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PRELIMINARY*
REPORT ON 101 ASH STREET

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I. EXECUTIVE SUMMARY

In mid-January 2020, after three years of planning and \$32 million in renovation work, minute amounts of asbestos debris were discovered inside the workspaces at 101 Ash Street. City employees, most of whom had finally begun moving into the building just days earlier, were ordered to leave.

In the wake of these events, the City has asked for an internal forensic review built around a series of questions. Considerable research was conducted in preparing these preliminary responses, but additional interviews and research are necessary to provide the comprehensive answers the City requires to formulate its litigation strategy and guide its next steps with respect to 101 Ash and perhaps future real estate ventures.

A. Were Any Respirable Asbestos Fibers Released into the Building's Atmosphere Above Allowable Regulatory Limits?

Short Answer: No. At no time was there any true health risk to workers, City employees, or the public during the renovation work or during the City's brief occupancy of 101 Ash. All relevant air monitoring tests resulted in findings showing that the levels of asbestos in the building's atmosphere never rose above federal OSHA regulatory levels (0.1 fibers per cubic centimeter, on an 8-hour Time Weighted Average). Nonetheless, between January and June 2020, 22 non-City workers had submitted to the City a notice claiming monetary damages for exposure to asbestos due to the renovation work. One City employee has made employment-related claims not related to asbestos exposure. The claimants are required to wait six months before filing suit.

B. Was the Presence of Asbestos Known to the City?

Short Answer: Yes. Through multiple sources, the City knew before it acquired the property that the building at 101 Ash contained unabated, decades-old asbestos. Prior to commencing renovation work, the City prepared and included in its contractual bid an appropriate and detailed asbestos abatement plan (Appendix F to the prime contract). To implement the plan, the City's general contractor retained an abatement contractor with prior experience at 101 Ash, and both the City's Asbestos Lead and Mold Program Department ("ALMP") and an experienced asbestos Project Monitor hired by the City oversaw the abatement work. During the renovation, the City promptly addressed problems with potential asbestos releases.

C. Was the Decision Appropriate to "Spot" Abate Rather Than Fully Abate the Asbestos-Containing Materials?

Short Answer: Yes. The more Asbestos Containing Material (ACM) that is disturbed, the greater the chance of exposure. Thus, in a remodel or renovation project, it is common and acceptable to remove only the minimum amount of existing asbestos-containing materials, a process known as "spot" abatement. Since at least 1993, the

building had undergone annual spot abatement in relatively small or isolated parts of the building without any known incident.

D. Was the Asbestos Abated Properly During the Renovation?

Short Answer: We have found no issues with the actual spot abatement work itself. However, there were ongoing construction-related housekeeping problems – keeping the work areas relatively clean and tidy – especially in the Spring of 2019. Some private contractors at times needed the City’s prodding to address housekeeping issues. Even after the county Air Pollution Control District (APCD) began issuing in August 2019 to the City and its general contractor, West Coast General, Notices of Violation in August 2019, the City believed that better work practices and deep cleanings would solve the problem.

E. Was the Decision to Acquire the Building or the Manner in Which the Transaction was Documented Unreasonable?

Short Answer: City officials decided to acquire the building to meet the City’s perceived financial and officing needs given the commercial rental market. That strategy appears reasonable. The *manner* in which the City conducted the 101 Ash Street transaction, however, has raised a number of issues. Principally, the City did not arrange for an independent assessment of the building to examine, learn, assess, and appreciate the extent of asbestos-containing materials in the building. Likewise, the City never conducted an independent assessment of the building’s various systems prior to the acquisition or even before commencing the year-long renovation work. The City instead relied on written environmental assessments, appraisals, and property condition reports provided by the seller-landlord, Cisterra, a company which itself never occupied the building and owned it only long enough to execute the lease-to-own arrangement with the City. The various Cisterra-provided reports together provided notice of the presence of significant asbestos incorporated into various products used in the original construction of the building and indicated that the asbestos in the building was not presently posing a threat while cautioning that disturbing the asbestos could create risks. One report even warned that an EPA-level assessment would be needed if renovation work was planned. An independent assessment of the asbestos in the building would have at least alerted the City to the risks of extensive renovation.

Cisterra played an outsized role in the City’s acquisition of the Property. Cisterra provided all or nearly all the documents the City relied upon for its due diligence. Cisterra also insisted that the City accept the property “AS-IS, WHERE-IS, WITH ALL FAULTS” and included strong exculpatory language in the Lease Agreement precluding any liability of Cisterra.

II. THE ACQUISITION OF 101 ASH

A. THE REAL ESTATE NEGOTIATIONS

Several years before the acquisition of 101 Ash, the City realized that the leases for its downtown office space were nearing full term. In Spring 2013, then-Mayor Bob Filner appointed Jason Hughes of the tenant-oriented firm Hughes Marino as “a special assistant” to advise the Mayor’s Office on a volunteer basis on this growing issue. (Hughes Marino “Downtown Dirt” blog, April 29, 2013. Hughes Marino had been formed in 2011.) Mr. Hughes observed that as the available Class A buildings became harder to find in downtown, “older Class B buildings” were becoming more viable. (Id.)

In late 2014, a formal survey by the READ determined that 49% of the City’s office space leases would expire by September 2019. At the time, the City occupied approximately 797,500 square feet of downtown San Diego office space in five different buildings, with 523,000 square feet rented and the balance owned by the City in the City Administration Building (CAB) and the City Operations Building (COB). The five buildings were between 43 and 53 years old and housed over 2,550 full-time employees. (“Report to the City Council,” dated October 13, 2016 [“10/13/16 Staff Report”] at p. 2.) Commercial lease rates in downtown San Diego were on the rise due to an improved U.S. economy, increased demand for office space, and a lack of any new large office towers in downtown that could accommodate growth. Lease rates for Class A buildings were seeing double digit growth and Class B buildings were filling up; “very high rents in the future” seemed likely. (Id.) With just five years left before half its office space could be lost, City officials began to focus on long-term solutions to control its office space expenses, including possibly acquiring title to office buildings to insulate the City from fluctuations in the commercial lease market. (See Staff Report, 5/17/18 at pp. 1-2.)

In addition, the City had reached capacity at the COB, which required \$94 million in maintenance, and its space at Civic Center Plaza (CCP) would be undergoing asbestos abatement over the next five years that would require the temporary relocation of employees. (Staff Report, 10/13/16 at pp 3-4; “Office of the Independent Budget Analyst Report,” dated October 12, 2016 [“Independent Budget Analysts (IBA) Report”].)

Meanwhile, Sempra Energy Co. had decided to move to new headquarters rather than renew its lease at 101 Ash Street, located a block north of CCP. The property consists of a Class B 21-story office building with 314,545 sq. feet of usable space, with underground parking.¹ The tower at 101 Ash had been erected in the mid-1960s and a

¹ By comparison, the City was then leasing 142,000 sq. feet at Executive Office Complex at 1010 Second Avenue, where 550 City Employees worked. The space at 101 Ash would easily accommodate all employees from ECB as well as up to 500 more who could be relocated from COB and other spaces. A Class B building is typically a building that was Class A but has

certificate of occupancy issued on July 8, 1968. The building was originally designed for San Diego Gas & Electric Company (SDG&E) by Richard W. Wheeler, a well-known and respected architect. Rather than the original planned two towers, Wheeler convinced officials to build one structure that could accommodate 900 employees, according to Prof. Iris Engstrand's company history. In 1975, SDG&E sold the building to Liberty Mutual Insurance for \$20 million. Liberty then sold to Sandor Shapery in 1994 for an undisclosed price. ("Old Sempra Building: Residential, Hotel Possible" San Diego Union Tribune, July 3, 2015.) SDG&E remained the tenant until July 1998 when its parent company, Sempra Energy, following a merger with SDG&E, assumed the sale-lease back under which SDG&E had occupied the property. Sempra remained in the building through July 2015.

Like most commercial buildings constructed in the 1960's, the tower at 101 Ash was constructed with asbestos-containing materials. By its peak in the mid-1970's, asbestos in the United States was used in an estimated 3,000 products, including materials such as drywall, fireproofing, floor tiles and mastics. (See Appendix, "Asbestos Basics.") Asbestos is a natural, fibrous mineral found in many parts of the world, including California. (The state rock of California is serpentine, which often contains veins of chrysotile, the most common form of asbestos.) Asbestos at background levels is not considered hazardous. Asbestos-containing construction materials were commonly used in the construction of commercial buildings well into the 1970s and were not fully banned until 1978. The Ash Street building was no exception, and was constructed with asbestos-containing products, in particular fireproofing sprayed on to beams, joint compound in drywalls, and vinyl floor tiles and mastics.² The presence of such materials is not hazardous provided they are not disturbed; if disturbed, the asbestos fibers can be released and inhaled at levels above background. Beginning by at least 1993, some of the asbestos materials were abated at 101 Ash on an annual basis until 2015. Regardless, significant amounts of unabated asbestos-containing materials remain in the building to this day. (ALMP's "Inspection Report Asbestos and Lead for 101 Ash St. – Facility: issued September 20, 2018, Corrected February 13, 2020," on April 10 and 17, 2017, discussed below; and Shefa March 5, 2020 Draft Report, also discussed below.)

With its lease at 101 Ash coming to term in 2015, Sempra retained CBRE to provide a list of suitable office space in and around San Diego in the event Sempra elected to not renew. By April 2013, Sempra gave notice that it had decided to move out of 101 Ash and would likely sign a Letter of Intent with Cisterra Development for new headquarters. (Hughes Marino "Downtown Dirt" blog: "Sempra on Verge of Signing Lease for New Downtown Headquarters," April 29, 2013.) A relocation from 101 Ash to new quarters at 488 Eighth Avenue near Petco Park built by Cisterra Development was

downgraded due to its age, presence of previous tenants, and good but no longer best-in-class systems.

