

The Santa Susana Field Laboratory and the Woolsey Fire:

Could the Fire Spread Have Been Prevented?

by

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Executive Summary

The devastating Woolsey Fire—which destroyed more than 1600 buildings and burned nearly 97,000 acres, and took three lives—began on November 8, 2018, at the Santa Susana Field Laboratory (SSFL), a contaminated former nuclear reactor and rocket testing facility in Ventura County, bordering Los Angeles County. The fire appears to have begun about a thousand yards from the site of the partial nuclear meltdown that had occurred at SSFL in 1959. Not being put out quickly, it burned all the way to the ocean, raising public concern about the potential release of radioactive and toxic chemical contamination from the burning of so much of the polluted field lab.

The parties responsible for the contamination at the site—Boeing, NASA, and the Department of Energy (DOE)—had executed legally binding agreements in 2010 to clean up SSFL by 2017. However, the promised cleanup has not even started. Therefore, widespread radioactive and toxic chemical pollution remained throughout much of the site, in soil, vegetation, and groundwater. The fire covered 80% of SSFL, burning contaminated vegetation and denuding soil so that subsequent rains carried pollutants offsite.

After the Woolsey Fire, NASA awarded itself a silver medal for its “quick actions” during the fire—for leaving the site within 10 minutes of the fire starting. However, as discussed in this report, there is serious question whether NASA shares responsibility for the fire’s catastrophic spread.



As detailed in a companion report to this one, there were 57 exceedances, in the period following the fire, of groundwater pollution limits set by the LA Regional Water Quality Control Board to protect public health and the environment.¹ Stormwater left the site carrying elevated levels of such pollutants as gross alpha radioactivity, dioxins, lead, arsenic, and cyanide. Nonetheless, at Boeing’s request, the Water Board waived fines for almost all of these exceedances, saying it had determined “that the effects of the

fire could not have been prevented or avoided by the exercise of due care or foresight by Boeing....Boeing has a Fire Station onsite that immediately responded when the Woolsey Fire began...."²

It turns out that for decades there *had been* a well-equipped fire station, with multiple modern fire trucks, located a few hundred yards from where the Woolsey Fire started. However, that station had been torn down a few years before the fire and the fire trucks eliminated, replaced by a single, small, less capable truck stationed far away at the entrance to the site. Moreover, it has now been revealed that Boeing's single old fire truck broke down, unable to even reach the fire.³ Furthermore, a couple of years before the fire, NASA demolished eleven large water tanks containing more than two million gallons of water that fed the fire suppression system. NASA also removed fire hydrants and associated fire suppression water piping, including those within a few hundred yards of where the fire started.

It is a reasonable question whether the fire would have ever spread as far as it did had the longstanding fire station still been there, able to quickly put out the fire that began so close nearby, and had the remaining old truck stationed near the site entrance been well enough maintained that it hadn't broken down before getting to the fire, and had the water tanks, piping, and hydrants not been removed by NASA. Furthermore, had Boeing and the other Responsible Parties lived up to their cleanup agreements and gotten the site cleaned up by 2017 as promised, many, if not all, of the breaches of pollution limits would not have occurred, because the source of their pollution would have been removed.

I. The Woolsey Fire Began at the NASA Part of the Santa Susana Field Laboratory

The Woolsey Fire began at the Santa Susana Field Lab on November 8th, 2018, about a thousand yards from the site of the 1959 partial nuclear meltdown. A television reporter, Stu Mandel, flying over the site in a helicopter, captured the fire as it began and posted the picture on Twitter:



Twitter post by Stu Mundel, KCBSKCAL, November 8, 2018, https://twitter.com/Stu_Mundel/status/1060692904107110400

The fire thus appears to have begun just to the south of the ELV complex on the NASA part of SSFL (see below).⁴



