Overview of Alternative Transportation Options for Santa Susana Field Laboratory Cleanup

by

SSFL TRANSPORTATION OPTIONS TASKFORCE

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Introduction

The Santa Susana Field Laboratory (SSFL), located in the Simi Hills, was a rocket and reactor testing facility. Activities at the site resulted in contamination of soil, groundwater, and surface water. In 2010, the California Department of Toxic Substances Control (DTSC) entered into Administrative Orders on Consent (AOCs) with NASA and the U.S. Department of Energy (DOE) to clean up their portions of the site.[1]

There are two primary approaches to the cleanup of the contaminated soil. NASA estimates that as much as 36% can be treated on site ("in-situ treatment") to neutralize certain pollutants.[2] For other contaminants, that may not be possible and the contaminated soil will be transported to authorized disposal facilities.

The issue at hand is the need for a serious look at alternative transportation methods and routes. To that end, this Taskforce was established to provide an initial identification of some of the options that should be addressed in more detail by DTSC and the Responsible Parties.

The Issue

NASA estimates that the soil cleanup of its portion of SSFL would entail about **three truck shipments per hour** during work hours and work days for a period of a little less than two years, if *in-situ* treatment were employed.[3] With no *in-situ* treatment, NASA estimates approximately **four shipments per hour**.[4]

The cleanup of the DOE portion of the property should be comparable. The NASA part of the property is 451.2 acres, whereas Area IV is 289.9 acres. DOE estimates 82,000 cubic yards of soil are radioactively contaminated in its area, about 16% of the amount of soil NASA estimates is chemically contaminated in the NASA areas. The amount of chemical contamination in the DOE area is more uncertain, but there is little reason to believe that significantly more chemical

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[1] The AOCs generally require cleanup of all detectable contamination that was created by facility operations. The AOCs contain exceptions for protecting endangered/threatened species and Native American artifacts, among others. Boeing, the third Responsible Party at the site, declined to enter into a similar AOC.

[2] NASA estimates that with *in-situ* treatment, 180,000 cubic yards of soil could be treated on site, leaving only 320,000 cubic yards requiring transport offsite for disposal. FEIS p. 2-20,21.

[3] FEIS p. 2-20, 4-58. If there is *in situ* treatment, NASA estimates transport of remaining contaminated soil would entail 34 truck roundtrips per day, from 7 a.m. to 7 p.m., for 23 months. NASA says that it may need to import some clean fill, but even were that case, it doesn't change the number of truck trips, as trucks returning to the site to pick up more soil for removal could bring the clean fill. Additionally, NASA estimates a total of 3965 truck trips to carry demolition debris. If that were to occur simultaneously with the soil debris removal, it would add less than a truck an hour (0.66 trucks on average per hour).

[4] FEIS p. 2-21. NASA estimates that if there is no *in situ* treatment there would be 53 trucks transporting soil for disposal per day, or about 4 trucks per hour.

contamination occurred in the DOE area than in the NASA area, which used large amounts of toxic rocket fuels and other chemically hazardous materials. [5]

Boeing has refused to sign an AOC, and because DTSC has reversed its prior formal position that Boeing must clean its property up to standards associated with the maximum exposures permitted under current zoning and general plan designations, DTSC is now allowing a far more lax cleanup standard for Boeing than previously required. Under the more lax standard, the vast majority of the contaminated soil on the Boeing part of the property will not be cleaned up.[6] While we are troubled by and oppose this backtracking, the current cleanup requirements must be used in making shipment estimates. So the Boeing shipments should be a small fraction of either the NASA or DOE shipments.

Thus, were DOE, NASA, and Boeing to do all of their soil shipments at precisely the same time, reasonable estimates are that there would be on the order of seven to nine shipments per hour during business hours and days for a little less than two years. If the work did not occur simultaneously, there would be approximately three or four shipments per hour over a period of about four years.