² Asbestos containing spray-on fireproofing and insulation were banned by the federal National Emission Standards for Hazardous Air Pollutants (NESHAPS) in 1973.

approved later in 2013. (“Sempra Tower: A Lesson in Light,” San Diego Union Tribune, July 3, 2015.)

In November 2014, James C. Seifert, Manager of Corporate Real Estate, Land Services and Facilities (“REL&F”) for SDG&E, provided written testimony to the state Public Utilities Commission. According to the preface of the testimony, the purpose of his testimony was “to discuss why the forecasted . . . operating and maintenance (“O&M”) and capital costs are reasonable.” Within the 40-page document was a brief discussion of the company’s analysis of 101 Ash.³ Not unlike the City’s own analysis of the downtown real estate market, Sempra determined that the already “very landlord favorable” commercial office market had “continued to decline, especially in downtown San Diego.” (Siefert at JCS-18.) Sempra’s consultant, Jones Lang LaSalle (JLL), had concluded that “the base rent for the building would decrease.” Further, a building condition assessment report “indicated there was likely a minimum of \$3 million of building infrastructure capital repairs that would be required to keep the building operational.” (Siefert at JCS-19.) In addition, in the event of a moderate earthquake, the building would potentially need \$12 to \$15 million in unspecified repairs. (Id.) Finally, “[t]he functional obsolescence of the HQ building, originally built in 1966, generated additional concerns, including remaining asbestos abatement. To remove the existing asbestos and rebuild the impacted space was estimated to cost \$16 to \$25 million.” (Id.) Sempra confirmed that it had elected to vacate 101 Ash when its lease expired in July 2015 in favor of new headquarters at 488 8th Avenue, in the East Village area one mile south of Ash next to Petco Park.

Shapery then began considering various options for the building, including turning the building into a hotel or residential property. (“Old Sempra Building: Residential, Hotel Possible” San Diego Union Tribune, July 3, 2015.) In 2015, Hughes Marino reported an uptick in downtown office building sales: “Why is this happening? Because there is a frenzy to purchase high-rise office buildings in the Central Business District (CBD) sector. And big money is betting that Class B buildings [...] will increase in value as occupancy increases. This is a movie we’ve all seen before, so unfortunately the end is predictable. We’ll have increased rents until there is very little vacancy, and then we’ll see crazy high rents until there is either over-building or a recession – or both. Then occupancy and rents collapse, and the dance starts all over again.” (Hughes Marino website, “Downtown’s El Nino?” Oct. 26, 2015 “Downtown Dirt” newsletter.)

With the coming loss of his only tenant, Shapery began to make a number of offers to the City to induce it to either purchase or lease 101 Ash.

In his first written offer, Shapery represented that the building had been “maintained in a first class condition and repair” and that he had “spent approximately \$40M in maintenance, upgrades and improvements” since purchasing the building. A “newly completed conditions study confirms the exceptionally maintained quality of the

³ Seifert’s testimony did not come to the City’s attention until early 2020 when it was sent to the City by a media outlet seeking comment.

building and operating systems with no anticipated capital improvement work expected within the next 10 years.” (“Proposal for a Ten Year Triple Net Lease to the City of San Diego of the former Corporate Headquarters of Sempra Energy Located at 101 Ash Street, San Diego, California” [the “Shapery Proposal”] at p. 2.) The Shapery Proposal touted 101 Ash as “particular[ly] suited for the City’s operational needs and, with minimal or no remodeling, will be far superior to its existing operations.” (Shapery Proposal at p. 3.) The Shapery Proposal listed the major improvements to the property, most of which had been completed before 2005, at a cost of just under \$40 million. “Sempra has maintained the building in a first class A+ upgraded condition commensurate with the quality one would expect for the headquarters of a Fortune 250 Company generating over \$1 billion per year in net profits. A certified Building Conditions Report verifying that all building systems and the building structure are in excellent operating condition and have an expected life expectancy in excess of 10 years has been provided to the City.” (Id at p. 5.)⁴

A year earlier, in 2015, Cisterra had successfully negotiated with the City a 20-year lease-to-own arrangement for CCP, which READ had considered a “first step in securing long term control of office space” that would save the City over \$24M vs. market rent. (Staff Report, 10/13/16 at p. 2.) Cisterra proposed to READ a nearly identical 20-year lease-to-own deal for 101 Ash. The City was initially not interested.

By June 2016, several events occurred to bring Ash to the forefront of READ’s thinking. According to a READ memo, as the market improved, the owner of 110 West A Street began increasing the offer for the rental rate. Cybele Thompson, Director of READ, also recalls that a test fit⁵for 110 West A was unsuccessful. Further, the owners of Executive Complex Building (ECB), where the City was leasing nearly 142,000 square feet (compared to 143,000 at COB), announced they had decided to renovate that building and planned to triple the City’s rental rate when that lease renewed. City staff believed the tower at 101 Ash Street would perfectly accommodate both the Development Services Department (DSD) and the departments then located at ECB.

Thus, by mid-2016, acquiring 101 Ash Street had become more attractive than leasing 110 West A or renewing at ECB. According to the Staff Report, READ estimated that Ash could accommodate 1,100 full-time employees, and stated that the building was “considered Class A (highest tier) office space due to the excellent condition of the interior finishes and the upgraded mechanical systems.” (Staff Report at p. 3; IBA Memo 6/14/18 at p. 2.) Owning a building would also insulate the City from market variations in rental rates and the risk that a building owner would re-purpose a building and would allow for more accurate financial forecasts. At the end of the 20-year lease-to-own, the City would own 101 Ash outright, with no balloon payment, and the building

⁴ This could be the 2014 report discussed below.

⁵ A test fit is a floor plan to confirm if a tenant’s needs can be met; a space plan is a detailed, in-depth look at the space, including circulation patterns and layouts for furniture and equipment. The difference between a test fit and a space plan is the level of thorough detail.

would have a value of \$112 million. (IBA Report 10/12/16 at pp. 3-4; Staff Report, May 17, 2018 to City Council at p. 12.)

In mid-2016, Cisterra resurrected negotiations with Shapery and entered into a second Purchase and Sale Agreement (PSA) for 101 Ash. The acquisition price was stated as \$72.13 million, and a new PSA was executed on June 30, 2016. (PSA at p. 2; IBA Report, p. 2; READ Timeline Memo.) Cisterra intended for the City to occupy the premises. (PSA at p. 8, §4.6.)

Against this backdrop, on July 21, 2016, the City and Cisterra entered into a “nonbinding” letter agreement, under which the City “will have the right to” exercise one of three options: (1) buy the Property through an assignment of Cisterra’s purchase rights (which the IBA later estimated would have been for a total financing cost of \$110.6 million over 20 years); (2) lease-to-own the Property over 20 years for a flat rental rate of approximately \$126 million (equal to \$1.70/sq. ft., but with operating costs at \$.80 sq./ft, the effective rate is about \$2.50/sq. ft.), no escalations, a \$5 million tenant improvement allowance, and full ownership by the City at the end of the lease; or (3) terminate “this transaction at any time.”

A month later, on August 23, 2016, Cisterra sent the City a copy of the PSA with Shapery, which had been executed June 30, 2016. The PSA identifies the sellers as “The Gas & Electric Headquarters Building – San Diego, L.P.” (as owner of the land on which the building sat); “Shapery Developers Gas & Electric Property, LP” (as owner of the building); and “Manchester Financial Group” (role not defined.)⁶ The purchase price was \$72.13 million with the Closing Date set for 30 days after June 29, 2016. The closing could be extended each month if Cisterra made \$100,000 deposits each month to keep the deal active, deposits which were nonrefundable except in the event of the sellers’ default. (PSA, at p. 4, §2.2.) The PSA states that the sellers were in negotiations to lease at least part of the building to a third party, and that Cisterra was “currently attempting to negotiate the terms of a transaction by which the City of San Diego (‘City’) will occupy the building (‘City Transaction’).” (PSA at p. 8, §4.6.) If Cisterra reached an agreement in principle with the City that reached the point of a “first reading” with the City Council, Cisterra was to notify the sellers and provide a written notice from a City official. Section 17 of the PSA precluded all assignments without the sellers’ consent, except “in effecting a City Transaction.”

READ asked Cisterra to provide valuations of the property to support the deal. On or about September 8, 2016, Cisterra received an appraisal from its consultant, D. F. Davis Real Estate, Inc., estimating the property’s value at \$67.1 million. According to this appraisal, the City would fully occupy the property, enter into a 20-year lease, and invest \$5 million in tenant improvements. Though the building is “chronologically 48

⁶ In June 2015, “Papa” Doug Manchester acquired a 49% interest in the building from Shapery’s former partner for \$20M. (“Old Sempra Building: Residential, Hotel Possible” San Diego Union Tribune, July 3, 2015.) He brought Luis Guerrero with him from the Union Tribune to work as one of 101 Ash Street’s building engineers. (Rick Polischuk email to Thompson, 10/19/16.)

years old,” it has been “well maintained and undergone some interior renovations.” Accordingly, the “effective age is estimated to be 30 years and the remaining economic life is estimated to be +/- 50 years.” (D.F. Davis Real Estate Report, Sept. 8, 2016 at p. 41.) Cisterra had also commissioned a “Broker’s Opinion of Value” (BOV) from JLL – the same consultant Sempra had used in 2104 – which in September 2018 valued the property at \$83.1 to \$85.7 million. (BOV at p. 5.)

In its overall structure, this 20-year lease-to-own arrangement mirrored the arrangement the City had reached with Cisterra in March 2015 for CCP. Both leases have identical “AS IS WHERE IS” clauses; a general release of all claims under California Civil Code section 1542; strong indemnity language favoring Cisterra for hazardous materials, including asbestos; a buyout/refinancing after five years; and an automatic transfer of ownership to the City at the end of 20 years. There were two significant differences between the CCP lease and the proposed lease for 101 Ash. The CCP agreement did not include any TI allowance whereas the Ash deal had a \$5 million TI allowance. Also, the City had occupied CCP for years and was familiar with the building and its issues. The City had never been a tenant of 101 Ash and the building had been vacant since July 2015.

