.g., asphalt)	sf	1,000	\$3	\$3,000	
Not included: landscaping removal / replacement (if applicable)					
• Install SSD Blower System					
Excavate and install subgrade vault	ls	1	\$5,000	\$5,000	
Purchase centrifugal blower system (700 cfm @ 10 in-WC; 2 hp)	ls	1	\$7,500	\$7,500	
Install blower, electrical, and controls	ls	1	\$5,000	\$5,000	
Regrading and piping around vault	ls	1	\$2,500	\$2,500	
<i>Subtotal: Retrofit SSD System:</i>					\$52,000
<b>Engineering</b>					
• Pre-Design Foundation Inspection and SSD Testing	ls	1	\$30,000	\$30,000	
• SSD system design, plans and specifications	ls	1	\$7,500	\$7,500	
• Construction observation	ls	1	\$7,500	\$7,500	
• Startup coordination, vacuum propagation verification, sample collection	ls	1	\$3,000	\$3,000	
Sample analyses to measure initial emission rates (VOCs, EPA TO-15)	ea	3	\$200	\$600	
• Evaluate and report startup and sampling data	ls	1	\$3,000	\$3,000	
• Monitoring (first 6 months)					
Monthly site visit for maintenance, observation, sampling	ea	6	\$500	\$3,000	
Monthly emissions sample analysis - VOCs (EPA TO-15)	ea	6	\$200	\$1,200	
• Obtain BAAQMD Permit labor and fees (a)	ls	1	\$7,500	\$7,500	
<i>Subtotal: Engineering:</i>					\$63,000
<i>Subtotal</i>					\$116,000
<b>Estimated Total Capital Costs</b>					<b>\$116,000</b>
<i>Estimated capital costs, per square foot:</i>					<i>\$3.31</i>

**Table 5**  
**Preliminary Estimated Conceptual Cost for Alternative 2:**  
**Retrofit Existing Passive System to Active Sub-Slab Depressurization (SSD)**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Estimated Costs				
	Unit	Quantity	Unit Cost	Line Cost	Sub-Totals
<b>ESTIMATED ANNUAL OPERATING COSTS</b>					
<ul style="list-style-type: none"> <li>• Electrical power <ul style="list-style-type: none"> <li>SSD Blower (2 hp)</li> </ul> </li> <li>• Replacement parts and maintenance supplies</li> <li>• Annual BAAQMD Permit to Operate fee</li> </ul>	kwh	13,200	\$0.15	\$1,980	
	ls	1	\$200	\$200	
	ea	1	\$1,000	\$1,000	
<i>Subtotal</i>					\$3,200
<b>Estimated Annual Operating Costs</b>					<b>\$3,200</b>
<b>ESTIMATED ANNUAL MONITORING COSTS</b>					
<b>Annual Monitoring</b>					
<ul style="list-style-type: none"> <li>• Monitoring <ul style="list-style-type: none"> <li>Quarterly site visit for maintenance, observation, sampling</li> <li>Quarterly emissions sample analysis - VOCs (EPA TO-15)</li> <li>Quarterly data reduction and documentation</li> </ul> </li> <li>• Indoor air sampling to assess air quality (every 5 years) <ul style="list-style-type: none"> <li>Sampling, data evaluation and reporting</li> <li>Sample analyses (VOCs, EPA TO-15 SIM) HVAC On (6 samples)</li> <li>Sample analyses (VOCs, EPA TO-15 SIM) HVAC Off (6 samples)</li> </ul> </li> <li>• Annual inspection and documentation of subslab pressure monitoring and building penetrations</li> </ul>	ea	4	\$500	\$2,000	
	ea	4	\$200	\$800	
	ea	4	\$500	\$2,000	
	ls	0.2	\$4,000	\$800	
	ea	1.2	\$350	\$420	
	ea	1.2	\$350	\$420	
	ea	1	\$1,000	\$1,000	
<i>Subtotal: Annual Monitoring:</i>					\$7,400
<i>Subtotal</i>					\$7,400
<b>Estimated Annual Monitoring Costs</b>					<b>\$7,400</b>

Notes

- (a) For this cost estimate, it is assumed that the SSD system is considered by BAAQMD to be a soil vapor extraction ("SVE") system, therefore requiring an Authority to Construct and Permit to Operate. If the SSD system is not classified as an SVE system, permitting may not be required and monitoring requirements may be reduced.
- (b) To be comparable to the Haley & Aldrich cost estimates (June 2009), EKI has not included a contingency on the cost estimates. EKI typically applies a contingency of 25 to 30 percent to both capital and annual costs to account for uncertainties that are inherent at this level of estimating.

Abbreviations

See Abbreviations List on Unit Price Table (Table 11).

**Table 6**  
**Preliminary Estimated Conceptual Annual Monitoring and Reporting Costs for Alternative 2**  
**Retrofit Existing Passive System to Active SSD**

Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Assumed Inflation Rate: 1.0%  
 Assumed Return on Investment: 8.0%  
 Real Discount Rate: 7.0%

Year	Monitoring	Annual Cost (2009 dollars)	Future Value (future dollars)	Present Worth of Future Value (2009 dollars) (a) (b)
1	Indoor Air, Effluent, & Inspection	\$18,200	\$18,382	\$17,020
2	Effluent & Inspection	\$7,500	\$7,651	\$6,559
3	Effluent & Inspection	\$7,500	\$7,727	\$6,134
4	Effluent & Inspection	\$7,500	\$7,805	\$5,737
5	Effluent & Inspection	\$7,500	\$7,883	\$5,365
6	Indoor Air, Effluent, & Inspection	\$18,200	\$19,320	\$12,175
7	Effluent & Inspection	\$7,500	\$8,041	\$4,692
8	Effluent & Inspection	\$7,500	\$8,121	\$4,388
9	Effluent & Inspection	\$7,500	\$8,203	\$4,103
10	Effluent & Inspection	\$7,500	\$8,285	\$3,837
11	Indoor Air, Effluent, & Inspection	\$18,200	\$20,305	\$8,709
12	Effluent & Inspection	\$7,500	\$8,451	\$3,356
13	Effluent & Inspection	\$7,500	\$8,536	\$3,139
14	Effluent & Inspection	\$7,500	\$8,621	\$2,935
15	Effluent & Inspection	\$7,500	\$8,707	\$2,745
16	Indoor Air, Effluent, & Inspection	\$18,200	\$21,341	\$6,229
17	Effluent & Inspection	\$7,500	\$8,882	\$2,401
18	Effluent & Inspection	\$7,500	\$8,971	\$2,245
19	Effluent & Inspection	\$7,500	\$9,061	\$2,100
20	Effluent & Inspection	\$7,500	\$9,151	\$1,963
21	Indoor Air, Effluent, & Inspection	\$18,200	\$22,430	\$4,456
22	Effluent & Inspection	\$7,500	\$9,335	\$1,717
23	Effluent & Inspection	\$7,500	\$9,429	\$1,606
24	Effluent & Inspection	\$7,500	\$9,523	\$1,502
25	Effluent & Inspection	\$7,500	\$9,618	\$1,404
26	Indoor Air, Effluent, & Inspection	\$18,200	\$23,574	\$3,187
27	Effluent & Inspection	\$7,500	\$9,812	\$1,228
28	Effluent & Inspection	\$7,500	\$9,910	\$1,149
29	Effluent & Inspection	\$7,500	\$10,009	\$1,074
30	Effluent & Inspection	\$7,500	\$10,109	\$1,005
<b>Total Estimated Present Worth in 2009 Dollars (c):</b>				<b>\$120,000</b>
<b>Annual Cost of Estimated Present Worth in 2009 Dollars:</b>				<b>\$9,700</b>

**Notes:**

(a) Present worth costs are calculated assuming 30 years of annual costs and an annual discount rate of 7% to allow comparison to the estimates prepared by Haley & Aldrich. EKI typically uses the discount rate from the published by the Federal Office of Management and Budget, which is currently 2.7%. Present worth costs would decrease if operations or monitoring activities last less than 30 years.

(b) Calculation assumes annual costs begin in Year 1, after construction and other capital costs are completed in Year 0.

(c) Totals may not sum exactly due to rounding.

**Table 7**  
**Preliminary Estimated Conceptual Cost for Alternative 3:**  
**Sub-Slab Depressurization (SSD) in Existing Slab-on-Grade Building, No Vapor Treatment**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Estimated Costs				Sub-Totals
	Unit	Quantity	Unit Cost	Line Cost	
<b>ESTIMATED CAPITAL COSTS</b>					
[Basis: 35,000 sf footprint, two-story building, L-shaped with 200 ft x 200 ft long sides, 90 ft x 90 ft short sides, slab-on-grade]					
<b>Construct SSD System</b>					
• Contractor mobilization / demobilization	ls	1	\$5,000	\$5,000	
• Excavate trench adjacent to two sides of building [2'(W) x 3'(D) x 200lf] x 2					
Sawcut and remove asphalt or other ground cover over trench	sf	1,200	\$3	\$3,600	
Excavate trench	bcy	90	\$10	\$900	
[Assume trench spoils are clean and can be used as fill at Site; no disposal cost]					
• Core 4-inch diameter holes through perimeter footings	ea	10	\$400	\$4,000	
• Core 2-inch diameter holes through perimeter footings (for monitoring)	ea	5	\$400	\$2,000	
• Install 2-inch diameter SSD suction pipe through each hole cored through footing					
2-inch non-perforated Sch. 80 PVC (10 lf per suction point)	lf	100	\$2.10	\$210	
Install suction pipes and seals (2 person crew)	day	2	\$1,000	\$2,000	
• Install 1-inch diameter monitoring pipe in each monitoring hole					
1-inch non-perforated Sch. 40 PVC (10 lf per point)	lf	50	\$0.75	\$38	
Install suction pipes and seals (2 person crew)	day	2	\$1,000	\$2,000	
• Install SSD collection manifold and header pipe in trenches adjacent to building					
6-inch non-perforated Sch. 40 PVC	lf	600	\$7.75	\$4,650	
Tees to 2-inch suction pipes (6x6x2)	ea	10	\$70	\$700	
Valves and valve box (flush to grade) for each suction pipe	ea	10	\$100	\$1,000	
Coarse sand for pipe bedding [2'(W) x (2'(D))]	ton	140	\$30	\$4,200	
Assume native soil for trench backfill above sand (no material costs)					
Installation (2 laborers, 100 lf/day)	day	6	\$1,000	\$6,000	
Repair ground surface to pre-existing surface (e.g., asphalt)	sf	1,200	\$3	\$3,600	
Not included: landscaping removal / replacement (if applicable)					
• Install SSD Blower System					
Excavate and install subgrade vault	ls	1	\$5,000	\$5,000	
Purchase centrifugal blower system (700 cfm @ 10 in-WC; 2 hp)	ls	1	\$7,500	\$7,500	
Install blower, electrical, and controls	ls	1	\$5,000	\$5,000	
Regrading and piping around vault	ls	1	\$2,500	\$2,500	
<i>Subtotal: Construct SSD System:</i>					\$60,000
<b>Engineering</b>					
• Pre-Design Foundation Inspection and SSD Testing	ls	1	\$30,000	\$30,000	
• SSD system design, plans and specifications	ls	1	\$7,500	\$7,500	
• Construction observation	ls	1	\$7,500	\$7,500	
• Startup coordination, vacuum propagation verification, sample collection	ls	1	\$3,000	\$3,000	
Sample analyses to measure initial emission rates (VOCs, EPA TO-15)	ea	3	\$200	\$600	
• Evaluate and report startup and sampling data	ls	1	\$3,000	\$3,000	
• Monitoring (first 6 months)					
Monthly site visit for maintenance, observation, sampling	ea	6	\$500	\$3,000	
Monthly emissions sample analysis - VOCs (EPA TO-15)	ea	6	\$200	\$1,200	
• Obtain BAAQMD Permit labor and fees (a)	ls	1	\$7,500	\$7,500	
<i>Subtotal: Engineering:</i>					\$63,000
<i>Subtotal</i>					\$123,000
<b>Estimated Total Capital Costs</b>					<b>\$120,000</b>
<i>Estimated capital costs, per square foot:</i>					<i>\$3.43</i>

**Table 7**  
**Preliminary Estimated Conceptual Cost for Alternative 3:**  
**Sub-Slab Depressurization (SSD) in Existing Slab-on-Grade Building, No Vapor Treatment**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Estimated Costs				
	Unit	Quantity	Unit Cost	Line Cost	Sub-Totals
<b>ESTIMATED ANNUAL OPERATING COSTS</b>					
• Electrical power					
SSD Blower (2 hp)	kwh	13,200	\$0.15	\$1,980	
• Replacement parts and maintenance supplies	ls	1	\$200	\$200	
• Annual BAAQMD Permit to Operate fee	ea	1	\$1,000	\$1,000	
<i>Subtotal</i>					\$3,200
<b>Estimated Annual Operating Costs</b>					<b>\$3,200</b>
<b>ESTIMATED ANNUAL MONITORING COSTS</b>					
<b>Annual Monitoring</b>					
• Monitoring					
Quarterly site visit for maintenance, observation, sampling	ea	4	\$500	\$2,000	
Quarterly emissions sample analysis - VOCs (EPA TO-15)	ea	4	\$200	\$800	
Quarterly data reduction and documentation	ea	4	\$500	\$2,000	
• Indoor air sampling to assess air quality (every 5 years)					
Sampling, data evaluation and reporting	ls	0.2	\$4,000	\$800	
Sample analyses (VOCs, EPA TO-15 SIM) HVAC On (6 samples)	ea	1.2	\$350	\$420	
Sample analyses (VOCs, EPA TO-15 SIM) HVAC Off (6 samples)	ea	1.2	\$350	\$420	
• Annual inspection and documentation of subslab pressure monitoring and building penetrations	ea	1	\$1,000	\$1,000	
<i>Subtotal: Annual Monitoring:</i>					\$7,400
<i>Subtotal</i>					\$7,400
<b>Estimated Annual Monitoring Costs</b>					<b>\$7,400</b>

Notes

- (a) For this cost estimate, it is assumed that the SSD system is considered by BAAQMD to be a soil vapor extraction ("SVE") system, therefore requiring an Authority to Construct and Permit to Operate. If the SSD system is not classified as an SVE system, permitting may not be required and monitoring requirements may be reduced.
- (b) To be comparable to the Haley & Aldrich cost estimates (June 2009), EKI has not included a contingency on the cost estimates. EKI typically applies a contingency of 25 to 30 percent to both capital and annual costs to account for uncertainties that are inherent at this level of estimating.

Abbreviations

See Abbreviations List on Unit Price Table (Table 11).