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[5] DTSC has long estimated similar volumes for the DOE and NASA portions. Recently, MWH, Boeing's primary contractor for SSFL, prepared revised soil estimates for the DOE portion of the property that essentially colored in all of Area IV as contaminated, with the contamination stopping at the boundaries. The MWH claims have been vigorously critiqued by the Southern California Federation of Scientists (SCFS) in its testimony at the scoping hearings for the DOE EIS, and the SCFS critique is incorporated herein by reference. Subsequently, it was claimed the Total Petroleum Hydrocarbons (TPHs), standard pollutants from any gasoline or diesel engines, pollute virtually all the non-operational portions of Area IV. Thereafter, however, DTSC revealed that it believes the TPHs are not from SSFL activities and are "suspect readings," (i.e., appear to be inaccurate readings due to organic material). See "Phase 3 Chemical Data Gap Sampling – Final Phase 3 Data Gaps Block 2 'GoBacks,'" PowerPoint presentation by Jones and Jennings of DOE and Rainey and King of DTSC, April 22, 2014. The AOC only requires cleanup of SSFL contamination, not background contamination not due to SSFL, and thus the inflated figures including the erroneous TPH assumptions, once corrected, produce far more technically defensible estimates.

[6] Boeing has proposed the use of what it calls a "suburban residential" cleanup standard, but it has proposed, and DTSC has approved, not including, as normally required, a backyard garden in that standard, which relaxes the standard by about two orders of magnitude (i.e., allows a hundred-fold higher concentrations of contamination to not be cleaned up.) A comparison of Boeing's supposed "suburban residential" standard for radioactivity and EPA's cleanup goal for the suburban residential scenario shows Boeing's to be about 150 times less protective. A comparison of Boeing's desired standard for radiation and the radioactive contamination found by EPA in Area IV shows that were the Boeing standard employed, 98% of the contaminated soil would not get cleaned up. See http://www.ssflworkgroup.org/files/How%20much%20of%20SSFL%20will%20be%20cleaned%20up.pdf and http://www.ssflworkgroup.org/files/How%20much%20of%20SSFL%20will%20be%20cleaned%20up%20-%20narrative.pdf. Thus, the lax standard Boeing proposes for cleanup of chemicals in its part of SSFL, and which DTSC has already approved as part of its soil screening levels, would result in very little cleanup of soil occurring in the Boeing part of the property. (By definition, one can't choose a cleanup standard that is more protective than the screening levels; the screening levels are the lowest concentrations that could be chosen to be cleaned up.)

To put this in perspective, NASA's EIS cites current traffic figures on the primary routes it considered for the shipments. The Average Daily Trips (ADTs) on Topanga Canyon Boulevard is 47,500. If all the trucks transporting soil to and from SSFL were routed on Topanga, and there were no *in* situ treatment (worst case assumptions), NASA says it would result in a 0.3% increase (counting a truck as the equivalent of 2.5 cars, the Department of Transportation standard figure).[7] Roscoe has 6450 ADTs; if all the SSFL shipments went on Roscoe, there would be an increase of 2.23%. For Valley Circle, there are 10,600 ADTs; SSFL shipments would increase that by 1.36%. And for Woolsey Canyon, there are 1500 ADTs; the increase would be 9.6% (6.13% if there were *in situ* treatment). Were several routes used, shipments on any main route (with the exception of Woolsey) could be reduced to approximately one or two trucks an hour.

However, a fundamental principle of transport of such wastes is to try to choose transportation alternatives, where possible, so as to minimize transport through heavily populated areas. And the agencies have to date failed to take a hard look at alternatives.

The Routes and Transport Method Presumed by the Agencies

NASA, DOE, and DTSC have presumed shipment by diesel-powered trucks. They have presumed the trucks head down Woolsey Canyon. From there they presume one of several routes. One turns left onto Valley Circle, which becomes Plummer, then a left on Topanga Canyon to the 118 Freeway. A second route considered is a right on Valley Circle, left on Roscoe, and either left on Topanga to the 118 on right on Topanga to the 101 Freeway.[8] They also consider taking Box Canyon to the Susana Pass Road and from there onto the 118.

No other alternatives have been seriously considered, either as to means of transportation or routes. The study by this taskforce attempts a first look at some additional alternatives.