At no time, however, did the City formally inspect 101 Ash before closing escrow. A formal inspection of asbestos conditions was not considered necessary because the City had been given the files of the previous abatement work, which READ reviewed. At no time prior to the close of escrow did the City know the extent to which SDG&E or Sempra had performed repairs to the building over the years, nor was it aware of Mr. Siefert’s November 2014 testimony to the PUC estimating that millions were needed to keep the building operational for the next ten years. Cisterra also encouraged the City to retain the two CBRE building engineers who serviced the building.

By November 2016, the deal had progressed through the Smart Growth, Land Use Committee, the City Attorney’s Office, the IBA, and the first and second readings at Council. Both the Staff Report and the IBA Report concurred that a lease-to-own agreement would ultimately save the City millions of dollars in the leasing of office space, as discussed above. (Staff Report, p. 1; IBA 10/12/16 Review, pp. 4-5.) The City Council formally approved the Lease on November 15, 2016 by a vote of 6-0 with three members not present. The Mayor signed the ordinance two days later. (Ordinance No. 20745, copy attached to Lease.)

The lease between the City and “101 Ash, LLC,” an entity created and controlled by Cisterra Development, Inc., was signed December 19, 2016. The 20-year term commenced January 3, 2017, at \$534,726 per month to be applied to the purchase price, with fee title conveyed automatically to the City upon the last payment. (Lease at §13(a).) READ promptly hired Gensler Architects to begin formal space planning for 101 Ash, with instructions to house as many employees as possible and maximize the re-use of existing furniture, walls, and other layout elements. (Staff Report, 5/17/2018 at p.2.) Gensler had already performed some planning. According to an early offer by Shapery to the City, as early as 2015 Gensler had prepared a “restacking program” which had taken into consideration the City’s expiration of other leases in other downtown

buildings to maximize the benefits to the City of moving into 101 Ash. (Shapery Proposal at p. 3.)

B. THE FINANCIAL STRUCTURE OF THE ACQUISITION

The financial structure of the acquisition is a capital lease with fixed rental payments for 20 years beginning January 2017. (Lease §5 (d).) At the end of 20 years, provided the City is not in default, fee title to the property will automatically transfer to the City. (Lease §13 (a).)

Cisterra acquired the property from Shapery for \$72.4M. Including \$19.5M in costs passed on to the City by Cisterra through monthly Lease payments, the total acquisition price to the City is close to \$92M.

First, Cisterra agreed to provide the City \$5M for TIs. The Lease payments include full repayment of the entire \$5M, plus interest amortized over the 20-year life of the Lease. This was spelled out in an email from Cisterra’s representative to READ and Jason Hughes. The concept where a tenant borrows money from the Landlord to fund building improvements – as here – is known as an “amortized tenant improvement allowance.” Under the Lease, Cisterra was to (and did) deposit \$5M in an interest-bearing account which the City could draw down for payment of TIs. Starting in the 19th year of the Lease, any money left in the account would be payable to the City. (Lease at §10(c), (g).) The Lease does not spell out that the TI was being repaid; it was simply baked into the Lease payments. The report by the Chief Financial Officer and the Director of Debt Management correctly describe the \$5M as monies that would be added to Cisterra’s purchase price of \$72.5M. (9/6/16 Report at p. 6.)

Second, the monthly lease payments include reimbursement for closing costs, appraisal, and other due diligence costs, legal fees, special risk insurance, LLC costs, loan fees, underwriting and banking fees, loan fees and “Cisterra profit.” These fees and costs amount to \$14.5M, according to Cisterra.

Thus, under the terms of the Lease, the City will pay Cisterra \$127.8 million, which at the “true” purchase price of \$91.8M means that the interest rate is about 3.5%. By comparison, the bond rate available in Fall 2016 was about 3.25%. (IBA 10/12/16 Review at pp. 3-4.) Thus, the interest the City is paying is very close to what bond financing would have been; however, any final conclusions about the financing cannot be made without knowing more about the profit and reimbursed costs Cisterra received through the monthly lease payments -- details which evidently were not shared with City.

Can the City refinance this transaction? After the end of the fifth year of the lease (January 2023), the Lease permits the City the option to refinance the transaction -- provided it makes Cisterra “whole” by paying off the lease balance less a discount not greater than 3.15%. That means “bond interest rates would likely need to decrease to 2% or lower for this option to generate savings.” (IBA 10/12/16 Review p. 3 fn. 4; Lease §13.) Even if bond rates drop to a point where refinancing would generate savings, the

Lease has two additional provisions which make exercise of the purchase option problematic. The City must give a 90-day *irrevocable* notice of intent to exercise the option, but the Lease is silent as to *when* the discount is to be calculated, which means the City cannot monitor the treasury market (to calculate the discount) and the municipal market (to finance the buyout) to time the optimum moment to exercise the option. As the IBA Report predicted, “it is unlikely” that refinancing “would make financial sense for the City.” (IBA 10/12/16 Review p.3.)

III. THE CITY’S KNOWLEDGE OF ASBESTOS AT ASH

Sometime before late 2014, Sempra commissioned a building assessment report which concluded that “a minimum of \$3 million of building infrastructure capital repairs that would be required to keep the building operational for an additional ten years.” (Seifert Testimony at JCS-19.) The existence of this report was not disclosed to the City but was referenced in written testimony filed by SDG&E with the State PUC in November 2014, two years before the City closed escrow on the building.

However, there were other sources of information about the building that revealed the presence of substantial amounts of decades old, friable asbestos-containing materials.

A. THE BUILDING ASSESSMENT, PROPERTY CONDITION AND ENVIRONMENTAL REPORTS

1. The 1989, 2004 and 2014 Reports

In November 2014, AEI Consultants of San Jose produced two reports for Washington Capital Management of San Francisco, an institutional real estate investment and lender, that were included in the City’s due diligence files. The first was a 63-page “Property Condition Assessment Report” (PCA Report) dated November 25, 2014. “This assessment included a site reconnaissance as well as research and interviews with on-site personnel and representatives of the regulatory agencies and property ownership. An assessment was made, preliminary cost estimates developed, and recommendations outlined.” (AEI Report at p. 2 [Cover Letter].)

Importantly, the assessment was performed in accordance with the American Society for Testing and Materials ASTM E-2018-08 Baseline Property Condition Assessment Process, which *excludes* as out of scope: “Providing an environmental assessment or opinion on the presence of any environmental issues *such as asbestos*, hazardous wastes, toxic materials, the location and presence of designated wetlands, IAQ, etc.” (Section 11 of ASTM E-2018-08, specifically Reference NO. 11.1.11; emphasis added.) Any asbestos analysis is disclaimed: “Hazardous Materials - This Report does not confirm or deny the presence or absence of items such as mold, *asbestos*, environmental conditions or hazardous substances on this property.” (PCA Report at p. 53; emphasis added.)

AEI's second report was a "Phase I Environmental Site Assessment" dated November 26, 2014 (ESA Report) and totaling 1,417 pages. Unlike the PCA Report, the EAS Report does discuss asbestos. The Executive Summary of the ESA Report states that because there is a potential that ACMs are present, an Operations and Maintenance plan should be developed. (ESA Report at i, iii.) Later, the ESA Report references a May 1989 asbestos survey that "identified on-site friable spray-on fireproofing, acoustical popcorn ceiling finishes and pipe elbows as asbestos containing. The ESA Report recommends:

Based on the presence of ACMs, AEI recommends the property owner develop and implement an Operations and Maintenance (O&M) Plan for the subject property which stipulates the identification, assessment, repair and maintenance of building materials to protect the health and safety of the building occupants, visitors to the site, and the environment. Observed suspect ACMs were in good condition and are not expected to pose a health and safety concern to the occupants of the subject property at this time. In the event that building renovation or demolition activities are planned, a thorough asbestos survey is required in accordance with the EPA . . . prior to demolition or renovation activities."

(Id at pp. iii – iv; same: 30-31; emphasis added.)

Appendix E of the ESA Report includes a copy of the 46-page 2004 Phase I Environmental Site Assessment prepared by IVI International of Los Angeles for Morgan Stanley. The IVI reports adds additional details:

Friable asbestos containing spray-on fireproofing and pipe elbows are known to exist at the Subject. According to an interview with Mr. Sheldon Glady, the Facilities Manager, Floors 17-19 were renovated and all asbestos containing material including friable ACM from these floors *have been abated*. In addition, non-friable wallboard assemblies, built-up roofing system components and cooling tower fill may contain asbestos. These friable and non-friable materials were identified in good condition. IVI recommends that these materials be maintained in good condition under the existing Asbestos Operations and Maintenance (O&M) Program and keeping the current O&M in place at the Subject.

(App. E, IVI 2004 Phase I Environmental Site Assessment, p. 1; emphasis in original.)

The IVI study was limited to a "visual survey of readily accessible common areas to identify suspect ACMs. This limited survey is not to be construed as a comprehensive asbestos survey, which often entails destructive testing or the survey of areas behind walls, above ceilings, in tenant spaces and in other typically inaccessible areas. Moreover, IVI does not warrant that all asbestos containing materials at the Subject have been identified." (Id at p. 4.) IVI's report did include a table from the 1989 report identifying asbestos materials in hallways, ceilings, floor tiles, pipes and fireproofing throughout the building. (Id at pp. 25-26.)

2. The AEC 2016 Report for Cisterra

About 18 months later, AEC Consultants of San Marcos conducted a property assessment of the building for Cisterra Development and on March 10, 2016, issued a Property Condition Report marked on the first page as a “DRAFT”. Ms. Thompson of READ believes it was intended as a final report.