A Southern California Edison electric substation at SSFL (built originally in part to take electricity from the reactor that suffered the partial meltdown and transmit it to Moorpark), located within the Boeing-owned Area IV where DOE conducted operations, experienced a “relay” approximately two minutes before the fire was reported nearby.⁵ The SCE electric substation is a few hundred yards to the east of where the fire apparently began, as seen in the image on the next page.⁶

Edison International President and CEO Pedro Pizarro said in an October 29, 2019 call with investors that SCE had received a “non-final redacted draft” of the Ventura County Fire Department’s report on the fire which, he said, that SCE’s equipment was the cause.⁷ “Absent additional evidence, SCE believes it is likely that its equipment was associated with the ignition of the Woolsey fire,” Pizarro said.⁸

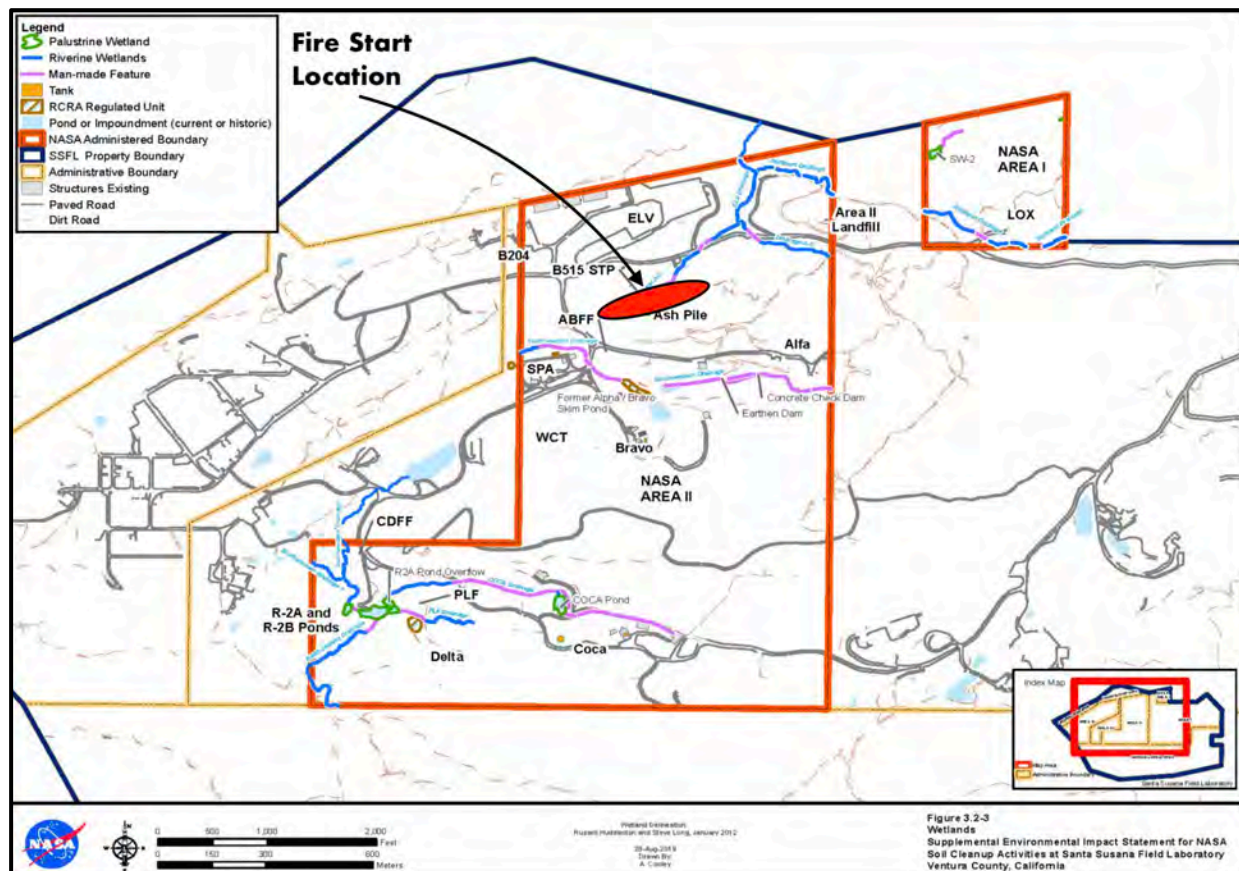


Closeup of Chatsworth Substation

