

## **Years of Inaction and Broken Promises in Meeting Cleanup Obligations Result in Imminent Endangerment of the Public and Environment**

### **The Core of the Boeing-DTSC Deal**

At the heart of the secret negotiations is Boeing's desire to be relieved of much of its SSFL cleanup obligations. These are mandated under the legally enforceable Consent Order executed in 2007 by DTSC and Boeing. That Order requires cleanup of soil at the site consistent with SRAM2.<sup>1</sup> SRAM2 sets forth the methods for setting cleanup standards for human health and ecological receptors, including rural residential/agricultural as well as residential exposure scenarios with a garden.

DTSC's longstanding position was that the site had to be cleaned up to all uses covered by Ventura County's zoning and General Plan designations for the site and surrounding area.<sup>2</sup> As DTSC wrote, "DTSC and U.S.EPA, in implementing the Superfund process, defer to local governments land use plans and zoning decisions, and base their cleanup level calculations on the assumption that the land will be used as the land use requirements would allow, irrespective of its current use."<sup>3</sup> And further, "Even absent SB990 [legislation that Boeing sued to overturn], DTSC, in implementing its cleanup authorities, would defer to local governments' land use plans and zoning decisions. In this instance, the Ventura County zoning maps specify that the site and much of the surrounding area are currently zoned as rural agricultural."<sup>4</sup> Thus, DTSC's long-established position, going back to 2010, was that, even its normal rules would require SSFL to be cleaned up to the most protective exposure scenario allowed under Ventura County zoning, which was rural residential/agricultural.

Boeing has long promised to clean up the portions of SSFL for which it is responsible to a residential standard.<sup>5</sup> It has done so while simultaneously committing to set aside the land for open space.<sup>6</sup> In so doing, Boeing recognized that people reside near the site and need to be protected from its contamination, so the end use of the site doesn't affect the need to clean it up to a standard that protects residents nearby:

---

<sup>1</sup> 2007 Consent Order, §3.2.1.1

<sup>2</sup> See [DTSC Response to Comments on the Agreement in Principle, Volume 1](#), October 26, 2010

<sup>3</sup> *Ibid.* p. 12

<sup>4</sup> *Ibid.* p. 21

<sup>5</sup> See, e.g., 66342, December 2013 "[CAG Boeing Risk-Based Cleanup Presentation](#)" and [Boeing statement of September 21, 2015](#)

<sup>6</sup> *Ibid.*

Boeing has referred to this commitment as a cleanup to the “suburban residential” standard that is applied generally throughout the state. This means we will clean up our portion of Santa Susana so it will be safe enough that someone could live there and be at the site every day if development was allowed....We are taking this extra step because we recognize people are concerned and we want to be able to say with confidence that our cleanup more than meets health and safety protective goals.<sup>7</sup>

However, in 2017, Boeing broke its longstanding commitment to a residential cleanup standard—and admitted it had done so. In an announcement to the community, Boeing said it would no longer agree to a residential cleanup standard, but would insist instead on the far less protective “recreational” standard: “The revised proposed cleanup will be based on recreational land use scenarios, and not a ‘residential’ cleanup as we originally volunteered. We acknowledge this difference and would like to explain why we made the change.”<sup>8</sup> The “explanation” did not hold water: that Boeing had entered into a conservation easement setting aside the land as open space. But in the very same announcement, Boeing admitted that ten years earlier it had already committed to the site being set aside for “open space.” Nothing had changed—except Boeing’s willingness to live up to the longstanding commitment it had made to clean up the site to the more protective standard.

Boeing implicitly conceded that it didn’t have the authority to change the cleanup standard unilaterally; it described the new plan as a “revised proposed cleanup.” That is because it was bound by the 2007 Consent Order. The Order expressly states that no transfer of ownership, including any easement, shall alter any cleanup obligation.<sup>9</sup>The 2007 Consent Order specifically states in Section 4.10 that “No conveyance of title, easement, or other interest in [SSFL], or a portion of [SSFL], shall affect [Boeing’s] obligations under this Order.” In May 2022, DTSC expressly declared the conservation easement as illegal, done “in violation of the 2007 Consent Order.”

---

<sup>7</sup> Boeing September 21, 2015 statement, *supra*

<sup>8</sup> August 22, 2017, emailed [announcement to the community](#) by Kamara Sams, Community Relations, Boeing.

<sup>9</sup> 2007 Consent Order, §4.10 Change in Ownership “No change in ownership or corporate or partnership status relating to the Facility shall in any way alter Respondents’ responsibility under this Order. No conveyance of title, easement, or other interest in the Facility, or a portion of the Facility, shall affect Respondent’s obligations under this Order. Unless DTSC agrees that such obligations may be transferred to a third party, Respondents shall be responsible for and liable for any failure to carry out all activities required of Respondents by the terms and conditions of this Order, regardless of Respondents’ use of employees, agents, contractors, or consultants to perform any such tasks.”

DTSC further stated that “the Conservation Easements have no bearing on the remediation standard for Boeing, which should be defined in terms of a potential future residential and garden use. This position is based on, among other things, the applicable zoning and Ventura County General Plan land use designation applicable to the Boeing Areas of Responsibility, which allows residential and garden use as a matter of right.”

Indeed, as discussed below, the Ventura County Planning Department, in response to inquiry from DTSC, has repeatedly made clear that the applicable zoning and General Plan land use designation allows for both residential use and agricultural (rural residential). Thus DTSC’s longstanding position that the site must be cleaned up to standards based on all land uses allowed by Ventura zoning and General Plan designations requires cleanup to the most protective of residential with garden and rural residential/agricultural uses.