**Table 8**  
**Preliminary Estimated Conceptual Annual Monitoring and Reporting Costs for Alternative 3**  
**Sub-Slab Depressurization (SSD) in Existing Slab-on-Grade Building, No Vapor Treatment**

Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Assumed Inflation Rate: 1.0%  
 Assumed Return on Investment: 8.0%  
 Real Discount Rate: 7.0%

Year	Monitoring	Annual Cost (2009 dollars)	Future Value (future dollars)	Present Worth of Future Value (2009 dollars) (a) (b)
1	Indoor Air, Effluent, & Inspection	\$18,200	\$18,382	\$17,020
2	Effluent & Inspection	\$7,500	\$7,651	\$6,559
3	Effluent & Inspection	\$7,500	\$7,727	\$6,134
4	Effluent & Inspection	\$7,500	\$7,805	\$5,737
5	Effluent & Inspection	\$7,500	\$7,883	\$5,365
6	Indoor Air, Effluent, & Inspection	\$18,200	\$19,320	\$12,175
7	Effluent & Inspection	\$7,500	\$8,041	\$4,692
8	Effluent & Inspection	\$7,500	\$8,121	\$4,388
9	Effluent & Inspection	\$7,500	\$8,203	\$4,103
10	Effluent & Inspection	\$7,500	\$8,285	\$3,837
11	Indoor Air, Effluent, & Inspection	\$18,200	\$20,305	\$8,709
12	Effluent & Inspection	\$7,500	\$8,451	\$3,356
13	Effluent & Inspection	\$7,500	\$8,536	\$3,139
14	Effluent & Inspection	\$7,500	\$8,621	\$2,935
15	Effluent & Inspection	\$7,500	\$8,707	\$2,745
16	Indoor Air, Effluent, & Inspection	\$18,200	\$21,341	\$6,229
17	Effluent & Inspection	\$7,500	\$8,882	\$2,401
18	Effluent & Inspection	\$7,500	\$8,971	\$2,245
19	Effluent & Inspection	\$7,500	\$9,061	\$2,100
20	Effluent & Inspection	\$7,500	\$9,151	\$1,963
21	Indoor Air, Effluent, & Inspection	\$18,200	\$22,430	\$4,456
22	Effluent & Inspection	\$7,500	\$9,335	\$1,717
23	Effluent & Inspection	\$7,500	\$9,429	\$1,606
24	Effluent & Inspection	\$7,500	\$9,523	\$1,502
25	Effluent & Inspection	\$7,500	\$9,618	\$1,404
26	Indoor Air, Effluent, & Inspection	\$18,200	\$23,574	\$3,187
27	Effluent & Inspection	\$7,500	\$9,812	\$1,228
28	Effluent & Inspection	\$7,500	\$9,910	\$1,149
29	Effluent & Inspection	\$7,500	\$10,009	\$1,074
30	Effluent & Inspection	\$7,500	\$10,109	\$1,005
<b>Total Estimated Present Worth in 2009 Dollars (c):</b>				<b>\$120,000</b>
<b>Annual Cost of Estimated Present Worth in 2009 Dollars:</b>				<b>\$9,700</b>

**Notes:**

(a) Present worth costs are calculated assuming 30 years of annual costs and an annual discount rate of 7% to allow comparison to the estimates prepared by Haley & Aldrich. EKI typically uses the discount rate from the published by the Federal Office of Management and Budget, which is currently 2.7%. Present worth costs would decrease if operations or monitoring activities last less than 30 years.

(b) Calculation assumes annual costs begin in Year 1, after construction and other capital costs are completed in Year 0.

(c) Totals may not sum exactly due to rounding.

**Table 9**  
**Preliminary Estimated Conceptual Cost for Alternative 4:**  
**Subgrade Depressurization, With Vapor Treatment for Existing Building**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Estimated Costs				
	Unit	Quantity	Unit Cost	Line Cost	Sub-Totals
<b>ESTIMATED CAPITAL COSTS</b>					
[Basis: 35,000 sf footprint, two-story building, L-shaped with 200 ft x 200 ft long sides, 90 ft x 90 ft short sides, slab-on-grade]					
<b>Construct SVE System</b>					
• Contractor mobilization / demobilization	ls	1	\$5,000	\$5,000	
• Excavate trench adjacent to two sides of building [2'(W) x 3'(D) x 200lf] x 2					
Sawcut and remove asphalt or other ground cover over trench	sf	1,200	\$3	\$3,600	
Excavate trench	bcy	90	\$10	\$900	
[Assume trench spoils are clean and can be used as fill at Site; no disposal cost]					
• Install 3-inch diameter SVE pipes below building with directional drilling (5 to withdraw, 5 to monitor)					
Drill horizontal wells below building	lf	735	\$125	\$91,875	
3-inch perforated HDPE piping	lf	735	\$8	\$5,880	
Drilling waste disposal (solids)	ton	4	\$65	\$284	
Drilling waste disposal (liquids)	gal	4410	\$0.35	\$1,544	
• Core 2-inch diameter holes through perimeter footings (for monitoring)	ea	5	\$400	\$2,000	
• Install 1-inch diameter monitoring pipe in each monitoring hole					
1-inch non-perforated Sch. 40 PVC (10 lf per point)	lf	50	\$0.75	\$38	
Install suction pipes and seals (2 person crew)	day	2	\$1,000	\$2,000	
• Install SVE collection manifold and header pipe in trenches adjacent to building					
6-inch non-perforated Sch. 40 PVC	lf	600	\$7.75	\$4,650	
Tees to 3-inch suction pipes (6x6x3)	ea	5	\$70	\$350	
Valves and valve box (flush to grade) for each suction pipe	ea	5	\$100	\$500	
Coarse sand for pipe bedding [2'(W) x 2'(D)]	ton	140	\$30	\$4,200	
Assume native soil for trench backfill above sand (no material costs)					
Installation (2 laborers, 100 lf/day)	day	6	\$1,000	\$6,000	
Repair ground surface to pre-existing surface (e.g., asphalt)	sf	1,200	\$3	\$3,600	
Not included: landscaping removal / replacement (if applicable)					
• Install SVE Blower and Treatment System (a)					
Pour concrete pad (10' x 10')	ls	1	\$10,000	\$10,000	
Purchase SVE blower system (100 acfm @ 16 in-Hg)	ls	1	\$15,000	\$15,000	
Purchase GAC canisters (400 lbs, 300 scfm capacity)	ea	2	\$960	\$1,920	
Install blower, GAC, electrical, and controls	ls	1	\$7,500	\$7,500	
Construct wooden fence enclosure, with gate	ls	1	\$10,000	\$10,000	
<i>Subtotal: Construct SSD System:</i>					\$177,000
<b>Engineering</b>					
• Pre-Design Foundation Inspection and SVE Testing	ls	1	\$30,000	\$30,000	
• SVE system design, plans and specifications	ls	1	\$15,000	\$15,000	
• Construction observation -- Drilling	ls	1	\$9,600	\$9,600	
• Construction observation -- System installation	ls	1	\$15,000	\$15,000	
• Startup coordination, vacuum propagation verification, sample collection	ls	1	\$3,000	\$3,000	
Sample analyses to measure initial emission rates (VOCs, EPA TO-15)	ea	3	\$200	\$600	
• Evaluate and report startup and sampling data	ls	1	\$3,000	\$3,000	
• Obtain BAAQMD Permit labor and fees (a)	ls	1	\$7,500	\$7,500	
<i>Subtotal: Engineering:</i>					\$84,000
<i>Subtotal</i>					\$261,000
<b>Estimated Total Capital Costs</b>					<b>\$260,000</b>
<i>Estimated capital costs, per square foot:</i>					<i>\$7.43</i>

**Table 9**  
**Preliminary Estimated Conceptual Cost for Alternative 4:**  
**Subgrade Depressurization, With Vapor Treatment for Existing Building**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Estimated Costs				
	Unit	Quantity	Unit Cost	Line Cost	Sub-Totals
<b>ESTIMATED ANNUAL OPERATING COSTS</b>					
• Electrical power					
SVE Blower (15 hp)	kwh	98,600	\$0.15	\$14,790	
• GAC replacement and disposal [assume no annual GAC replacement]	pound		\$2		
Coordinate GAC replacement	ls		\$500		
• Replacement parts and maintenance supplies	ls	1	\$200	\$200	
• Annual BAAQMD Permit to Operate fee	ea	1	\$1,000	\$1,000	
<i>Subtotal</i>					<i>\$16,000</i>
<b>Estimated Annual Operating Costs</b>					<b>\$16,000</b>
<b>ESTIMATED ANNUAL MONITORING COSTS</b>					
<b>Annual Monitoring</b>					
• Monitoring					
Monthly site visit for maintenance, observation, sampling with PID	ea	12	\$500	\$6,000	
Quarterly data reduction and documentation	ea	4	\$500	\$2,000	
• Indoor air sampling to assess air quality (every 5 years)					
Sampling, data evaluation and reporting	ls	0.2	\$4,000	\$800	
Sample analyses (VOCs, EPA TO-15 SIM) HVAC On (6 samples)	ea	1.2	\$350	\$420	
Sample analyses (VOCs, EPA TO-15 SIM) HVAC Off (6 samples)	ea	1.2	\$350	\$420	
• Annual inspection and documentation of subslab pressure monitoring	ea	1	\$1,000	\$1,000	
<i>Subtotal: Annual Monitoring:</i>					<i>\$10,600</i>
<i>Subtotal</i>					<i>\$10,600</i>
<b>Estimated Annual Monitoring Costs</b>					<b>\$11,000</b>

Notes

- (a) For this cost estimate, it is assumed that emission rates may exceed BAAQMD trigger levels, or off-gases require treatment for other reasons.
- (b) The BAAQMD requires soil vapor extraction ("SVE") systems to obtain an Authority to Construct and Permit to Operate.
- (c) To be comparable to the Haley & Aldrich cost estimates (June 2009), EKI has not included a contingency on the cost estimates. EKI typically applies a contingency of 25 to 30 percent to both capital and annual costs to account for uncertainties that are inherent at this level of estimating.

Abbreviations

See Abbreviations List on Unit Price Table (Table 11).

**Table 10**  
**Preliminary Estimated Conceptual Annual Monitoring and Reporting Costs for Alternative 4**  
**Subgrade Depressurization, With Vapor Treatment for Existing Building**

Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Assumed Inflation Rate: 1.0%  
 Assumed Return on Investment: 8.0%  
 Real Discount Rate: 7.0%

Year	Monitoring	Annual Cost (2009 dollars)	Future Value (future dollars)	Present Worth of Future Value (2009 dollars) (a) (b)
1	Indoor Air, Effluent, & Inspection	\$22,000	\$22,220	\$20,574
2	Effluent & Inspection	\$12,000	\$12,241	\$10,495
3	Effluent & Inspection	\$12,000	\$12,364	\$9,815
4	Effluent & Inspection	\$12,000	\$12,487	\$9,179
5	Effluent & Inspection	\$12,000	\$12,612	\$8,584
6	Indoor Air, Effluent, & Inspection	\$22,000	\$23,353	\$14,717
7	Effluent & Inspection	\$12,000	\$12,866	\$7,507
8	Effluent & Inspection	\$12,000	\$12,994	\$7,020
9	Effluent & Inspection	\$12,000	\$13,124	\$6,565
10	Effluent & Inspection	\$12,000	\$13,255	\$6,140
11	Indoor Air, Effluent, & Inspection	\$22,000	\$24,545	\$10,527
12	Effluent & Inspection	\$12,000	\$13,522	\$5,370
13	Effluent & Inspection	\$12,000	\$13,657	\$5,022
14	Effluent & Inspection	\$12,000	\$13,794	\$4,696
15	Effluent & Inspection	\$12,000	\$13,932	\$4,392
16	Indoor Air, Effluent, & Inspection	\$22,000	\$25,797	\$7,530
17	Effluent & Inspection	\$12,000	\$14,212	\$3,841
18	Effluent & Inspection	\$12,000	\$14,354	\$3,592
19	Effluent & Inspection	\$12,000	\$14,497	\$3,359
20	Effluent & Inspection	\$12,000	\$14,642	\$3,141
21	Indoor Air, Effluent, & Inspection	\$22,000	\$27,113	\$5,386
22	Effluent & Inspection	\$12,000	\$14,937	\$2,747
23	Effluent & Inspection	\$12,000	\$15,086	\$2,569
24	Effluent & Inspection	\$12,000	\$15,237	\$2,403
25	Effluent & Inspection	\$12,000	\$15,389	\$2,247
26	Indoor Air, Effluent, & Inspection	\$22,000	\$28,496	\$3,853
27	Effluent & Inspection	\$12,000	\$15,699	\$1,965
28	Effluent & Inspection	\$12,000	\$15,855	\$1,838
29	Effluent & Inspection	\$12,000	\$16,014	\$1,719
30	Effluent & Inspection	\$12,000	\$16,174	\$1,607
<b>Total Estimated Present Worth in 2009 Dollars (c):</b>				<b>\$180,000</b>
<b>Annual Cost of Estimated Present Worth in 2009 Dollars:</b>				<b>\$15,000</b>

**Notes:**

- (a) Present worth costs are calculated assuming 30 years of annual costs and an annual discount rate of 7% to allow comparison to the estimates prepared by Haley & Aldrich. EKI typically uses the discount rate from the published by the Federal Office of Management and Budget, which is currently 2.7%. Present worth costs would decrease if operations or monitoring activities last less than 30 years.
- (b) Calculation assumes annual costs begin in Year 1, after construction and other capital costs are completed in Year 0.
- (c) Totals may not sum exactly due to rounding.

**Table 11**  
**Unit Price Table**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

<b>Item</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Basis</b>
<b>PIPING, VALVES, FITTINGS</b>			
PVC Pipe			
1-inch diameter, Sch 40	lf	\$0.75	50% of list price, Harrington Plastics
2-inch diameter, Sch. 80	lf	\$2.10	50% of list price, Harrington Plastics
4-inch diameter, Sch. 40	lf	\$5.70	50% of list price, Harrington Plastics
6-inch diameter, Sch. 40	lf	\$7.75	50% of list price, Harrington Plastics
4-inch diameter perforated HDPE	lf	\$3.50	Means
6-inch diameter HDPE, solid	lf	\$9.90	Means
3-inch diameter, HDPE	lf	\$8.00	Verbal quote, Joe Doesburg, Directed Technologies Drilling
<b>SAND, AGGREGATE, FILL</b>			
Coarse sand (pipe bedding), delivered	ton	\$30	Estimate
<b>EQUIPMENT</b>			
Blowers			
Centrifugal			
Cincinnati Fan pressure blower (PB-14) (700 cfm @ 10 in-WC; 2 hp)	ea	\$7,500	Estimate from Air Handling Equipment
SVE Blower			
Sutorbilt rotary lobe blower 5M (Assume 100 acfm 15 hp motor)	ea	\$15,000	Quote from Colorado Compressor; skid mounted with moisture separator, vacuum relief, NEMA 4 motor starter; controls (+20% tax/delivery/inflation)
Carbon Treatment - Vapor Phase			
USFilter/Westates VSC-400, 400 pounds GAC, 300 scfm	ea	\$960	Budgetary quote, USFilter/Westates (562-229-9606), +20% for taxes and delivery
USFilter/Westates VSC 3000, 3,000 pounds GAC, 1,500 scfm	ea	\$9,400	Budgetary quote, USFilter/Westates (562-229-9606), +20% for taxes and delivery
GAC replacement / regeneration for serviceable units	pound	\$2	Estimate
<b>CONSTRUCTION SERVICES</b>			
Trenching			
Excavate a shallow trench for pipelines	bcy	\$10	Operator and excavator, \$150/hour, 50 lf/hour (x 2'(W) x 4'(D)) = 15 bcy/hr

**Table 11**  
**Unit Price Table**  
Middlefield-Ellis-Whisman (MEW) Site, Mountain View, California

Item	Unit	Unit Cost	Basis
<b>SAMPLE ANALYSES</b>			
<u>Air sample analyses</u>			
VOCs (EPA TO-15 SIM)	ea	\$350	For indoor air samples, Quote from Air Toxics, Ltd.
VOCs (EPA TO-15)	ea	\$200	For SVE samples, high detection limits, Quote from Air Toxics, Ltd.
<b>UTILITIES</b>			
Electrical Power	kwh	\$0.15	Estimate, California

Notes

(a) This table lists unit prices and the source for unit costs that apply to one or more of the cost estimate tables.

