1. WHY ARE CITIZENS CONCERNED?

Without requiring full site testing/cleanup, the city approved building 550 apartments, designed for **hundreds of children**, on a toxic-waste site. After this partial testing/cleanup, the developer admits groundwater contamination & cancer risk will remain "**unknown**." Despite these key "unknowns," CA Toxic Substances Control claims the project is one "where clearly no significant effects would occur," yet approved **land-use controls** (prohibiting exposure to site soil/water), It gave the developer **protection from liability** for site toxins, for doing only quick, inexpensive removal of 12 suspected "hot spots," many never even tested.

2. WHAT'S OUR SOLUTION?

Before development, we want **full site testing/cleanup**---which the developer says costs $1-2 million more than partial cleanup.

3. HOW WAS THIS TOXIC SITE USED BY THE US NAVY?

For 30 years the Navy did **secret testing & manufacturing of Polaris missiles**, torpedoes, & propellants. The site had a foundry, 5 incinerators, combustion labs, large torpedo-test water tanks, & 2 rail lines to receive materials & ship out weapons.

4. WHAT TOXINS ARE ONSITE?

The site has carcinogens, neurotoxins, mutagens, & developmental toxins having **no safe dose**. These include arsenic; dioxins & furans; lead; mercury; PAHs; PCBs; explosives & propellants like RDX; radioactive materials; & carcinogenic VOCs.

5. HOW DANGEROUS IS THIS SITE?

Site assessments say site **cancer risks** are up to **8,300 times abov**e what regulations allow. CA Toxic Substances Control called the site an "**imminent and substantial" danger**, yet claims its health risks will not be "significant," after partial cleanup.

6. HOW GOOD ARE SITE STUDIES—USED BY THE DEVELOPER & THE CITY?

Of 20 site studies, all 20 are incomplete, 3 are potentially fraudulent, & 17 fail to pass US EPA data-validation (anti-fraud) tests. 3 site studies were done by contractors who were fined nearly $ 1 billion---for **repeated fraud** at other US toxic-site cleanups.

7. WHY IS ADDITIONAL SITE TESTING & SAMPLING NEEDED?

Site contaminants forced 2 Pasadena drinking-water wells to close, but groundwater, full soil, & many suspected hot-spots have **never been tested**. No tests have been done for perfluoroalkyls---& propellants & explosives HBX, RDX, & TNT, the main ingredients in 71% of weapons made onsite. Without full, preconstruction testing/cleanup, residents face years of cancer exposures.

8. WHAT'S WRONG WITH LETTING THE DEVELOPER DO PARTIAL SITE CLEANUP?

The developer says carcinogens (with no safe dose) will be "left in place," as full cleanup would be "costly and time-intensive." He also says it's "outside" his "obligations" to show that carcinogens, "left in place" won't be a "**future threat**," but admits that doing cleanup, after construction, will cause residents years of **higher cancer risks**. The developer has a conflict of interest.

9. HOW DO UNBIASED STATE EXPERTS RECOMMEND HANDLING SITE TESTING & CLEANUP?

Raymond & San Gabriel Basins Watermaster (CA Water Board), Anthony Zampiello says: "It's **easier & cheaper to clean up the site now** rather than later, after construction. From our experience at other cleanup sites, the most thorough & best way, to handle a site of this type, is for site-cleanup work and supervision of work to be conducted by an **independent party**."

10. WHY WON'T REMOVING SUSPECTED HOT SPOTS REMOVE "SOURCES" OF SITE TOXINS?

The developer must remove only 12 small, suspected hot spots, yet site **carcinogens are "uniformly distributed.**" Unless all cancer "sources" are removed from soil & water, they will harm future residents, soil, & groundwater. Given no groundwater, deeper-soil, full-hotspot, & RDX testing, all site **contaminants aren't known & located**---so their "sources" can't be removed.

11. WHY IS SITE TESTING FOR RDX NEEDED?

The official list of contaminants is incomplete. It includes neither flame-retardants, perfluoroalkyls, nor HBX, RDX, & TNT---explosives and propellants used onsite in 71% of weapons known to have been tested & manufactured onsite. CA regulates perfluoroalkyls, as well as HBX, RDX, & TNT, as they already have caused much **cancer,** central-nervous-system and immune damage, plus **developmental harm to children** at other US military toxic sites in California.