While we await the public issuance of the official reports on the fire's cause(s), we note that power lines appear to run through or near vegetation just a few hundred yards east of the SCE substation and where the Mundel photo suggests the fire began. Officials are undoubtedly reviewing whether the fire began in those power lines and caused the "relay" at the nearby SCE substation, or if a failure at the substation triggered ignition in those nearby power lines running near brush/trees.

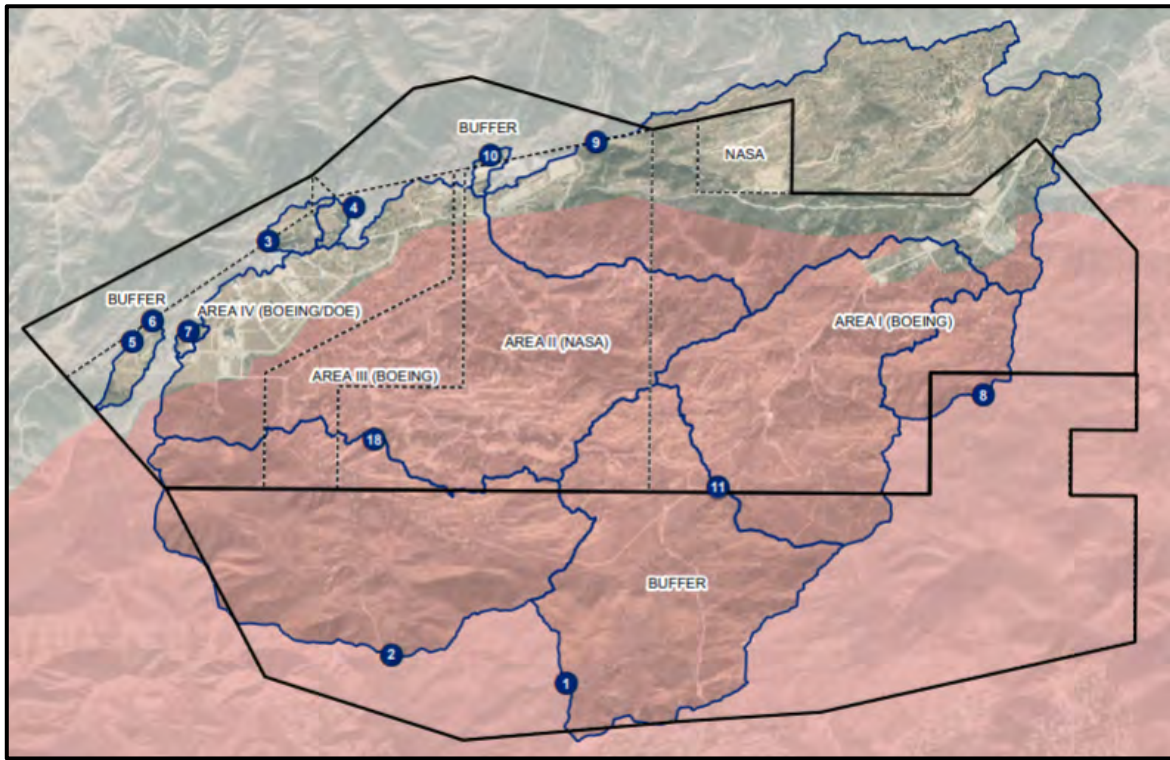
In October, 2019, Edison stated, "While SCE did not find evidence of downed electrical wires on the ground in the suspected area of origin, it observed a pole support wire in proximity to an electrical wire that was energized prior to the outage. Whether the Nov. 8, 2018 outage was related to contact being made between the support wire and the electrical wire has not been determined. SCE believes that its equipment could be found to have been associated with the ignition of the Woolsey fire."⁹

