



Document Solutions

Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

RECEIVED

By Alameda County Environmental Health 2:14 pm, Jul 07, 2017

Re: ARC Document Solutions (Formerly City Blue Print)
RWQCB Case#01-0210
1700 Jefferson St
Oakland CA, 94612

ARC has directed Applied Water Resources Corporation (AWR) to provide, on our behalf, professional environmental consulting services to the best of their ability. To the best of my knowledge, the information in this report is accurate and all local Agency and/or Regional Water Quality Control Board regulations and guidelines have been followed.

This report was prepared by AWR and ARC has relied on their advice and assistance. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

Matt Westbrook - Asst. Corp. Controller
Authorized Representative

Attachment: Report



July 7, 2017

Mr. Mark Detterman
Alameda County Department of Environmental Health (ACEH)-LOP
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Addendum to Conceptual Site Model and Work Plan (ERS, January 2013)
Additional Investigation Work Plan for 581 18th Street, Oakland, California
1700 Jefferson Street, Oakland, California

Dear Mr. Detterman:

Laboratory results from the investigation of environmental conditions beneath the courtyard adjacent to the apartment building at 581 18th Street, Oakland were provided to ACEH on June 30, 2017. These data indicate that soil vapor samples collected from the bottom of the vadose zone and sub slab beneath the courtyard contain concentrations of petroleum hydrocarbons above the Regional Water Quality Control Board's Environmental Screening Levels (ESLs). While an exceedance of the ESLs does not indicate that an unacceptable risk to human health or the environment is actually present, concentrations above ESLs indicate that further evaluation may be needed. This Work Plan describes the approach to further evaluate potential risks to the quality of indoor air within the apartment building.

WORK PLAN

The proposed work includes the collection and analysis of:

- Four soil vapor samples from the bottom of the vadose zone,
- Five soil vapor samples from directly beneath the concrete slab, and
- Two ground water samples from two new monitor wells,

Based on the results from the above samples, samples of indoor air may also be collected from the:

- Ground floor (courtyard level) (we understand that this floor includes three residential units, one unoccupied unit, one or two common area(s), and one large storage area),
- Street level – common area, and
- Outdoor ambient air.

All drilling will be performed by a licensed drilling contractor using manual equipment consisting of a hand auger or a solid flighted auger kit with a roto-hammer drill. Proposed boring and sampling locations are based on the assumed floor plan depicted in Figure 1, and may be adjusted to accommodate the actual



floor plan, field conditions, and/or access constraints. In addition, the ground water wells, soil vapor wells, and sub-slab VaporPins™ installed in the courtyard in March 2017 will be resampled and analyzed to confirm the initial laboratory results.

All samples will be collected in accordance with AWR's Standard Operating Procedures, which includes labeling each sample with a unique ID, date and time of collection, and sampler's initials. Ground water samples will be placed on ice. All samples will be transported to the laboratory under standard chain-of-custody procedures. Samples will be analyzed for TPHg, BTEX, MTBE, naphthalene, and fixed gases using EPA Methods 8015, 8260, TO15, TO15-sim, TO17, and ASTM D1946, as appropriate.

Task 1: Field Preparation, Permitting, and Health and Safety Plan

As described below, investigation activities include drilling and collecting samples of ground water and vapor at the Site. Prior to mobilizing to the field, appropriate permits will be acquired from the agencies at Alameda County and City of Oakland, and Underground Services Alert (USA) will be notified. The boring locations will also be cleared by a private utility locator and adjusted to avoid utilities.

As required by the Occupational Health and Safety Administration (OSHA) 29 CFR 1910.120, Hazardous Waste Operations and Emergency Responses, a site Health and Safety Plan (HSP) will be prepared for use while conducting proposed field sampling activities.

An access agreement is currently in place between ARC and Mr. Lo, principal with property/building owner Jefferson Court Commercial Ventures, LLC. We assume that this access agreement will be extended to include the scope of work described herein and the property/building owner will provide ARC and AWR with unimpeded access to the building and residences to allow the work to be performed. To facilitate access, AWR will coordinate with the owner and ACEH to gain access to each residential unit.

Task 2: Building Survey

A building survey will be performed to:

- Prepare a floor plan map of the courtyard level and upper levels to identify residential (occupied and unoccupied), common areas, utility rooms, general storage areas, chemical storage areas, etc.,
- Identify structural support columns and other significant foundation features, as possible from a visual inspection,
- Locate utilities that penetrate the courtyard level building slab, which could function as preferential pathways for vapor from the subsurface to the interior of the building,
- Locate HVAC intake and exhaust locations and describe the HVAC operation (e.g. heating, cooling, recirculation, seasonal changes in operating conditions, indoor and fresh air returns, etc.).

We will request assistance from the property/building owner in efficiently and accurately obtaining the information listed above.



