Voytilla, Marykay

From:	Voytilla, Marykay
Sent:	Thursday, August 21, 2014 1:55 PM
To:	Kelly, Joyce
Cc:	Fleming, Sheila; Filippini, Mark; Maxwell, Grady; Chu, Ed; Hamlin, Tim; Williamson, Ann
Subject:	Response to 14th floor air quality concerns

Hello Joyce,

I am responding to your August 11, 2014 message regarding air quality concerns on the 14th floor. I understand that some staff in your office:

- have ongoing concerns about air quality in their new space;
- think that lower reporting limits for some VOC constituents, especially TCE, should be employed;
- desire an expanded sampling protocol (e.g., more samples per floor over a longer collection period); and
- would like to see adjustments to the HVAC system.

Your e-mail, including concerns and proposals regarding the above, was reviewed and discussed by staff from EPA's regional and headquarters move teams, EPA's national LEED consultant, health and safety staff from your office, and representatives from GSA including the GSA project manager and GSA's Industrial Hygienist. This response is a consolidation of input from all of those sources.

Indoor Air Quality Requirements

The requirements for indoor air quality for our project are spelled out in the June 6, 2008 lease. The lease includes both generic indoor air quality language as well as the more specific requirements for attainment of LEED. The generic requirements address such issues as how the Lessor may apply chemicals in occupied space, a requirement for submission of material safety data sheets (which are maintained on a OneDrive site to which both Mark and Grady have access), investigation of IAQ complaints and corresponding OSHA requirements, the Government's right to conduct independent IAQ assessments and expected cooperation from the lessor, and the necessary segregation and exhaust requirements for spaces like copying and printing rooms. These more general requirements appear to be the standard requirements for air quality included in government leases administered by GSA.

The more specific IAQ requirements incorporated into the Park Place lease are a result of the Agency's pursuit of LEED. These requirements are further described in the project specifications prepared by EPA's national LEED consultant and incorporated into Gensler's (the lessor's architect) project manual which was issued for permit and construction. These indoor air quality requirements, as well as the LEED documentation upon which they are based, can be found on the Indoor Air Quality page of the Park Place Remodel website. *These represent the legally enforceable requirements for air quality for our project.* I am assured by staff from the Office of Administration and Resources Management, Facilities Management and Services Division, that the IAQ requirements in our lease are the standard requirements being employed for all new EPA leases. I contacted the project manager for the new Region 7 space, the most recent EPA lease renewal effort, and found that they too employed the same LEED IAQ standard.

It is my understanding that air quality sampling is not typically required under the standard government lease administered by GSA. It is a part of our lease due to the requirement to attain LEED. I asked GSA's Industrial Hygienist about his experience with indoor air quality sampling in other GSA projects. He noted that the Region 10 project has much more specific and stringent requirements for air quality and testing than other GSA projects or standard leases in which he has been involved. He noted that most government projects typically default to OSHA standards for air quality. I also reviewed the EPA Facilities Manual, Volume 3, Safety and Health Requirements, Chapter 5, Indoor Air Quality, for any information regarding an air quality sampling requirement or acceptable contaminant levels. I found none. Lastly, I note that the IAQ requirements for LEED include contaminant sampling only for formaldehyde, particulates, ***total*** volatile organic compounds, and carbon monoxide. The Lessor's environmental health and safety consulting firm, EHSI, actually provided more detailed information than what was required by providing results for over 60 individual volatile compounds.

GSA's Industrial Hygienist and EPA's LEED consultant have reviewed the air quality reports submitted by EHSI. Both have confirmed that the Lessor is meeting the requirements of the lease. As a result, we have no legal standing to require that the Lessor take additional samples, use a methodology with lower reporting limits, extend the sample collection period, or amend the HVAC system during sampling. The lease for EPA's space is between GSA and Washington Holdings (the lessor). EPA is not a signatory to the lease and we have no direct contractual relationship with the Lessor other than through GSA. GSA requires that all communications with the lessor go through them in order to keep the lines of communication clear, ensure consistency with the lease, and preserve the enforceability of the contract.

EPA's Request to GSA

When the team met to review OEA's concerns, we asked the GSA project manager to discuss OEA's requests with the GSA Contracting Officer (CO). Specifically, we asked that the CO request the actions below of the lessor even though the terms of the lease are being met.