12. IS IT SAFE FOR CHILDREN TO LIVE ON THIS TOXIC-WASTE SITE?

CA Toxic Substances Control called this site, **an "imminent & substantial" danger**. It will house hundreds of children, plus preschoolers. When adults & children face the same toxic exposure, US EPA warns **harm to children is 10 times worse**, as they are developing, have limited toxics & immune-system protections, & take in proportionately more air/water/pollution than adults. Site assessors did no child-risk assessment, contrary to US EPA & National Academy of Sciences recommendations.

K.S. SHRADER-FRECHETTE, O'NEILL ENDOWED PROFESSOR, DEPT. BIOLOGICAL SCIENCES, U OF NOTRE DAME, www3.nd.edu/~kshrader

LONGER RESPONSES (WITH NOTES) TO FAQ QUESTIONS ABOUT THE SITE

1. WHY ARE CITIZENS CONCERNED?

The city of Pasadena approved the construction of 550 apartments, for hundreds of children and families, on a military toxic-waste site, immediately beside the 10-lane Interstate 210, yet the toxic site has not been fully tested and cleaned up.[1] We are concerned because the city did not require full toxic-site testing and cleanup before construction, because the city instead is requiring the developer only to remove 12 small suspected "hot spots" before construction, because the city is letting the developer wait until after construction to do any further site testing and cleanup, and because the city sited housing beside the freeway, contrary to CA Air Board health recommendations.[2]

We also are concerned that although the developer admits that groundwater contamination & cancer risk will remain "**unknown**," after his partial remediation, CA Toxic Substances Control concluded that these "unknown" cancer risks are "not significant."[3] It issued a "negative declaration" about the project, claiming that it was one "where clearly no significant effects would occur."[4]

Notes
1. City of Pasadena, SCEA, p. 41, https://ww5.cityofpasadena.net/planning/wp-sites/56/2018/01 /3200-E-Foothill-SCEA.pdf
2. Fact Sheet, https://www3.nd.edu/~kshrader/pdf%203-10-19%20FACT%20SHEET%20pasadena%20military%20toxic-waste%20site.pdf
3. CEQA Findings, p. 19, https://www.envirostor.dtsc.ca.gov/public/community_involvement/2907468497/Final%20DTSCTSC%20CEQA%20Statement%20of%20Findings%20Pasadena%20NIRF.pdf (For developer claims that site cancer risk will remain unknown, see note 5, FAQ 8, and note 1, FAQ 7.).
4. Title 14. California Code of Regulations, Chapter 3. Article 6; http://resources.ca.gov/ceqa/guidelines/art6.html#15070

2. WHAT'S OUR SOLUTION?

California Toxic Substances Control should require full site testing and cleanup before any construction (including testing for RDX, TNT, and perfluoroalkyls[1] and doing full soil and groundwater testing). California Toxic Substances Control also should consider requiring the Department of Defense, the responsible party, to do full site cleanup, as it is doing at many military toxic sites throughout the state. Finally, California Toxic Substances Control should not claim that the site's cancer harm is "not significant," given no complete site testing. Even its own studies show that site cancer risks will remain "unknown" after the developer's partial site cleanup (see FAQ 1).

We support the solution that California EPA and CA Water Board officials have outlined. As Anthony Zampiello, Executive Officer and Watermaster for both the San Gabriel and Raymond Basins said on March 13, 2019: "It's easier and cheaper to clean up the site now rather than later, after construction. From our experience at other cleanup sites, the most thorough and best way, to handle a site of this type, is for site cleanup work and supervision of work to be conducted by an independent party."

Notes
1. See FAQd 4 and 7.
2. https://www.epa.gov/superfund/search-superfund-sites-where-you-live
2. Email from Zampiello 3-13-19, to Dr. Shrader-Frechette, used with permission of Anthony Zampiello.