Abbreviations

ASTM: American Society of Testing and Materials  
BAAQMD: Bay Area Air Quality Management District  
bey: bank (in-place) cubic yard  
cy: cubic yard  
ea: each  
EKI: Erler & Kalinowski, Inc.  
GAC: granular activated carbon  
HDPE: high-density polyethylene  
hp: horsepower  
hr: hour  
kwh: kilowatt-hour  
lf: linear foot  
ls: lump sum  
PID: photo ion detector  
PVC: polyvinyl chloride  
scfm: standard cubic feet per minute  
sf: square feet  
SSD: sub-slab depressurization  
VOCs: volatile organic compounds  
SVE: soil vapor extraction

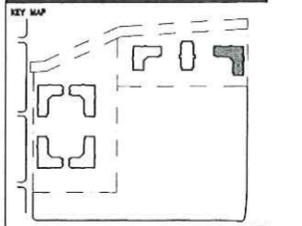
# MOUNTAIN VIEW RESEARCH CENTER

MOUNTAIN VIEW, CALIFORNIA



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**REVISION**

10/7/96	STEEL BID PACKAGE
10/14/96	FOUNDATION PERMIT PACKAGE
10/21/96	PLAN CHECK SUBMITTAL
11/25/96	PLAN CHECK SUBMITTAL
12/6/96	TENANT REVISIONS
1/16/97	PLAN CHECK RESUBMIT #2

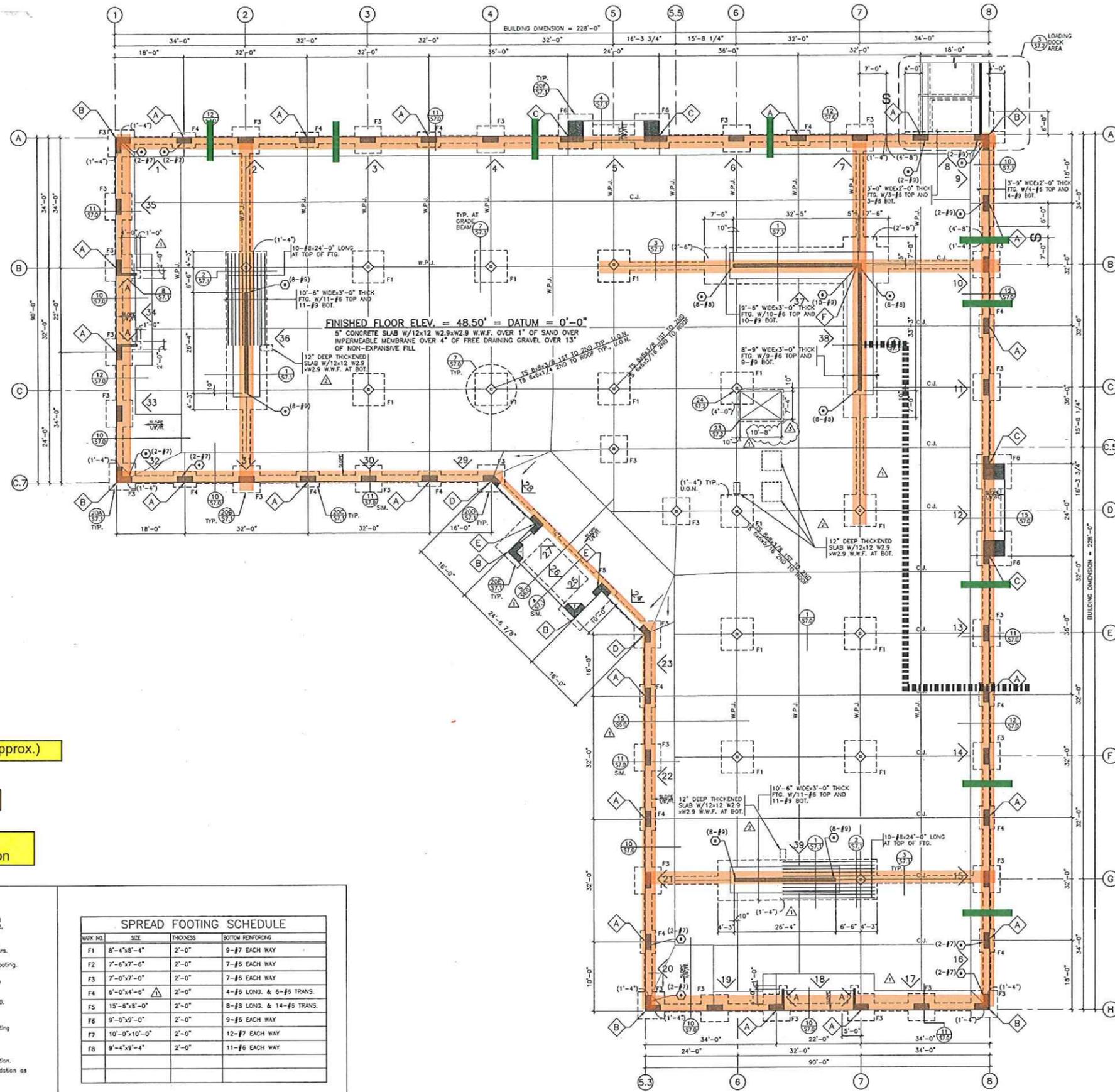
AS BUILT

PROJECT NO. B21 DATE  
DRAWN BY GJJJ SCALE AS SHOWN

## BUILDING ONE FOUNDATION PLAN

NORTH  
  
S1.0

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PRINT DATE



- Sanitary Sewer (approx.)
- SSD Suction Point
- Grade Beam or Perimeter Foundation

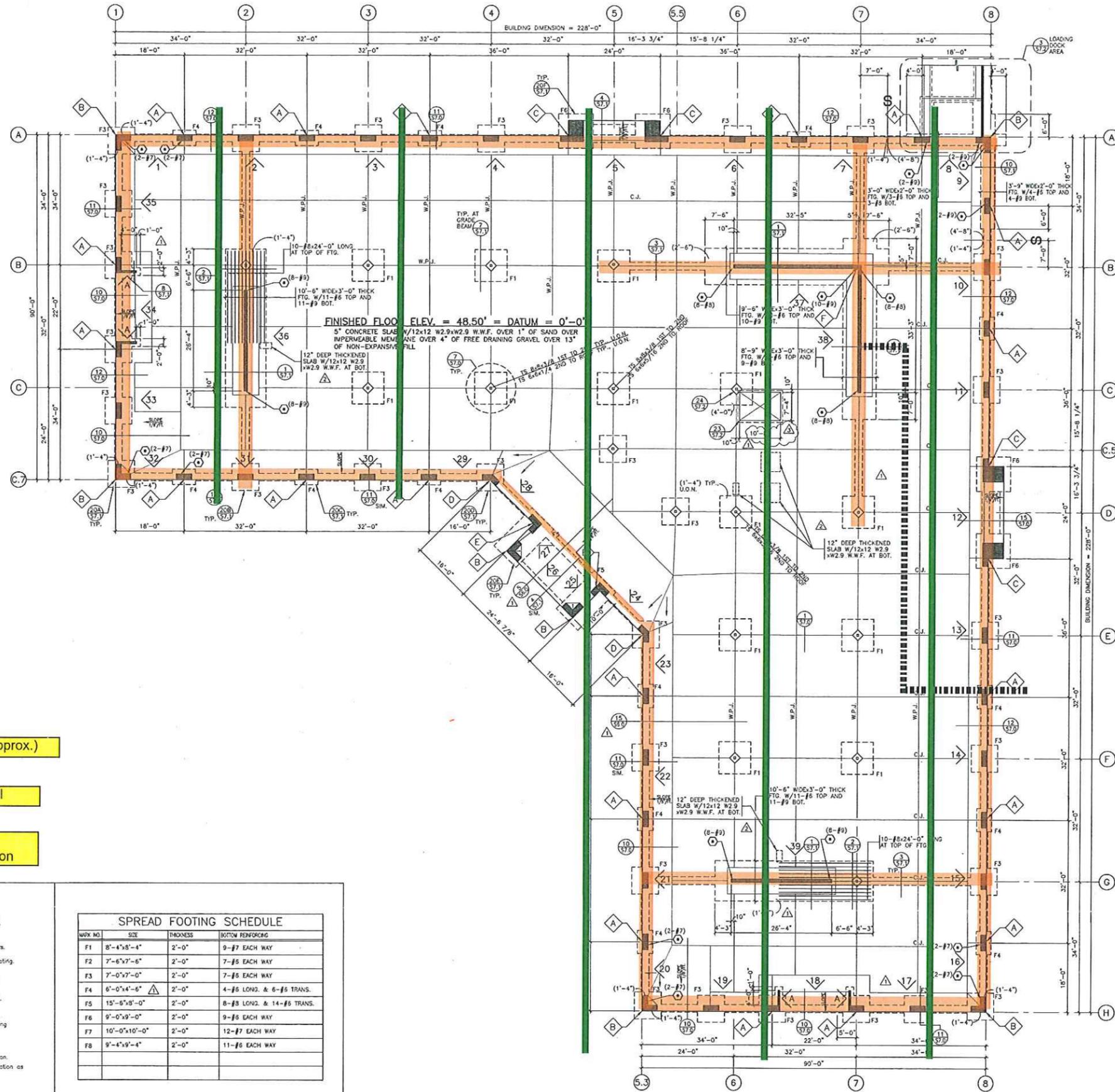
**FOUNDATION NOTES**

- See General Notes on sheet S12.0.
- etc. denotes precast panel reference number as shown on panel elevations sheets S5.0 - S5.2 for Bldg. 1, S5.3 - S5.5 for Bldg. 2, and S5.6 - S5.8 for Bldg. 3.
- "C.J." denotes Construction Joint. "W.P.J." denotes Weakened Plane Joint. W.P.J.'s may be substituted for C.J.'s, except at closure pours.
- (1'-6") etc. denotes distance from finished floor (F.F.) to top of footing.
- etc. denotes type of panel joint detail, and plaster detail, where occurs, as shown on sheets S11.0, and S11.1.
- For utility piping and/or conduits near foundations see detail 8/S7.0.
- For Construction Joint in continuous footing, see detail 3/S7.0.
- Concrete between panel and top of footing may be placed by vibrating closure strip or a slurry mix until continuously visible from outside of panel.
- (4-#8) Denotes panel hold-down bars to be dove-tailed into foundation. Denotes hold-down connection between panel and foundation as shown on detail 15/S7.0.
- 6- Denotes step in footing per 4/S7.0.
- See 5/S7.0 for reinforcing where adjacent footing thickness differs.
- See 11/S12.0 and 12/S12.0 for hook and radius information.
- #3 at 18" e.c. each way with fibermesh mixed in concrete may be substituted for the slab on grade W.W.F. reinforcement.

FOOTING NO.	SIZE	THICKNESS	BOTTOM REINFORCING
F1	8'-4"x8'-4"	2'-0"	9-#7 EACH WAY
F2	7'-6"x7'-6"	2'-0"	7-#8 EACH WAY
F3	7'-0"x7'-0"	2'-0"	7-#8 EACH WAY
F4	6'-0"x4'-6"	2'-0"	4-#8 LONG. & 6-#8 TRANS.
F5	15'-9"x9'-0"	2'-0"	8-#8 LONG. & 14-#8 TRANS.
F6	9'-0"x9'-0"	2'-0"	9-#8 EACH WAY
F7	10'-0"x10'-0"	2'-0"	12-#7 EACH WAY
F8	9'-4"x9'-4"	2'-0"	11-#8 EACH WAY

FOUNDATION PLAN-BLDG. 1 SCALE: 3/32"=1'-0"

1. SEE GENERAL NOTES ON SHEET S12.0.  
2. SEE FOUNDATION NOTES ON 20/S1.0.  
3. SEE SPREAD FOOTING SCHEDULE ON 20/S1.0.



- Sanitary Sewer (approx.)
- Horizontal SVE Well
- Grade Beam or Perimeter Foundation

- FOUNDATION NOTES**
1. See General Notes on sheet S12.0.
  2. etc. denotes precast panel reference number as shown on panel elevations sheets S5.0 - S5.2 for Bldg. 1, S5.3 - S5.5 for Bldg. 2, and S5.6 - S5.8 for Bldg. 3.
  3. "C.J." denotes Construction Joint. "W.P.J." denotes Weakened Plane Joint. W.P.J.'s may be substituted for C.J.'s, except at closure pours.
  4. (1'-4") etc. denotes distance from finished floor (F.F.) to top of footing.
  5. etc. denotes type of panel joint detail, and plaster detail, where occurs, as shown on sheets S11.0, and S11.1.
  6. For utility piping and/or conduits near foundations see detail 9/S7.0.
  7. For Construction Joint in continuous footing, see detail 3/S7.0.
  8. Concrete between panel and top of footing may be placed by vibrating closure strip or a slurry mix until continuously visible from outside of panel.
  9. (4-#8) denotes panel hold-down bars to be doweled into foundation. Denotes hold-down connection between panel and foundation as shown on detail 15/S7.0.
  10. -#8- denotes step in footing per 4/S7.0.
  11. See 5/S7.0 for reinforcing where adjacent footing thickness differs.
  12. See 11/S12.0 and 12/S12.0 for hook and radius information.
  13. #3 at 18" o.c. each way with fibermesh mixed in concrete may be substituted for the slab on grade W.W.F. reinforcement.

WORK NO.	SIZE	THICKNESS	BOTTOM REINFORCING
F1	8'-4"x8'-4"	2'-0"	9-#7 EACH WAY
F2	7'-6"x7'-6"	2'-0"	7-#6 EACH WAY
F3	7'-0"x7'-0"	2'-0"	7-#6 EACH WAY
F4	6'-0"x4'-6"	2'-0"	4-#6 LONG. & 6-#6 TRANS.
F5	15'-8"x8'-0"	2'-0"	8-#8 LONG. & 14-#6 TRANS.
F6	9'-0"x9'-0"	2'-0"	9-#6 EACH WAY
F7	10'-0"x10'-0"	2'-0"	12-#7 EACH WAY
F8	9'-4"x9'-4"	2'-0"	11-#6 EACH WAY

**FOUNDATION PLAN-BLDG. 1** SCALE: 3/32"=1'-0"

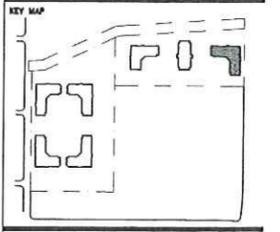
THE LUTHERS COMPANY / SECOND LUMP COMPANY

# MOUNTAIN VIEW RESEARCH CENTER

MOUNTAIN VIEW, CALIFORNIA



**SEI STRUCTURAL ENGINEERS INCORPORATED**  
153 Second Street, Suite 102  
Los Altos, CA 94022  
(415) 949-5445 FAX (415) 949-5538

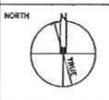


- REVISION**
- |          |                           |
|----------|---------------------------|
| 10/7/95  | STEEL BID PACKAGE         |
| 10/14/95 | FOUNDATION PERMIT PACKAGE |
| 10/21/95 | PLAN CHECK SUBMITTAL      |
| 11/25/95 | PLAN CHECK SUBMITTAL      |
| 12/6/96  | TENANT REVISIONS          |
| 1/16/97  | PLAN/CHECK RESUBMIT #2    |

AS BUILT

PROJECT NO. B21 DATE  
DRAWN BY: CHLU SCALE: AS SHOWN

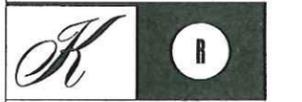
**BUILDING ONE FOUNDATION PLAN**



S1.0

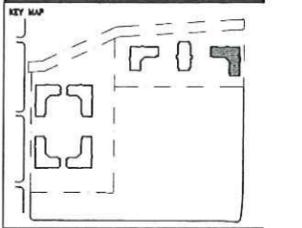
# MOUNTAIN VIEW RESEARCH CENTER

MOUNTAIN VIEW, CALIFORNIA



KENNETH RODRIGUES & PARTNERS, INC.  
18000 S. BAY AVENUE, SUITE 100  
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INCORPORATED  
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Los Altos, CA 94022  
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REVISION