1. Ask the lessor to lower the testing limit on the contaminants. Currently the testing protocol does not require that TCE be separated out from other VOCs rather it requires that the total VOCs be below 500mg. This protocol was established by the LEED consultant and is being met by the lessor.
2. Ask the lessor if IAQ testing could be conducted with the HVAC off. The current protocol requires that the HVAC be in normal, occupied, operation. This protocol was established by the LEED consultant at the beginning of the project and is being met by the lessor.
3. Ask the lessor if the EPA can provide input into the locations of testing and the number of samples taken per floor. Location guidelines and the number of samples were established by using square footage requirements. This was established by the LEED consultant and is being met by the lessor.
4. Ask the lessor to increase the sample time from 4 hours to 8 hours. Four hours is the sample time established by the LEED consultant. This is being met by the lessor.
5. Ask the lessor to run the HVAC in flush 24/7 for a week after move in or at least start up the HVAC two hours earlier than normal for one month after move in.

As requested, the GSA project manager discussed this matter with the CO. The GSA has decided not to request items one through four above of the lessor. The LEED IAQ standards established for this project were developed by the LEED consultant , are necessary and consistent with LEED certification requirements, the EPA and the GSA provided input into the development of these standards, these standards exceed industry standards, and the lessor is in compliance with these standards. Joyce, I know this is not what you or your staff want to hear, but GSA has advised

that if EPA determines that a more stringent air quality sampling regime is now necessary, the Agency will have to take responsibility for funding and implementation.

HVAC System Settings

The GSA project manager has agreed to discuss with the lessor the possibility of implementing item five above, additional air flow for new floors going forward. However, they caution that this may not be possible. Even if it is, additional air flow after move in is not covered by the lease agreement. As a result, the lessor could require the government to cover this cost. I will let you know the outcome of GSA's discussion with the lessor on this matter.

Consistent with industry standards, the building HVAC system is shut off after hours to save energy. The building runs the HVAC system from 6:00 am – 6:00 pm, Monday - Friday. When the HVAC system is running, the rate of fresh air exchange is a minimum of 20% outside air into our space. The building's HVAC system has fan powered Variable Air Volume (VAV) boxes that always supply outside air when the HVAC system is running. Outside air is not dependent on whether the HVAC system has a heating request or a cooling request. All supply ducts should be supplying outside air while the system is on. The building automation system (BAS) can tell what CFM is being delivered at each VAV box. Our building engineers can generate a report showing what is being supplied. All HVAC zones on a floor have been balanced, so increasing a flow rate in one area will impact air floor in other zones. Additionally adjusting flow rates could create positive/negative air pressure issues on the floor and or create an imbalance on the floor.

Please let me know if you have any questions or would like to discuss this matter further.

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From: Kelly, Joyce
Sent: Monday, August 11, 2014 7:26 AM
To: Voytilla, Marykay
Cc: Fleming, Sheila; Filippini, Mark; Maxwell, Grady; Chu, Ed
Subject: 14th floor air quality concerns, proposal and request

Hello Mary Kay,

Thank you for your diligence to ensure that the move goes as smoothly as possible. Although there are positives to the new space, the purpose of this email is to raise to you issues encountered on the 14th floor.
Concerns and proposals included in this email:

- **Air quality issues identified on the 14th floor.**
- **LEED reporting limits exceed EPA's risk-based regional screening levels for occupational exposure.**
- **Proposal for additional air sampling.**
- **Request for adjustments to the current HVAC system settings.**

Air quality issues identified on the 14th floor

OEA began occupying the 14th floor on Monday August 4, 2014. Almost immediately upon moving in, several employees complained about air quality issues including strong odors or inadequate ventilation, air movement or fresh air intake. In addition, some employees reported experiencing adverse reactions such as tingling lips, itchiness in the back of the throat, respiratory sensitivity, and headaches. Accommodations were made for employees concerned about indoor air quality to temporarily work on other floors or from another approved alternate location.

Indoor air testing was conducted by the landlord, Washington Holdings, prior to the move and the data report provided to OEA staff on July 30, 2014. **A single sample** was collected for the entire 14th floor and it was collected in a location that is not representative of the occupied space. The sample was collected in the "GIS Room" (14-D05). Because this space was designed to house the large plotter and other GIS equipment it has vinyl flooring instead of carpet and no office furniture, items that could be off-gassing and potential sources of volatile organic compounds.