Boeing thus needed to find a path to getting out of the requirements of the Order—and that is what the secret negotiations have been about. Boeing wanted the cleanup standards grossly weakened, either by adopting a far more lax “recreator” standard, or by redefining the residential standard to make it essentially equivalent to the far less protective recreator standard. And that is what they got—capitulation from DTSC, superseding the 2007 Order, resulting in an immense weakening of the cleanup standards.

The reason all this matters so much is that the far weaker cleanup standard Boeing is seeking would allow far higher concentrations of contaminants to remain on site, without being remediated, available in perpetuity to migrate offsite and cause cancer and other health impacts on the surrounding population, as well as continuing harm to wildlife. A great deal is at stake.

At the center of this Boeing-DTSC quiet effort to let Boeing out of most of its cleanup obligations are proposed changes to an obscure document, the Standardized Risk Assessment Methodology (SRAM), which is used to set cleanup standards, and to which Boeing is bound by the 2007 Order. Secretary Blumenfeld had pledged the SRAM would not be altered, and yet that appears to be precisely what DTSC and Boeing are attempting.

As discussed in more detail in what follows, the supposed, ever-changing bases put forward by Boeing and DTSC over the couple of years for altering the SRAM have repeatedly been shown to be unsupportable. DTSC eventually concedes they were wrong with the prior claim, then comes back with a new purported basis to get to the

same place; when those claims are disproven, the pattern repeats. This report details this troubling effort by polluter and regulator to weaken cleanup requirements, endangering the public.

## Background of SSFL Cleanup Requirements

As stated above, DTSC relies upon federal Superfund guidance in overseeing cleanups in California.<sup>10</sup> As indicated by DTSC, it regulates cleanups based on the allowable land use for the site and neighboring areas and makes that determination largely on County zoning and General Plan designations, which, as Ventura has repeatedly informed DTSC and which DTSC has acknowledged, allow for residential uses, both suburban and rural, including agricultural.<sup>11</sup> Thus cleanup is required to the most protective standards for unrestricted release. It must be noted that whatever use the SSFL land is eventually put to is essentially irrelevant to protection of public health for the people living and working nearby, because of the risk of migration of contaminants if the source is not fully cleaned up. The 2007 Consent Order and SRAM2 Addendum require such cleanup; [DTSC reiterated](#) in 2018 that the entry of a conservation easement does not alter that requirement, and again, as indicated above, as recently as May 2022.<sup>12</sup>

Secretary Blumenfeld in February 2020 further pledged that Boeing's entry into a conservation easement would have not be allowed to relax Boeing's cleanup requirements:

---

<sup>10</sup> See [DTSC, Responses to Comments on Agreements in Principle, State of California and the Department of Energy, and State of California and the National Aeronautics and Space Administration, Volume 1, October 26, 2010](#), p.8

<sup>11</sup> *Ibid.*, pp. 12, 21; See also [Letter from Kim Prillhart, Director, Ventura County Planning Division, to Mark Malinowski, DTSC, July 20, 2015](#), indicating that the zoning and General Plan designations for SSFL and the surrounding areas allow a wide range of residential and agricultural uses; see also [letter from Prillhart to Malinowski of December 20, 2017](#), indicating that recent zone changes do not affect that conclusion of allowable residential and agricultural uses.

<sup>12</sup> See p 2, DTSC letter to Boeing, January 16, 2018: "Section 4.10 (Change of Ownership) of the 2007 Consent Order states that 'no change in ownership or corporate or partnership status relating to the Facility shall in any way alter Respondents' responsibility under this Order. No conveyance of title, easement, or other interest in the Facility, or a portion of the Facility, shall affect Respondent's (sic) obligations under this Order.' Although Boeing has entered into a Conservation Easement with the North American Land Trust, DTSC finds the sole Recreator exposure scenario proposed in SRAM-3 to be inconsistent with the 2007 Consent Order and the approved SRAM Work Plan (Rev 2 Addendum) and therefore unacceptable." DTSC continued: "When resubmitted, the revised SRAM, must include methodology for evaluating risks to a wider range of human exposure scenarios....Include the following human exposure scenarios included in Standardized Risk Assessment Methodology, Revision 2 Addendum dated August 2014: Suburban Resident; and Consumption of home-grown produce."

[So, many of you are also familiar about the conservation easement that relates to Boeing for several sections of the site, and the Supervisors in Ventura, and have really been clear on this and we've been clear: You don't get to just remove your cleanup obligations or lessen them by changing what the land use is. You just don't get to do that.](#)<sup>13</sup>

(click on quote to play Blumenfeld video clip)

The 2007 Consent Order requires cleanup consistent with the SRAM, and the SRAM sets Risk-Based Screening Levels for, among other scenarios, residential (with garden). DTSC had made clear that, irrespective of any conservation easement, Boeing is required to clean up to the most protective standards based on zoning and General Plan designations. This is critical because, whatever happens onsite, there are people living nearby who can be affected by contamination migrating if the source is not cleaned up. Even if no one lives at SSFL, more than 700,000 people live nearby. Where they live, and where they risk being exposed to migrating contamination, has no such easement. Furthermore, wildlife would continue to be exposed to contamination onsite if not cleaned up. Breaching those long standing commitments would have grave consequences to public health and the environment.

## The SRAM and Stunning Revelations of SSFL Risks

[SRAM 2](#) was issued by Boeing in September 2005 and [approved by DTSC](#) in November 2005. The Consent Order was executed in January 2007, and in order to meet the deadline for completion of cleanup by 2017, cleanup should have commenced immediately based on SRAM 2.