Task 3: Ground Water Monitor Wells and Samples

Borings previously advanced in the courtyard revealed silty sand to approximately 7 feet below grade and is underlain by sand with trace silt to the maximum explored depth of about 15 feet below grade. Two ground water monitor wells, MW-11 and MW-12, will be installed to further delineate and monitor the extent of petroleum in ground water. While drilling the borings, soil cuttings will be described with regard to grain size following the Unified Soil Classification System, relative moisture, color, and screened using a Photo Ionization Detector (PID) for volatile organic compounds.

The wells will extend to approximately 13 to 15 feet below the concrete slab within the storage area of the apartment building. The monitor wells will consist of a 0.75" diameter pre-pack 5 feet long well screen connected to 0.75" PVC blank riser. Sand pack will be installed around the pre-pack, a bentonite seal will be placed above the pre-pack, and cement grout will fill the upper portion of the boring to grade. The wells will be sealed and secured within a traffic-rated box to allow for additional sampling in the future. The monitor wells will be developed and sampled after installation. The well locations will be surveyed by a California licensed surveyor.

The ground water samples will be collected into laboratory-supplied containers using low flow sampling methods and analyzed for TPHg, BTEX, MTBE, and naphthalene by EPA Methods 8015 and 8260.

Task 4: Soil Vapor Wells and Samples from the Bottom of the Vadose Zone

The soil vapor wells will be installed to approximately 7 feet below the courtyard level floor of the apartment building. This depth is approximately 2.5 feet above the highest ground water elevation historically measured in monitor wells MW-1, MW-3, and MW-4. This depth also accounts for an approximate footing thickness of about 2 feet and the *Advisory – Active Soil Gas Investigations (DTSC, 2012; revision 2015)* recommendation of sampling soil vapor from 5 feet below the foundation. This depth is also consistent with the depth from which soil vapor samples were recently collected from beneath the courtyard in March-April 2017.

Soil vapor well SV19 will be installed within the courtyard-level common area and entrance to the laundry room. Soil vapor wells SV20, SV21, and SV22 are intended to be located within the storage area east of, and adjacent to, the residential apartments. If this area cannot be accessed, then borings SV20 and SV22 will be relocated to the courtyard and just outside the residences; the existing soil vapor well SV4 will be considered a sufficient alternative to the proposed SV21 location.

Each soil vapor well will be installed within a 2-inch diameter boring and will consist of a 1-inch vapor sampling filter placed near the bottom of the boring and connected to 1/4-inch Teflon tubing to grade. The filter will be installed within a sand pack, overlain with a dry bentonite seal, with the remaining boring grouted to grade with a neat cement-bentonite slurry. The wells will be sealed and secured within a traffic-rated box to allow for additional sampling in the future.

Soil vapor samples will be collected at least 48 hours after well completion using summa canisters within a helium shroud in accordance with *Advisory – Active Soil Gas Investigations (DTSC, 2012; revision 2015)*. Soil vapor samples will be analyzed for TPHg, BTEX, MTBE by EPA Method TO-15, for naphthalene by EPA Method TO-17, and for helium and fixed gases by ASTM D1946. A field form will be utilized to record the sample location, canister ID, flow regulator ID, initial canister vacuum, sampling start and stop time and date, and final canister vacuum.



Task 5: Sub-Slab Vapor Samples

Five VaporPin™ devices will be installed in the courtyard level floor of the apartment building to allow for the collection of sub-slab soil vapor samples. SS4 will be installed within a unit that we understand to be unoccupied, whereas SS5, SS6, and SS7 are anticipated to be located within occupied residential apartments. SS8 will be installed within the storage area. Each VaporPin™ will be installed within a 5/8-inch diameter hole drilled through the concrete slab using a rotary hammer. The sub-slab points will be sealed and secured in place for future sampling events.

Sub-slab vapor samples will be collected no sooner than 20 minutes after installation of the VaporPin™. The sub-slab soil vapor samples will be collected with summa canisters within a helium shroud in accordance with the *Advisory – Active Soil Gas Investigations (DTSC, 2012; revision 2015)*. The samples will be analyzed for TPHg, BTEX, and MTBE by EPA Method TO-15, for naphthalene by EPA Method TO-17, and for helium and fixed gases by ASTM D1946. A field form will be utilized to record the sample location, canister ID, flow regulator ID, initial canister vacuum, sampling start and stop time and date, and final canister vacuum.

Task 6: Evaluation of Data from Tasks 1 – 5

The data resulting from the above effort will be evaluated based on the *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (VIG; DTSC, 2011)* and *Vapor Intrusion Mitigation Advisory (VIMA; DTSC, 2011)*. This evaluation will include first vetting the quality of the data by reviewing the sampling methods implemented in the field and the laboratory's QA/QC reports.