The fire appears to have started on NASA property:



II. The Key Question Not Addressed to Date: Why Was the Fire Not Promptly Suppressed at the Point of Origin?

The Woolsey fire was not put out quickly and instead spread all the way to the ocean, burning nearly 97,000 acres and destroying more than 1600 homes and other structures while killing four people. Besides the question of what started the blaze, there is a critical, separate question of whether there were avoidable failures that contributed to the fire getting out of control, resulting in one of the most damaging conflagrations in the state's history.



The fire burned vegetation on 80% on the contaminated SSFL site. This resulted in potential airborne release of the contaminants during the fire, and subsequently, increased the amount of contamination that was picked up by stormwater runoff passing over the polluted SSFL soil and thus carried offsite at levels in excess of legal limits.¹⁰

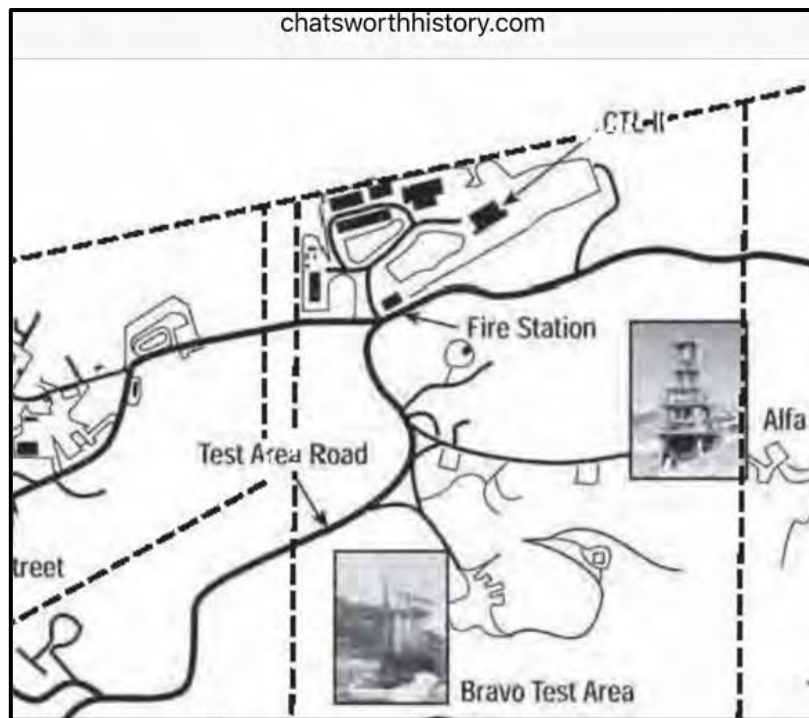
The fire not only consumed most of SSFL, it spread over a massive area of Southern California, burning all the way to Malibu. A fundamental question not adequately addressed to date is whether the fire could have been quickly put out at the point of origin at SSFL and this extraordinary disaster prevented.



III. A Large Fire Station with Multiple Fire Engines Had Been Located Close to Where the Fire Broke Out, But Had Been Torn Down

A well-equipped fire station, located a mere thousand yards from where the Woolsey Fire began at SSFL, had been demolished a few years beforehand. Had it still been there and operational, there is a significant question whether the fire would have been put out quickly and never spread.