If changes to SRAM 2 – issued just a year before the Consent Order – were for some reason essential, they should have been made promptly, by ~2008, so the 2017 deadline could be met. Instead, Boeing and DTSC dragged their feet, and [SRAM 2 Addendum](#) was not issued by Boeing until August 2014, and [approved by DTSC](#) the same month. **Thus cleanup was delayed seven years by just this one example of foot-dragging, leaving only three years before the Consent Order's deadline for cleanup to be completed.**

Based on the newly adopted SRAM2 Addendum, Boeing then proceeded in the following year (June and July 2015) to submit to DTSC RCRA Facility Investigation

---

<sup>13</sup> [Secretary Blumenfeld Speech to SSFL Work Group February 2020](#) at 20:09 to 20:34

(RFI) reports for different areas of the site, including risk assessments. Buried thousands of pages into the RFI reports were risk assessment tables that were stunning, showing immense risks of cancer and non-cancer health effects from the contamination levels found at various parts of the site. The magnitude of excess risk at the source demonstrated clearly that people offsite, even if exposed to reduced concentrations by migrating contamination, would face unacceptable risks if the source of pollution was not cleaned up.

For example, 2877 pages into its [RFI report on the Systems Test Laboratory IV \(STL IV\)](#) is found the following table, for which one would need a magnifying glass to see the numbers:

TABLE E1-5  
Risk and Hazard Estimates for Exposure to Soil (0 to 2 feet bgl)  
NCA Facility Assessment, Data Summary and Findings Report, STL-IV, Boeing RFI Subarea 5/2 South, Santa Susana Field Laboratory, Ventura County, California