ALTERNATIVE MODES OF TRANSPORTATION

Rail

Shipment by rail is generally considerably less expensive and has fewer environmental and other impacts than shipment by truck. A major rail line runs near SSFL, with numerous rail spurs at which loading could occur. Trucks with bi-modal canisters (sealed canisters that can be loaded on a truck and then transferred to a railcar) could take the waste to a rail spur where the bi-modal canister would be transferred to a train and transported to a disposal site. Using rail could eliminate the need for about 17,000 truck trips for the NASA cleanup alone, with all the environmental and other benefits that would entail.

[7] NASA FEIS p. 4-68, 73. These percentages, small as they are, are inflated in that they assume empty trucks would return to SSFL rather than bring clean fill if needed, requiring additional trucks than are necessary.

[8] There are several other routes from Valley Circle to main north-south arteries that could take one to the freeway(s), and several other north-south arteries, that were not considered.

An example is below, from a firm called Waste By Rail, which specializes in transporting such waste to licensed disposal facilities by rail, using bimodal canisters. (Reference to this particular company is not meant as an endorsement, merely an identification of one particular technique.)

Conveyor System

Numerous conveyor systems exist to transport dirt, rock, and ore from one location to another. They also tend to be efficient, capable of transporting high volumes of material quickly and with minimal energy. They are frequently employed in mines, gravel operations, and so forth.

They generally consist of carts on narrow rails, often electrically-powered. They can handle topography that would often be difficult for roads and trucks. In the SSFL operation, for example, they could take the waste from the site down to a rail spur, where the material could be loaded onto trains and transported away.

Some photos from one such system, by a company called Railveyor, are below. Again, we are not endorsing any one product or firm; this is for illustrative purposes only. Additionally, in the SSFL application, the conveyor system would travel through a cover or tube and would be deposited onto railcars in a building, so that dust wouldn't get into the environment.

Natural-Gas or Electric Trucks

If trucks were to be used, preferably on one of the alternative routes we will be detailing below, consideration should be given to ones powered by natural gas or electricity rather than diesel. These alternatives would be far less polluting, both in terms of local pollution and global warming impacts. In any case, the tops of the trucks should be well sealed and tires washed off before leaving SSFL.

ALTERNATIVE ROUTES

There are a number of possible routes that would involve passing by few if any homes. Our review of these options is not complete, but we present here several of the key options identified.

Alternative 1: North American Cutoff to Rail Spur

Before Woolsey Canyon was built, the primary route for bringing heavy, large components like rocket engines up to SSFL was the North American Cutoff, so named because the facility was operated by North American Aviation. Vehicles could exit SSFL from the main gate, pass Woolsey and shortly thereafter make a right turn onto North American Aviation. The route continues down to Box Canyon, turns left, and then makes a left on the Santa Susana Pass Road, which goes on to a rail spur where bimodal canisters could be loaded onto trains and transported away.

The North American Cutoff has been maintained in pretty good condition, as it is used to maintain electric power lines (see blowup below).