Like AEI’s 2014 report, AEC’s 2016 report was prepared in accordance with ASTM E-2018-08 and disclaims any effort at identifying environmental issues: “This report is based on a Site visit, in which AEC performed a visual, non-intrusive and nondestructive evaluation of various external and internal building components *The Property Condition Report is not a building code, safety, regulatory or environmental compliance inspection.*” (AEC Report at p.5; emphasis added.) AEC did not identify any obvious items of deferred routine maintenance that warranted mention. The only immediate repair work identified as needed was listed in an Exhibit A to the report: “The bottom portion of the building exterior (travertine), has begun to show signs of wear as exhibited run streaks at the lower level of the building. This portion of the building should be cleaned, caulked and pressure washed.” The estimated cost of the power wash was \$10,000. This statement is the source for media and public official’s statements that the City could have occupied 101 Ash after an inexpensive power wash.

Neither of these third-party property reports should have been taken as disclosing or even addressing potential asbestos issues. Rather, the AEI report should have raised concerns about the need for an asbestos operations and maintenance plan for identifying, inspecting and controlling the asbestos materials in place, and the need for an assessment prior to any significant renovation work.

B. THE APPRAISAL REPORTS

In an appraisal report dated August 16, 2016, given to the City as part of the due diligence records, D.F. Davis valued the property at \$67.1 million and noted that the building had a history of asbestos with an ambiguous history of partial abatement:

The building contains asbestos fireproofing. Reportedly, it has been removed in *all accessible* areas on floors 1 and 17 through 19. On the remaining floors the asbestos below the floor decking has been removed; on the underside of the floor decking the asbestos has been encapsulated. An operations and maintenance program has been in place since the 1990s. This is typically adequate if construction or maintenance work is not likely to disturb it.

(D.F. Davis Appraisal at p. 40; emphasis added.)

This passage leaves open a number of questions: how was it determined that ACMs had “reportedly” been “removed,” and when and by whom? What was meant by “accessible areas”? And what exactly was left to be abated?

JLL’s BOV reported that 101 Ash “was very well maintained.” (BOV at p. 19.) The

BOV also noted that it was assuming a \$2.30 sq. ft. rental rate and that while average San Diego office rental rates had peaked in 2007 at \$2.75 / sq. ft, rental rates were overall on the increase. (Id. at p. 11.) JLL’s BOV is not dated but from context was likely drafted in September 2016. The October 2016 IBA report mentioned the appraisal value from D.F. Davis but not that from JLL’s BOV.

Staff reconciled the two valuations offering several reasons. The D.F. Davis appraisal was lower because it had not included the existing furniture, fixtures, and equipment, which were valued at \$2.2 million and it was “more conservative” because it looked to past purchases and leases rather than the future, as the broker’s valuation did. Also, 101 Ash has “greater value to the City than to a third-party purchaser” because its downtown location was “proximate to the rest of the City’s campus Downtown....” (10/13/16 Staff Report at p. 4.)

C. DISCLOSURES IN THE PURCHASE AND SALE AGREEMENT

The final PSA between Cisterra and the property owners was provided to the City in August 2016, in advance of the acquisition. It makes several important disclosures concerning asbestos.

Section 4.1.2(b) of the PSA states that the Seller “has not received any written notices of any violations concerning the existence . . . of hazardous materials.” However, “Buyer acknowledges that the *building contains asbestos* and that Sempra has maintained an *asbestos monitoring and handling program*.” (Same: section 11.9; emphasis added). Buyer had the right to conduct “any invasive testing” provided Seller’s consent was first obtained. To our knowledge, no documentation of any “asbestos monitoring and handling program” was ever sought or provided.

Section 10.1.1 provided that the sale of the Property was “in its existing condition, ‘AS-IS, WHERE-IS, WITH ALL FAULTS’” and as of the closing date has either waived or made all necessary “inspections and investigations.” This same language was repeated and expanded upon in the January 2017 Lease Agreement with the City. (Lease, sect. 1(b).)⁷

These statements make clear that there is asbestos in the building and Sempra has been monitoring and handling it. All risks are assumed by the buyer-tenant with no recourse. Further, it is common knowledge in the real estate world that asbestos was used regularly in commercial buildings until the 1970s, and that any building from that or an earlier era will almost certainly have unabated asbestos-containing materials.

D. DISCLOSURES IN THE LEASE-TO-OWN AGREEMENT

We found no evidence that the PSA between Cisterra and Shapery was presented to Council. The Lease between Cisterra and the City was presented to Council in

⁷ Section 4.6 advises the seller that Cisterra is “currently attempting to negotiate the terms of a transaction by which the City . . . will occupy the Building.”

November 2016. Like the PSA, the Lease contains an “AS-IS” and “WHERE-IS” clause whereby the City “expressly agrees to lease the premises and each part thereof ‘As Is’ and ‘Where Is.’” The City further agrees that Cisterra “disclaims any warranty or representation, express or implied or otherwise In the event of any defect or deficiency of any nature in the premises . . . [Cisterra] shall have no responsibility or liability with respect thereto.” (Lease, sect. 1(b).)

The Lease also imposes on the City several additional sets of requirements to protect the Landlord:

1. Full Release of Landlord: the City fully releases the Landlord from any claims arising out of the condition of the property, including any “Hazardous Materials and other environmental matters, and *any right to disclosures* from Landlord of any “condition or circumstance affecting” the property. (Lease Section 1(c).)
2. Full Compliance with Environmental Rules: at its sole expense, City was to cause 101 Ash to comply with all laws including Environmental Laws defined to include OSHA and “all other federal, state and local laws . . . and regulations . . . *relating to “asbestos and/or asbestos-containing materials in any form that is or could be friable,*” and also with respect to Hazardous Materials, defined to include asbestos. (Lease Section 6 (b)-(c); emphasis added.)
3. Notice to Landlord: Subsection 6 (c) goes on for over three pages detailing the City’s mandatory obligations for Hazardous Materials, including asbestos. If at “any time” Hazardous Materials, including asbestos, “shall be found to have been released,” by the City or any of its contractors, then the City “shall” at its “sole expense” “promptly commence and diligently prosecute to completion all investigation, site monitoring, containment, cleanup, removal, restoration or other remedial work of any kind or nature . . . to the extent required by Environmental Laws . . . and at Tenant’s sole cost.” The cleanup or remediation “shall be limited to achieving clean-up standard applicable to commercial use of the Premises . . . provided the Hazardous Materials left in place would not reasonably be expected to cause or threaten to cause current or future migration of the Hazardous Materials . . . in excess of applicable regulatory standards permitted under Applicable Law.” (Id.) Also, the City is to provide Landlord notice within 10 days of “any proceeding or investigation commenced or threatened by any governmental authority” concerning the “presence” or “release” of any Hazardous Material including asbestos, and of “all written notices of any pending or threatened investigation or claims made or any lawsuit or other legal action or proceeding” brought by anyone against the City concerning any Hazardous Material including asbestos.

E. POST-ACQUISITION, THE CITY INSPECTS ASH – AND FINDS ASBESTOS

Before commencing renovation work, the building underwent at least two forms of inspections: one for fire issues and the other for asbestos. Both found asbestos.

1. Fire Rescue Department Inspections

As explained below, in December 2016, an annual fire inspection was conducted by Mark Castiglione of the City's Fire Rescue Department resulting in a three-page report noting six code violations (doors, stairwells, exit signs, excess furniture in the stairwells). A follow up was conducted in February 2017 by Fire Rescue Department Inspector Jaime Velasquez and resulted in a much more extensive report.

On the morning of August 24, 2017, Fire Marshall employees Velasquez and Tosca met with CBRE Building Engineer Luis Guerrero. During the inspection, Mr. Tosca could see floor tiles that were pulled up and ceiling tiles that were missing. Mr. Guerrero said that the floor tiles had asbestos and that the debris visible above the missing ceiling tiles was asbestos-containing. Mr. Tosca emailed Fire Marshal Douglas Perry about the concern. Mr. Perry ordered his people to leave the building.

Mr. Perry recalls the email from Mr. Tosca and agrees that there was no actual proof that the debris pointed out by Mr. Guerrero contained asbestos; however, he presumed it was asbestos given the type of material and the age of the building. Mr. Perry also explained that like all high-rises, by State law 101 Ash had to undergo an annual fire inspection, which for 101 Ash had been scheduled for each December. These inspections showed that the building's various systems were old, outdated, and of unproven reliability. Mr. Perry recalls he was advised that during the renovation work, DSD would be responsible for checking and testing the building's various systems because these would be maintenance matters that CBRE should handle. Accordingly, other than the December 2016, February 2017, and aborted August 2017 inspections, the Fire Department did not plan to inspect the building until late 2019 following completion of the renovation work. However, that inspection did not take place because DSD indicated the building was still being renovated and was a construction zone even as late as December 2019. According to Kelly Eisenstein of DSD, DSD is responsible for ensuring that equipment is installed correctly but it does not generally test new equipment.

Nonetheless, there were times when the Fire Marshal insisted that a fire watch be maintained because even if the building was a construction zone, without confirmation of a functioning alarm system he did not want any fire fighters who might be dispatched to the location placed in any more danger than necessary. Without functioning alarm and smoke detection systems, and a Fire Alarm Control Panel (FACP) that would activate timely, the building could have had a "working fire" on a given floor. Mr. Perry believes that fire-rated doors were likely missing, as were all the seals, because of ongoing construction.

In December 2019, other concerns were raised about the building. Dave Davey, West Coast’s General Manager, emailed Luis Schaar, PE, Deputy Director of PWD’s CM&FE Division, that there were issues with the fire watch, BAS controls, and dampers that would take months to address. As recently as April 2020, CBRE reported to the City that the building alarm system did not interface with any fire suppression/prevention systems at 101 Ash, some fire-rated doors were likely still missing, and there is a lack of any stairwell pressurization systems.