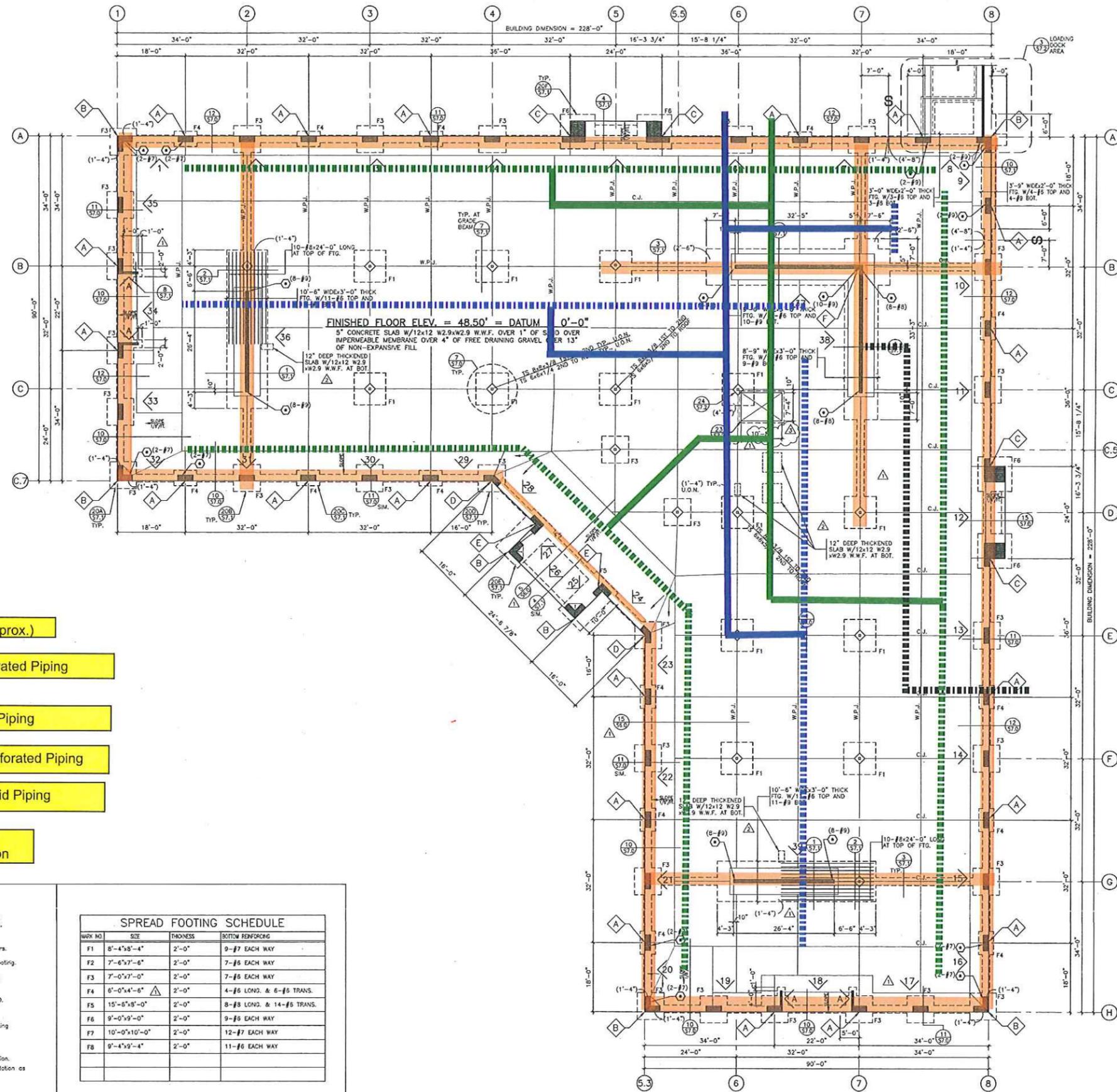
10/7/96	STEEL BID PACKAGE
10/14/96	FOUNDATION PERMIT PACKAGE
10/21/96	PLAN CHECK SUBMITTAL
11/25/96	PLAN CHECK SUBMITTAL
12/6/96	TENANT REVISIONS
1/16/97	PLANCHECK RESUBMIT #2

AS BUILT

PROJECT NO. B21 DATE  
DRAWN BY CHJU SCALE AS SHOWN

## BUILDING ONE FOUNDATION PLAN

NORTH  
S1.0



- Sanitary Sewer (approx.)
- SSD Influent Perforated Piping
- SSD Influent Solid Piping
- SSD Discharge Perforated Piping
- SSD Discharge Solid Piping
- Grade Beam or Perimeter Foundation

**FOUNDATION NOTES**

- See General Notes on sheet S12.0.
- 20 etc. denotes precast panel reference number as shown on panel elevations sheets S5.0 - S5.2 for Bldg. 1, S5.3 - S5.5 for Bldg. 2, and S5.6 - S5.8 for Bldg. 3.
- "C.J." denotes Construction Joint. "W.P.J." denotes Weakened Plane Joint. "W.P.J.'s may be substituted for C.J.'s, except at closure pours.
- (1'-6") etc. denotes distance from finished floor (F.F.) to top of footing.
- ◇ etc. denotes type of panel joint detail, and plaster detail, where occurs, as shown on sheets S11.0 and S11.1.
- For utility piping and/or conduits near foundations see detail 9/S7.0.
- For Construction Joint in continuous footing, see detail 3/S7.0.
- Concrete between panel and top of footing may be placed by vibrating closure strip or a slurry mix until continuously visible from outside of panel.
- 9 (4-#8) - Denotes panel hold-down bars to be doweled into foundation. Denotes hold-down connection between panel and foundation as shown on detail 15/S7.0.
- 9 - Denotes step in footing per 4/S7.0.
- See 5/S7.0 for reinforcing where adjacent footing thickness differs.
- See 11/S12.0 and 12/S12.0 for hook and radius information.
- #3 at 18" o.c. each way with fibermesh reinforcement in concrete may be substituted for the slab on grade WAF reinforcement.

**SPREAD FOOTING SCHEDULE**

FOOTING NO.	SIZE	THICKNESS	BOTTOM REINFORCING
F1	8'-4"x8'-4"	2'-0"	9-#7 EACH WAY
F2	7'-6"x7'-6"	2'-0"	7-#6 EACH WAY
F3	7'-0"x7'-0"	2'-0"	7-#6 EACH WAY
F4	6'-0"x4'-6"	2'-0"	4-#6 LONG. & 6-#8 TRANS.
F5	15'-8"x8'-0"	2'-0"	8-#8 LONG. & 14-#8 TRANS.
F6	9'-0"x9'-0"	2'-0"	9-#6 EACH WAY
F7	10'-0"x10'-0"	2'-0"	12-#7 EACH WAY
F8	9'-4"x9'-4"	2'-0"	11-#6 EACH WAY

FOUNDATION PLAN-BLDG. 1  
SCALE: 3/32"=1'-0"  
1. SEE GENERAL NOTES ON SHEET S12.0.  
2. SEE FOUNDATION NOTES ON 25/S1.0.  
3. SEE SPREAD FOOTING SCHEDULE ON 20/S1.0.

**City of Mountain View/State of California**



# California Regional Water Quality Control Board

## San Francisco Bay Region



Linda S. Adams  
Secretary for  
Environmental Protection

1515 Clay Street, Suite 1400, Oakland, California 94612  
(510) 622-2300 • Fax (510) 622-2460  
<http://www.waterboards.ca.gov/sanfranciscobay>

Arnold Schwarzenegger  
Governor

Date: November 3, 2009  
File: 2189.8009 (EKW)  
Geotracker Global ID: SL0608541147

U.S. Environmental Protection Agency  
Region 9  
ATTN: Ms. Alana Lee  
75 Hawthorne Street  
San Francisco, CA 94105  
Via E-mail: [lee.alana@epa.gov](mailto:lee.alana@epa.gov)

**Subject: Proposed Plan for the Vapor Intrusion Pathway, Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View and Moffett Field, Santa Clara County**

Dear Ms. Lee:

I reviewed the *Proposed Plan for the Vapor Intrusion Pathway* (Proposed Plan) prepared by the U.S. Environmental Protection Agency (EPA) for the Middlefield-Ellis-Whisman (MEW) Study Area, received via email on July 8, 2009. The Proposed Plan summarizes the remedy selection process and identifies EPA's preferred alternatives for vapor intrusion in the MEW Study Area. EPA uses a tiering system to select the remedial alternative to mitigate vapor intrusion into existing and future residential and commercial buildings. The tiering system and the remedial technology recommended for implementation are based on factors such as indoor air concentrations, location over the groundwater plume, and building, type. Water Board staff concur with EPA's approach for addressing vapor intrusion. Additional comments, based on my review of the Proposed Plan and subsequent discussion with you are presented below.

1. Clarify how institutional controls will be monitored and maintained within the vapor intrusion study area. I understand EPA, in response to community comments, has elected to use recorded agreements rather than a municipal ordinance as the institutional control mechanism. No information explaining how recorded agreements are prepared or implemented has been provided.
2. Clarify how EPA will insure that the HVAC systems and other active engineered remedies will be operated, maintained, and monitored once implemented. The remedial action is being completed by the MEW Companies, none of which own or occupy the buildings within the vapor intrusion study area. It is not clear in the Proposed Plan how EPA intends to monitor and document that these remedies are operating as intended, either by the MEW Companies or the building owners/occupants.

*Preserving, enhancing, and restoring the San Francisco Bay Area's waters for over 50 years*

3. Provide the technical basis for EPA's selection of the concentrations used to establish the "lower" groundwater concentrations presented in Table 4<sup>1</sup>. In addition, provide the technical basis for EPA's selection of 5 µg/L of TCE in groundwater as the boundary for the vapor intrusion study area. No references supporting use of these concentrations as defined are included in the Proposed Plan.

If you have any questions, you can contact me via phone at (510) 622-2440 or email at [ewells@waterboards.ca.gov](mailto:ewells@waterboards.ca.gov).

Sincerely,

Elizabeth K. Wells, P.E.  
Project Manager

cc (via E-mail):

Ms. Kathryn Stewart, Department of the Navy, BRAC PMO West, [kathryn.stewart@navy.mil](mailto:kathryn.stewart@navy.mil)  
Ms. Angela Lind, Department of the Navy, BRAC PMO West, [angela.lind@navy.mil](mailto:angela.lind@navy.mil)  
Dr. Ann Clarke, NASA Ames Research Center, [ann.clarke@nasa.gov](mailto:ann.clarke@nasa.gov)  
Mr. Donald Chuck, NASA Ames Research Center, [donald.m.chuck@nasa.gov](mailto:donald.m.chuck@nasa.gov)  
Mr. Jim Blamey, Santa Clara County DEH, [jim.blamey@deh.sccgov.org](mailto:jim.blamey@deh.sccgov.org)  
Mr. George Cook, Santa Clara Valley Water District, [gcook@valleywater.org](mailto:gcook@valleywater.org)  
Mr. Stuart McGee, City of Sunnyvale, [smcgee@ci.sunnyvale.ca.us](mailto:smcgee@ci.sunnyvale.ca.us)  
Mr. Bob Moss, RAB Co-Chair, [bmoss33@att.net](mailto:bmoss33@att.net)  
Mr. Lenny Siegel, Center for Public Environmental Oversight, [lennysiegel@gmail.com](mailto:lennysiegel@gmail.com)  
Mr. Peter Strauss, PM Strauss & Associates, [petestrauss1@comcast.net](mailto:petestrauss1@comcast.net)

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<sup>1</sup> Lower groundwater concentrations are defined as 100 micrograms per liter (µg/L) tetrachloroethene (PCE) and trichloroethene (TCE) and 20 µg/L vinyl chloride for commercial areas and 50 µg/L PCE and TCE and 10 µg/L vinyl chloride for residential areas.

Office of the City Manager • 500 Castro Street • Post Office Box 7540 • Mountain View, California 94039-7540  
650-903-6301 • FAX 650-962-0384

November 7, 2009

Ms. Alana Lee  
Project Manager, MEW Study Area  
United States Environmental Protection  
Agency, Region 9  
75 Hawthorne Street, SFD-7-3  
San Francisco, CA 94105

**Re: COMMENTS ON JULY 2009 PROPOSED PLAN FOR THE VAPOR INTRUSION  
PATHWAY AND AUGUST 20, 2009 UPDATES, MEW SUPERFUND STUDY  
AREA**

Dear Ms. Lee:

The City of Mountain View (“City”) appreciates the opportunity to comment on the July 2009 Proposed Plan and the August 2009 Update for the Vapor Intrusion Pathway for the MEW Superfund Study Area. The comments below convey City staff’s input, but do not necessarily reflect comments or direction of the City Council. At this point, City staff offers the following specific comments for the EPA’s consideration when finalizing the Preferred Alternatives for the Vapor Intrusion Pathway.

The City refers to, reiterates and incorporates by this reference its comments as set forth in its letters to EPA dated March 5, 2008 and November 22, 2006, copies of which are attached to this letter as Attachments 1 and 2.

The City supports the Responsible Parties, the property owners and their tenants (both commercial and residential), and EPA in their efforts to do what is reasonably necessary to resolve all conditions that pose any threat to the health, safety and well-being of the citizens of Mountain View and the community in general. Of paramount concern to the City is protection of the health, safety and well-being of its citizens. Toward this end, the City believes it is imperative that the RPs, property owners and EPA reach consensus on the best and most effective vapor intrusion remedy as quickly and as efficaciously as possible. The City agrees that it is necessary to accelerate remediation of the solvent plume in the groundwater to mitigate and eventually eliminate risk from vapor intrusion. This is the best and most effective way in which to mitigate risk from vapor intrusion into structures within the MEW Study Area. As such, alternative remedial technologies, such as bio-remediation or others, should be tested and, if successful under site conditions, implemented expeditiously to clean up the groundwater as soon as possible.

The City agrees that sub slab and sub membrane depressurization systems would be the most effective and reliable vapor mitigation alternatives. The City believes that Commercial Property Owners' ("MCO") proposed alternative for vapor intrusion plan has merit and could be effective, both in the immediate future and over the long term. Voluntary, negotiated, recorded agreements between Responsible Parties and property owners are viable, permanent and protective. In cases where a property owner refuses to grant access, the City is willing to assist the RPs and EPA however feasible on an informal basis to encourage owners to cooperate.

The City believes that the operation of HVAC systems as a remedy—whether as the primary component of the remedy or as a back-up alternative—could serve as an option, but only as one of last resort and only if the property owner agrees. Operation of HVAC systems for extended periods will have adverse effects on the environment and will increase energy consumption and greenhouse gas emissions. The City recently adopted communitywide greenhouse gas reduction targets, and selection of HVAC operation as a remedy would work counter to these goals. The City cannot support any remedial alternative that uses or relies upon such a system, unless the immediate health and safety of its citizens require it and no other option is available.

In the event EPA retains HVAC as a potential remedial alternative, then the City believes EPA and the property owners should compile more information about current HVAC systems and operations. Neither the current Proposed Plan nor the Final Supplemental Remedial Investigation and Feasibility Study presents sufficient data to support extended HVAC operations as a feasible and viable alternative to vapor intrusion mitigation. There is insufficient information about conditions and operability of current HVAC systems on a building-by-building basis. Moreover, there is insufficient data about estimated costs needed to improve or replace HVAC systems on a building-by-building basis.

The City believes that there are viable and effective non-legislative alternatives for a municipal component of the vapor intrusion remedy's Institutional Control. These include the City's permit application and approval process, development/use conditions of approval, property databases, and California Environmental Quality Act review of projects and refinements to the City's CEQA Guidelines.

The City recommends that the City's administrative process for development and building permits serve as the municipal component of the vapor intrusion remedy's Institutional Control. These administrative procedures, described in draft form in Attachment 3, have been adhered to in practice by the City for many years, effectively addressing environmental conditions related to new and re-development in the MEW Study Area. The City has the authority, under its police power, to require property owners and tenants to comply with these procedures. These administrative procedures, which the City's Community Development Director formally will issue, capture building construction or improvement that involve or implicate elements of vapor pathway mitigation (e.g., installation of sub slab systems and

correction of slab incursions or defects). These administrative procedures also describe “future improvements”, which the City believes could enhance and improve the development and building permit process as it applies to the MEW Study Area. An “Integrated Permit System” could integrate and coordinate the City’s three database systems (planning, building and code enforcement) to ensure that all properties and parcels within the MEW Study Area are captured by this Institutional Control. Although the City does not have the resources to purchase and implement this type of integrated system, if the EPA determines such a system is critical to the MEW Study Area vapor intrusion remedy, then the City would request that EPA and/or the Responsible Parties reimburse it for the costs of updating and improving the software necessary to integrate these database systems.

The Proposed Plan currently identifies a “municipal ordinance” as EPA’s preferred Institutional Control for all remedial alternatives (except for the “No Action” alternative). In light of the above recommendation about the most effective and practical Institutional Control, the City questions whether an ordinance would be a viable part of any long-term remedy. An ordinance as a mechanism to enforce remedial alternatives is not feasible or effective for several reasons, including the following:

a. Due to equal protections constraints, any ordinance would need to apply to areas and properties in addition to MEW Study Area buildings and residences; thus, an ordinance would have an overly and disproportionately broad sweep to address a small number of properties;

b. The City does not have funds, personnel, resources or expertise to enforce and implement on-going sampling, monitoring and correction. Furthermore, even if it was intended that such on-going City involvement would be fully cost-recovered through payment from the MEW Site Responsible Parties, it would represent a new type of regulatory activity for the City with indirect resource impacts and administrative complexities. Thus, the City questions whether such a program would be in the best operational and financial interests of all parties involved, especially when contamination site monitoring has occurred for decades directly between RPs, private environmental contractors, and lead regulatory agencies without local agency involvement.

c. An ordinance is the result of political action and, by definition, could be temporary and subject to change; legislated solutions are less durable and effective (due to the “political” quality of council decisions). The Plan’s statement on page 15 – that “[o]nce adopted . . . use of a municipal ordinance can be an effective long-term method to ensure remedy implementation” -- is not necessarily true.