Fire Station (lower left) in 2015



Fire Station Gone (lower left) in 2016



The former station was well equipped with multiple modern fire engines (one of which is pictured above).¹¹ As the *Times* put it, “At one time, the Santa Susana Field Lab had a robust fire crew and a 6,634-square-foot fire station, equipped with about five fire engines and trucks, including two brush rigs....”¹² Former SSFL employee Aleli Kelton remembers the fire station as being well equipped and well prepared:

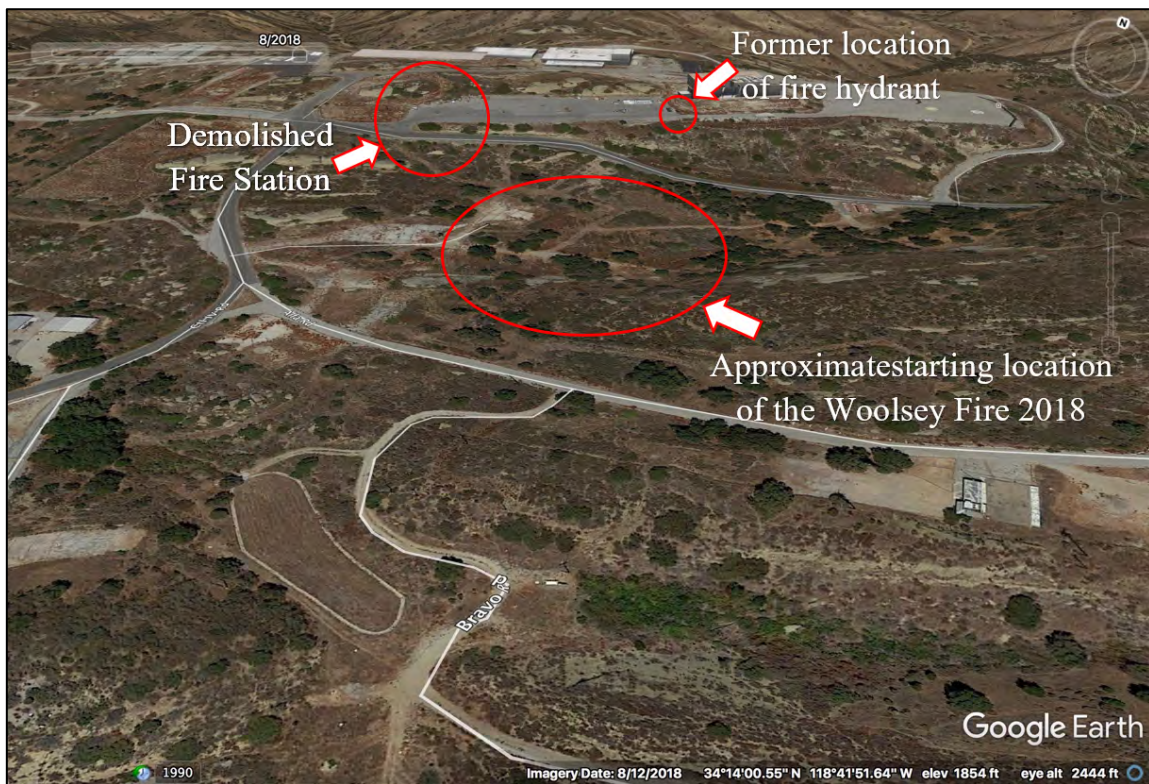
We had our own fire department. And so, every year they would have these big drills with the fire departments for Ventura County. And they would come up because we had a helicopter pad, and they would work with their helicopters, and their fire trucks, and our fire trucks.¹³

After discontinuation and demolition of that large, well-equipped fire station near where the fire subsequently occurred, Boeing left one, small, less modern and less capable fire truck stationed at the entrance to SSFL (pictured below),¹⁴ which has now been revealed to have broken down before it could even reach the fire.¹⁵



Fire Hydrants and Fire Suppression Piping Also Removed

By the time the fire broke out in late 2018, the nearby fire station, along with fire hydrants and sprinklers across various locations in Area II,¹⁶ had been removed from the site. The decision to remove them was made in 2014 and carried out over the next few years.¹⁷ One hydrant, which can be seen when using NASA's own virtual tour program, was located just across the road from the fire's point of origin (the fire began to the left of the above photo). Satellite images show that both the fire station and the hydrant were gone in February 2016.