At the time of the late 2019/early 2020 move-in, Mr. Perry understood the process was to be done in phases, with the first four floors occupied first, followed by floors 7, 8 and 9, and so on. Each set of floors would have its fire-related systems tested during or shortly after move-in. Each passed so far as Mr. Perry knows; however, he could not confirm that the *entire* system was ever tested or functional after the City took possession. He does recall that Deputy Chief Operating Officer Johnnie Perkins was adamant that the Fire Marshal should not be put in the position of having to verify the building systems, and that the building should not be occupied unless it passed its fire safety tests. But according to Mr. Perry, there was tremendous pressure from the “highest levels, if not the highest,” to get the building occupied.

2. Asbestos Lead and Mold Program Inspections

According to the “Inspection Report Asbestos and Lead for 101 Ash St. – Facility: issued September 20, 2018, Corrected February 13, 2020,” on April 10 and 17, 2017, the City’s ALMP conducted an inspection and nondestructive testing of 101 Ash for asbestos. H.M. Pitt Labs had also on April 17, 2017 taken bulk samples of suspected ACMs. “Due to the non-destructive nature of the inspection materials within interstitial spaces such as wall cavities, pipe chases *and above ceilings* may not have been tested. “(Report at p. 2; emphasis added.)

The report noted that “101 Ash Street will be undergoing tenant improvements to all areas of the building to accommodate a maximum capacity of employees. The unoccupied building will have no structural members altered and will only have interior adjustments to walls and interior finishes. Disturbance of asbestos containing materials will occur under contained conditions by an OSHA certified contractor with AHERA trained asbestos personnel. (Report at p. 1.) The purpose of the inspection was to “identify any asbestos containing material that may be impacted as part of” the renovation work. (Report at p. 1.) ALMP’s OSHA Certified Asbestos Consultant George A. Katsikaris led the survey.⁸ ALMP’s report, which includes 30 pages of Pitt lab findings, estimated that the building contained asbestos-containing sprayed-on fireproofing on the structural beams, columns and decking; asbestos in the floor tile mastic (except floors 1, 3 and 19); asbestos in the thermal system insulation mechanical rooms; asbestos in the joint compound in the building core drywall system; and asbestos in pipe elbows and plumbing chases throughout the building. All the fire doors were

⁸ Katsikaris’ Cal-OSHA Certification (No. 07-4265) appears twice, on pp. 57-58 of the report; one shows it was current through Sept. 20, 2017 and the second through September 20, 2018.

presumed asbestos-containing. In addition, unknown quantities of thermal insulation were identified as having been previously sampled and adequately labeled on pipes in the plenum, wall cavities, boiler and mechanical rooms. (See also, undated Power Point Presentation by Environmental Services Dept.) All of the asbestos was either chrysotile or presumed chrysotile.

IV. THE DECISION TO EXPAND THE RENOVATION

As noted above, with access to a \$5 million TI allowance from Cisterra, in December 2016 the City retained Gensler Architects to create a space plan with a view to move employees into 101 Ash by July 2017. Gensler advised that to accommodate the target of 1,150 employees, all 19 office floors would need renovation. Gensler produced to the City a “test fit” and other preliminary documents by early March. In March 2017, staff from READ and the Public Works Department (PWD) met to review the TI plans.

It became clear that significant reconfiguration of the various building systems – HVAC, plumbing, electrical, lighting, ceiling system – would be needed to reach the employee total of 1,157. PWD was tasked with the renovation work, which was considered a Capital Improvement Project (“CIP”). Maintenance issues would be considered an O&M project for which CBRE would be responsible. In developing the plans, PWD realized that the Property Condition Assessment Reports had not addressed whether building systems were or were not working or their current efficiency. Many of the systems had been shut down in the previous two years while the building had remained unoccupied. PWD made certain assumptions and accepted the word of the CBRE building engineer that the systems were functional.

By April 2017, it was clear that the July 2017 move-in date was not feasible. (IBA Memo 6/14/18 at p. 2.) In May, READ and PWD added DSD to the discussions and conducted a partnering meeting to review the initial plans. PWD drew up plans and specifications from Spring 2017 to December 2017. (IBA Memo 6/14/18 at p. 3.) According to interviews with PWD, some six months were needed to complete the plans because of the effect on the building’s mechanical systems from moving walls and adding office space. The final product consisted of hundreds of pages of drawings and plans from Gensler and subcontractors including mechanical, electrical, plumbing, structural and architectural.

In October 2017, DSD approved the building permits for 101 Ash for 19 floors of TI work.

In January 2018, PWD’s finalized its initial bid package and released a request for proposal (RFP) released. The RFP called for work on a 24/7 basis at an estimated cost of \$17 million for 19 floors of TI work. (Staff Report, 7/31/18 at p. 3.) According to interviews with PWD, and as confirmed by the IBA, there was no plan for paying for the work, but the RFP still went out.

By February 20, 2018, only two or three bid proposals had been received, with the lowest responsible bid from West Coast at just under \$22 million. The lowest bid

did not meet EEOC requirements, and the next lowest bid was \$3 million higher. No private contractor could staff 24/7 work on any reasonable cost basis. Also, the market was already saturated with construction work. When material and equipment costs were factored in, the true total cost for full renovation of 101 Ash on a 24/7 schedule was about \$32 million. Because the initial bidding resulted in too few bids at too high a price, and after meeting with Council members, the idea of 24/7 work was scrapped, and four options developed:

1. Clean and move in as-is, no renovation
2. Renovate floor 1 to create the DSD one-stop shop
3. Renovate floors 1, 2 and top 17, 18 and 19, as originally contemplated
4. Renovate all 19 floors to maximize City employee occupancy.⁹

(Staff Memo, 5/17/18 at pp. 6-8; IBA Memo 6/14/18 at p. 2; and IBA Report No. 18-26 “101 Ash Street Building Decisions on Bid Award” [“IBA Report 8/3/18”] at p. 1.)

At the direction of the Mayor, each option and all construction documents were reviewed for reliability by an independent entity. CBRE – which had been managing the building since January 2017 – reviewed the leasing assumptions and market trends, pro bono. Staff ultimately concluded that Option 3 would save the City \$6.1 million over time, and Option 4 would save the City \$40.4 million.¹⁰ (Staff Report, 5/17/18 to City Council at pp. 8-9, and Exhibit F.)

The City Council received its first comprehensive update from staff in open session on the status of the project on June 18, 2018, with potential scenarios laid out. At that time, the IBA had recommended funding through a CIP appropriation. Later, in its August 2018 report where the options were discussed, the IBA agreed with the recommended renovation of the entire building and described a plan to raise the additional needed funds. (IBA Report 8/3/18 at p. 6.) 4-6.)

In July 2018, the City reissued the RFP. West Coast was again the low bidder and was awarded the contract. For asbestos abatement during construction, West Coast subcontracted with abatement contractor Argus, which had performed abatement work in the building when it was occupied by Sempra. A Project Monitor for abatement work was called for in the bid package. Enviro Applications, Inc. (“EAI”) was eventually assigned as the Project Monitor, but would not start work until late January 2019, nearly three months after renovation had begun.

⁹ Each option included costs for security and access control; compliance with federal accessibility laws; IT services; fiber optics; modular and other stand-alone furniture; finance cost assumptions; and outside lease costs.

¹⁰ The IBA’s report was not only sharply critical of staff’s handling of Ash from December 2016 to March 2018, it questioned a number of the assumptions on which the staff based its conclusions. (IBA Memo 6/14/18 at pp 2-4; 7; n. 1.)

The City issued a Notice to Proceed and held a kickoff meeting in September 2018 which included Gensler, West Coast, CBRE, and several City departments including ALMP. According to a report of the kickoff meeting, West Coast was concerned about building operations during the renovation and in particular that the air conditioning was not working. The Realignment Group of California, LLC, September 18, 2018 at p. 5.) Lead and asbestos testing were noted as completed, and the public's concern with asbestos identified as a top issue to deal with by proper communications. (Id at pp. 4, 9 and 13.)

By the end of October 2018, the plans were stamped and approved for permits. PWD began weekly Progress Meetings attended by resident engineers, ALMP, CBRE, EAI, Gensler and West Coast. The "101 Ash – Oversight Team" commenced its monthly meetings on October 30, 2018 its monthly meetings of representatives from READ, PWD and the executive management.¹¹ The first air monitoring tests were taken in November 2018 and showed no asbestos fibers in the building's air above regulatory limits.

Rather than renovate the building floor-by-floor, or renovate while employees were occupying the building, the City elected to renovate the entire building all at once, without employees in place.

Even before the main renovation work began, ESD contracted with Get Going Gone (GGG) to clean the electrical and mechanical rooms. By November 2018, work commenced, but not without the APCD issuing a Notice of Violation (NOV) to Argus because APCD had been notified that abatement would begin on a date certain when in fact it did not begin until later. In December, regular air monitoring tests began. (As discussed below, none of the relevant tests ever showed elevated levels of asbestos outside sealed-off containment areas.)

V. THE RENOVATION WORK: NOVEMBER 2018 – AUGUST 2019

Although ALMP had conducted an asbestos survey before commencing work, at no time was a full assessment performed of the building's systems or its condition. The 2014 and 2016 property condition assessment did not include any testing of the building's HVAC, fire protection, electrical, or like systems. The City's usual practice before commencing similar projects is for PWD's Capital Assessment Management Division to scope a project and prepare a report for the managers of the project. That practice was not followed for this project. Such a report would presumably have identified various project scope, needs, risks, and a schedule.

¹¹ This review failed to locate a list of the Oversight Team members, but the Agendas reflect that the meetings were attended by Kris Shackelford, Karen Johnson, Paul Rising, Jason Grani, Chad Newby, James Nagelvoort, Rick Bollinger, Julie Ballesteros, and Ryan Ermert. This group includes no one from Executive Management.