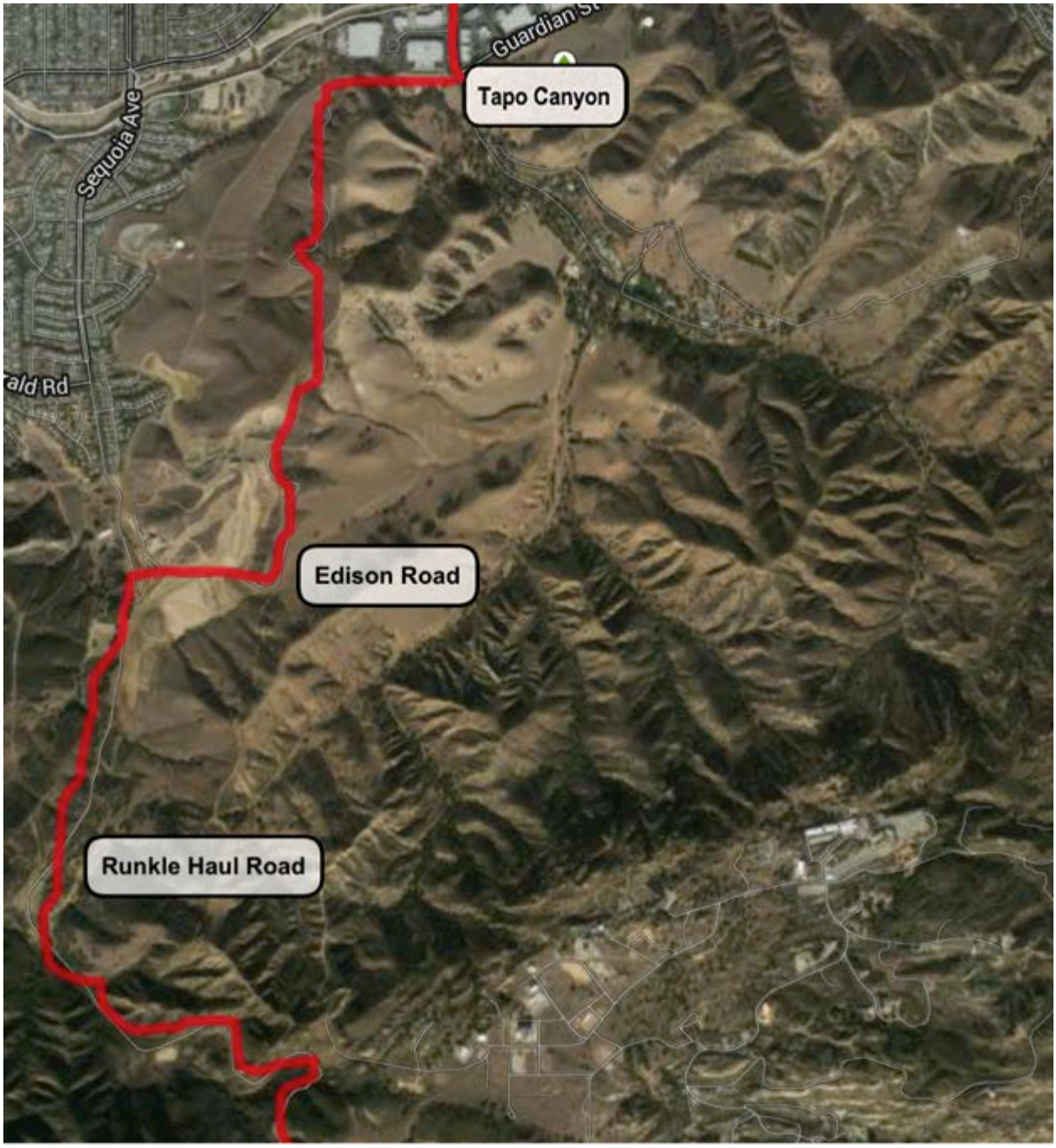
This route takes you to a railroad spur (two actually), where the bimodal canister could be loaded and shipped out by train:

Alternative 2: North American Cutoff to 118 Freeway

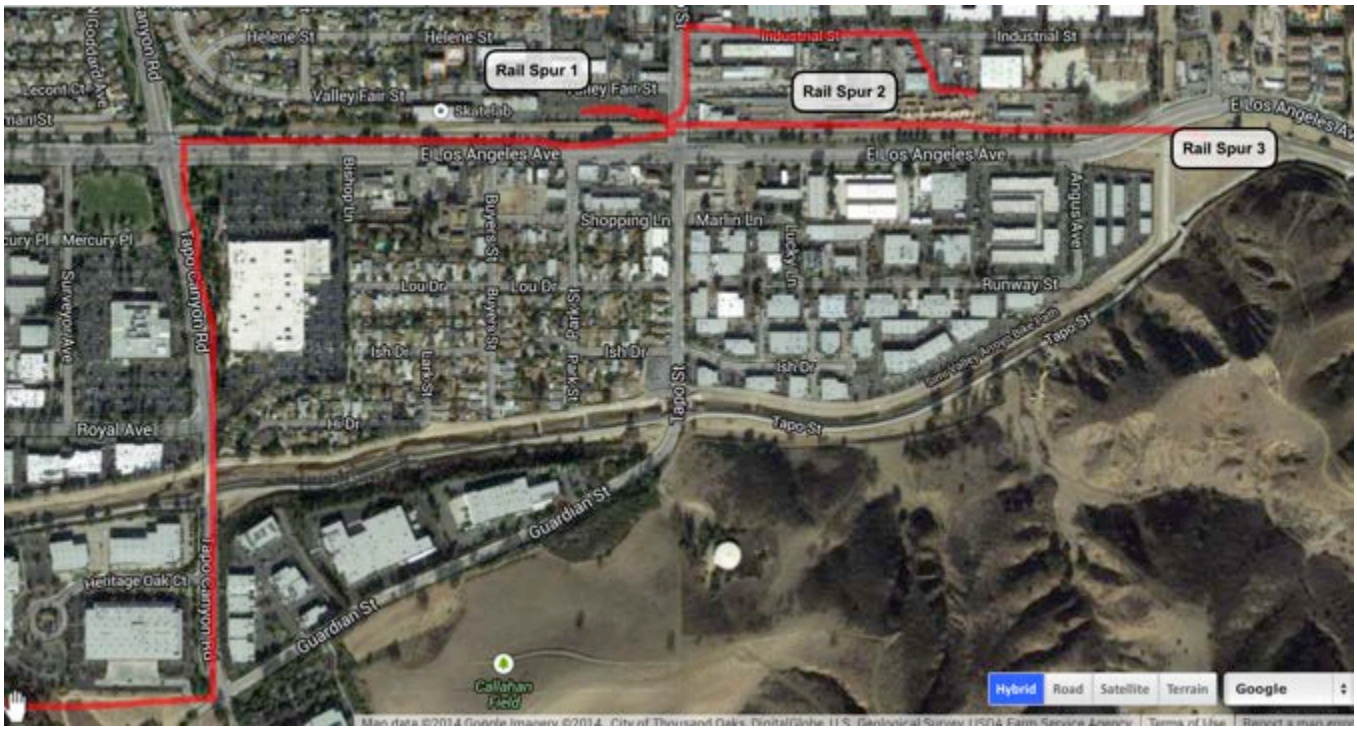
In this alternative, the route follows the same path as Alternative 1, but when it reaches the Pass Road, one turns right instead of left, which quickly takes one onto a freeway entrance to the Ronald Reagan Freeway, the 118:

Alternative 3: Runkle Haul Road to Railroad Spur

Runkle Haul Road leaves the far western portion of SSFL, heading north and downhill. Before one reaches the housing development, this option turns right onto Edison Road and then left again on Edison, taking it to the intersection of Tapo Canyon and Guardian Street.