Data determined to be representative of environmental conditions (i.e., data surviving the QA/QC evaluation) will then be further evaluated to determine if the concentrations of petroleum compounds in soil vapor beneath the apartment building could pose an unacceptable level of risk to human health via the inhalation exposure pathway. If so, then indoor air samples will be collected from those areas where the quality of indoor air is at risk of potential impact from petroleum vapor intrusion.

The evaluation of potential risk to human health from the inhalation of indoor air will be based on

- Concentrations of chemicals measured in the sub-slab vapor samples;
- Actual use and occupancy of the apartment building, as documented by AWR pursuant to Task 2 of this work plan;
- Risk screening using the Regional Water Quality Control Board – San Francisco Region Environmental Screening Level Table IA-1: Indoor Air Direct Exposure Human Health Risk Screening Levels (Volatile Chemicals Only),
- Additional screening using the USEPA Regional Screening Levels (June 2017),
- Further health risk evaluation and assessment of potential responses based on Table 1 of the Technical Guide For Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites (USEPA 2015), the Petroleum Vapor Intrusion Fundamentals of Screening, Investigation, and Management (ITRC 2014), and Table 1 Risk Management Matrix for Vapor Intrusion (VIMA, DTSC 2011).



If a potential risk to indoor air is indicated and the collection of indoor air samples is warranted, then a tenant communication plan will be developed in coordination with ACEH, the apartment building owner, and ARC, and in accordance with VIMA (DTSC, 2011) and VIG (DTSC, 2011).

Task 7: Indoor Air Sampling

This Task 7 will be implemented if the Task 6 evaluation concludes that vapor intrusion could pose an unacceptable level of risk to human health via the inhalation exposure pathway.

Building Reconnaissance and Indoor Air Screening Assessment

Prior to collecting indoor air samples, a building reconnaissance will be performed to visually inspect each area to be sampled and a screening level survey of air quality will be performed using a ppb-level PID to measure VOCs in real time within the building's indoor air and specifically within each room where indoor air samples are to be collected. If the PID detects VOCs, then effort will be expended to identify an obvious source, such as a container of solvents or petroleum. The VIG (DTSC, 2011) provides additional detail on this methodology.

Each room from which indoor air samples are to be collected will be visually inspected to identify possible sources (e.g. containers) of petroleum related volatile chemicals and a chemical inventory will be prepared. If these chemicals are observed, then we will request that the containers be removed at least 24 hours prior to commencing indoor air sampling.

Indoor Air Sampling

Indoor air samples will be collected in the areas identified from Task 6. The indoor air samples will be collected from the breathing zone, approximately 3 to 5 feet above the floor. Sampling will be performed during normal ventilation and HVAC operation conditions. In addition, a pressure transducer will record barometric pressure inside one of the rooms being sampled and another transducer will record barometric pressure outside.

Indoor air samples will be collected over 24-hours and analyzed for benzene and ethylbenzene by EPA TO-15-SIM, and for toluene, xylenes, and MTBE by TO-15 with reporting down to the method detection limit, and for naphthalene by TO-17.

Samples for analysis by TO-15-SIM and TO-15 will be collected into one laboratory certified clean Summa canister. A field form will be utilized to record the sample location, canister ID, flow regulator ID, initial canister vacuum, sampling start and stop time and date, and final canister vacuum.

Ambient Air Sampling

At least three samples of ambient outdoor air will be collected to establish background conditions during the collection of indoor air samples. These sampling locations will be determined in consultation with ACEH and in consideration of the VIG (DTSC, 2011).



Schedule

Pending ACEH approval of this work plan and the building owners provision of access, we plan to begin implementing the above scope of work during the week of July 10, 2017.

Task		Implementation Dates
1	Field Preparation, Permitting, & HASP	July 3–13
2	Building Survey	July 11
3	Ground Water Monitor Wells & Samples	July 13-18
4	Soil Vapor Wells & Samples	July 13-18
5	Sub-Slab Vapor Samples	July 12
	Laboratory Sample Analysis	July 13–26
6	Evaluation of Data from Tasks 1-5	July 11 – Aug 2
	Consultation with ACEH	Aug 4
<u>Additional Task (If Warranted and Approved by ACEH)</u>		
7	Indoor Air Sampling	Aug 7-25*
	Notify residents	Aug 7-11*
	Laboratory Sample Analysis	Aug 16-23*
	Evaluate Data	Aug 24-25*
	Consultation with ACEH	Aug 26*
• = Contingency task, projected dates are provisional.		

A copy of this work plan is being provided simultaneously to legal counsel for the property/building owner.

Please call with your comments or questions.

Regards,

Applied Water Resources



Steven Michelson, PG
Principal Geologist



Distribution List

Matthew Westbrook; Jeffery Grimes – ARC Document Solutions, LLC.