3. HOW WAS THIS TOXIC SITE USED BY THE US NAVY?

The site developed, tested, and manufactured US Navy torpedoes and missiles. Thus it had testing, manufacturing, and chemical-storage areas.[1] It also had two separate rail lines coming to the site, used to bring in raw materials and chemicals and to ship out the finished missiles and torpedoes. It also had huge water tanks capable of testing more than 70 percent of all US torpedoes, as well as propellants, flame retardants, and weapons that were manufactured onsite. Most importantly, the site had "combustion laboratories…for bench-scale propellant tests," though full-scale torpedo and missile tests usually took place nearby, at Morris Dam or China Lake.[2]

Notes
1. SCEA Appendix K, RAW, p. 8, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf
2. Kennedy/Jenks, ES, pp. 4, 5, 11, 15, https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/4649860978/Environmental%20Summa

ry%20Report%20Jenks%20May%2022%202007%20.pdf; SCEA Appendix E, pp. 25-26, 31 and Appendix J, pp. 2-3, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf

4. WHAT TOXINS ARE ONSITE?

The site assessment lists contaminants of concern as arsenic; carcinogenic dioxins and furans from the 5 known, onsite incinerators; hexavalent chromium, a carcinogen; lead and mercury; total petroleum hydrocarbons, many of which are known carcinogens; PCBs that are carcinogens; perchlorate, a rocket propellant that is a neuro- and developmental toxin that is especially harmful to children; polyaromatic hydrocarbons, many of which are known carcinogens; radioactive materials; and volatile and semi-volatile organic compounds, many of which are known carcinogens.[1]

However, the city's and the developer's list of onsite toxic contaminants is not complete. The list excludes the explosives and propellants HBX, RDX, and TNT, as well as the flame retardants known as PFAS or per- and polyfluoroalkyls (see FAQ 7). Yet carcinogenic HBX, RDX, and TNT were the major components[2] in 71% of the weapons that are known to have been developed, tested, and manufactured onsite.[3] These military toxins, including RDX and TNT, are regulated by the state of California.[4] Already RDX is known to have contaminated drinking water for at least 12 million homes in California, Arizona, and New Mexico.[5] Site assessments should not have excluded HBX,RDX,TNT, and PFAS.

This site also likely did classified propellant tests of RDX---already used onsite for most of the warheads manufactured onsite. A main site function was testing various formulations of propellants,[6] and patents for RDX-containing rocket and torpedo propellants were filed as early as 1959.[7] This fact suggests that the site likely tested RDX-containing propellants or fuels from about 1959 until 1974. Yet no site studies assessed the site for RDX.

Notes
1. City of Pasadena, SCEA, pp. 12-13; Kennedy/Jenks, ES, pp. 9,17,3-31,34-37.
2. http://www.navweaps.com/Weapons/WTUS_Post WWII.php; https://apps.dtic.mil/dtic/tr/fulltext/u2 /764340.pdf
3. SCEA Appendix K, RAW, p. 8, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf
4. http://www.gswater.com/download/California-Drinking-Water-Standards-rev-21218.pdf
5. https://www.hindawi.com/journals/aess/2012/617236/
6. SCEA Appendix K, RAW, p. 8.
7. US Patent 3507719, https://patents.google.com/patent/US3507719 US3507719A

5. HOW DANGEROUS IS THIS SITE ?

The city says current site cancer risks from military toxins are up to 8,300 times higher than regulations allow.[1] California Toxic Substances Control said this site was an "imminent and substantial" danger,[2] claims that after the developer's partial testing/cleanup, site **health-harm will be "unknown,"**[3] yet it says that after this partial cleanup, these "unknown" site cancer risks will be "not significant.[4]

The developer is concerned enough about the dangers of these military-site toxins that he obtained an agreement from the state that gives him **protection from liability for site toxins,**[5] but site residents have no such protection.