Analyte	Suburban Residential Soil Contaminant Exposure Scenario					Suburban Residential Garden Exposure Scenario					Rural Residential Exposure Scenario				
	Exposure Point Concentration (mg/kg)	Carcinogenic Risk (mg/kg)	Cancer Risk	Percent Contribution	Noncarcinogenic Hazard Quotient (mg/kg)	Carcinogenic Risk (mg/kg)	Cancer Risk	Percent Contribution	Noncarcinogenic Hazard Quotient	Carcinogenic Risk (mg/kg)	Cancer Risk	Percent Contribution	Noncarcinogenic Hazard Quotient		
1,1,2-Trichloroethane	3.03E-03	...	...	...	5.74E-03	5.22E-07	0.0%	...	...	3.55E-02	8.75E-06	0.0%	...		
1,1,2-Trichloro-2,2-bis(4-chlorophenyl)ethane	5.03E-03	...	...	...	2.25E-01	2.25E-07	0.0%	...	...	7.51E-03	3.22E-07	0.0%	...		
1,1-Dichloroethane	2.55E-03	1.89E+10	1.08E-09	0.0%	8.18E-02	2.51E-06	0.0%	4.52E-02	4.49E-08	1.95E+01	1.05E-04	0.0%	2.57E+21		
1,1-Dimethylhydrazine	7.93E-04	...	...	...	1.90E-03	1.62E-04	0.0%	...	...	2.48E-04	2.22E-06	0.0%	...		
1,2,4-Trinitrobenzene	8.71E-03	...	...	...	3.77E+01	2.10E-04	0.0%	...	...	2.03E+00	3.97E-03	0.0%	...		
1,3,5-Trinitrobenzene	8.27E-03	...	...	...	1.75E-02	4.78E-05	0.0%	...	...	2.71E+00	3.00E-03	0.0%	...		
1-Methyl-2-naphthylamine	1.43E-02	7.29E+20	1.95E-09	0.0%	2.89E-03	5.10E-06	0.0%	2.88E-02	5.02E-07	2.17E+01	6.09E-04	0.0%	3.22E+21		
2,3,7,8-TCDF (toxic)	4.47E-04	4.81E-06	9.30E-07	0.0%	5.09E-05	8.89E-01	10.2%	7.51E-09	5.96E-04	2.52E-07	1.77E-01	2.4%	1.80E-05		
2,4,5-T	2.99E-03	...	...	...	6.89E-02	4.21E-06	0.0%	...	...	2.67E+00	1.12E-03	0.0%	...		
2,4-Dinitrophenylacetic Acid (2,4-D)	2.18E-03	...	...	...	6.89E-03	3.16E-06	0.0%	...	...	2.13E+00	3.99E-03	0.0%	...		
2,4-Dichlorophenoxyacetic Acid (2,4-D)	2.72E-02	...	...	...	5.92E-03	5.65E-05	0.0%	...	...	2.20E+00	1.22E-02	0.0%	...		
2-Methylphthalate	1.88E-02	...	...	...	1.82E-02	1.14E-04	0.0%	...	...	1.24E+00	1.90E-02	0.0%	...		
Acenaphthene	1.52E-01	...	...	...	3.82E-03	3.88E-05	0.0%	...	...	1.87E+01	6.67E-03	0.0%	...		
Acenaphthylene	6.12E-02	...	...	...	2.82E-03	2.07E-06	0.0%	...	...	1.89E+01	1.29E-04	0.0%	...		
Acetone	2.51E-01	...	...	...	6.01E-04	4.84E-06	0.0%	...	...	7.72E+00	3.78E-02	0.0%	...		
Anthracene	2.45E-01	...	...	...	1.65E-05	1.49E-05	0.0%	...	...	1.01E+02	2.42E-03	0.0%	...		
Aroclor 1248	2.33E-01	...	...	...	2.64E+01	1.26E-02	4.4%	...	...	1.39E+01	2.38E-03	0.0%	...		
Aroclor 1254	1.25E-01	2.21E-01	5.89E-07	0.4%	1.10E+00	1.15E-01	13.1%	4.88E-04	2.95E-04	6.21E-03	1.73E-01	2.4%	5.61E-01		
Aroclor 1260	3.64E-02	2.21E-01	1.11E-07	0.2%	1.10E+00	2.76E-02	3.2%	4.06E-04	6.21E-05	6.64E-04	4.22E-06	0.0%	5.64E-04		
Aroclor 1262	5.03E-03	2.21E-01	3.85E-08	0.0%	1.10E+00	5.98E-03	0.6%	4.99E-04	1.23E-05	6.64E-04	1.85E-06	0.0%	5.14E-05		
Aroclor 1540	2.98E-02	2.21E-01	1.26E-07	0.1%	1.10E+00	2.71E-02	3.1%	4.06E-04	6.23E-05	6.74E-03	4.11E-06	0.0%	5.64E-04		
Aroclor 1548	8.97E-03	8.58E-02	1.04E-04	79.8%	2.19E+01	3.22E-01	37.1%	9.32E-05	7.02E-02	1.34E-01	6.67E-01	8.2%	2.44E-01		
Aroclor 1550	4.93E-01	3.87E-01	1.27E-04	1.0%	...	...	...	8.09E-04	6.23E-04	...	...	...	9.87E-01		
Aroclor 1552	3.81E-01	3.87E-02	9.80E-06	7.4%	...	...	...	8.09E-05	4.71E-03	...	...	...	9.36E-02		
Aroclor 1554	5.72E-01	3.87E-01	1.48E-06	1.1%	...	...	...	8.09E-04	7.20E-04	...	...	...	9.37E-01		
Aroclor 1556	7.71E-02	...	...	...	1.62E+03	4.47E-05	0.0%	...	...	1.08E+01	7.14E-03	0.0%	7.72E+03		
Aroclor 1558	1.12E-01	3.87E-01	5.48E-07	0.4%	...	...	...	8.09E-04	6.23E-04	...	...	...	9.37E-01		
Aroclor 1560	1.78E-02	1.78E-02	3.86E-11	0.0%	1.22E-03	5.51E-05	0.0%	...	...	7.20E+00	3.85E-03	0.0%	5.70E+03		
Aroclor 1562	2.72E-04	1.22E-04	4.85E-11	0.0%	1.22E-03	1.77E-07	0.0%	...	...	2.32E+00	8.42E-03	0.0%	7.20E+03		
Aroclor 1564	1.48E-02	2.78E-02	5.41E-11	0.0%	1.22E-04	1.12E-06	0.0%	4.88E-01	3.08E-08	6.87E-01	2.35E-04	0.0%	5.70E+04		
Aroclor 1566	9.62E-01	8.44E+02	1.07E-09	0.0%	1.02E+00	1.95E-01	22.0%	...	...	1.55E-03	5.47E-02	75.2%	1.85E+06		
Aroclor 1568	2.93E-04	...	...	...	1.39E-02	1.14E-06	0.0%	...	...	4.24E+00	1.68E-05	0.0%	1.12E+03		
Aroclor 1570	2.69E-01	...	...	...	3.72E-04	7.15E-04	0.1%	...	...	5.44E-02	4.90E-02	0.0%	1.74E+05		
Aroclor 1572	5.77E-01	...	...	...	...	...	...	9.00E-03	7.20E-05	...	...	...	9.38E+03		
Aroclor 1574	2.45E-03	3.87E+20	1.49E-07	0.1%	...	...	...	2.39E-01	1.38E-02	...	...	...	1.19E+02		
Aroclor 1576	1.30E-01	...	...	...	2.64E+03	6.41E-03	0.7%	...	...	1.11E+01	1.74E-06	0.0%	1.62E+08		
Aroclor 1578	1.10E-03	...	...	...	1.51E-03	7.58E-07	0.0%	...	...	3.99E+01	3.72E-05	0.0%	1.53E+04		
Aroclor 1580	3.14E-02	1.12E-01	2.77E-07	0.2%	...	...	...	2.88E-04	1.32E-04	...	...	...	2.75E-01		
Aroclor 1582	1.13E-03	...	...	...	6.62E-01	1.71E-05	0.0%	...	...	2.77E+01	4.29E-05	0.0%	9.29E+02		
Aroclor 1584	6.35E-04	8.65E-02	1.65E-08	0.0%	3.48E-03	1.81E-04	0.0%	5.99E-05	1.04E-05	...	...	...	1.54E-01		
Aroclor 1586	2.89E-02	...	...	...	4.89E-05	5.75E-07	0.0%	...	...	1.35E+02	2.20E-04	0.0%	2.28E+05		
Aroclor 1588	4.19E-01	...	...	...	6.12E-03	6.79E-05	0.0%	...	...	3.87E+01	1.28E-02	0.0%	8.89E-04		
Aroclor 1590	1.55E-02	...	...	...	6.12E-02	2.55E-05	0.0%	...	...	3.61E+00	3.82E-03	0.0%	2.92E+03		
Aroclor 1592	6.29E-04	...	...	...	2.65E+01	3.01E-05	0.0%	...	...	1.94E-01	5.88E-03	0.0%	5.82E+01		
Aroclor 1594	1.13E-03	...	...	...	2.89E-01	5.94E-05	0.0%	...	...	1.39E-01	1.06E-02	0.0%	8.82E+01		
Aroclor 1596	1.02E+00	...	...	...	2.22E+03	4.62E-04	0.2%	...	...	1.44E+01	7.26E-02	0.0%	1.32E+05		
Aroclor 1598	1.68E-01	...	...	...	2.18E-03	4.96E-05	0.0%	...	...	1.30E+01	8.30E-03	0.0%	1.32E+04		
Aroclor 1600	5.02E+03	5.92E+05	1.55E-11	0.0%	1.22E+05	5.09E-04	0.1%	...	...	3.70E+00	1.67E-06	0.0%	5.70E+05		
Aroclor 1602	1.80E+03	1.26E+03	7.80E-07	0.6%	3.34E+02	4.20E-03	0.5%	1.94E-03	5.23E-04	1.88E+00	9.47E-03	0.1%	5.27E+03		
Aroclor 1604	8.73E-02	3.87E-01	2.28E-07	0.2%	...	...	...	8.13E-04	1.07E-04	...	...	...	5.93E-01		
Aroclor 1606	1.30E+03	...	...	...	2.49E+01	3.79E-02	4.4%	...	...	1.10E-01	9.93E-06	1.4%	1.90E+02		
Aroclor 1608	5.18E-02	...	...	...	1.68E-01	3.66E-03	0.4%	...	...	5.56E-03	1.03E-06	0.1%	9.82E-03		
Aroclor 1610	8.08E-03	...	...	...	2.32E-04	3.47E-07	0.0%	...	...	1.02E+01	7.86E-04	0.0%	1.54E+05		
Aroclor 1612	8.77E-03	2.97E+20	2.95E-09	0.6%	3.09E-02	3.62E-05	0.0%	1.99E-03	8.29E-07	...	...	...	1.80E+03		
Aroclor 1614	1.89E-01	3.28E-02	5.60E-08	0.0%	1.37E-01	1.94E-04	0.0%	5.52E-05	3.90E-05	...	...	...	6.69E-01		
Aroclor 1616	7.55E-01	...	...	...	3.90E-02	1.94E-02	0.2%	...	...	1.39E+00	5.45E-01	0.1%	1.78E+03		
Aroclor 1618	1.29E-02	1.24E-02	1.04E-05	7.8%	8.40E-01	1.65E-04	0.0%	1.47E-08	8.80E-01	...	...	...	3.89E+02		
Aroclor 1620	3.95E-02	1.86E+01	2.42E-09	0.0%	3.62E-02	5.50E-05	0.0%	...	...	5.21E+00	6.66E-03	0.0%	1.92E+03		
Aroclor 1622	4.81E-03	...	...	...	7.84E-02	5.76E-06	0.0%	...	...	1.67E+01	2.89E-04	0.0%	8.29E+03		
Aroclor 1624	1.93E-02	3.25E-02	5.95E-09	0.0%	4.89E-01	3.89E-03	0.4%	9.49E-07	1.90E-03	...	...	...	2.28E+00		
Aroclor 1626	2.61E-02	9.24E-01	6.67E-03	0.6%	...	...	...	7.66E-02	2.69E-07	...	...	...	1.66E+02		
Aroclor 1628	1.69E-03	...	...	...	3.19E-03	6.62E-07	0.0%	...	...	2.99E+01	6.38E-05	0.0%	2.44E+04		
Aroclor 1630	1.23E-02	...	...	...	1.94E-03	9.95E-07	0.0%	...	...	3.22E-02	1.00E-05	0.0%	1.82E+05		
Aroclor 1632	7.89E-03	...	...	...	6.39E-01	1.48E-04	0.0%	...	...	1.39E-02	3.99E-01	0.1%	2.49E+02		
Aroclor 1634	8.83E-01	...	...	...	1.64E-04	5.15E-05	0.0%	...	...	1.01E+02	8.45E-03	0.0%	7.70E+04		
Aroclor 1636	1.07E+03	...	...	...	1.63E-03	6.48E-04	0.1%	...	...	1.04E+01	1.08E-01	0.0%	7.72E+03		
Aroclor 1638	4.48E-03	...	...	...	1.78E-03	2.98E-06	0.0%	...	...	3.97E-01	1.81E-04	0.0%	1.88E+04		
Aroclor 1640	3.01E-01	...	...	...	3.80E-02	7.51E-04	0.1%	...	...	1.31E+00	2.30E-01	0.0%	1.78E+03		
Aroclor 1642	6.68E-01	...	...	...	2.39E-02	2.63E-03	0.0%	...	...	1.81E+00	3.89E-01	0.0%	1.37E+03		
Aroclor 1644	1.13E-03	...	...	...	5.95E-02	2.05E-06	0.0%	...	...	5.95E+00	6.52E-04	0.0%	2.92E+03		
Aroclor 1646	4.23E-04	...	...	...	1.14E-04	4.67E-09	0.0%	...	...	4.59E+01	1.61E-05	0.0%	6.69E+05		
Aroclor 1648	7.51E-04	...	...	...	1.78E-03	4.10E-07	0.0%	...	...	3.22E-02	3.38E-05	0.0%	1.98E+04		
Aroclor 1650	8.67E-04	4.11E-03	2.02E-09	0.0%	5.20E-01	1.67E-05	0.0%	1.98E-03	5.29E-07	...	...	...	5.95E+02		
Aroclor 1652	1.68E-03	...	...	...	3.24E-03	2.88E-07	0.0%	...	...	1.47E+01	6.29E-05	0.0%	2.39E+04		
Aroclor 1654	1.54E-02	7.97E-01	2.49E-08	0.0%	2.39E-03	6.51E-03									