Donald Sobelman, Downey Brand LLP (counsel for ARC Document Solutions, LLC)

Jeff Lawson – Silicon Valley Law Group (counsel for property/building owner Jefferson Court Commercial Ventures, LLC)

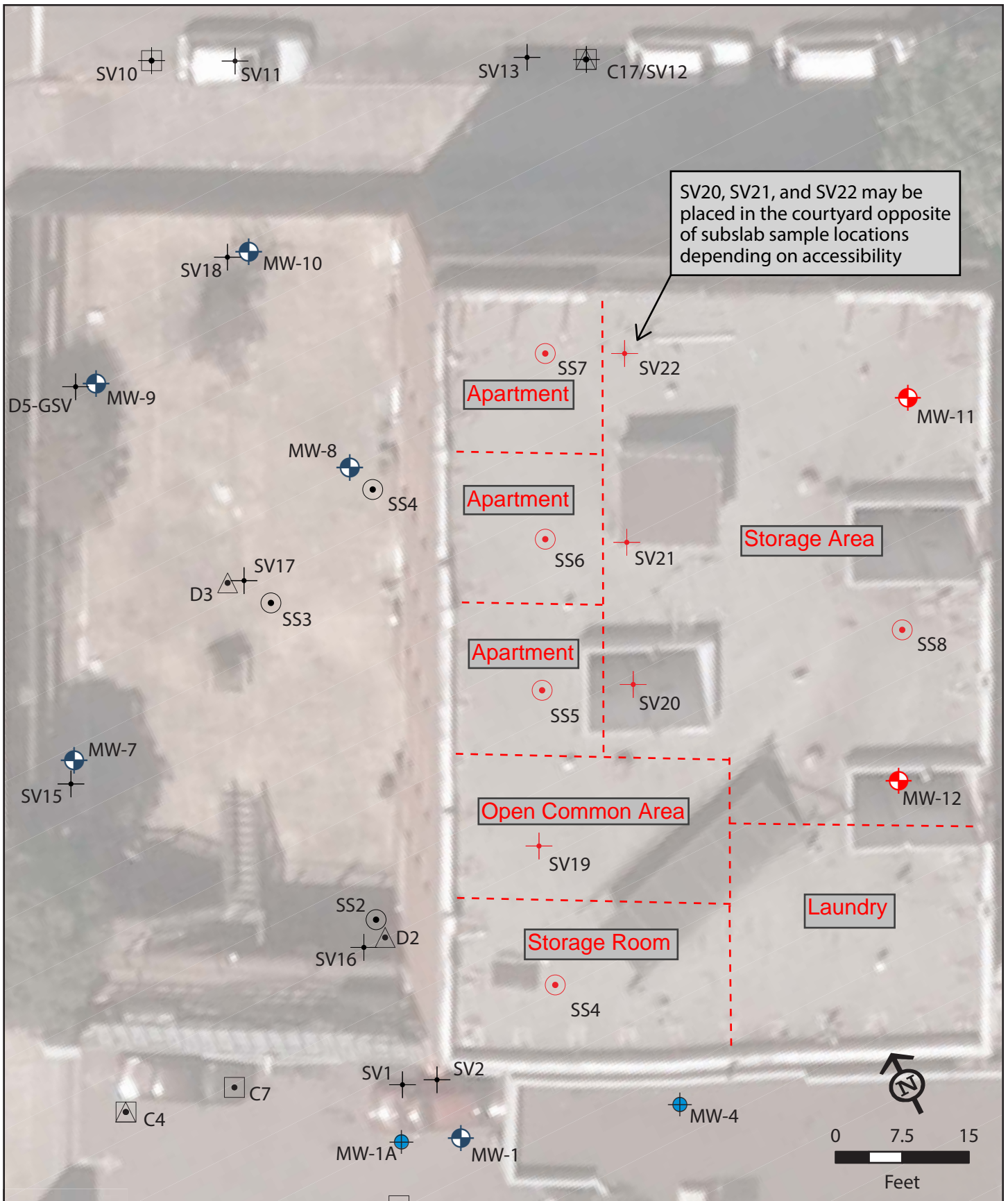
Attachments:

Figure 1 - Proposed Sampling Locations



FIGURES





SV20, SV21, and SV22 may be placed in the courtyard opposite of subslab sample locations depending on accessibility

	<p>Figure 1</p> <p>Proposed Sampling Locations</p> <p>581 18th St, Oakland, CA</p>	Proposed Monitor Well	Monitor Well	Extraction Well
	Proposed Soil Vapor Well	Soil Vapor Well	Grab Ground Water	
	Proposed Subslab Soil Vapor Well	Subslab Soil Vapor Well	Grab Soil	
	<p>--- Est Room</p>			