Other potential downsides to an ordinance for which here has been little to no consideration or analysis in the Proposed Plan include the following:

a. The process by which an ordinance must be prepared, vetted and enacted is long, unwieldy and uncertain. Extensive public input is required, and study sessions and public hearings are time-consuming but necessary. The outcome of this process is not predictable.

b. Costs of preparation, public participation and hearing, and adoption and implementation of an ordinance are uncertain. On page 10, the Plan states that “the estimated cost to prepare and adopt an ordinance is approximately \$25,000, and the annual cost to monitor and enforce the performance of the ordinance is \$23,000, resulting in a 30-year present worth cost of \$310,000.” Although only preliminarily reviewed by the City, these estimates were made before more fully reviewing the concept of an ordinance with the EPA, the Responsible Parties, and commercial and residential property owners, and are likely to be significant underestimates.

Recorded covenants and access/mitigation agreements between Responsible Parties and property owners serve the same purpose and accomplish the same objectives as an ordinance or zoning. Such recorded instruments provide notice and information to current and prospective property owners and users. And the City's permit process, as explained above, combined with mitigation agreements tied to building-specific Operations and Maintenance Plans, will help ensure that new buildings, or buildings that undergo substantial modification, are designed, constructed, and/or improved to mitigate potential vapor intrusion. Recorded agreements have been negotiated and implemented successfully at the MEW site, as the Final Feasibility Study reports on page 74.

In the event EPA and other parties nonetheless pursue an ordinance as part of the remedy's Institutional Control, there are many details to be developed and discussed regarding the feasibility of a municipal ordinance as an IC. EPA and the MEW parties must acknowledge and account for the costs of development, implementation, and on-going monitoring and enforcement of any such ordinance, as the City should be and is entitled to recover fully such costs. The City is not a responsible party (or liable person under CERCLA), and public monies in this case should not be expended for environmental clean-up tasks that are the responsibility of private parties who caused or contributed to the contamination at issue.

Although the component of the remedy that suggests a municipal ordinance as an Institutional Control has been the subject of on-going discussion between City staff and EPA, this would require future study sessions and public meetings with the City Council. Therefore, EPA should anticipate extensive future public input during consideration of a municipal ordinance in its remedy selection decision, which EPA should respond to in the Responsiveness Summary and document in the Record of Decision Amendment.

**Residential Areas.** For reasons discussed above, an ordinance would not be the most effective and efficient method to ensure implementation and management of a vapor intrusion remedy of existing or new residences in the Vapor Intrusion Study Area. The Responsible Parties should be required to install vapor intrusion control systems in existing residences that

have been tested and warrant a system or in new residences as warranted. The City's permit process for Residential development is described in Attachment 3.

The Record of Decision Amendment should recognize that any solution -- including the Institutional Control component of the remedy -- must be designed and implemented on a property-by-property/building-by-building basis. There are too many variations in building types and conditions (as the Proposed Plan acknowledges on page 9), as well as varying chemical concentrations in groundwater under different properties, for a standard or homogeneous solution. This in and of itself undermines the effectiveness of a general, overarching mechanism such as an ordinance or overlay zone in commercial and/or residential areas.

Mitigation should be on a property-by-property/building-by-building basis, and the City believes that there is insufficient data about air quality conditions or vapor intrusion (not every building has been sampled adequately or at all). Moreover, the City is concerned that the cost of implementation and monitoring of each building-specific remedy has not been adequately or accurately estimated.<sup>1</sup> Finally, the City questions whether certain air sampling data are so old (2003-2004) that this data are not accurate or reliable indicator of current interior vapor conditions.

The Proposed Plan and the Final Supplemental Remedial Investigation and Feasibility Study do not map clearly enough the specific boundaries of the Vapor Intrusion Study Area, although a subsequent map and lists identify properties by address. EPA should provide documentation that clearly shows which individual properties by parcel number fall within the study area and describes the process for estimating the plume boundaries and how frequently the plume is mapped. These details are critical to a property owner's understanding about the status of their property.

The Vapor Intrusion Study Area should be clearly defined and precisely drawn, and the boundary between the Study Area "Buffer Zone" and the line of the plume estimated at TCE 5 ppb in shallow groundwater should be clearly delineated, particularly in residential areas. The distinction between being in the buffer zone versus actually above groundwater contamination could be an important distinction from a property owner's perspective.

On page 27 of the Proposed Plan, EPA states that the overall cost estimate for the preferred alternative was calculated based on its preliminary classification of existing buildings

---

<sup>1</sup> The Final Remedial Investigation (page 71) acknowledges that in the areas south of Highway 101 within the A aquifer TCE plume boundary, 28 commercial buildings had not been sampled as of the time of the report. At page 8, the Final Feasibility Study indicates that 26 commercial buildings had not been sampled within this area.

Ms. Alana Lee  
November 7, 2009  
Page 6

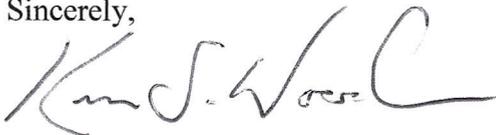
into various compliance tiers based on currently available indoor air sampling data. EPA should make these preliminary classifications available to property owners upon request.

The Proposed Plan discusses the requirement and/or option for property owners to conduct additional confirmation sampling to confirm their tier of compliance, also stating that “additional lines of evidence may be collected and evaluated at any time to determine whether a move between tiers would be appropriate” (p. 23). Property owners of “victim sites” to the groundwater contamination should not have to cover the costs of this “burden of proof” sampling. Additionally, EPA should specify with further guidance what constitutes “additional lines of evidence.”

As discussed on previous occasions with EPA, City staff reiterates and emphasizes that due to the complexities of this Proposed Plan, extra outreach to both residential and commercial property owners, tenants, and employees in the Vapor Intrusion Study Area is warranted. In addition, and related to outreach efforts, the City would like to recommend that the EPA consider the development of a clear and concise webpage that addresses the frequently asked questions and concerns regarding the MEW Study Area from the residential property owner, commercial property owner, and tenant’s perspectives.

Again, thank you for the opportunity to provide these comments. The City would like to commend the EPA and the Responsible Parties for the considerable efforts and progress that have been achieved over decades of work in the MEW area, and looks forward to continuing to work to ensure the public health and safety and environmental protection in this vital area of the City. Please contact me in the Mountain View City Manager’s Office at (650) 903-6301 or by e-mail to [kevin.woodhouse@mountainview.gov](mailto:kevin.woodhouse@mountainview.gov) if you have any questions or require additional information regarding these comments.

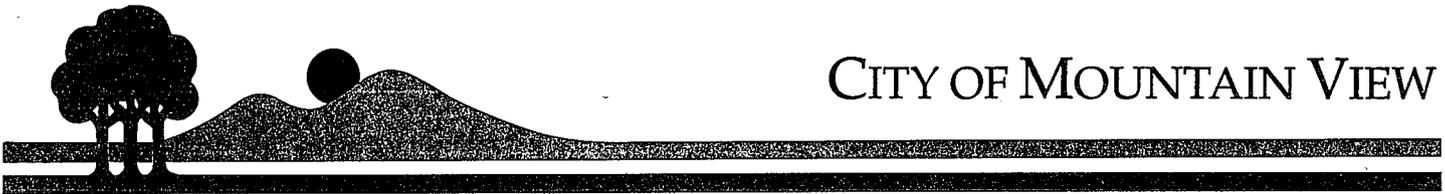
Sincerely,



Kevin S. Woodhouse  
Assistant to the City Manager

cc: City Council  
CM, ACM, CDD, EDM, SACA-Quinn, ACA-Chopra, ZA, BO (Acting), FM  
Lenny Siegel, CPEO  
Perry Palmer, Mountain View Commercial Owners

73956



Office of the City Manager • 500 Castro Street • Post Office Box 7540 • Mountain View, California 94039-7540  
650-903-6301 • FAX 650-962-0384

March 5, 2008

MR ELIE H HADDAD PE  
LOCUS TECHNOLOGIES  
299 FAIRCHILD DRIVE  
MOUNTAIN VIEW CA 94043

MS ALANA LEE—PROJECT MANAGER  
SUPERFUND DIVISION SFD-7-3  
EPA REGION IX  
75 HAWTHORNE STREET  
SAN FRANCISCO CA 94105

CITY STAFF COMMENTS REGARDING FEASIBILITY OF HEALTH AND SAFETY  
ORDINANCE INSTITUTIONAL CONTROL

Dear Ms. Lee and Mr. Haddad:

As follow-up to our January 8, 2008 meeting regarding institutional controls for vapor intrusion at the MEW study area, City staff would like to provide the following comments and suggestions.

Implementing revisions to the City's Health and Safety Ordinance to require a periodic certification and monitoring program for heating/ventilation/air conditioning (HVAC) systems for specific targeted buildings within the MEW study area may be possible but would pose several technical and administrative challenges:

1. Detailed risk-based criteria would need to be developed to determine which buildings would be subject to the certification and monitoring program. The EPA's and MEW companies' technical expertise would be required during the evaluation and development of such criteria as well as during the public hearing process to defend the criteria and during any subsequent challenges to the criteria. Building owners in the MEW study area undoubtedly will be concerned about being subject to such a monitoring program and likely will want to have periodic reevaluations of their buildings as groundwater contamination levels decrease or tenant improvements inside buildings are made. In short, there is the possibility that building-by-building challenges to the ordinance will pose an ongoing technical and administrative, if not legal, challenge to the program.

Mr. Elie H. Haddad, P.E.

Ms. Alana Lee

March 5, 2008

Page 2

2. If this ordinance were recommended to the City Council, the issue of whether or not it should be applied City-wide where the same health risk conditions potentially exist will need to be considered. There are numerous shallow groundwater solvent contamination cases in Mountain View. If it were to be applied City-wide, the EPA's and MEW companies' technical expertise and/or resources would be required to evaluate these areas for buildings that might be subject to the ordinance. Otherwise, this institutional control originally being sought for the MEW study area could create implementation and enforcement funding gaps elsewhere in the City.
3. Although the MEW companies have indicated that voluntary agreements to an HVAC certification and monitoring program negotiated between the property owners and the MEW companies would be less feasible, based on past experience, than the Health and Safety Ordinance idea, this option does not appear to staff to have been thoroughly evaluated. How many property owners in the MEW study area are currently under agreement with the MEW companies for access or other provisions? How many already have restrictive covenants? What are the restrictions? How many would be subject to this ordinance concerning HVAC systems? Would buildings that have operational HVAC systems and have been tested and shown to not have an indoor vapor risk be subject to the monitoring program? Are there any buildings that do not have operational HVAC systems? Have incentives been offered to property owners for voluntary compliance? How would nonvoluntary compliant property owners react if they had to choose between voluntary compliance and being subject to an ordinance?
4. Although the details of the ordinance idea have yet to be worked out, the City does not have staff, resources or technical expertise to develop and implement such an ordinance and enforcement program.

Due to the points above, City staff would like to recommend an approach to the health and safety ordinance idea in which all possible voluntary agreement efforts are attempted before the significant political process of a mandatory ordinance is initiated. If voluntary agreement efforts fail, then a mandatory ordinance to bring the remaining property owners into compliance would be more politically and administratively feasible. City staff recommends that the MEW companies and the EPA develop a reasonable work plan for pursuing voluntary compliance. The City would be willing to participate in, but not lead, this effort. If there are still noncompliant property owners after one year (or whatever appropriate work plan time line is determined), the appropriateness of a health and safety ordinance should be further considered.

Mr. Elie H. Haddad, P.E.

Ms. Alana Lee

March 5, 2008

Page 3

Thank you for the opportunity to review and comment on this issue. The City looks forward to continuing its participation in this process to ensure the responsible parties continue their efforts toward a clean and health-protective environment for Mountain View residents and businesses.

I can be reached at (650) 903-6215 or by e-mail at [kevin.woodhouse@mountainview.gov](mailto:kevin.woodhouse@mountainview.gov) if you would like to discuss these comments.

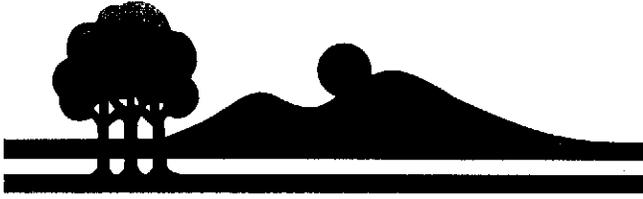
Sincerely,

A handwritten signature in black ink, appearing to read "Kevin S. Woodhouse". The signature is fluid and cursive, with a long horizontal stroke at the end.

Kevin S. Woodhouse  
Assistant to the City Manager and  
Environmental Management Coordinator

KSW/9/MGR  
610-03-05-08L-E^

cc: CM, ACM, CDD, PWD, SACA—Emerson, FC, FM, EDM (Berns)



# CITY OF MOUNTAIN VIEW

Office of the City Manager • 500 Castro Street • Post Office Box 7540 • Mountain View, California 94039-7540  
650-903-6301 • FAX 650-962-0384

November 22, 2006

Elie H. Haddad, P.E.  
Jessica D. Ramirez, P.E.  
Locus Technologies  
299 Fairchild Drive  
Mountain View, CA 94043

Alana Lee, Project Manager  
Superfund Division SFD-7-3  
EPA Region IX  
75 Hawthorne Street  
San Francisco, CA 94105

**COMMENTS RE: SUPPLEMENTAL FEASIBILITY STUDY FOR VAPOR INTRUSION,  
MIDDLEFIELD-ELLIS-WHISMAN AREA AND MOFFETT FIELD, CA, OCT. 16, 2006**

Dear Ms. Lee, Mr. Haddad and Ms. Ramirez:

Thank you for the opportunity for the City of Mountain View to review and comment on this subject report. This report is an important step toward addressing the potential vapor intrusion pathway into current and future buildings overlying the MEW Study Area groundwater contamination plume. As you are aware, the City is supportive of efforts to address these important vapor intrusion issues, and over the past few years has played an active role in advocating for and facilitating community involvement in MEW Study Area and Moffett Field clean-up actions. In addition to participating in the Northeast Mountain View Advisory Council and Moffett Restoration Advisory Board meetings, the City has met and discussed these issues with the Responsible Parties and regulatory agencies on multiple occasions. The City looks forward to continuing its participation in this process to ensure the Responsible Parties continue their efforts toward a clean and health-protective environment for Mountain View residents and businesses.

The comments below represent City staff's preliminary review of the Feasibility Study Report. Later in the RI/FS-Proposed Plan-ROD process, depending on your responses to these comments, it may be necessary for staff to present this issue to the Mountain View City Council for additional review, comment, and decision-making as related to City policies, practices, and resources. As these comments convey, many of the Institutional Controls proposed in the Feasibility Study Report potentially impact the City well beyond its current policies, practices, and resources.

City staff would like to provide the following comments on Section 8.3, "Institutional Controls," pp. 91-93, and Section 8.4, "General Approach," pp. 93-96:

1. References to one-time or annual building and/or ventilation system inspections or verifications in Sections 8.3.1, 8.3.2, 8.3.3, 8.3.4, 8.3.6, 8.4.1, 8.4.2, and 8.4.3 are ambiguous about who would conduct such inspections or verifications. For clarification, the City does not verify HVAC system functionality as part of the building inspection and permitting process. Furthermore, the City does not have the jurisdiction, resources, or staffing to implement this kind of ongoing monitoring and enforcement program; this would be an entirely new, unfunded program requiring legislative authority and enforcement power, resources, and fees. The City recommends that such a program, if chosen as an institutional control, should be conducted privately between the Responsible Parties, building owners/occupants, and the U.S. EPA. Such a program should be paid for by the Responsible Parties and incentives could be given to businesses that participate to increase cooperation and participation.
2. The last full paragraph on p. 91 states that "the City of Mountain View may wish to evaluate a local ordinance, zoning change or overlay at the Site to incorporate engineering controls for new commercial and residential construction and/or operational controls on existing commercial properties." Adoption of an overlay zone (which designates an area requiring special treatment) would require significant staff time to develop, implement, and oversee, is beyond current City staff and resources, and would require City Council policy direction. The City has never applied overlay zones to environmental issues, particularly because environmental conditions for properties can change but rezoning properties to remove the overlay as groundwater is cleaned up would be very cumbersome. Adopting an overlay zone for environmental conditions would generate significant concern from property owners and require Environmental Planning Commission and City Council public hearings and action by these bodies.