Notes
1. RAW, p. 11; Appendix J, RI, p. 41, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf
2. Kennedy/Jenks, ES, pp. 4, 8.
3. See FAQ 7, note 5 and FAQ 8, note 5.
4. CEQA Findings, pp. 10-11.
5. Agreement Not to Sue, pp.1-2, https:// www.envirostor.dtsc.ca.gov/public/deliverabledocuments/534094 0713/Executed%20Amendment%20to%20PP A12.2017.pdf

6. HOW GOOD ARE THE SITE STUDIES, USED BY THE DEVELOPER AND CITY?

Instead of doing current and complete studies, the city and the developer base their site approval on 20 earlier studies,[1] all of which have at least 1 of 3 deficiencies. They either are grossly incomplete, or have potential fraud problems, or use unvalidated data (using validated data is a US EPA data requirement for protecting against fraud, especially when doing testing and cleanup of toxic sites),[2] or they are grossly incomplete. For instance, there has been no full site-soil testing, no testing of all suspected hotspots, no groundwater testing, and no testing for the main toxic military propellants (such as RDX) used in 71% of weapons known to be manufactured and tested onsite.[3]

Regarding **fraud**, 3 of the 20 studies (used by the city and the developer) were done by SAIC and Tetra Tech who admitted repeated fraud at other toxic-waste clean-ups. SAIC had to pay $566 million in fines, and the government has begun levying criminal fines against Tetra Tech---who is now being sued for $27 billion by homeowners who claim extensive health harm from its fraudulent clean-up of another US Navy toxic-waste site, in San Francisco; that toxic site was also used for housing.[4]

Regarding **data validation**, most site studies (17 of 20) used by the developer and the city do not meet US EPA data-validation (anti-fraud) protections,[5] despite these protections being required by US EPA.[2]

Regarding the 3 of 20 site studies that do use validated data, all of them are **incomplete**. One of them failed to do any legally required soil matrix and carcinogenic-vapor sampling. Another assessed soils only near one of 25 buildings. A third assessed only volatile organic compounds and only in shallow soils---no other contaminants of concern. Consequently CA Toxic Substances Control said that because sampling "excludes areas beneath buildings, the depth and scope of investigation were insufficient to make any regulatory or risk decisions regarding the site."[6]

Notes
1. SCEA, pp. 10-11.
2. SCEA Appendix J, RI, pp. 43-44.
3. Fact Sheet, https://www3.nd.edu/~kshrader/pdf%203-10-19%20FACT%20SHEET%20pasadena%20military%20toxic-waste%20site.pdf
4. e.g, https://www.contractormisconduct.org/contractors/47/saic; https://www.contractormisconduct.org/search?q=tetra+tech; Engineering News Record, https://www.enr.com/articles/46260-us-joins-suits-citing-tetra-tech-fraud-in-navy-site-cleanup; https://sf.curbed.com/2018/7/25/17614574/hunters-point-homeowners-lawsuit-developer-contamination-toxic-cleanup; https://www.bizjournals.com/sanfrancisco/news/2018/05/02/bayview-lawsuit-hunters-point-tetra-tech-ttk.html).
5. SCEA Appendix J, RI, pp. 43-44.
6. Kennedy/Jenks, ES, pp. 6, 9,10.

7. WHY IS ADDITIONAL SITE TESTING AND SAMPLING NEEDED?

Site testing is incomplete in 6 major ways. First, the latest site assessments admit **site groundwater-contamination is "unknown,"**[1] but site toxins have already contaminated and closed two Pasadena drinking-water wells, one adjacent to the West, and one adjacent to the East, sides of the site.[2]

Second, many soil areas have never been sampled; even suspected toxics hot spots are untested.[3]

Third, most of the weapons made and tested onsite,[4] namely, the MK 32, 42, 43, 44, and 46 torpedoes; submarine rockets or SUBROCs, and Polaris missiles, contain RDX and TNT.[5] Yet **no testing whatsoever** has been done for typical military-explosive-and-propellant carcinogens and neurotoxins like HMX, RDX, and TNT that the state regulates and that already have contaminated millions of homes.[6]

Nor has any testing been done for per- and polyfluoralkyls (PFAS), yet beginning in the 1960s PFAS were used on virtually all US military sites in fire-fighting foam to control explosives- and fuel-based fires.[7] The Pasadena site likely also experimented on perfluoroalkyls because fire retardants and explosives/rockets/torpedoes/missiles were its two main areas of research and development.[8] Since 2013, California has required tested drinking water supplies for PFAS.[9] These PFAS are associated with cancer, cardiovascular disease, and harm to children, including newborn deaths, birth defects, and delayed development. They cause decreased fertility and infant birth weight, increased liver and immune-system damage, thyroid disease, high blood pressure, pre-eclampsia, and high cholesterol levels.[10]