When one zooms in on the conclusion, the result is jaw-dropping:

Suburban Residential Garden Exposure Scenario					
Carcinogenic			Noncarcinogenic		
RBSL <sup>a</sup> (mg/kg)	Cancer Risk	Percent Contribution	RBSL <sup>a</sup> (mg/kg)	Hazard Quotient	Percent Contribution
--	--	--	5.38E+01	1.68E+00	0.2%
<b>Total Risk</b>	<b>9.6E-01</b>	100.0%	<b>Hazard Index</b>	<b>727</b>	100.0%

Boeing's own risk table thus indicates that the cancer risk from the contamination for which it is responsible at the Santa Susana Field Lab, in the area of the Systems Test Laboratory IV, is 9.6E-01 (9.6 x 10<sup>-1</sup>). **To put this in plain English (which Boeing worked very hard to avoid), if 100 people lived in this area and had a garden, 96 of them would get cancer from the exposure.** This is extraordinary: the cleanup goal is supposed to be a one-in-a-million (1 x 10<sup>-6</sup>) risk, going no higher under special circumstances than one-in-ten-thousand (1 x 10<sup>-4</sup>). Boeing's own estimate of the risk from the contamination thus is about a million times higher than the cleanup goal and ten thousand times higher than the upper limit of the permissible risk range.