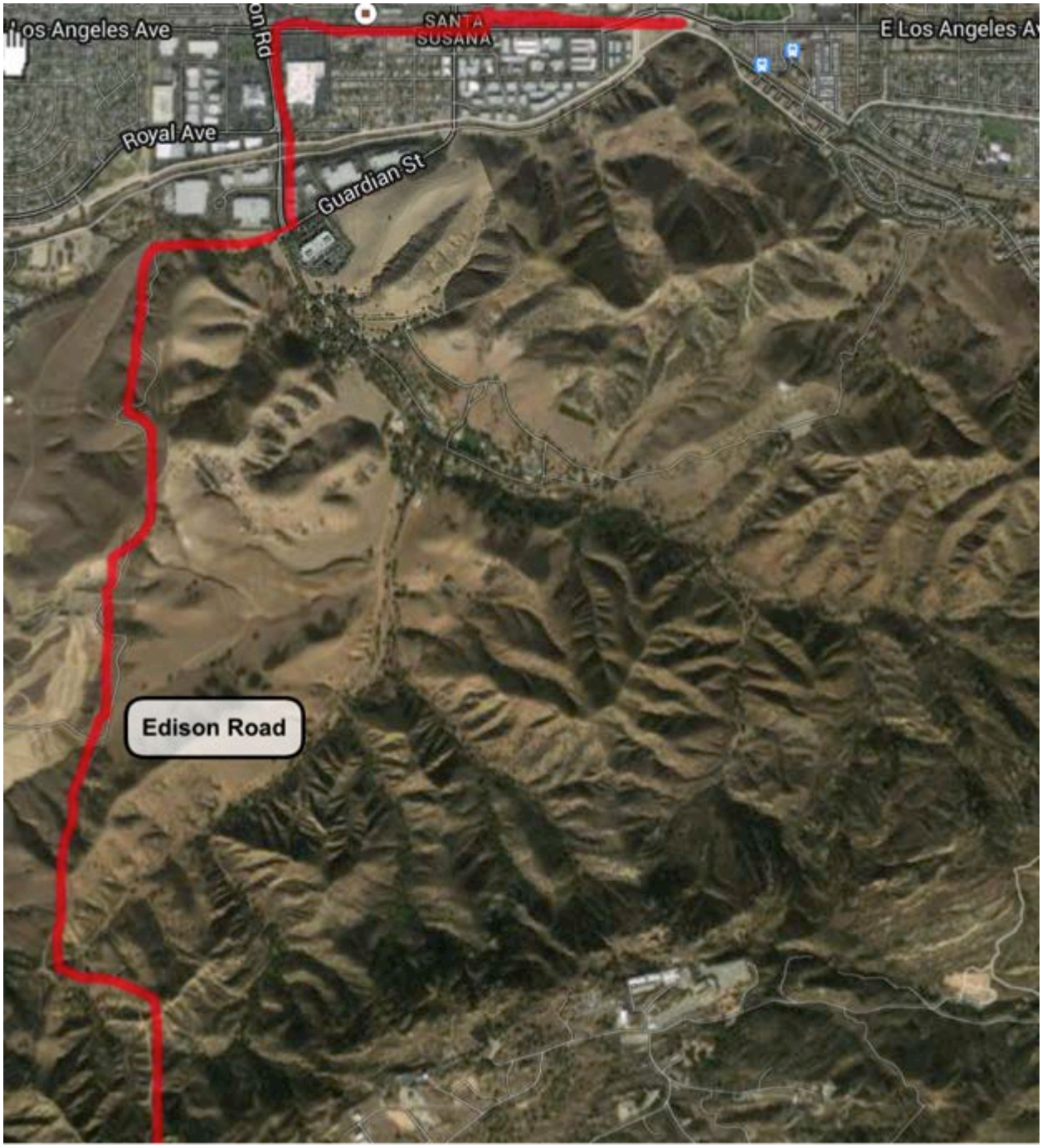
The route then goes left onto Tapo Canyon, passing no homes, and turns right on East Los Angeles Avenue, to one of three locations with rail spurs:



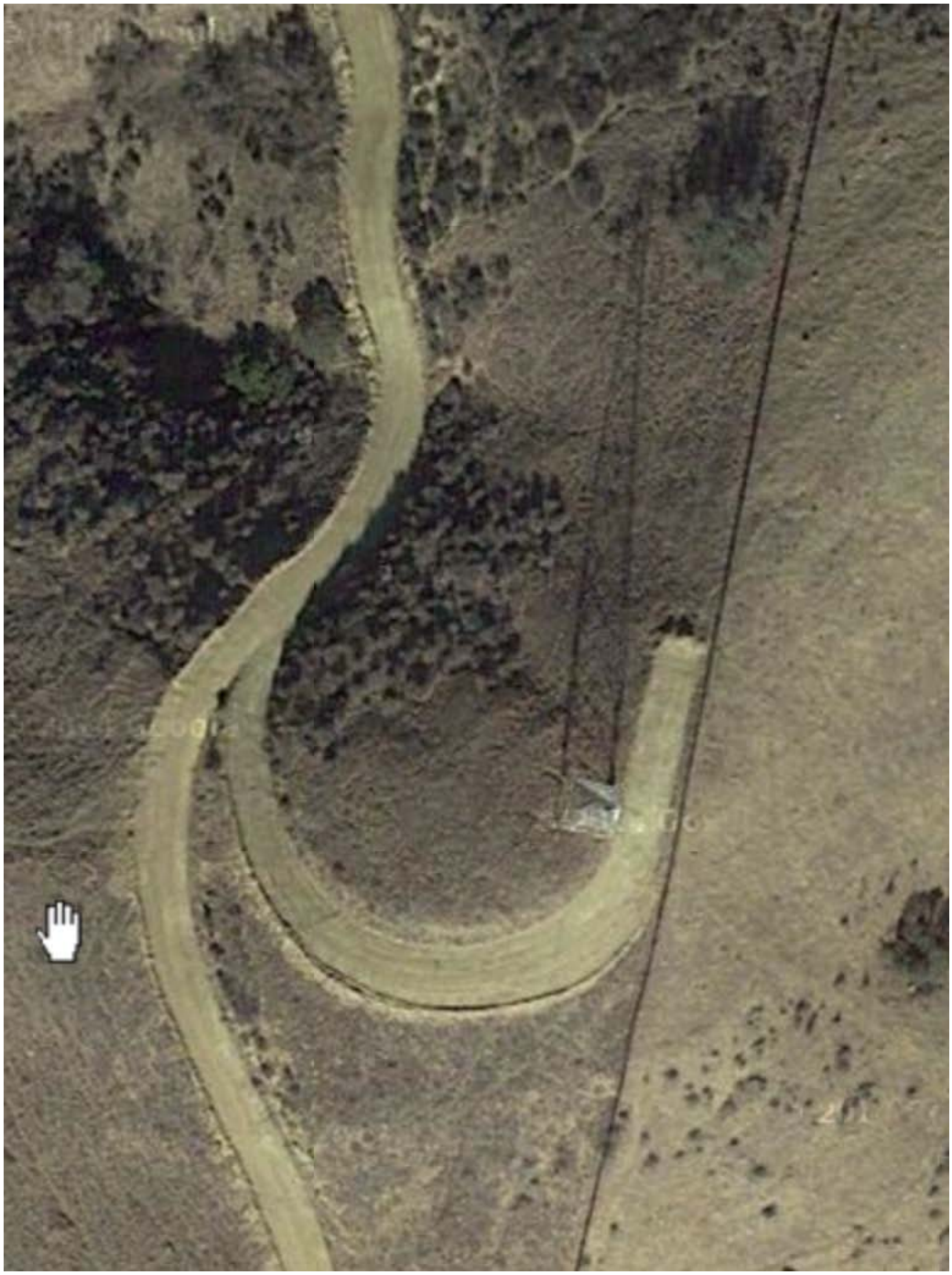
Here is Rail Spur 2 closer up:

Alternative 4: Edison Road

To the east of Runkle Road is Edison Road, apparently so named because it is used by Southern California Edison to maintain its electric power lines that run up to and from SSFL.