Fourth, continuing site contamination and health threats cannot be removed by the developer because not all site "sources" of these toxins have been located. What has not been located cannot be removed. As a result of the developer's partial cleanup, these toxin-sources will continue contaminating the site, groundwater, and residents---for many years to come.[11]

Fifth, the developer admits that future site residents, workers, and shoppers are likely to face years of **increased cancer risks,[12] because of post-construction site cleanup**, given that the city & California Toxic Substances Control has required no pre-construction groundwater and full soil-carcinogen cleanup and testing.[13]

Notes
1. Appendix A, p. 8 of 20, of SCEA Appendix J, RI.
2. p. 4 of 14, https://ww 5.cityofpasadena.net/water-and-power/wp-content/uploads/sites/54/2017/08/City-of-Pasadena-Public-Health-Goals-Report-2013.pdf; p. 2, https://www. waterboards.ca.gov/losangeles/waterissues/programs/remediation/perchlorate/ 030428_perchlorate update.pdf
3. SCEA RI, Appendix J, p. 29.
4. SCEA Appendix K, RAW, p. 4.
5. http://www.navweaps.com/Weapons/WTUS_ Post WWII.php; https://apps.dtic.mil/dtic/tr/fulltext/u2 /764340.pdf
6. http://www.gswater.com/download/California-Drinking-Water-Standards-rev-21218.pdf; https://www.hindawi.com/journals/aess/2012/617236/
7. Lustgarten, How the EPA and the Pentagon Downplayed a Growing Toxic Threat, ProPublica. https://www.propublica.org/article/how-the-epa-and-the-pentagon-downplayed-toxic-pfas-chemicals.
8. Kennedy/Jenks, ES, p. 4; https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/4649860978/Environmental%20Summary%20Report%20Jenks%20May%2022%202007%20.pdf
9. Ca Water Boards, California Releases New PFAS Drinking Water Guidelines, July 17, 2018, https://www.asdwa.org/2018/07/17/california-releases-new-pfas-drinking-water-guidelines/ and ProPublica, https://www.propublica.org/article/suppressed-study-the-epa-underestimated-dangers-of-widespread-chemicals and CSWRCB, Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS), California State Water Resources Control Board. April 04, 2019, https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/PFOA_PFOS.html
10. US ATSDR, ToxFacts for Perfluoralkyls, https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=1116&tid=237.
    State Water Resources Control Board, Perfluorooctanoic Acid (PFOA) & Perfluorooctanesulfonic Acid (PFOS), https://www.waterboards.ca.gov/gama/docs/pfoa.pdf
11. SCEA RI, Appendix J, pp. 28-29 and RAW, Appendix K, p. 31; Kennedy/Jenks, ES, pp. 27-38.
12. SCEA RAW, Appendix K, pp. 47, 50.
13. SCEA, p. 125.

8. WHAT'S WRONG WITH LETTING THE DEVELOPER DO PARTIAL CLEANUP?

It's questionable to allow the developer to be responsible for toxic-site cleanup, mainly because the developer is committed to only a very limited, partial, inexpensive, and dangerous cleanup. First, the developer already obtained an agreement with the state that gives him **protection from liability** for site toxins. This agreement allows "land use controls" at the site, instead of requiring full site clean-up.[1]

Second, the developer admits that most **site carcinogens will "be left in place**."[2] Third, the developer says he will do only partial cleanup because full cleanup would require a "costly and time-intensive process….for more than a year."[3] The developer also says that "To meet the site development schedule, environmental remediation must be completed in approximately three months. Due to this extremely tight development schedule it will be necessary to favor remedial alternatives that can be performed quickly."[4]

Fourth, the developer admits that, after his doing only partial site cleanup, it is "unknown if [carcinogenic] VOCs [volatile organic compounds like carbon tetrachloride]…will continue to present a…cancer" threat to residents."[5] Fifth, the developer admits that **attempting to do site cleanup of carcinogens after construction, as he wants, would cause "short-term [cancer] risks to site workers and community…for more than a year**."[6]

Sixth, when the state asked the developer for evidence that site carcinogens, "left in place….will not be a future threat," the developer responded that providing such evidence "is outside the…obligations of Pasadena Gateway" The developer also said that site "remedial decisions can be made" by using studies that don't meet required US EPA data-validation (anti-fraud) requirements.[7]