The City's current planning review practices for new development and re-development include database tools, mapping tools, and staff expertise to assess contamination issues. Although not as institutionalized as an overlay zone control, these practices have proven effective at addressing vapor intrusion risks at new and re-development sites through mitigation requirements such as vapor barriers and sub-slab ventilation systems. City staff would like to strongly discourage reliance on the overlay zone concept as an institutional control. However, if necessary, City staff is open to continuing discussions with the Responsible Parties and the EPA about the pros and cons, resource impacts, and significant public decision-making process, including City Council decision-making, required to implement this type of institutional control.

In addition, please consider the following two comments:

3. Regarding the statement under Section 1.2, "Site Background," p. 3, last paragraph that "The MEW area is currently zoned primarily for commercial and light industrial use, and the City of Mountain View has indicated that it has no current plans to change the zoning in the MEW area," please be advised that the City is currently engaged in a South

Whisman Rezoning Study to consider the possible conversion of industrial land to residential uses in the area bounded by Whisman Rd., Ferguson Dr., Whisman Station, and properties on the south side of Middlefield Rd. This rezoning study area is adjacent to and potentially may include some overlap with the southern most estimated plume boundary of the MEW study area. City staff is available to provide additional information about the status of this rezoning study as necessary.

4. Acceleration of groundwater remediation is the most guaranteed solution to future vapor intrusion risks. The City understands some MEW Site Responsible Parties are implementing pilot tests to explore the effectiveness of bio-remediation or other alternative remediation strategies. The City would like to encourage additional focus and priority on technologies that might accelerate groundwater remediation.

City staff appreciates the opportunity to review and comment on this report. I can be reached at (650) 903-6215 or by e-mail at [kevin.woodhouse@mountainview.gov](mailto:kevin.woodhouse@mountainview.gov) if you have questions about these comments. The City looks forward to working collaboratively to address these vapor intrusion issues.

Sincerely,



Kevin S. Woodhouse  
Assistant to the City Manager &  
Environmental Management Coordinator

cc: Alana Lee, Project Manager, United States Environmental Protection Agency  
Sandy Olliges, NASA-Ames Research Center  
Lenny Siegel, Center for Public Environmental Oversight  
Rick Weissenborn, Navy BRAC Program Management Office West

CM, ACM, CDD, PWD, SACA-Emerson, DCDD

**CITY OF MOUNTAIN VIEW  
MEMORANDUM**

DATE: November 6, 2009  
TO: Community Development Staff  
FROM: Randal Tsuda, Community Development Director  
SUBJECT: CITY PERMIT PROCESS FOR MEW PROJECTS

---

This document describes the development review process for new construction and certain remodeling projects in the Middlefield-Ellis-Whisman Study Area. This document has been prepared to clarify, and reinforce, these processes in light of the United States Environmental Protection Agency's review and anticipated changes to the MEW Study Area Record of Decision.

Timelines vary depending on the type and scope of each project.

**Commercial/Office/Industrial Projects**

Ministerial

1. Tenant Improvements (TI) for existing businesses without exterior changes
  - No Planning Permit required
  - Building Permit(s) required, issued by the Building Official
    - a. Building Division staff shall require that any proposed penetrations of the slab foundation shall be properly sealed in accordance with EPA requirements.
    - b. These permits are not routed to the EPA for review.

Discretionary

2. New principally permitted or conditionally permitted tenants in existing buildings
  - Planning Permit required (Development Review Permit (Change of Use), Conditional Use Permits)
  - Building Permit(s) required only if a Tenant Improvement is proposed, in which case Subsection 1 shall be followed.
    - a. Operational conditions related to monitoring are not included.
    - b. Sub-slab or other mitigation under the existing buildings is not required.
    - c. These applications are categorically exempt from CEQA review.
    - d. These permits are not routed to the EPA for review.
  
3. New buildings or additions with habitable space less than 10,000 square feet in floor area, or changes to the site, architectural or landscaping design of the property.
  - Planning Permit required (Development Review Permits or Transit-Oriented Development Permits)
  - Building Permit(s) required subject to Subsection 1 above, except for limited landscaping proposals which may not require Building Permits.
    - a. A project may include components from Subsection 1, 2 and/or 3.
    - b. Planning Division staff shall include a Condition of Approval for sub-slab mitigation under new buildings and additions in accordance with EPA requirements for any Planning Permit proposing new floor area.
    - c. Building Division staff shall require that any proposed penetrations of the slab foundation shall be properly sealed in accordance with EPA requirements as a condition of the building permit.
    - d. The builder shall demonstrate compliance with the Conditions of Approval prior to occupancy, subject to the approval of the Building Official and Zoning Administrator.
    - e. Sub-slab or other mitigation under the existing building is not required by City permit.
    - f. These applications are categorically exempt from CEQA review.
    - g. These permits shall not be routed to the EPA for review.

4. New buildings or additions over 10,000 square feet in floor area
  - Planning Permit required (Development Review Permits or Transit-Oriented Development Permits)
  - Building Permit(s) required
    - a. A project may include components from Subsections 1 through 4.
    - b. Planning Division staff shall route Initial Studies to the EPA for comment pursuant to CEQA, including Phase I and II reports.
    - c. Planning Division staff shall ensure that applicable EPA mitigations are reflected in the CEQA document and as Conditions of Approval in the Planning Permit.
    - d. Planning Division staff shall include a Condition of Approval for sub-slab mitigation under new buildings and additions in accordance with EPA requirements.
    - e. Building Division staff shall require that any proposed penetrations of the slab foundation shall be properly sealed in accordance with EPA requirements as a condition of the building permit. .
    - f. The builder shall demonstrate compliance with the Conditions of Approval to prior to occupancy, subject to the approval of the Building Official and Zoning Administrator.

## **Residential Projects**

### Ministerial

5. New single-family homes or duplexes, or additions to single family homes or duplexes
  - No Planning Permit required
  - Building Permit(s) required, issued by the Building Official
    - a. Building Division staff shall require that any proposed penetrations of the slab foundation shall be properly sealed in accordance with EPA requirements.
    - b. Building Division staff shall require any addition of floor area to use a concrete slab foundation and include sub-slab mitigation in accordance with EPA requirements.
    - c. Sub-slab or other mitigation under the existing building is not required by City permit.

- d. These permits are not routed to the EPA for review.

### Discretionary

6. New residential subdivision of 4 parcels or less, minor additions to apartment complexes less than 10,000 square feet in floor area.
  - Planning Permit required (Planned Unit Development Permits, Development Review Permits, or Parcel Maps)
  - Building Permit(s) required and shall be processed as described in Subsection 5 above.
    - a. Planning Division staff shall include a Condition of Approval for sub-slab mitigation under new buildings and additions in accordance with EPA requirements.
    - b. Building Division staff shall require that any proposed penetrations of the slab foundation shall be properly sealed in accordance with EPA requirements as a condition of the building permit
    - c. The builder shall demonstrate compliance with the Conditions of Approval to prior to occupancy, subject to the approval of the Building Official and Zoning Administrator.
    - d. Sub-slab or other mitigation under the existing buildings are not required by City permit.
    - e. These applications are categorically exempt from CEQA review
    - f. These permits are not routed to the EPA for review.
7. New residential subdivision of 5 parcels or more, new apartment projects or major additions to apartment complexes over 10,000 square feet in floor area.
  - Planning Permit required (Planned Unit Development Permits, Development Review Permits, or Tentative Maps)
  - Building Permit(s) required and shall be processed as described in Subsection 5 above.
    - a. Planning Division staff shall route Initial Studies to the EPA for comment pursuant to CEQA, including Phase I and II reports.
    - b. Planning Division staff shall ensure that applicable EPA mitigations are reflected in the CEQA document and as Conditions of Approval in the Planning Permit,

- c. Planning Division staff shall include a Condition of Approval for sub-slab mitigation under new buildings and additions in accordance with EPA requirements.
- d. Building Division staff shall require that any proposed penetrations of the slab foundation shall be properly sealed in accordance with EPA requirements as a condition of the building permit.
- e. The builder shall demonstrate compliance with the Conditions of Approval to prior to occupancy, subject to the approval of the Building Official and Zoning Administrator.

### **Future Improvements**

The following measures would improve the process of identifying MEW properties to ensure that appropriate mitigations are implemented. These measures shall be completed depending on available funding:

- A. Flag MEW properties in Planning, Building and Code Enforcement Database systems to inform staff when a new application in the MEW area is received.
- B. Designate the MEW study area on the Planning Division Land Use Policies map and complete implementation of a GIS layer related to all contamination sites.
- C. Update the reporting capabilities in the Planning and Building Databases to provide periodic reports of new permits issued in the MEW area to provide courtesy information to the EPA.

Cc: City Attorney's Office  
City Manager's Office

## MEW Parties (Responsible Parties)



October 27, 2009

**379.007.01.007**

Ms. Alana Lee  
Superfund Program SFD-7-3  
EPA Regional IX  
75 Hawthorne Street  
San Francisco, CA 94105

**EPA PROPOSED PLAN FOR VAPOR INTRUSION  
SMI HOLDING LLC  
455, 485/487, AND 501/505 EAST MIDDLEFIELD ROAD  
MOUNTAIN VIEW, CALIFORNIA.**

Dear Ms. Lee:

On behalf of SMI Holding LLC (SMI), and as requested in your electronic correspondence of July 2 and August 20, 2009, this letter provides comments on the EPA's proposed plan for the vapor intrusion pathway (Plan) at the Middlefield-Ellis-Whisman (MEW) site in Mountain View, California. Specific comments follow:

- The Plan states: "The Vapor Intrusion Study Area includes a 100 foot buffer zone beyond the estimated 5 ppb TCE plume boundary to account for the uncertainty of the depicted plume boundary." While we agree that there may be uncertainty in the depicted plume boundary in some areas (i.e., the western edge of the plume), we know the plume boundaries with certainty on the southeast side of the plume, just east of SMI's site. An existing well (SO-PZ3) has been monitored since 1993, and has never had detectable concentrations of TCE (or other volatile organic compounds). Additionally, several prior investigations have been completed to assess potential groundwater impacts east of 485/487 East Middlefield Road (see Attachment A). The 100 foot buffer zone will result in unnecessary and unjustified additional costs associated with the construction of new buildings within the buffer zone. Therefore, for areas near the 5 ppb TCE plume boundary, where there is existing data to show that there is no shallow plume (or where additional data would demonstrate there is no shallow plume), a buffer zone is not needed.

Ms. Alana Lee  
October 27, 2009  
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- HVAC system operation (with monitoring and institutional controls) is the selected remedy for existing commercial buildings. The plan needs to clarify that HVAC system operation is only required when the building is occupied for business (i.e., during normal working hours) and not during non-business hours (i.e., when janitorial and/or security staff may only periodically be present). The FS report stated “Section 5142 of the OSHA regulations requires the HVAC system to be operated continuously during working hours”. EPA’s revisions to the proposed plan dated August 20, 2009 state that “...there may be several buildings with security and cleaning crews occupying the buildings after normal business hours but for at least 8 hours a day”. For these buildings, EPA indicated that it may not be preferable to use the HVAC system for the selected remedy, and installation of a sub-slab depressurization system could be utilized. As an alternative, the ability to test the indoor air in areas occupied by the security and/or cleaning crews for at least 8 hours a day, with-out HVAC system operation should be allowed. If the indoor air test results indicate that the indoor air concentrations are below EPA’s action level of 5 micrograms ( $\mu\text{g}/\text{m}^3$ ), then no additional remedy should be required.

If you have questions or need additional information, please call Ms. Susan Gahry at (415) 899-1600.

Yours very truly,

**PES ENVIRONMENTAL, INC.**



Susan Gahry, P.E.  
Principal Engineer

Attachment A – Prior Site Investigations

cc: Mr. Gary Jones  
Mr. Chuck Hunnewell  
MEW Distribution List – electronic copies

**ATTACHMENT A**

**PRIOR SITE INVESTIGATIONS**

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<0.0050

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R-15A  
10/16/92  
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<0.0100

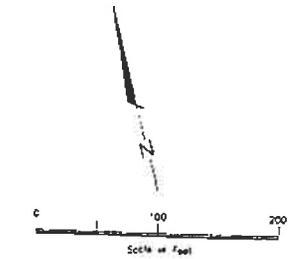
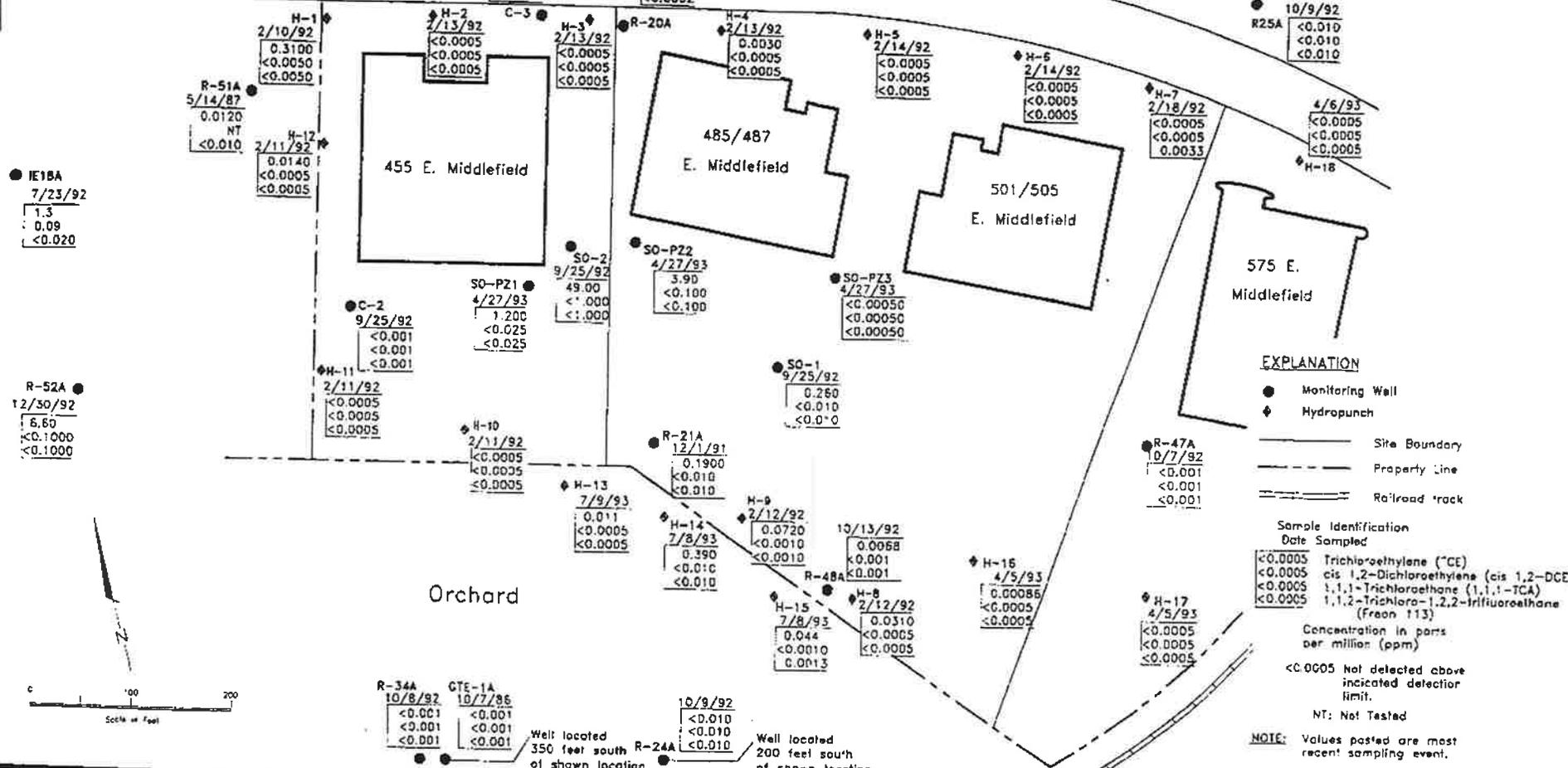
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ME-1A