Millions of Gallons of Gravity-Fed Fire Protection Water Tanks Also Removed



Skyline Tanks (2016)¹⁸



After Tanks Torn Down (2017)



As a part of Phase 2 of its cleanup plan, NASA removed 11 water storage tanks and associated pipelines in the Skyline Road Area in 2016.¹⁹ The tanks had a combined capacity for 2,270,000 gallons water.²⁰ The tanks were high on a hillside (thus the name Skyline), and the water from them was gravity-fed to water suppression systems below, not requiring electricity, therefore able to provide water under pressure even if electric lines were down.

After their demolition, NASA staged two 20,000-gallon water tanks in the central part of Area II—less than 2% of the capacity of the Skyline tanks that had been torn down.²¹

The Los Angeles Times reported that “first responders on the front lines of the Woolsey fire struggled during those first critical hours, stymied by communication breakdowns and a scarcity of air tanker support, equipment and firefighters.”²² Furthermore, they uncovered through radio transmissions that firefighters sent by the Los Angeles Fire Department were frustrated with the lack of a plan and resources on the scene, including being “hampered by a lack of water.”²³

Water would have been far more available had the Skyline tanks still been operational, begging the question as to whether the destruction of the former infrastructure on NASA’s property at SSFL could have prevented the catastrophic fire.

Conclusion

Despite NASA having awarded itself a silver medal for its performance related to the Woolsey Fire, and despite Boeing claiming to the Regional Water Board that it had no responsibility for the spread of the fire that resulted in migration of contaminants offsite, there are serious questions whether the actions of the operators of the Santa Susana Field Laboratory contributed to the catastrophic spread of the fire:

- Had the well-equipped fire station, located within a few hundred yards of where the fire apparently began, not been torn down, might it have been able to knock down the fire at just an acre or so, preventing its spread?
- Had the fire hydrants and associated water piping not been removed, including those a few hundred yards from where the fire appears to have begun, might the fire have been prevented from spreading beyond an acre or so?
- Had the two million plus gallons of water storage tanks at Skyline not been demolished, might the fire have been prevented from spreading?
- Had the single old Boeing fire truck been properly maintained, might it not have broken down before it could reach the fire, and might the fire have thus been stopped before spreading catastrophically?

Additionally, there are fundamental questions outstanding as to why the operators of SSFL were allowed to dismantle and remove these essential fire-fighting assets:

- Why were they allowed to demolish the fire suppression resources before the site was cleaned up, and the potential for a fire releasing contamination in soil and vegetation had been resolved?
- Even were the land, if it is ever cleaned up as promised, to eventually be used as parkland, shouldn't the fire-fighting resources have been remained?
- Were local fire fighting authorities (e.g., Ventura and Los Angeles County Fire Departments, CalFire) formally notified by SSFL operators of their desire to remove these fire fighting assets, and did the Fire Departments formally approve?

At the end of the day, the fundamental question is: could the catastrophic spread of the Woolsey Fire have been prevented?

¹ Deborah Schoch, NBC 4, “Woolsey Fire Crippled Boeing Water Safety System at Toxics Site,” November 8, 2019, first reported that there were 57 exceedances and that the Water Board waived almost all fines. <https://www.nbclaosangeles.com/news/local/Woolsey-Fire-Crippled-Boeing-Water-Safety-System-at-Toxics-Site-564677131.html>

² Los Angeles Regional Water Quality Control Board, Letter from Hugh Marley, Assistant Executive Officer, Los Angeles Regional Water Quality Control Board, to David Dassler, Boeing Company, “Partial Approval of the Request for Relief Pursuant to Water Code Section 13385(j)(1)(B)—The Boeing Company, Santa Susana Field Laboratory, Canoga park, California (NPDES Permit No. CA0001309, CI No. 6027), June 27, 2019.