Seventh, the city says current site cancer risks from military toxins are up to 8,300 times higher than regulations allow.[8] California Toxic Substances Control said this site was an "imminent and substantial" danger,[9] claims that after the developer's partial testing/cleanup, site **health-harm will be "unknown,"**[10] yet it says that after this partial cleanup, "unknown" site cancer risks will be "not significant.[11] The developer is concerned enough about the dangers of these military-site toxins that he obtained an agreement from the state that gives him **protection from liability for site toxins,**[12] but site residents have no such protection.

Eighth, the developer has a **financial conflict of interest**. The less cleanup the developer does, the more money he saves and the sooner he can start construction and begin making money on the project.

Notes
1. Agreement Not to Sue, pp.1-2, and p. 7 of 7 of Exhibit A; re land-use controls, see SCEA Appendix J, RI, p. 31.
2. Appendix A, p. 8 of 20, of SCEA Appendix J, RI.
3. SCEA Appendix K, RAW, pp. 47, 50.
4. SCEA Appendix J, RI, p. 36.
5. SCEA RAW, p. 31.
6. RAW, p. 50.
7 Appendix A, pp. 4 and 8 of 20, of SCEA Appendix J, RI.
8. RAW, p. 11; Appendix J, RI, p. 41, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf
9. Kennedy/Jenks, ES, pp. 4, 8
10. See FAQ 7, note 5 and FAQ 8, note 5.
11. CEQA Findings, pp. 10-11.
12. Agreement Not to Sue, pp.1-2, https:// www.envirostor.dtsc.ca.gov/public/deliverabledocuments/534094 0713/Executed%20Amendment%2 0to%20PP A12.2017.pdf

9. HOW DO UNBIASED STATE EXPERTS WANT TO HANDLE THIS TOXIC SITE?

Anthony Zampiello, Executive Officer and Watermaster for both the Main San Gabriel and Main Raymond Basins (that underlie Pasadena) said on March 13, 2019: ""It's easier and cheaper to **clean up the site now** rather than later, after construction. From our experience at other [toxic] cleanup sites, the most thorough and best way to handle a site of this type---is for **site cleanup work and supervision of work to be conducted by an independent party**."[1]

Notes
1. Email from Zampiello 3-13-19, to Dr. Shrader-Frechette, used with permission of Anthony Zampiello.

10. WILL REMOVING SUSPECTED HOT-SPOTS REMOVE TOXIN "SOURCES"?

We don't even know everything that is contaminating the site, because there never has been objective, grid-based site sampling of all soil; site **groundwater has never been tested**.[1] No sampling has ever been done of all suspected toxic "hot spots."[2] Because of no full soil-and-water testing, we don't even know what all the site contaminants are---and thus we can't locate and remove their "sources."

For instance, no testing for RDX and TNT has ever been done. Yet they were used for 71% of known weapons that were tested and manufactured onsite.[3]

Official California Toxic Substances Control documents for the site admit that not all sources of site contaminants have been identified and located, and they speak only of **"suspected," "potential," and "likely"** sources of site toxins.[4] The latest official site assessment even admits that it is unknown whether site soils are "a continuing source of groundwater contamination."[5] Because **site contaminant sources have not been identified and located**, there is no basis for saying that hot-spot removal will remove these sources, and no basis for California Toxic Substances Control to say project health risks are "not Significant" (see FAQ 1).

Notes

1. SCEA Appendix K, RAW, p. 36; Appendix A, p. 8 of 20, of SCEA Appendix J, RI, both at https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf and see note 4 below.
2. SCEA RI, Appendix J, p. 29.
3. City of Pasadena, SCEA Appendix K, RAW, p. 4 Navweaps: Naval Weapons, Naval Technology, and Naval Reunions, Torpedoes of the United States of America, 2019, http://www.navweaps.com/Weapons/WTUS_Post WWII.php Headquarters, US Army Materiel Command, Engineering Design Handbook, Explosives Series, 1971, pp. 156-62, https://apps.dtic.mil/dtic/tr/fulltext/u2/764340.pdf.
4. Fact Sheet, https://www3.nd.edu/~kshrader/pdf%203-10-19%20FACT%20SHEET%20pasadena%20military%20toxic-waste%20site.pdf and SCEA RI, Appendix J, p. 29. One main California Toxic Substances Control site study spent at least 10 pages explaining why there could be nearly a score of geographically-specific onsite sources for the 4 main carcinogens/volatile organic compounds (Kennedy/Jenks, ES, pp. 27-38) .