Ellis Street

MEC-17A 9/21/92  
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East Middlefield Road



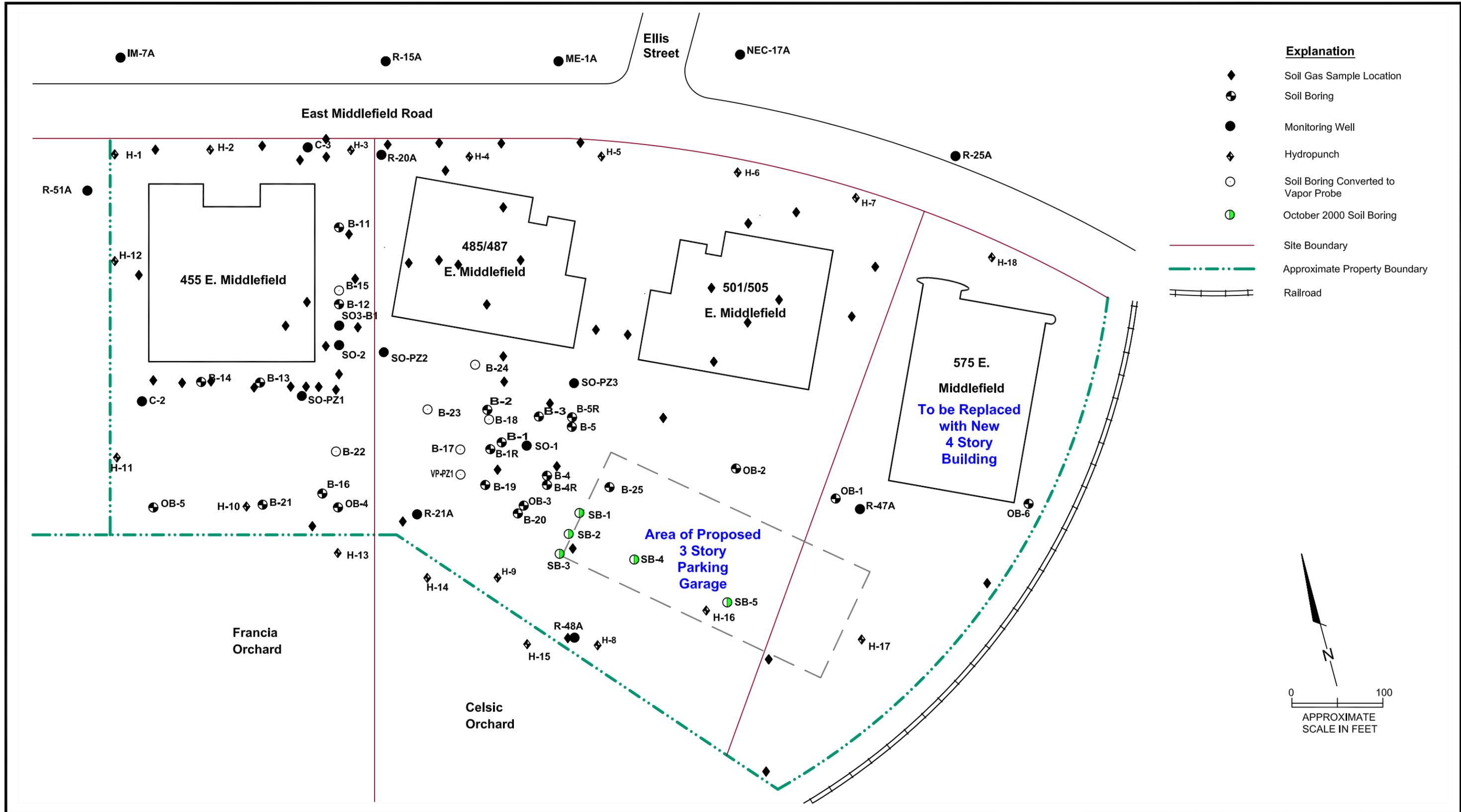
**PES Environmental, Inc.**  
Engineering & Environmental Services

Volatile Organic Compounds in A Aquifer Groundwater  
Sobrato Development Companies  
East Middlefield Road Properties  
Mountain View, California

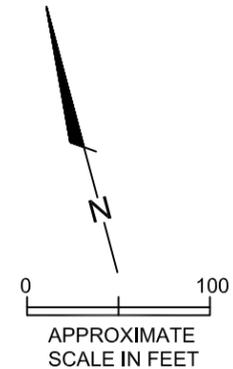
PLATE  
**12**

126.0201.004 126VOCBN  
JOB NUMBER DRG NUMBER

7/93  
DATE REVISED DATE



Explanation	
◆	Soil Gas Sample Location
⊕	Soil Boring
●	Monitoring Well
◆	Hydropunch
○	Soil Boring Converted to Vapor Probe
⊙	October 2000 Soil Boring
—	Site Boundary
— · — · —	Approximate Property Boundary
— — — —	Railroad





Gordon C. Atkinson  
(415) 693-2088  
atkinsongc@cooley.com

VIA E-MAIL AND HAND DELIVERY

November 6, 2009

Ms. Alana Lee  
Project Manager  
EPA Region 9  
75 Hawthorne St., SFD-7-3  
San Francisco, CA 94105

**Re: Comment to EPA Proposed Plan for the Vapor Intrusion Pathway – Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View and Moffett Field, California**

Dear Ms. Lee:

**I. Introduction**

Raytheon Company and Schlumberger Technology Corporation (STC) both appreciate the opportunity to provide comments on EPA's Proposed Plan for the Vapor Intrusion Pathway at the Middlefield-Ellis-Whisman (MEW) Superfund Study Area (the Proposed Plan). (I am authorized to inform you that this letter is written by both Richard C. Coffin and me on behalf of both Raytheon and STC (sometimes, the Companies.)

We write in particular about the anticipated amendments to the Record of Decision (ROD) and how they will address (i) existing and future residential buildings, (ii) existing and future commercial buildings and (iii) the "contingent" RAO concerning groundwater. We also address (and repeat) our prior concerns with respect to EPA's decision to continue to consider recorded covenants as a possible institutional control for the MEW Site, as well as any institutional control (including ordinances) that are more cumbersome than what we regard as much simpler, implementable, and much more cost-effective solutions. In short:

- With respect to EPA's selection of a preferred remedial alternative for residential buildings (existing and new), we write to confirm our understanding of what EPA anticipates will be set forth in the ROD amendment and to clarify our understanding of the path set forth in the Proposed Plan as it applies to those residences west of Whisman Road.
- With respect to EPA's selection of a preferred remedial alternative for commercial buildings at the MEW Site (existing and new), the Companies' position has been consistent throughout the course of preparing the RI/FS for the Vapor Intrusion Pathway, and we reiterate that position here. The Companies do not believe it necessary or appropriate for EPA to require the construction or operation of sub-slab remedies for existing or future commercial buildings with existing or new, operational HVAC systems where the buildings are already required by existing law or where the building owners

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otherwise agree to operate the systems in a manner to control vapor intrusion appropriately.

- With respect to EPA's decision to retain the possibility of recorded covenants as a viable institutional control, we reiterate that this solution, if selected, would be very time consuming, uncertain, expensive, and highly disruptive for the building owners at the MEW Site. We also strongly believe that it is simply unnecessary and not required by law.
- While we support the concept of a City of Mountain View ordinance as an institutional control, at least when compared to the possibility of a recorded covenant, we believe that neither option is anywhere near as effective, implementable, or cost effective in the short or long term when compared to voluntary agreements, especially when such agreements are accompanied by recorded notices of agreement or recorded access agreements.
- The "contingent" RAO regarding groundwater does not belong in the Record of Decision regarding vapor intrusion. It is premature and inconsistent with the National Contingency Plan.

## II. Existing and Future Residential Buildings West of Whisman Road

It is our understanding from our review of the Proposed Plan – and based on our work on the Remedial Investigation (RI) and Feasibility Study (FS), as well as our many detailed conversations and meetings with EPA, that the ROD will only require an actual, engineered, remedial alternative for residences in a limited set of circumstances. In the Proposed Plan, for both existing and future residential buildings that overlie portions of the groundwater plume with less than 50 ppb TCE or PCE and less than 10 ppb vinyl chloride, there are two possible approaches:

- First, for existing buildings where there are indoor air sampling results available, if those sampling results are above background contaminant levels, *but below action levels*, then future monitoring – only – will be appropriate. (This is also, at least theoretically, true for properties above higher concentrations of groundwater, but we are unaware of any such properties at this time.)
- Second, for existing and/or future buildings, if there is sufficient evidence (using multiple lines of evidence) that there is no risk of potential vapor intrusion above action levels, even without indoor air sampling results, then no further action will be necessary (assuming such a conclusion is reached with EPA's concurrence.)

It is our view that there is *already* sufficient evidence, set forth in detail in the RI Report, that there is no significant risk in the residences west of Whisman Road and that – whether for new or existing structures – no sub-slab remedy is necessary or appropriate. As set forth in the RI, after EPA finished conducting extensive sampling of residences in that area, the results

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demonstrated that there were no residences with TCE concentrations above action levels (after taking more than 200 samples in 17 residences), except for samples (i) in a residence with an earthen basement, (ii) in residences where there was an unrelated indoor source of TCE, or (iii) that were not confirmed in repeat, additional sampling. Consequently, we do not believe that future sampling of buildings in that part of the MEW Site is necessary or appropriate, nor do we believe that future buildings should have any engineered remedy required. The data already demonstrate, after extensive sampling, that there is no significant risk, absent either (i) an earthen basement, or (ii) on-site sources of chlorinated solvents. We believe that those results provide sufficient evidence to demonstrate that the residences already built, or to be built, west of Whisman Road should fall under Tier 4 (existing residences) and Tier C (future residences), as those tiers are described in the FS and the Proposed Plan.

### **III. Existing and Future Commercial Buildings**

The Companies continue to express their strong disagreement with EPA's selection of sub-slab passive ventilation and/or depressurization systems (i.e., Alternatives 3 and 4A/B) as the preferred remedial alternatives for many existing<sup>1</sup> and all future commercial buildings at the MEW Site. Instead, the use of heating, ventilation, and air conditioning (HVAC) systems (i.e., Alternative 2) should be chosen as the preferred alternative for most commercial buildings. As demonstrated by the data collected during the RI process, the proper installation and use of HVAC systems will effectively keep MEW Site-related VOC concentrations in buildings under action levels. Because such use already is required for most buildings by existing state regulations, the use of HVAC systems should be chosen as the preferred alternative over other alternatives, where appropriate. Consequently, this remedy will not only be capable of ready enforcement, but also will be more implementable, and significantly less costly than the other proposed alternatives for many existing and all future commercial buildings.

#### **A. The Proposed Plan Fails to Acknowledge That California Ventilation Regulations Require the Use of HVAC Systems in Commercial Buildings and Apply to Many Existing and All Future Commercial Buildings at the MEW Site.**

Many existing and all new commercial buildings at the MEW Site must have HVAC systems, and as shown in the RI, these HVAC systems operated by default in a manner that actually achieve indoor air concentrations less than the proposed action levels. Since the mid-1950s, California regulations have provided ventilation requirements for commercial buildings. 1955 Unif. Bldg. Code § 605. These regulations continue in force today, and are found in three separate parts of the California Building Standards Code: (1) the Building Code, Title 24, Part 2; (2) the Mechanical Code, Title 24, Part 4; and (3) the Energy Code, Title 24, Part 6 (collectively, the "California ventilation regulations").

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<sup>1</sup> The Companies recognize that there may be some older buildings that may need to be retrofitted, one way or another, with either better HVAC systems or some form of sub-slab ventilation system. Such buildings are relatively few in number, however, and could be handled on a case-by-case basis.

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The Energy Code, which has the most stringent ventilation rate requirements of the three ventilation schemes, applies to many existing and all new commercial buildings for which an application for a building permit or renewal of a building permit is filed as of the effective date of the Code's ventilation provisions.<sup>2</sup> 24 CCR Part 6, § 100.

The Energy Code requires that all enclosed spaces in such buildings that are normally used by humans must be ventilated. 24 CCR Part 6, § 121(a). Each space in such a building that is not naturally ventilated must be ventilated with a mechanical system capable of providing an outdoor air rate no less than the larger of 0.15 cubic feet per minute (cfm) per square foot of commercial building space or 15 cfm per person times the expected number of occupants. *Id.*, § 121(b). The Code further provides that the minimum rate of outdoor air required by this section "shall be supplied to each space at all times when the space is usually occupied." *Id.*, § 121(c).

**B. Because State Law Already Requires the Proper Use of HVAC Systems, Alternative 2 Should Be Selected as the Preferred Alternative for Many Existing and All Future Commercial Buildings at the MEW Site.**

**1. California ventilation regulations require safe air exchange rates.**

The Proposed Plan acknowledges that HVAC systems will keep Site-related VOC concentrations under action levels where those systems are operated properly. (Proposed Plan at p. 17). When operated at high enough levels, HVAC systems cause a building to be under positive pressure, preventing contaminants from the subsurface from entering a building. (*Id.* at 11). When operated at lower levels, HVAC systems act to dilute the concentration of VOCs that have already entered a building with outdoor air. (*Id.*).

Indeed, data collected at the MEW Site indicate that a rate of 1 air exchange per hour is effective in reducing concentrations of VOCs to below long-term exposure goals. For a single story commercial building, Cal/EPA states that 0.15 cfm per square foot equates to approximately 1 air exchange per hour. (Cal/EPA 2005). As noted, 0.15 cfm per square foot is the minimum air ventilation rate for HVAC systems operating in accordance with the Energy Code. See 24 CCR Part 6, § 121(a). Accordingly, many existing and all future commercial buildings at the MEW Site are already required to operate their HVAC systems to provide at least 1 air exchange rate per hour, thereby ensuring that indoor air concentrations will be reduced to, and remain below, levels of concern.<sup>3</sup>

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<sup>2</sup> Specifically, the Energy Code applies to buildings classified in Occupancy Groups A, B, E, F, H, M, R, S or U. 24 CCR Part 6, § 100. These Occupancy Groups represent the following categories: assembly (A); business (B); educational (E); factory (F); hazardous (H); mercantile (M); residential (R); storage (S); and utility (U). See 24 CCR Part 2, 2007 CBC §§ 303-12 (defining occupancy groups).

<sup>3</sup> The only commercial Occupancy Group to which the Energy Code does not apply is Institutional (I), which consists of nurseries for full-time care of children, hospitals and nursing homes with nonambulatory patients, health care centers and nursing homes for ambulatory patients, and mental hospitals, jails, and

Ms. Alana Lee  
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**2. Enforceability concerns about Alternative 2 are mitigated because the use of HVAC systems is required by existing law.**

Because HVAC systems would be operated by building owners/operators and not directly by the PRPs, the Proposed Plan expresses uncertainty about the enforceability of Alternative 2 as a remedy at the MEW Site. (Proposed Plan at p. 17).

The Proposed Plan, however, fails to account for the fact that for many existing and all future commercial buildings, the proper use of HVAC systems will not only be mandated as an EPA remedy, but it is also mandated by state law. Building owners and operators undertaking to construct new commercial buildings at the MEW Site are required by the California ventilation regulations both to install HVAC systems and to use them in a manner that will effectively provide proper air exchanges. The same is true for many existing buildings. To further ensure this, the Proposed Plan states that EPA will rely heavily on institutional controls (ICs) – namely a municipal ordinance – to ensure that HVAC systems are operated and maintained in accordance with the remedy. Further, the Companies believe that this would be true with or without an ordinance, as the Companies have committed to work with the City to provide the resources necessary to enforce either an ordinance (if passed) or the existing provisions of the Code that are set forth above. See Cal. Health & Safety Code § 17960; 24 CCR Part 2, 2007 CBC § 108.3.1 (requiring the building department of every city and county to enforce all the provisions of the building code). Thus, ventilation requirements will be enforced one way or another (with or without an ordinance), and any uncertainty about the enforceability of the remedy will be mitigated.