³ Jaclyn Cosgrove, “First Engine Broke Down en Route to Woolsey Fire, Sources Say. Blaze Grew at a Terrifying Rate,” *Los Angeles Times*, November 11, 2019.

⁴ The LA Times reports (*supra*) that Boeing in a statement said that on the day of the Woolsey fire, flames were reported at two locations at SSFL. We have seen no information about the location of such a second fire, and what time period may have separated them.

⁵ “Electric Safety Incident Reported- Southern California Edison Company Incident No: 181108-9003,” Incident Report by Paul Pimentel, Senior Manager, Southern California Edison, to California Public Utilities Commission, November 8, 2018, https://www.edison.com/content/dam/eix/documents/Woolsey_Electric_Safety_Report.pdf.

⁶ The CPUC reports, “The Chatsworth Substation is located on SCE property within the larger Boeing Rocketdyne Santa Susana complex.” California Public Utilities Commission *Draft Environmental Impact Report for the Aliso Canyon Replacement Turbine Project*, April 2012, Appendix C, , footnote 4, p. C-15; see also Figure 1.

⁷ Melissa Simon, “No basis yet for Woolsey fire liability, SCE says,” Simi Valley Acorn, November 8, 2019; see also Cosgrove Nov. 11, 2019

⁸ *ibid.*

⁹ Joseph Serna, "Southern California Edison says its lines likely 'associated' with Woolsey fire," *Los Angeles Times*, October 29, 2019, <https://www.latimes.com/california/story/2019-10-29/edison-power-lines-likely-associated-with-woolsey-fire>.

¹⁰ See our separate report on the 57 exceedances of pollution safety limits in stormwater leaving SSFL in the period after the fire.

¹¹ SSFL publication *The Hill*, 1987.

¹² Cosgrove, “First Engine.”

¹³ NASA Santa Susana Field Laboratory Oral History Project, “Edited Oral History Transcript, Aleli Kelton,” interviewed by Joy D. Ferry, May 7, 2015.

¹⁴ Cosgrove, “First Engine.”

¹⁵ *ibid.*

¹⁶ NASA, “Final Environmental Impact Statement for Proposed Demolition and Environmental Cleanup Activities at Santa Susana Field Laboratory,” March 2014, p. 2-11.

¹⁷ NASA March 2014 FEIS pages 2-9 – 2-11 identified for possible demolition the fire station, fire hydrants, sprinklers, fire protection line, and the Skyline water tanks and the water line from those tanks. [The FEIS refers to the fire station as Building 2207, the Protective Services Building. NASA in its November 2015 *Field Note* identifies Building 2207 as the former “SSFL fire station.” <https://ssfl.msfc.nasa.gov/files/documents/newsletters/FieldNote-201511.pdf>] In its April 2014 Record of Decision, NASA made a decision to proceed with the demolition.

¹⁸ NASA, “Demolition Phase Two,” NASA Santa Susana Field Laboratory Environmental Cleanup and Closure website, May 11, 2018, .

¹⁹ NASA, “December 2016 FieldNOTE,” December, 2016, 1, <https://ssfl.msfc.nasa.gov/files/documents/newsletters/FieldNote-201612.pdf>.

²⁰ NASA, “April 2016 FieldNOTE,” April, 2016, 1, <https://ssfl.msfc.nasa.gov/files/documents/newsletters/FieldNote-201604.pdf>.

²¹ NASA, “July 2016 FieldNOTE,” July, 2016, 2, <https://ssfl.msfc.nasa.gov/files/documents/newsletters/FieldNote-201607.pdf>.

²² Jaclyn Cosgrove, “Firefighters’ fateful choices: How the Woolsey fire became an unstoppable monster,” *Los Angeles Times*, January 6, 2019, <https://www.latimes.com/local/lanow/la-me-woolsey-resources-20190106-htmlstory.html>.

²³ Cosgrove, “Fateful choices.”