   Partly because the developer's consultants ignored these data, they gave no dimension-specific locations for any of the 4 main carcinogens that assessors say "drive" the site's high cancer rate. The site Health Risk Assessment gives a grid-based description of toxic air contaminants --- whose sources are diesel trucks on the I-210 freeway, (SCEA Appendix D, HRA, fig 2, p. 12, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf The Health Risk Assessment also gives the "sources" of site noise and vibration (Appendix G, Noise Study of the SCEA Appendix D, HRA, pp. 14,17).

   However, a key study (2003) of site contaminant "sources" was done by SAIC---who has been found guilty of scientific fraud at many other US toxic sites---who has been fined at least $566 million by the US government (e.g, https://www.contractormisconduct.org/contractors/47/saic). Thus the SAIC data for this site may not be reliable. The only SAIC site contaminants noted are metals, and yet SAIC said site metals "could not be attributed" to military operations at this toxic-waste site---and instead came from nearby parking lots (SCEA Appendix K, RAW, p. 11 and SCEA Appendix J, RI, p. 10). However, this Navy site included its own foundry and manufactured torpedoes and missiles that were all encased in metals (Kennedy/Jenks/ES, pp. 5-10, 13ff, 26ff).

   Instead of locating site-contaminant sources precisely and scientifically, the site Removal Action Workplan (SCEA Appendix K, p. 17) merely says some contaminants are "unlikely" to be a source of groundwater contamination, while other contaminants have "greater potential" to be sources. The Removal Action Workplan also says it's "not clearly evident" what the source of some site contaminants are, and it talks about "likely" sources, not identified sources (SCEA Appendix K, RAW, p. 25 and SCEA Appendix J, RI, p. 28). The SCEA (p. 13) itself identifies no site toxic "sources" and merely talks of "suspected" sources.

   In fact, the developer was criticized by toxicologists for not identifying the sources of at least 5 very potent site carcinogens, including TCE (SCEA Appendix K, RAW, p. 11 and p. 1 of 20 of Appendix A (Response to DTSC Comments) to SCEA Appendix J, RI).
5. P. 9 of 20 of Appendix A (Response to DTSC Comments) to SCEA Appendix J, RI.

11. WHY IS TESTING FOR RDX, TNT, AND PFAS NEEDED ?

The developer's and the city's assessment lists site contaminants of concern that include carcinogens, developmental toxins, metals, mutagens, and neurotoxins.[1] However, **this list is not complete**. It excludes the neurotoxic and carcinogenic explosives and propellants, including RDX and TNT. RDX and TNT are the major warhead components of 71% of the weapons known to have been manufactured onsite, and RDX also is a component (at least since the 1950s) of propellants tested onsite.[2]

The weapons made onsite were the MK 32, 42, 43, 44, and 46 torpedoes; submarine rockets or SUBROCs, and Polaris missiles. Only the Mk 46 torpedo and the Polaris missile did not contain RDX and TNT. As a consequence of intensive site use of RDX and TNT, they must have been stored onsite.[3]

Besides RDX use in 71% of the warheads manufactured onsite, as already mentioned, RDX also was likely used in site propellant tests, as the 9-acre military site included "combustion laboratories…for bench-scale propellant tests."[4] At least since the 1950, when scientists obtained patents for RDX-containing propellants,[5] the site likely tested RDX-containing propellants until it was closed in 1974.