The Oversight Team’s Agenda for January 26, 2019, notes that the target date for completion of work was September 24, 2019. After two months of work, the TIs were 30% complete and abatement had been performed on Floors 1, 17-19.

During the renovation work, approximately 60% of the building’s ceiling tiles were removed by West Coast or its subcontractors. Each floor is over 17,000 sq. ft., meaning over 190,000 square feet of ceiling tiles were removed, exposing the plenum space above. According to the City’s asbestos consultant, Victoria Shefa, the main renovation work included spot abatement of asbestos-containing fireproofing material in “areas where renovation activities occurred. These areas were the concrete ceiling deck and beams located above the ceiling tiles. Not all ceiling areas were affected because no renovation was scheduled in those locations.” The typical operation was for West Coast to open up several floors for work at once; each floor would be sealed off, and the ceiling tiles removed. The abatement subcontractor would wipe the tiles to remove dust and debris and clean the ceiling grid.

When walls were to be connected or acoustical tile hangers removed or reinstalled, “spot abatement” would be performed as called for in the 101 Ash CIP plan. Spot abatement had been used at 101 Ash since at least 1993. A typical example would be having to adjust or move hangars for duct work; relatively little fireproofing needs to be disturbed, and spot abatement is appropriate. At no time was Argus tasked with complete asbestos remediation. Argus used 20+ workers in performing abatement, all wearing appropriate attire and personal monitors.

Interviews with City workers revealed a consistent and disturbing pattern of questionable performance by the contractors. In March 2017, ALMP restricted access to the project and posted a white board in the lobby advising of the restrictions. A March 15, 2019 text message among City employees “clarified” that the work “is restricted not stopped due to presence of debris and positive bulk abatement results.” Only personnel with “asbestos awareness training and wearing protective equipment including HEPA respirators and protective clothing” were now authorized. A floor could be only opened once it had been HEPA vacuumed, wet wiped and passed visual inspection. West Coast was to begin the cleaning over the March 16 - 17 weekend. ABM came in and cleaned with HEPA vac, wet wipes and shampoo, including the window cassettes (discussed below). However, ALMP’s Program Manager Jessica Weislogel has photos on her phone taken in late 2019 that show some debris spots around some cassettes, indicating that the cleaning was not thorough or that debris had been allowed to re-accumulate over the intervening months.

By June 2019, CBRE had brought in Jackson & Blanc to repair the window cassettes (which as discussed below were trapping dust and debris, including in some cases asbestos-containing fireproofing). By June, most of the abatement had been completed. EAI’s budgeted amount for the project (\$250,000) had only \$3,000 left. ESD had the choice of increasing EAI’s budget or assuming monitoring itself. Because the abatement work was nearly completed, ESD elected to resume full oversight of the abatement work. EAI and Argus were no longer needed. Argus was placed “on call” and did return to perform spot abatement during O&M work by CBRE. The claim has been

made by some former workers that EAI was fired or terminated, which is untrue. EAI's 60-month as-needed contract actually remains in effect.

VI. THE AIR POLLUTION CONTROL DISTRICT'S NOTICES OF VIOLATIONS

The vibrations and shaking created during a year's worth of renovation work likely loosened the brittle, decades-old asbestos-containing fireproofing, causing some to detach from the beams in the plenum spaces above the ceiling tiles. Some of that debris fell into office spaces, with some becoming trapped under the window cassettes located at the base of each office window. The cassettes are designed to mechanically capture and recirculate air to reduce condensation and control the temperature. They make a perfect hiding place for dust and debris. Some of the PWD and ESD people interviewed are convinced that some of the debris under the cassettes dates back to the 1960s when the tower was built. Much but not all of this debris was cleaned up.

During the first week of August 2019, two inspectors from APCD visited for an annual inspection of electric generators on the 20th and/or 21st floors. Vince Landi of APCD noticed the ongoing renovation work and asked Jorge Vargas of PWD for the building's abatement records. Mr. Vargas relayed the request to ALMP's Blondet, who arranged for West Coast supervisor Chris Bailey to provide APCD with the asbestos abatement Work Plan.

The next week APCD returned and inspected the generators. PWD engineers recall seeing APCD personnel on Level A, where fresh fireproofing had been sprayed and appeared to have been tracked on the floor by foot traffic. Two days later, on Friday August 9, 2019, Mr. Vargas met with APCD's Landis, who advised that APCD had arrived to inspect for asbestos-containing materials. During this inspection, which was conducted after work hours, APCD took samples which tested positive for asbestos. The samples had come from pipe insulation in a second level mechanical room, some mastic on the third level, and debris in an eleventh level electrical room. (See, PWD Progress Meeting No. 46, August 13, 2019.) APCD issued the first of a series of written Notice of Violations (NOVs) to the City, to Argus and to West Coast, giving the parties 20 days to respond. (NOV, Aug. 9, 2019.) Argus began conducting a cleanup the next day. (Id.) Nick Walters of West Coast sent Mr. Vargas an email on Sunday, August 19, 2019, advising that the cleanup had been completed subject to review on Monday.

Nonetheless, the City halted all work for the next several weeks while PWD and the contractors assessed the situation. City representatives, Argus, and West Coast met with APCD to discuss how to prevent future NOVs and the steps needed to ensure that no further asbestos debris would be found. ALMP was also involved. Together, West Coast and the City developed a new asbestos work plan. Going forward, mandatory regular safety meetings (tailgates) would be held; workers would be required to sign off that they had been warned and trained; and Resident Engineers (REs) would begin patrolling the building to identify potential ACMs and have abatement performed. Argus performed a full cleaning of the building via HEPA Vac and wipes over the three

weeks. The City also locked mechanical rooms and posted warning signs. (See, PWD Progress Meeting No. 46, August 13, 2019.)

Although the REs regularly patrolled the building looking for ACMs and called upon Argus to clean or abate whenever and wherever any were found, this effort was not documented. Despite these efforts, APCD continued to find loose asbestos debris and to issue NOVs. The main source of this continued asbestos debris was the fireproofing on beams installed above the ceiling tiles in the plenum spaces. Throughout this process, APCD would not give advice or recommendations, but would only inspect and issue NOVs, though APCD appeared satisfied with areas once they were cleaned. Fortunately, air monitoring continued to demonstrate no asbestos fibers in excess of OSHA requirements were in the building's air.

On August 26, 2019 the Oversight Team discussed the APCD's NOV for asbestos. It noted that the contractor had been cleaning and was preparing a proposal to encapsulate the asbestos, and at later meetings discussed that APCD was conducting on-site spot inspections, and was expected to continue site visits, and that housekeeping was undergoing constant monitoring. The Oversight Team discussed the scheduling of testing for asbestos fibers by Phase Contrast Microscopy (PCM) and Transmission Electron Microscopy (TEM) plans. On October 16, 2019 the Oversight Team discussed that another NOV had been issued and that Asbestos Notification signs had been reinstalled due to "contractor negligence."

Finally, by mid-December, the building had passed its fire alarm tests, PCM and TEM tests continued to show no asbestos fibers in the building atmosphere above regulatory limits, and APCD had removed the asbestos warning signs it had earlier placed in the building.¹² Nonetheless, the City Attorney's Office has reported that when it learned in December that a move-in date had been selected, it strongly recommended that the City wait until the results of all air monitoring tests had come back to confirm that the building's air was clear of asbestos contamination. The City agreed and delayed the move-in.

A week later, the Oversight Team, with concurrence from executive management, decided the time had come to commence the move-in. Employees were scheduled to begin moving into the building in phases starting Monday, December 16. DCOO Perkins received word on December 15 that the floors scheduled for occupancy had all passed their fire alarm tests. The Oversight Team discussed on or about December 18, 2019, that APCD had visited on Dec. 17 with no samples taken and that West Coast was still operating under the revised work plan; PCM testing had been done and OSHA requirements met; likewise, TEM readings were below regulatory levels and deep cleanings completed.

¹² APCD had removed its warning signs multiple times beforehand.

Over the next four weeks, City employees continued moving into Ash. Before a floor was allowed to be occupied, its fire alarm systems were inspected and confirmed as “safe for use.” By January 13, 2020, all floors had passed their fire alarm system tests. On January 14, 2020, APCD sent a team of inspectors to 101 Ash, who conducted a lengthy and comprehensive inspection. APCD discovered asbestos debris in a conference room on the southwest corner of the seventh floor, and reportedly more debris in a mechanical shaft, that had come “from asbestos-containing fireproofing from the area above the ceiling tiles.” (APCD Notice of Violation, Jan. 14, 2020; Wooten letter of Jan. 16, 2020 to City; ALMP Asbestos Incident Report No. 163, 1/15/20.)

The City promptly ordered all employees to leave the building and effective January 17 closed the building to employees and the public. (Kris Michell Memo, Jan. 17, 2020.)¹³

VII. CONCLUSION

This report is preliminary only. As noted above, since receiving this assignment, we have reviewed hundreds of pages of documents provided by the City and spoken with numerous current and former City employees. However, there are many witnesses to whom we have not yet spoken and documents we have not reviewed. No doubt more information and context will be provided through such interviews and documents.

We will continue our investigation of this matter. We will also continue our preparations for defending the City from the claims asserted to date by workers at 101 Ash. As appropriate, and following Council authority, we may take steps to assist the City in recovering its monetary losses, including, but not limited to, litigation against responsible parties.

¹³ Ms. Michell became COO in March 2018. On January 17 APCD had found more asbestos debris under a window cassette in an unoccupied office and issued another NOV. (APCD NOV Jan. 17, 2020.)