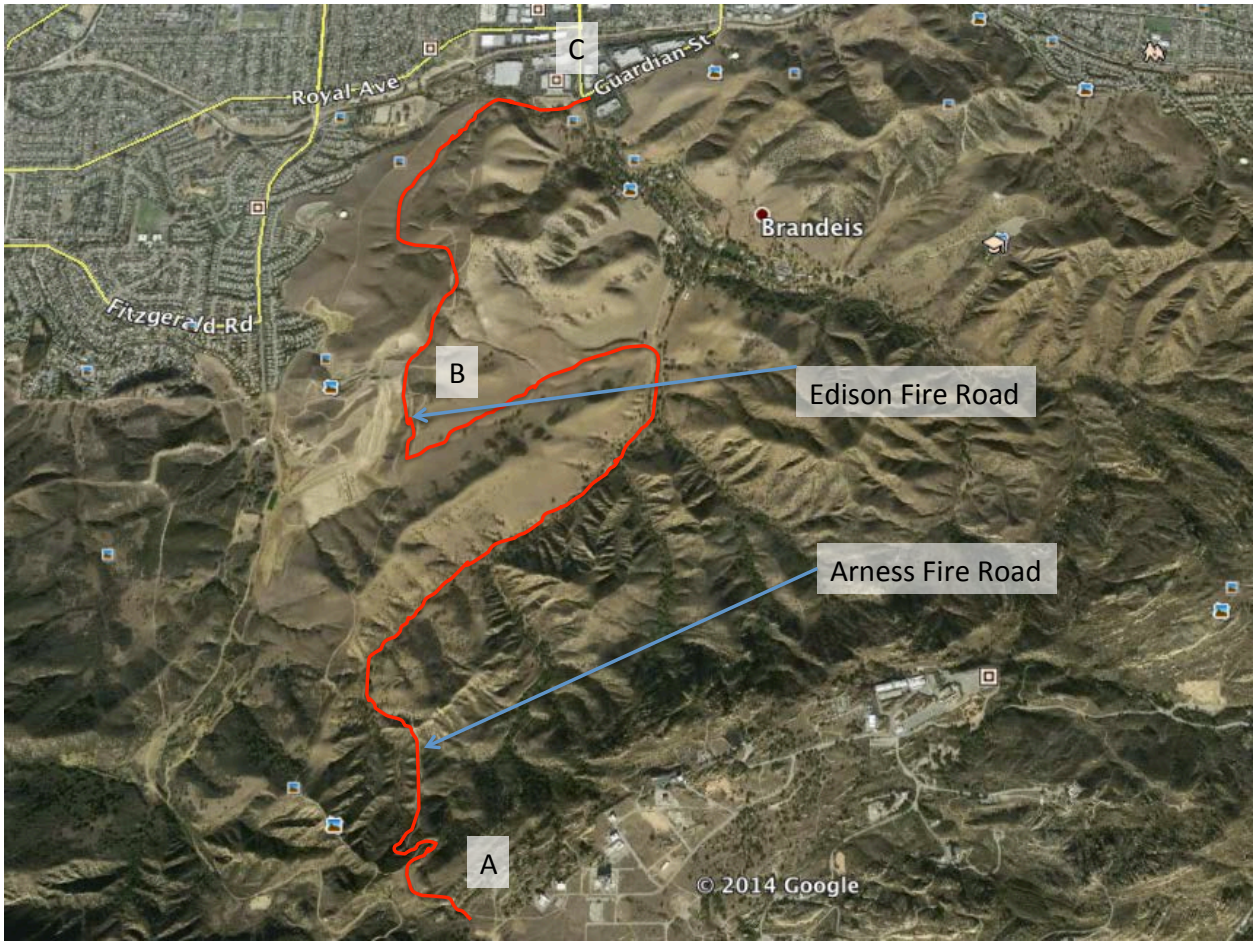
This road is used to maintain the power lines, which appears to be how the electricity from the SRE reactor, the one that had the partial meltdown in 1959, was brought down to Moorpark. The road is still used by Edison to service those power lines, and is well maintained in order to bring large trucks up for that purpose. See below one of the power towers and the road.



Alternative 5—Arness Fire Road

The area north of SSFL's Area IV used to be a ranch owned by James Arness, the star of the TV series *Gunsmoke*. A fire road named after him originates in Area IV and heads north down the hills, to the east of Edison Road. There are several possible routes that could be used employing Arness Road. One would entail going down Arness and then a bit east of Edison, then connecting with Edison and going up Tapo Canyon to East LA Ave. and the railroad spurs, as below:

One could cut over to Edison (or perhaps create a short spur on the other side of the ridge to the east of Edison at that location):



Alternative 6: Conveyor to Rail Line

A conveyor could also be constructed from SSFL, either along one of the many fire roads (including ones to the east of the three just discussed) or, because of the flexibility of conveyors, through its own topography, to the rail line in the vacant lot just after the train tracks cross East LA Avenue. There are numerous fire roads and other pathways that could potentially get to this location for loading onto the train:

Here is a close-up of the train track area:

Conclusion

There are numerous other options that we have not discussed here and that should also be considered, but we have identified in this report at least six alternatives that merit serious review by the agencies.

Our fundamental conclusions are as follows:

1. **It is imperative that SSFL be fully cleaned up.**
2. **The cleanup agreements entered into in 2010 should be rigorously carried out.**
3. **A hard look at alternative transport methods and routes should be undertaken.**
4. **There are at least half a dozen serious options that should be carefully examined.**