It's also important to test the site for RDX and TNT because the state of California regulates their contamination levels,[6] and they are so dangerous. TNT is associated with leukemia, lymphoma, and liver, bladder, and spleen cancer; with anemia; and with immune-system damage. RDX is associated with **neurotoxic effects; increased total cancers**, especially of the lung, bronchus, colon, and rectum; and **developmental harm to children**.[7]

Because RDX has already contaminated drinking water for at least 12 million homes in California, Arizona, and New Mexico,[8] because the state regulates it,[6] and because it clearly was used onsite in great quantities, site assessments must immediately test for RDX and TNT, as well as PFAS

Notes
1. SCEA, pp. 13-14.
2. SCEA Appendix K, RAW, p. 4; US Patent 3507719, https://patents.google.com/patent/US3507719 US3507719A and see notes 3-8.
3. http://www.navweaps.com/Weapons/WTUS_Post WWII.php; https://apps.dtic.mil/dtic/tr/fulltext/u2 /764340.pdf
4. Kennedy/Jenks, ES, pp. 4, 5, 11, 15; SCEA Appendix E, pp. 25-26, 31; SCEA RI, Appendix J, pp. 2-3.
5. US Patent 3507719, https://patents.google.com/patent/US3507719 US3507719A
6. http://www.gswater.com/download/California-Drinking-Water-Standards-rev-21218.pdf

7. https://oehha.ca.gov/media/downloads/proposition-65/chemicals/tnthid080110.pdf; https://www.tandfonline.com/doi/full/10.1080/23779497.2017.1369358
8. https://www.hindawi.com/journals/aess/201 2/617236/

12. IS IT SAFE FOR CHILDREN TO LIVE ON THIS TOXIC SITE?

In addition to newborns and preschoolers, the city says site residents will include at least 200 school-age children.[1] This is partly because average dwelling unit size is 800 SF, and 40% of site apartments are 2 BR or 3 BR.[2] Yet California Toxic Substances Control called this toxic site an **"imminent and substantial" danger.**[3]

Official site assessments say current site cancer risks are up to 8,300 times higher[4] than allowed.[5] California Toxic Substances Control admits that after the developer's partial testing/cleanup, site **health-harm will be "unknown,"** yet it says that after this partial cleanup, "unknown" site cancer risks will be "not significant. The developer is concerned enough about the dangers of these military-site toxins that he obtained an agreement from the state that gives him **protection from liability for site toxins,** but site residents have no such protection.[6]

US EPA warns that children will be at special danger. Because of children's greater medical vulnerability, **onsite children will bear roughly 10 times greater health harm than adults** who live onsite. This is mainly because children are still developing, have no full immune and detoxification systems in place, and take in proportionately more air, water, and toxins than adults do.[7]

Site assessors have not adequately assessed and prevented site risks to children, because they have **not protected children in the ways that both the US EPA and the US National Academy of Sciences recommend**. They urge scientists to do separate site health assessments for children, given that they are far more medically vulnerable than adults. Yet neither the city nor the developer did special assessment of child vulnerability.[8]

1. 6. SCEA Appendix B, Mitigation, p. B-70.
2. SCEA, p. 8
3. Ca Dept of Toxic Substances Control, Kennedy/Jenks, Environmental Summary, p. 8, https://www.envirostor.dtsc.ca.gov/public/deliverabledocuments/4649860978/Environmental%20Summary%20Report%20Jenks%20May%2022%202007%20.pdf
4. City of Pasadena, SCEA Appendices, Appendix K, Removal Action Workplan, p. 11, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf
5. City of Pasadena, p. 41 of Appendix J, Remedial Investigation, https://ww5.cityofpasa ipasadena.net/planning/wp-content/uploads/sites/56/2018/01/3200-E-Foothill-Appendices.pdf
6. CEQA Findings, pp. 10-11, https://www.envirostor.dtss.ca.gov/public/community_involvement/2907468497/Final%20DTSC%20CEQA%20Statement%20of%20F indings%20Pasadena%20NIRF.pdf). Agreement Not to Sue, pp.1-2, and p. 7 of 7 of Exhibit A; re land-use controls, see SCEA Appendix J, RI, p. 31.
7. https://www.epa.gov/sites/production/files/2015-07/documents/apps-10x-sf-for-cra.pdf; see https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2011.0151; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4418502/;https://global.oup.com/academic/product/only-one-chance-9780190239732?cc=us&langland=en&
8. https://www.nap.edu/read/2125/chapter/12#211 and p. 11, https://www.nap.ed u/read/2125/chapter/2?term=child#11 and see previous note.

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