APPENDIX

AIR MONITORING RESULTS

During Renovation

Air quality monitoring was performed throughout the duration of the tenant improvements beginning in December 2018 through January 2020, or ~14 months. Based on the information provided by contractors and City staff activity, 1,325 air samples were collected over the 14-month period. Over 98% of the 1,000+ air tests conducted over the 14-month period were below the OSHA Permissible Exposure Level (PEL). A summary of the test results is provided in the table below, details are included in Attachment A.

Air Sampling Test Results – December 2018 – January 2020

Result	Qty.	%
Below OSHA PEL (Permissible Exposure Limits)	1,299	98.0%
Above OSHA PEL - Within Restricted Abatement Containment Area	7	0.5%
Above OSHA PEL - Not Within Restricted Abatement Containment Area	7	0.5%
Invalid Samples	12	0.9%
Total Air Samples	1,325	

Two types of air sampling were conducted: Phase Contrast Microscopy (PCM) and Transmission Electron Microscopy (TEM). Samples were collected by both trained City staff and external consultants. The external consultants hired by the City had the training and the ability to read Phase Contrast Microscopy (PCM) samples onsite. The City’s consultant also sent quality control (QC) samples to a 3rd Party independent laboratory that is accredited by the National Voluntary Laboratory Accreditation Program. Samples were also collected by trained City staff and were submitted and analyzed by a 3rd Party independent laboratory that is also accredited by the National Voluntary Laboratory Accreditation Program. City staff did not analyze any samples as part of this project.

Air Sample by Type of Testing/Sampling

Description	Qty.
PCM - Phase Contrast Microscopy	1,167
TEM - Transmission Electron Microscopy	158
Total Air Samples	1,325

Additional samples were collected by consultants hired by the general contractor and/or building management company. There are approximately 56 TEM samples 18 PCMs that were collected, and all were below industry standards except two which are explained below.

PCM sampling was conducted throughout this project for both abatement activities and area monitoring. PCM sampling provides total fiber counts of all fibers of a specific length to width ratio that are greater than 5 microns long. This total fiber count includes all fibers that fall into this criterion and is not limited to only asbestos fibers. This total fiber count would include fibers from general construction materials such as fiberglass, carpet fibers, clothing fibers, mineral wool fibers, cellulose fibers from drywall, etc. The Occupational Safety and Health Administration (OSHA) regulates worker exposure and has set the method to make that determination. Worker exposure is determined by using personal air monitoring sampling in the workers breathing zone, over an 8-hour time weighted average (TWA). OSHA has set the permissible exposure limits (PEL) based on personal air monitoring at 0.1 f/cc for an 8-hour TWA or a 1.0 f/cc for a half hour excursion limit.

TEM sampling was conducted as well, and the industry standard for re-occupancy after abatement is 70 s/mm. TEM sampling detects asbestos structures which are smaller in size than fibers. The samples discussed below are area samples and are not personal air monitoring samples, and therefore do not indicate personal exposure nor exceedance of the Permissible Exposure Level. When higher fiber counts are encountered, it is industry standard to reevaluate engineering controls and implement changes in controls and work practices to reduce fiber counts. Negative pressure enclosures/containment/work areas are used interchangeably in this

document and refer to an area where asbestos trained personnel are performing work using PPE including respiratory protection in a contained negative pressure environment.

Industry standard for re-occupancy after abatement activities is the use of area monitoring with a result of 0.01 f/cc or less. At times, general construction activities were monitored to keep fiber concentrations down throughout the building so as not to interfere with monitoring related to abatement activities. This building was an active construction site during the time a majority of the area samples were collected.

Post-Abandonment Air Monitoring

Janus Corporation performed cleaning activities in January 2020, in containment wearing PPE, including respiratory protection. Janus Corporation collected a total of 51 PCM samples to use in determining their 8-hour time weighted averages and a 30-minute excursion levels. This determine the proper respiratory protection needed for the tasks being performed. All calculated time-weighted averages and 30-minute excursions sample levels were below thresholds that would require respiratory protection.

A total of five PCM samples were listed as invalid:

- 1.23.20 sample was invalid, 18th Floor vacuuming
- 1.24.20 Excursion level sample was invalid 18th Floor vacuuming
- 1.25.20 sample was invalid 18th Floor vacuuming
- 1.29.20 sample was invalid 15th Floor vacuuming
- 1.29.20 sample was invalid 14th Floor vacuuming

Shefa Enterprises was onsite during this time, and while wearing respiratory protection, collected five PCM personal air monitoring samples to determine TWA averages for two tasks, and a 30-minute excursion sample. The calculated averages the 30-minute excursion level sample and were below regulatory requirements that would require regulatory protection.

TIMELINE OF NOVS

		Level A, 3rd, 18th, A St & 1st Ave, SW Garage Entrance
8/9/19	Non-detect samples (13) collected by APCD	
8/9/19	FIVE ACMs found by APCD - 3 of 10 samples contained 25% asbestos; 2 samples contained 10%; none detected in 5 samples	2nd, 3rd, 11th
8/9/19	Notice of Violation Issued (for 8/9/19 inspection)	2nd, 3rd, 11th
8/9/19	ONE ACM found by APCD - 1 of 11 samples collected contained 4% asbestos; none detected in 10 samples	2nd floor (east side)
8/10/19	Non-detect sample collected by APCD	W parking garage entrance
8/13/19	FIVE ACMs found by APCD - 5 of 7 samples contained 8% asbestos; none detected in 2 samples	10th (SW large room, North office), 11th (west of electrical room, NW office), 12th, 13th (west office elevator), 14th (east window vent, IDF room entrance)
8/13/19	ACM found by APCD - 6 of 8 samples contained 8% asbestos; none detected in 2 samples	10th (NW region of floor), 11th (north area of floor), 12th (electrical room), 14th (north column/pillar)
8/14/19	Notice of Violation Issued (for 8/9/19 inspection)	Various Floors
8/14/19	Notice of Violation Issued (for 8/9/19 inspection)	Various Floors
8/14/19	Notice of Violation Issued (for 8/9/19 inspection)	Various Floors
8/15/19	ACM found by APCD - NEED MORE INFO?!	9th
8/19/19	Non-detect samples (4) collected by APCD	
8/19/19	ONE ACM found by APCD - 1 sample contained 12%	6th (electrical room door)
8/21/19	ONE ACM found by APCD - 1 of 2 samples collected contained 3.5% asbestos; none detected in 1 sample	3rd (NW region)
8/23/19	Non-detect sample collected by APCD	14th (elevator lobby)
8/27/19	ACM found by APCD - 1 sample contained 4.4% asbestos	16th (west of electrical room entry door)

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8/30/19	ONE ACM found by APCD - 1 sample contained 25% asbestos	14th (south office)
9/10/19	Notice of Violation Issued (for 2/1/2019 inspection)	Various Floors
9/10/19	ONE ACM found by APCD - 1 of 7 samples contained 35% asbestos; none detected in 6 samples	2nd (hallway electrical room)
9/18/19	ONE ACM found by APCD - 1 of 2 samples with 15%; none detected in 1 sample (from 15th floor closet)	19th (east room closet)
9/26/19	ONE ACM found by APCD - 1 of 2 samples with 25% asbestos; 1 sample not tested ("speck of dust")	7th (NW office)
10/18/19	TWO ACMs found by APCD - 2 of 2 samples collected contained 5% asbestos	5th (near west office and in south office)
11/7/19	FOUR ACMs found by APCD - 3 of 6 samples with 6%; 1 with 8%; none detected in 2 samples	4th, 8th, 16th (floor shafts)
12/6/19	TWO ACMs found by APCD - 1 sample with 5.5% and 1 with 4.9%	3rd (electrical room), 7th (stairwell entry)
12/13/19	THREE ACMs found by APCD - 2 of 5 samples contained 6% asbestos; 1 sample with 4% asbestos; 1 with <1%; none detected in 1 sample.	2nd (mechanical room)
12/19/19	THREE ACMs found by APCD - 1 of 5 total samples with 25% asbestos; 2 samples with 15%; none detected in 2 samples (4th floor IDF Room & 6th Floor Freight Elevator)	6th (electrical room), 13th (Server/IDF room)
12/26/19	FIVE ACMs found by APCD - 5 of 7 samples contained 15% asbestos; one sample not tested; none detected in last sample	6th, 7th (electrical rooms)
1/3/20	EIGHT ACMs found by APCD - 8 samples all had 12% asbestos	5th, 6th, 10th, 11th (electrical closets)
1/9/20	Non-detect sample collected by APCD	1st Floor East Stairwell
1/14/20	TWO ACMs found by APCD - 2 of 9 samples with >1% asbestos	7th (conference room - NEAR employees)
1/16/20	Public Nuisance Notice of Violation Issued to the City from the County of San Diego	For 7th floor conference room ACMs
1/17/20	APCD/County requests to conduct a visual inspection of areas above ceiling tiles in the building. Request included small containment areas put up by City.	

1/24/20 APCD took samples (per Virginia Shefa) - positive on 3rd floor (tiles) 3rd floor tiles

NOTICES OF CLAIMS

As of July 20, 2020, we are aware of six sets of claims that filed by 22 individuals claiming exposure to asbestos arising out of the renovation work at 101 Ash Street, and one claim by a City employee alleging employment-related retaliation.