There are also non-carcinogenic risks from the contamination, causing neurological disorders, birth defects, and so on. This is measured by the Hazard Index, which Boeing estimates at the Systems Test Laboratory IV area as being 727. The Hazard Index is not supposed to go over 1. **Boeing's own estimate for health risk other than cancer are 727 times higher than the allowable level.**

On PDF pages 2856-7 of Boeing's RFI report for STL IV we find the following passage:

*For the homegrown produce consumption pathway, the total site ELCR is >9 x 10<sup>-1</sup> and the incremental risk is 9 x 10<sup>-1</sup>, which is above the USEPA target risk range of 1 x 10<sup>-6</sup> to 1 x 10<sup>-4</sup> and exceeds the DTSC point of departure of 1 x 10<sup>-6</sup>. The main contributors to the site soil ELCR are MMH (92 percent contribution; 9 x 10<sup>-1</sup> risk); arsenic (7 percent contribution; 7 x 10<sup>-2</sup> risk); and carcinogenic polycyclic aromatic hydrocarbons (1 percent contribution; 7 x 10<sup>-3</sup> risk). Risks also exceeded 1 x 10<sup>-6</sup> for n-Nitrosodimethylamine (2 x 10<sup>-3</sup> risk); 2,3,7,8- TCDD TEQ (6 x 10<sup>-4</sup> risk); hexavalent chromium (5 x 10<sup>-4</sup> risk) Aroclor-1254 (3 x 10<sup>-4</sup> risk); Aroclor-1260 (6 x 10<sup>-5</sup> risk); Aroclor-5460 (6 x 10<sup>-5</sup> risk); mirex (3 x 10<sup>-5</sup> risk); Aroclor-1262 (1 x 10<sup>-5</sup> risk); dieldrin (1 x 10<sup>-5</sup> risk); and trichloroethene (TCE; 2 x 10<sup>-6</sup> risk).*

Substantial effort is put into not merely burying these startling conclusions deep in the entrails of the document but to make them as opaque as possible. To translate:

- ELCR = Excess Lifetime Cancer Risk caused by the contamination.
- $>9 \times 10^{-1}$  means that the excess cancer risk is greater than 9 in 10. You would have more than a 90% chance of getting cancer from the contamination. (As we saw in the actual table, the risk is indeed even higher than that – it's a 96% chance of cancer from exposure to the pollution.)
- When Boeing says that this cancer risk is “above” the USEPA target risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$  and “exceeds” the DTSC point of departure of  $1 \times 10^{-6}$ , that is quite an understatement. As indicated above, the EPA (and DTSC) risk goals are one in a million cancer risk ( $1 \times 10^{-6}$ ); under special circumstances USEPA allows risks that are higher, but never above ~one-in-ten-thousand ( $1 \times 10^{-4}$ ). So what Boeing isn't clearly saying is that its own risk estimates are about 10,000 to 1,000,000 times higher than the acceptable risk range.
- The main contributors to this extraordinary cancer risk at this location includes pollution with MMH, the toxic chemical monomethylhydrazine. MMH is a rocket fuel component used extensively at SSFL. The UCLA School of Public Health found significantly elevated cancer death rates among SSFL rocket test workers associated with their exposures to hydrazines.
- The huge risk, according to Boeing, is also associated with:
  - Carcinogenic polyaromatic hydrocarbons (PAHs);
  - n-Nitrosodimethylamine (NDMA), a very toxic and very long-lasting decomposition product of hydrazine rocket fuels;
  - hexavalent chromium, or chromium-6, the toxic heavy metal brought to public attention by the fight by Erin Brokovich to win compensation for victims exposed to it;
  - Aroclors, very toxic polychlorinated biphenyls (PCBs);
  - 2,3,7,8-TCDD TEQ, a complex way of referring to groups of extremely toxic dioxins; and
  - trichloroethene (TCE), a toxic solvent used in huge quantities at SSFL, to flush out rocket engines and then allowed to percolate into the soil and groundwater.

Boeing goes on to say, on pdf page 2857:



*The total site HI for this scenario is 727 and the incremental HI is 453, which exceeds the USEPA and DTSC threshold HI value of 1. Primary contributors to the site soil HI (Table E1-5) are cadmium (75 percent contribution; HQ = 547); arsenic (9 percent contribution; HQ = 67); n-Nitrosodimethylamine (6 percent contribution; HQ = 40); 2,3,7,8-TCDD TEQ (2 percent contribution; HQ = 18), and Aroclor-1254 (2 percent contribution; HQ = 17). HQs also exceeded 1 for 2-methyl-4-chlorophenoxyacetic acid (MCPA; HQ = 10); MMH (HQ = 4); Aroclor-1260 (HQ = 4); Aroclor-5460 (HQ = 4); 1,1-dimethylhydrazine (HQ = 3); antimony (HQ= 2); copper (HQ = 2); zinc (HQ = 2); and formaldehyde (HQ = 2).*

Once again, some translation is in order to pierce the opacity:

- HI = Hazard Index for non-carcinogenic health impacts. As indicated above, it is not supposed to go over 1.
- Boeing modestly admits this “exceeds the USEPA and DTSC threshold HI value of 1.” Yes, by a factor of 727 times.