Furthermore, even without involving the City of Mountain View at all, the Companies have committed to EPA, and hereby repeat their commitment, to obtain private party agreements (and to record either notices of those agreements or access agreements to put future property owners on notice) to ensure that property owners continue to operate their HVAC systems in a manner that would meet the indoor air standards set for breathing zone work spaces. In the event that the Companies, for any reason, are unable to obtain such agreements for one or more properties, the Companies would seek EPA's assistance with respect to such properties.

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prisons. 24 CCR Part 2, 2007 CBC § 308.1. Such institutional buildings are regulated by the Mechanical Code, which requires minimum ventilation rates of 0.12 cubic feet per minute (cfm) per square foot for cells and 0.06 cfm for day rooms, guard stations, and booking areas. 24 CCR Part 4, § 402.1, Table 4-1. It is extremely unlikely that any institutional occupancy building would ever be built within the MEW Site and, if it were, the City of Mountain View would certainly require adequate ventilation as part of the building permit and CEQA processes.

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**3. Cost burdens associated with Alternative 2 are significantly lower than the Proposed Plan's preferred alternative remedies for existing and future commercial buildings.**

Of the various remedial alternatives being considered for existing and future commercial buildings at the MEW Site, Alternative 2 is by far the least costly remedy, both in terms of capital costs and annual operation and maintenance costs. (Proposed Plan at pp. 12-14). Importantly, because most building owners/operators must install and operate HVAC systems in order to comply with state regulations (regardless of EPA's selected remedy), Alternative 2 will impose no additional capital or operational costs on buildings at the MEW Site.

Given that the proper use of HVAC systems is effective to ensure safe air quality levels and is required by existing law, a remedy requiring construction of sub-slab ventilation systems (i.e., Alternatives 3 and 4A/B) at most commercial buildings at the MEW Site is unwarranted – both in terms of cost and of efficacy, let alone conserving resources and reducing the carbon footprint. Alternative 2, by contrast, will achieve the same results at a substantially reduced cost.

**IV. Recorded Covenants**

In the section of the Proposed Plan entitled "Summary of Institutional Controls (ICs)," there is a brief discussion of recorded covenants. The section entitled "EPA's Preferred Institutional Control" states EPA's position that "if a municipal ordinance is not adopted, EPA's Preferred IC is recorded covenants." We do not agree with the conclusions that underlie EPA's stated preferences. Our position regarding recorded covenants has been stated multiple times previously, and it was explained in three separate face-to-face meetings with EPA in the three month period prior to publication of the Proposed Plan (April 6, June 11, and June 23, 2009). It has been explained on several occasions since the Proposed Plan has been published. Our arguments are again summarized below.

**A. Recorded Covenants Are Not Required by California Law; 22 California Code of Regulations Section 67391.1 Is Not an ARAR**

In section 8.2, EPA's Proposed Plan discusses Section 67391.1 of Volume 22 of the California Code of Regulations ("CCR") and says that it "may be an [ARAR.]" While we are pleased that this statement was less definitive than prior EPA statements on this subject, we write nonetheless to confirm that we do not believe that Section 67391.1 is or should be considered an ARAR.

The Companies do not agree that this section is either applicable or relevant and appropriate for the MEW Site – and certainly not at this time. Section 67391.1(a)(2) specifies that the requirements of the regulation are only applicable if "hazardous materials, hazardous wastes or constituents, or hazardous substances *will remain* at the property at levels which are not suitable for unrestricted use of the land." Because of the scope of the ongoing remedy, the regulation is facially inapplicable to the MEW Site. It is unknown at present the extent to which

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hazardous substances will remain at various properties within the MEW Site and, if they do remain, at what concentrations and in which locations.

## **B. Section 67391.1 Requires EPA to Make a Feasibility Determination**

Even if EPA were correct that Section 67391.1 is an ARAR, EPA must apply it in a manner consistent with the State's implementation of the regulation and cannot disregard key terms. Section 67391.1(f) provides that mechanisms other than restrictive covenants are appropriate where "it is not feasible to establish a land use covenant as a component of a remedy for a site."

We are pleased that the Proposed Plan recognizes that feasibility is a requirement before deed restrictions can be required and that "there may be circumstances where it is determined that placement of a land use covenant is not feasible, and, in those instances, other [IC] mechanisms may be used..." We believe that EPA's determination here that recorded covenants may not be feasible is consistent with outcomes at other sites, where EPA has recognized that feasibility is an integral component of the regulation. For example, in the September 2007 Final Record of Decision for the Brown & Bryant Site, EPA Region IX states that Section 67391.1:

[r]equires that *whenever it is not feasible to record [sic<sup>4</sup>] a land use covenant* for a site, other mechanisms will be used to ensure that future land use will be compatible with the levels of hazards, which remain on the property.

Table 13-1 (ARARs for Selected Remedy) (emphasis added). The Brown & Bryant ROD continues, stating that a selected remedy can comply with Section 67391.1:

by using other available mechanisms to ensure that future land use will be compatible with the levels of hazards which remain on the property *if it is not feasible to record a land use covenant. (Emphasis added.)*

*Id.* EPA, therefore, if it intends at any point in time to turn to recorded covenants as a part of the layering of ICs for the MEW Site, must perform the feasibility analysis required by Section 67391.1.

We believe that this interpretation is also consistent with the State of California's analysis of these issues. When promulgating Section 67391.1, DTSC recognized the inherent difficulties and complexities in seeking to record covenants on property owned by third parties. In response to comment that the proposed regulation did not adequately address situations where contamination was located "outside the property boundaries" of a responsible party,

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<sup>4</sup> This is an erroneous quotation of § 67391.1. As discussed elsewhere, in response to concerns about recording covenants on properties owned by third-parties and/or off-site, DTSC amended the final adopted regulation to require consideration of the feasibility of "establishing" (as opposed to "recording") land use covenants.

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DTSC pointed to the feasibility analysis required by Section 67391.1 as providing flexibility. See DTSC Final Statement of Reasons Including Summary of Comments and Agency Responses, Land Use Covenants Regulations (R-99-17) at 12 (Comment #17). DTSC explicitly noted that in situations with third-party ownership of property, such as those that would arise due to the “complexities of groundwater plumes,” DTSC “*must* determine if it is feasible to establish [land use covenants].” *Id.* (emphasis added). In fact, in response to this particular comment, DTSC amended the final regulation to require analysis of whether it is “feasible to *establish*” land use covenants, as opposed to the original, and more limited proposed language requiring an analysis of only whether it was “feasible to *record*” such covenants. *Id.*

It is our understanding that DTSC and other state agencies, including the Regional Water Quality Control Boards, have not applied Section 67391.1 to require recordation of restrictive covenants on third-party properties over groundwater plumes or in response to vapor intrusion. Similarly, state agencies have not, as a matter of course, required responsible parties to record restrictive covenants on property they no longer own. As such, EPA’s interpretation of Section 67391.1 to require recordation of restrictive covenants at sites where property is owned by third parties, including innocent land-owners, is in conflict with implementation of the regulation by DTSC and other state agencies. As recognized by DTSC during promulgation of the regulation, such an interpretation could have far reaching consequences for sites with large groundwater plumes. It would also signal a significant change in policy for how these sites are addressed by EPA. These (and other) reasons all support the argument that implementing recorded covenants at the MEW Site would not be feasible.

### C. Timing With Respect to Application of Section 67391.1

It appears from the Proposed Plan that EPA agrees with the Companies that a decision on the question of feasibility should at least be postponed until more information is available. We believe that such information will include not only the potential success of obtaining a municipal ordinance in Mountain View, but will also include important data about the implementation of private agreements during operation and maintenance of the remedy. This is consistent with Section 63791.1(a), which provides flexibility to EPA on the timing for the recordation of land use covenants. The regulation specifies that land use covenants be recorded at “[f]acility closure, corrective action, remedial or removal action, or when other response actions are undertaken ...” (emphasis added). Even if EPA is correct that Section 67391.1 is an ARAR, EPA has the authority to delay any requirement to record land use covenants until closure of the MEW Site.

If EPA were to agree to such a delay, then EPA could rely upon non-recorded agreements prior to closure and, at closure, evaluate whether Section 67391.1 remains applicable and, if so, whether it is feasible. This approach would be consistent with the NCP, which anticipates that institutional controls may be used, “where necessary, as a component of the completed remedy.” 40 CFR § 300.430(a)(1)(iii)(D). It would also be consistent with the language of Section 67391.1 itself that, when recorded covenants are not feasible, “other acceptable alternatives may include ‘physical monuments, or a memorandum of agreement or consent agreement’ in order to accomplish the same goals as a recorded covenant.”

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**D. Recorded Covenants Would Be Expensive, Cause Delays, And Create Other Problems at the MEW Site**

To summarize (but not belabor) the points that we have made previously, we believe that there will be significant impacts to the use (or attempted use) of recorded covenants at the MEW Site, where most of the properties in question were not previously owned by active PRPS, are currently owned by unrelated third parties, and are not themselves "source" properties. Those concerns include:

- Significant delays, based on the Companies' experiences at other sites;
- Complexity of agreements, as the parties argue over issues of the necessity of recorded covenants, indemnification, cost-sharing, etc.;
- Unjustified demands for compensation;
- Potential litigation;
- Difficulties with lenders for both existing and future building owners (including the potential triggering of loan covenants); and
- Tax abatement demands and the potential for reduced revenues for the City of Mountain View and the County of Santa Clara.

In short, we believe that recorded covenants should not be selected as a preferred IC for the MEW Site, even if only as a fallback to the first preferred IC, a municipal ordinance.

**E. Use of Other Potential Institutional Controls**

The Proposed Plan refers, generally, to "other institutional control mechanisms [that] may be used to require that future land use will be compatible with the level of hazardous substances left on the property," but it does not specify what those other controls may be. While we appreciated EPA's decision to put unrecorded agreements (along with recorded access agreements) into the final Supplemental Feasibility Study, we believe that EPA should have included specific references to unrecorded agreements, recorded notices of agreements, and recorded access agreements in the Proposed Plan, and we request that the ROD recognize that such agreements would, themselves, be viable institutional controls for the MEW Site.

In fact, the Companies believe that these three alternatives should be the preferred alternative, even ahead of a municipal ordinance, as the first preferred alternative institutional control. At a minimum, however, the three should be recognized as viable institutional controls.

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**V. A “Contingent” or “Anticipated” Remedial Action Objective Should Not Be Included in the ROD Amendment for Vapor Intrusion**

The Proposed Plan specifies a Remedial Action Objective (“RAO”) of protecting building occupants at the Site from vapor intrusion. But the plan also includes a “contingent” RAO related to groundwater cleanup standards, stating that EPA also intends to

reduce or minimize the source of vapor intrusion (i.e., site contaminants in shallow groundwater) to levels that would be protective of the current and future building occupants, such that the need for a vapor intrusion remedy would be minimized or no longer be necessary. ***This Remedial Action Objective will not be addressed by the proposed vapor intrusion remedy; instead, it will be addressed by the current groundwater remedy, which is now being re-evaluated in a separate Supplemental Site-wide Groundwater Feasibility Study for the Site.***

(emphasis in original). This statement is not an appropriate RAO, and should not be included in the ROD in this document because it is not an actual objective of the proposed vapor intrusion remedy evaluated by EPA. Rather than guiding the remedy selection process in the ROD, the statement only characterizes EPA’s future intent, in a future document. Inclusion of such a statement as an RAO in the ROD is inconsistent with the NCP and EPA guidance, and would be unnecessarily premature given the circumstances at the Site.

The NCP requires that EPA address a host of statutory requirements “as they relate to the scope and objectives of the action,” including how the selected remedy, guided by the RAOs, is protective of human health and is consistent with ARARs, and whether it is cost-effective. 40 C.F.R. § 300.430(f)(5) (emphasis added). There is no administrative record or EPA evaluation at this time of how these required factors support this “contingent, anticipated” groundwater RAO for vapor intrusion. It is not possible for EPA to evaluate a selected remedy in the ROD, as required by the NCP, against an amorphous statement of possible future EPA action.

EPA guidance further specifies that the discussion of RAOs should be directed to the “specific response action described in the ROD.” See A Guide to Preparing Superfund Proposed Records of Decision, And Other Remedy Selection Documents (U.S. EPA July 1999) (OSWER 9200.1-23P) at § 6.3.8. The guidance also requires that RAOs “provide a general description of what the cleanup will accomplish,” and “serve as the design basis for many of the remedial alternatives” discussed in the ROD. *Id.* Discussion of the RAOs in the ROD should include, at a minimum: (1) clear statement of applicable objectives; (2) basis and rationale for the objectives; and (3) how the objectives address risks identified in the risk assessment. *Id.* A “contingent” or “anticipated” action by EPA at some indeterminate time in the future, if ever, is not a “clear statement” providing a description of what the remedy “will accomplish.” There is no way for EPA to address or analyze this contingent statement as required by the guidance. It is not, for instance, possible to use contingent future EPA action as a “design basis” for the

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analysis of remedial alternatives. Similarly, EPA cannot reasonably discuss how possible future EPA action, not yet developed or analyzed, addresses risk at the Site.

Plainly put, attempting to characterize a possible or contingent future action by EPA as an RAO is trying to fit a square peg in a round whole. Neither the NCP, nor EPA guidance, anticipate or allow for this type of RAO.

Finally, for the reasons discussed elsewhere in this letter, it is also premature to conclude that a change to the groundwater remedy at the Site is necessary to address vapor intrusion. To the contrary, there is substantial evidence that the measures proposed by EPA in the plan have fully addressed, or will fully address, past, present and future vapor intrusion. For this reason, EPA should refrain from committing itself to a course of action on how future groundwater remedies may relate to vapor intrusion until the issue has been adequately evaluated. Such an evaluation, at a minimum, would require development of an administrative record and satisfaction of the relevant NCP requirements.

## **VI. Conclusions**

With respect to residences west of Whisman Road, the Companies do not believe that either (i) future sampling is necessary or appropriate, or (ii) operation of a sub-slab system of any type should be required. The RI Report has amply demonstrated that there is no significant risk to human health for the residents in that neighborhood, and there is no reason to require either additional sampling or the imposition of any engineered remedy for those buildings.

With respect to commercial buildings that have been constructed or are to be constructed at the MEW Site at some point in the future, Alternative 2 is an effective and efficient remedy. The installation and operation of HVAC systems in some existing structures and in all new commercial buildings is required by the California ventilation regulations. Alternative 2 thus affords a remedy that achieves safe air quality levels without imposing additional cost burdens on PRPS or on building owners/operators. The Companies consequently urge EPA to select Alternative 2 – the proper installation and operation of HVAC systems – as the preferred alternative remedy for many existing and all future commercial buildings at the MEW Site. Given that the proper use of HVAC systems is effective to ensure safe air quality levels and is required by existing law, a remedy requiring construction of sub-slab ventilation systems (i.e., Alternatives 3 and 4A/B) at most commercial buildings at the MEW Site is unwarranted – both in terms of cost and of efficacy. Alternative 2, by contrast, will achieve the same results at a substantially reduced cost.

With respect to institutional controls, the Companies do not believe that recorded covenants should be a preferred alternative, and we believe that the ROD should choose as the first alternatives a blend of unrecorded agreements, recorded notices of unrecorded agreements and recorded access agreements. If EPA believes that there should be a second preferred alternative, the Companies believe that it should be a municipal ordinance. The Companies do not believe that recorded covenants should be discussed in the ROD as potential ICs, but if

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EPA disagrees, then we request that recorded covenants be discussed expressly as alternatives to be explored only if the other alternatives discussed above fail.

Finally, with respect to inclusion of an "anticipated" or "contingent" RAO addressing vapor intrusion through the groundwater remedy, the Companies have concluded that such an approach is inconsistent with the NCP and EPA guidance, and premature at this time.

Thank you for your consideration of our views on these matters.

Very truly yours,

Cooley Godward Kronish LLP



Gordon C. Atkinson

cc: MEW Parties and Counsel  
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