1. JOSE LUIS GUERRERO

NOC Filed: January 8, 2020
Position: CBRE Building Engineer
Time at Ash: Sept. 2018 – Nov. 2019
Attorneys: Girardi Keese; Lawrence Shea
Demand: \$10M; medical monitoring

2. ANTONIO CASTILLO; JEFFREY COWAN; KEVIN M. HOUK; CARLOS M.D. LOPEZ; DANIEL MELVILLE; AND ADAM T. SLUTSKY

NOC Filed: February 11, 2020
Position: Laborers and tradesmen
Time at Ash: Sept. 2018 – Feb. 2020
Attorneys: Girardi Keese; Lawrence Shea
Demand: \$10M; medical monitoring

3. ERIC JACKSON

NOC Filed: March 11, 2020
Position: Senior Construction/Safety Officer; Harris & Associates
Time at Ash: June 2019 – Feb. 2020
Attorneys: Girardi Keese; Lawrence Shea
Demand: \$10M; medical monitoring

4. KEVIN HUYSER

NOC Filed: April 2, 2020
Position: Superintendent Mechanical, Electrical, Plumbing for Westcoast
Time at Ash: Nov. 2018 – Feb. 2020
Attorneys: Girardi Keese; Lawrence Shea
Demand: \$10M; medical monitoring

5. TREVOR KRIETZBURG

NOC Filed: April 12, 2020
Position: Unknown
Attorneys: In pro per
Demand: \$10M; medical monitoring

6. ERIC BAHENA; STAN FLORES; KENNETH HARBRIDGE; NICHOLAS OAKLEY; GEORGE PARKS; ANTONIO RANGEL; CHRISTOPHER RIVERA; PABLO RUIZ; KEENAN SMITH; ABNER VASQUEZ; ROBERT LEE WADDLE III; AND CELEB WHITE

NOC Filed: February 11, 2020
Position: Laborers and tradesmen
Time at Ash: Sept. 2018 – Feb. 2020
Attorneys: Girardi Keese; Lawrence Shea
Demand: \$10M; medical monitoring

7. MARLON PEREZ

NOC Filed: February 4, 2020 (Letter only)
Position: Civil Engineer, DWP
Time at Ash:
Attorneys: Girardi Keese; Lawrence Shea
Demand: No monetary amount stated

LEGAL STANDARDS RE RENOVATION WORK IN PRESENCE OF ACMS

Under APCD rules, absent sampling, building materials are presumed to be asbestos containing. (See, APCE Rule 1206 (d) “Facility Requirements.”) Likewise, the EPA presumes that buildings erected prior to 1980 contain ACMs with the burden on the owner to prove otherwise. (See also, Shefa March 5, 2020 Draft Report at p. 1.)

Key OSHA Rules:

1910.1001(k)

Housekeeping.

1910.1001(k)(1)

All surfaces shall be maintained as free as practicable of ACM waste and debris and accompanying dust.

1910.1001(k)(2)

All spills and sudden releases of material containing asbestos shall be cleaned up as soon as possible.

1910.1001(k)(3)

Surfaces contaminated with asbestos may not be cleaned by the use of compressed air.

1910.1001(k)(4)

Vacuuming. HEPA-filtered vacuuming equipment shall be used for vacuuming asbestos containing waste and debris. The equipment shall be used and emptied in a manner which minimizes the reentry of asbestos into the workplace.

1910.1001(k)(5)

Shoveling, dry sweeping and dry clean-up of asbestos may be used only where vacuuming and/or wet cleaning are not feasible.

1910.1001(k)(6)

Waste disposal. Waste, scrap, debris, bags, containers, equipment, and clothing contaminated with asbestos consigned for disposal, shall be collected, recycled and disposed of in sealed impermeable bags, or other closed, impermeable containers.

1910.1001(k)(7)

Care of asbestos-containing flooring material.

1910.1001(k)(7)(i)

Sanding of asbestos-containing floor material is prohibited.

1910.1001(k)(7)(ii)

Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.

1910.1001(k)(7)(iii)

Burnishing or dry buffing may be performed only on asbestos-containing flooring which has sufficient finish so that the pad cannot contact the asbestos-containing material.

1910.1001(k)(8)

Waste and debris and accompanying dust in an area containing accessible ACM and/or PACM or visibly deteriorated ACM, shall not be dusted or swept dry, or vacuumed without using a HEPA filter.

ASBESTOS BASICS

Asbestos is a naturally occurring fibrous mineral with unique properties that has resulted in it being used in numerous products. Asbestos is a lightweight, thermally and/or chemically resistant material with high tensile strength that, because of these qualities, has been extensively used in over 3,000 products. Asbestos has extensively been used as a fire retardant and insulating material.

As early as 4000BCE, asbestos was used for wicks in lamps and candles.

“Asbestos” means inextinguishable or unquenchable. From 2000- 3000 BCE, embalmed bodies of Egyptian pharaohs were wrapped in asbestos clothes to offset the ravages of time.

In 1828 a U.S. patent was issued for asbestos Insulating material to be used in steam engines. In 1853, asbestos helmets and jackets were worn by the Parisian Fire Brigade. In 1866 molded lagging material was made from water, glass and asbestos. In 1896 the first asbestos brake linings were made by Peredo Ltd., in England. In 1900 high pressure asbestos gaskets were made by Klinger in Austria. In 1913 asbestos pipes were first developed in Italy. In 1919 standard corrugated sheet asbestos was introduced in Australia by Hardies. From 1939 to 1945, wartime use included fireproof suits and parachute flares. In 1939 in the film "The Wizard of Oz, the Wicked Witch of the West appeared on a broom made of asbestos.

Asbestos has been used in industrial applications since about 1880. More than 3,000 products using asbestos include fire resistant insulation, gas masks, water and sewage pipes, cement building materials, reinforcement in asbestos-cement products, brakes and clutches, sprayed fire-proofing products, floor tiles and coverings. Boilers and pipes were insulated with asbestos products in factories, steel plants, and power stations, as well as in hospitals, schools, and homes. Railroads and shipbuilding facilities relied on asbestos as a primary insulator. Building contractors used asbestos in

industrial and domestic construction for fireproofing, thermal and acoustic insulation, and protection from moisture.

During the last decades of the 19th century, manufacturers began to use asbestos for a variety of industrial products, such as insulation for pipes and boilers and as a heat-resistant material in brakes and clutches. Through the early 20th century, there were hundreds of products and applications, including cement building materials, water and sewage pipes, fire resistant insulation boards, floor tiles and coverings, wallboard, ceiling tiles, gas masks, lifts and machinery.

EARLY KNOWLEDGE OF HEALTH RISKS

Because asbestos-related disease develops slowly and often presents no symptoms for years after the exposure, the 20th century was well into its second decade before many workers developed the diseases we now recognize as asbestosis, lung cancer, and mesothelioma. Nonetheless, manufacturers and medical observers had begun to suspect the toxicity of asbestos. The Prudential Insurance Company recognized the risk in 1918, when it ceased to sell life insurance coverage to asbestos workers because of the “health-injurious conditions of the industry.”

By the 1930s, the federal government had taken notice of the problem. In Paul Brodeur’s *Outrageous Misconduct*, a groundbreaking exposé of the asbestos industry cover-up, he cited a letter from a U.S. Bureau of Mines official in 1933 to asbestos manufacturer Eagle-Picher that stated, “It is now known that asbestos dust is one of the most dangerous dusts to which man is exposed.”

MORE THAN A MILLION SHIPYARD WORKERS EXPOSED TO ASBESTOS

During World War II, naval shipyards ramped up production, employing thousands of workers in ship construction and repair. In 1943, the peak year for shipbuilding employment in the U.S., more than 1.3 million people built and repaired the country’s military and commercial fleets. Asbestos products were used extensively in these enterprises. Shipyard employees often worked in enclosed, unventilated spaces

where the concentration of airborne particles was so high that the air was cloudy with them. Suppliers of asbestos products and shipyard owners made no disclosure of the lethal risks they faced working around asbestos.

From 1945 to 1975, post-war construction projects relied heavily on the use of asbestos, reaching an all-time high in 1973. During the 1990s, the solid fuel boosters of the space shuttle were insulated with asbestos, one of the few remaining current uses.

Widespread use of asbestos-containing materials resulted in exposures of millions of individuals who were then at risk for developing asbestos-related diseases. Asbestos-related diseases typically have a long latency period time, from first exposure to diagnosis of disease). Asbestos has been shown to produce two basic disease processes: cancer and scarring.

Cancer diseases caused by asbestos include lung cancer, mesothelioma and other cancers such as cancers of the digestive tract and kidney. The scarring diseases include the disease asbestosis (scarring of the supportive framework of the lung), *visceral pleural fibrosis*, *hyaline pleural plaque*, *rounded atelectasis* and *fibrothorax*. Asbestos can also cause a pleural effusion many years after a person was last exposed to asbestos and can cause unusual and localized diseases in the lung.

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Asbestos is sometimes stated to be ubiquitous in our environment and that all individuals are exposed to asbestos every day. This is incorrect. The majority of individuals under age 30 have not been exposed to asbestos and will not be exposed to asbestos except under rare circumstances. At this time, the majority of air samples analyzed from the general environment do not contain asbestos. In cities where air fiber analysis has been done, levels of asbestos have been in the range of 0.0005-0.00005 fibers per cubic centimeter. Numbers of asbestos fibers in buildings vary depending on the age of the building, what materials were used to insulate the building and how much disrepair the building was in.

The body has natural defense mechanisms to try to protect it from dusts like asbestos and other particulate matter. These defense mechanisms include the mucus and hairs in the nose; the epithelial lining of bronchi, which include ciliated cells and mucous secreting cells that are part of the system referred to as the "mucociliary escalator apparatus" that clears particulates from the lining of the air tubes; and the alveolar macrophages that engulf particulate matter up to a size of about 5 μm in greatest dimension. Despite these clearance mechanisms, occupationally exposed individuals can have over 60 million asbestos fibers per gram of dry lung tissue and over 1 million asbestos bodies per gram of dry lung tissue.

Asbestos is cleared from the lung over time, which might explain observations in the 1950s that as individuals became older, the number of asbestos

bodies found in their lung tissue decreases. Chrysotile fibers are thought to be more readily cleared from the lung than amphibole fibers. Chrysotile has a half-life in the lung of approximately 90-120 days.

Clearance of short fibers is significantly greater than clearance of longer fibers. Amphiboles are cleared from lung and have a half-life in lung tissue of about 20 years for amosite and approximately 5-10 years for crocidolite.