By no means is the Systems Test Lab IV the only part of the Santa Susana Field Lab that Boeing estimates has contamination associated with extraordinary risks of cancer and other health impacts. For the Environmental Effects Laboratory, for example, Boeing estimates a cancer risk of 3 in 10, nearly every third person exposed would get a cancer from the exposure.<sup>14</sup> The Hazard index at the Environmental Effects Laboratory is 486, nearly five hundred times the allowable level.<sup>15</sup>

Boeing estimated the excess cancer risk at Happy Valley North to be 2 in 10, i.e. every fifth person exposed would get a cancer from the exposure to toxic materials at that site, with a Hazard Index of 70, which is 700 times the permissible level.<sup>16</sup> For the SSFL area known as Compound A, Boeing estimates every tenth person exposed would get cancer, and there is a Hazard Index of 1112 for non-cancer effects, more than a

---

<sup>14</sup> Appendix E1, table E1-5, pdf pg. 641, and text on pdf p. 622, [RCRA Facility Investigation Data Summary and Findings Report Environmental Effects Laboratory RFI Site Boeing RFI Subarea 5/9 South](#), Santa Susana Field Laboratory, Ventura County, California

<sup>15</sup> *Ibid.*, pdf. p. 622. Note that the numbers in the associated table, Table E1-5, do not match the text regarding Hazard Index. The table indicates an HI of 363.

<sup>16</sup> Appendix E1, section 8.1.1.2, pdf pg. 595, [RCRA Facility Investigation. Data Summary Findings Report. Boeing RFI Subarea 1A Central. Happy Valley North RFI Site](#), Santa Susana Field Laboratory, Ventura County, California

thousand times the allowable level.<sup>17</sup> For the Advanced Propulsion Test Lab, Boeing estimates a cancer risk of 2 E-02, or 1 in every 50 people getting cancer, and a Hazard Index of 2000.<sup>18</sup>

The above figures are Boeing's estimates for the risks from the current levels of contamination. Remarkably, Boeing, in its RFI reports, estimates very high remaining risks even *after* the minimal level of cleanup it proposed in those reports. For Happy Valley North, Boeing estimates a remaining cancer risk of  $2 \times 10^{-1}$  (1 cancer for every 5 people exposed) and a remaining Hazard Index of 600.<sup>19</sup> For the Advanced Propulsion Test Facility, post-cleanup cancer risk is  $2 \times 10^{-2}$ , 200-20,000 times the acceptable risk range, and a Hazard Index of 700, hundreds of times the acceptable level.<sup>20</sup>

Boeing did not highlight any of these numbers, but buried them hundreds of pages into the RFI reports. They were not mentioned in the summaries included at the beginning of the reports.

## Boeing's SSFL Risk Estimates Trigger Widespread Concern

When Boeing's own risk estimates for different portions of its SSFL property were uncovered, they caused a great deal of concern. Los Angeles County Supervisor Sheila Kuehl, then-Senator Fran Pavley, and then-Los Angeles City Council President Pro-Tempore Mitchell Englander [wrote](#) to then-DTSC Director Barbara Lee on December 15, 2015. The letter is important in understanding what occurred thereafter – the extraordinary effort to, in essence, erase Boeing's own risk estimates and undo the

---

<sup>17</sup> Appendix E1, section 8.1.1.2, pdf pg. 1192, [RCRA Facility Investigation Data Summary and Findings Report Compound A Facility RFI Site, Boeing RFI Subarea 5/9 South](#), Santa Susana Field Laboratory, Ventura County, California.

<sup>18</sup> Appendix E1, section 8.1.1.2, pdf pg. 1602-1603, [RCRA Facility Investigation, Data Summary Findings Report, Boeing RFI Subarea 1A Central, Advanced Propulsion Test Facility RFI Site](#), Santa Susana Field Laboratory, Ventura County, California

<sup>19</sup> Appendix E3, table E3-2, pdf pg. 838-839, 841 [RCRA Facility Investigation, Data Summary Findings Report, Boeing RFI Subarea 1A Central, Happy Valley North RFI Site](#), Santa Susana Field Laboratory, Ventura County, California

<sup>20</sup> Appendix E3, table E3-2, pdf pg. 1991-1993, 1996, [RCRA Facility Investigation, Data Summary Findings Report, Boeing RFI Subarea 1A Central, Advanced Propulsion Test Facility RFI Site](#), Santa Susana Field Laboratory, Ventura County, California

cleanup levels put forward by Boeing itself and approved by DTSC in the SRAM2 Addendum. Therefore, we quote the letter in its entirety, below:

The Department of Toxic Substances Control has pending before it for approval a series of remarkable documents submitted by the Boeing Company regarding the contamination risks at the Santa Susana Field Laboratory (SSFL). The Boeing documents pending before DTSC are risk assessments and proposals for “no further action.” They constitute Boeing’s own estimates of the risks stemming from its own contamination, and request to be allowed to take no cleanup actions to redress most of those risks. As such, the documents are deeply troubling.

The documents disclose never before known extraordinarily high risks from the pollution, but, nonetheless, request that Boeing be relieved of the obligation to clean up most of it. Boeing’s requests, if granted, would breach commitments DTSC made for a full cleanup and would result in the great majority of the contamination for which Boeing is responsible not being remediated. We urge you to reject Boeing’s requests and reaffirm DTSC’s commitment to a full cleanup.

#### Background

In 2010, as you know, DTSC entered into Agreements on Consent (AOCs) with the Department of Energy and NASA for the cleanup of all contamination that could be detected on their portions of SSFL. At the same time, DTSC stated that for the remaining parts of the property controlled by Boeing, DTSC’s standard procedures required a comparable cleanup. DTSC said that even if there were no AOC and no SB990 (Kuehl, 2007), DTSC would rely on Ventura County zoning and General Plan designations, which allow uses, according to DTSC, that would require Boeing to employ the most protective cleanup standard at SSFL.