LEED reporting limits exceed EPA's risk-based regional screening levels for occupational exposure

Although the LEED IAQ sampling was reportedly conducted per the construction contract requirements, concerns have been raised about the adequacy of the sampling methodology. In order to evaluate total volatile organic compounds (VOCs), it appears the laboratory contracted by Washington Holdings utilized EPA Method TO-15 and summed all results from the target analyte list. All results were non-detect; however, a review of the results indicates that the reporting limits for many of the compounds were greater than EPA's risk-based Regional Screening Levels for occupational exposure [*link to EPA screening levels*], and much higher than typically seen in TO-15 analyses. **This means that the reporting limits were too high to know whether VOC concentrations pose potential health risks.**

One particular concern is the reporting limit for trichloroethylene (TCE). TCE is a common component of many adhesives and paints (ATSDR, 2009), and its use in building products may lead to off-gassing and air quality issues, particularly in enclosed, indoor spaces. EPA's 2011 Integrated Risk Information System's (IRIS) Toxicological Review for TCE, recommends a reference concentration (RfC) of 2 $\mu g/m^3$ as likely to be without risk of adverse health effects assuming lifetime exposure. The IRIS assessment concluded that TCE exposure can result in toxicity to several organ systems in the developing fetus, including cardiac malformations. TCE is of particular concern for pregnant women and women of child-bearing age.

Consistent with the recommendations of EPA's IRIS program, the potential for adverse health outcomes associated with TCE exposure should be evaluated on an acute basis with exposure concentrations time-weighted over 24 hours. Assuming an eight-hour workday, TCE concentrations should not exceed 6 $\mu g/m^3$, a concentration significantly less than the LEED IAQ reporting limit of 27 $\mu g/m^3$.

Proposal for additional air sampling

To be protective of EPA employees, the common use of TCE in new building materials, and the elevated reporting limits for TCE and other VOCs in the LEED IAQ sampling, additional indoor air sampling is requested to ensure that air in each newly occupied floor does not pose unacceptable risks to human health.

Instead of one sample on each floor, OEA recommends six samples be collected for TO-15 analysis on the 14th floor and before occupancy on the 15th floor. The six sample locations would include one sample in each quadrant in the open space and one sample each in an interior office and in a conference room. Sample collection should be time-integrated over 8 hours. Summa canisters should be placed at an elevation to approximate the breathing zone, which can be accommodated by placing the canisters on desks. Initial sampling should be conducted with the HVAC system off. **Laboratory reporting limits should be less than EPA's occupational risk-based screening levels in air for occupational exposure.**

Sample results for the 14th and 15th floors should be representative of the newly renovated EPA-occupied floors. If the TO-15 summa canister sample results indicate that VOC concentrations do not exceed EPA risk-based screening levels, then there would be no need to conduct additional sampling. If summa canister sample results for the samples collected on the 14th or 15th floors show that any VOC concentration exceeds its respective occupational RSL, then another round

of sampling can be conducted with the HVAC system operating normally to more closely replicate typical occupancy conditions.

Request for adjustments to the current HVAC system settings

We also request that the building make temporary adjustments to the HVAC system settings to increase air exchange and improve ventilation. Suggested adjustments include:

- Increasing the ratio of fresh air intake.
- Temporarily adjusting the HVAC system so that the air handlers run continuously, i.e., 24 hours per day, 7 days a week, instead of only during business hours.
- Permanently adjusting the HVAC system to increase air flow in the enclosed offices and conference rooms.

We welcome any additional suggestions from Washington Holdings, Sellen or their HVAC subcontractors to reduce odors and improve air quality on the newly renovated EPA-occupied floors.

References

ATSDR (Agency for Toxic Substances and Disease Registry), 2009. Toxicological Profile for Trichloroethylene.

EPA 2013, Addendum to the Toxicological Review of Trichloroethylene. Office of Research and Development. EPA/635/R-13/113

EPA 2012, OEA Recommendations Regarding Trichloroethylene Toxicity in Human Health Risk Assessments. Memo from Joyce Kelly, OEA Director to Rick Albright, ECL Director and Kate Kelly, OAWT Director.

NRC (National Research Council) 2006. Assessing the human health risks of trichloroethylene: Key scientific issues. Washington, DC: The National Academies Press.

Joyce

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