In July of this year, Ventura County confirmed again for DTSC that the zones permitted under its General Plan for SSFL “allow for a wide array of both residential and agricultural uses.” In response, DTSC has publicly pledged to assure that the site is cleaned up to levels that would safely allow any of the uses allowed under the County’s General Plan and zoning, as set forth in the County’s July letter. However, Boeing’s submissions propose cleaning up the site to a markedly less protective standard. We urge DTSC to reject that request and adhere to the 2010 commitments, reiterated recently in Ventura County’s letter, with due regard to the transportation impacts on residents.

Indeed, what Boeing is now proposing is dramatically weaker than even what it has publicly promised, which was to clean the site to a “suburban residential” standard. Boeing earlier said that it would clean the site up so that it would be safe for people to live on site, grow a backyard garden, and drink water from wells. Even if no one lives on the site in the future, people who do live nearby (our constituents) would be protected by a “suburban residential” standard of cleanup. But the documents Boeing has submitted propose allowing concentrations of toxic materials in soil very much higher than Boeing’s own figures for protecting suburban residents.

### Boeing's Extraordinary Risk Estimates

Buried thousands of pages into Boeing's documents are the company's estimates of the cancer risk from the toxic pollution. They are, frankly, mind-boggling. At one portion of the site, Boeing estimates every fifth person would get cancer from the contamination were they living on the site. (This is in addition to the number who would get cancer otherwise.) At a second location, approximately every third person exposed would get cancer from the exposure. And at another location, Boeing's own estimate is that 96 out of 100 people exposed would get cancer from the contamination there. This is absolutely astonishing, but these are Boeing's own figures.

Boeing, however, then goes on to propose that it not be required to clean up the vast majority of the contaminated soil, despite the fact that Boeing, itself, estimates that the risk after such proposed minimal cleanup would remain so high that every fifth person would most likely get cancer from the remaining contamination.

Risk estimates this high are unprecedented. Site cleanups generally aim for risks of one in a million. DTSC has committed publicly to ensuring that this will be the risk factor remaining after cleanup. Boeing's estimated risk post-clean up, however, is thousands to hundreds of thousands of times higher than what DTSC promised.

These are Boeing's estimates for a suburban resident with a garden (the weaker standard than that which DTSC has said it would require, but the one Boeing has said it wants to use). We recognize that these are the estimated risks were one living on-site and no one at present does. But our constituents live nearby where they can also be exposed—albeit at lower levels—to toxic materials migrating from the site. The extraordinary magnitude of the contamination Boeing has now disclosed is greatly disturbing.

### Conclusion

By proposing to declare as needing "no further action" about 98% of the SSFL soil for which it is responsible, Boeing is asking DTSC to allow it to walk away from its cleanup obligations. We urge you to reject the Boeing submissions and reaffirm DTSC's commitments to a full cleanup of the contamination in order to assure that any allowed future land uses can be conducted safely and without restriction. This is essential for protecting our constituents who live in the communities nearby.

Over the nearly seventy years since the site was established, there have been reactor accidents, open-air burning of radioactive and chemically hazardous wastes, and releases of large quantities of toxic compounds into the soil and groundwater and surface water. Boeing has now disclosed that the contamination is far worse than we had ever known before, with astonishing estimated risks. DTSC promised in 2010 to assure cleanup of all the detectible contamination by 2017, yet the cleanup hasn't even begun. We urge an end to delays and diversions and efforts to undo the cleanup commitments. It is time to get the cleanup done, carefully and completely. Thank you for considering my comments.

As made clear in the elected officials' letter above, the 2007 Consent Order and DTSC's public statements thereafter require Boeing to clean up SSFL at least to a residential-with-garden standard, irrespective of what use the site itself is eventually put to. That is because they are to clean up to all uses allowed by Ventura County's zoning and General Plan designations, which Ventura has made clear allow a wide range of residential and agricultural uses. More importantly, the source of the contamination, SSFL, must be fully cleaned up because people reside nearby, have gardens, and there is agricultural use nearby as well. One needs to clean up SSFL to a level that would protect the people who reside nearby, irrespective of whether people end up living on SSFL itself. Boeing's extraordinary risk estimates for SSFL underscore how great the risk is to people nearby if not fully cleaned up. Even if there were some reduction in concentration as the toxic material migrates offsite, the risk is so high at the source that the risk offsite would remain unacceptable if the long-promised site cleanup doesn't happen or is weakened.

DTSC's August and September 2016 reviews of the Boeing RFI reports included ordering Boeing to not hide these risk estimates in the rear of the reports, but to include them in the summaries, saying "the reports do not adequately present the risk assessment results".<sup>21</sup> Furthermore, DTSC also ordered Boeing to combine the risk estimates for radioactivity and toxic chemicals, and for the garden and non-garden pathways, into a single aggregated risk estimate.<sup>22</sup> Boeing had segregated the different parts of the risk, asserting:<sup>23</sup>

As described in the SRAM Addendum (MWH, 2014a), estimated risks for this [garden] pathway are calculated separately **due to the high uncertainties associated with modeling the uptake of chemicals in soil by plants.** (emphasis added)

This assertion about the high uncertainties associated with modeling uptake of chemicals in soil by plants will be important in the discussion later about the efforts by Boeing and DTSC to dramatically reduce the conservatism in the Mass Loading Factor in the SRAM while refusing to fix the non-conservatism in the uptake factor. Additionally, Boeing refused, and for years thereafter continued to refuse, to comply with DTSC's demand to combine the risk from the residential direct exposures with the residential garden, a matter we shall touch on later.

---

<sup>21</sup> [DTSC Comment Letter](#) to Boeing on 1A Central RFI Reports, dated Sep. 12, 2016; [DTSC Comment Letter](#) to Boeing on 5/9 South RFI Reports, dated Aug. 23, 2016

<sup>22</sup> *Ibid.*

<sup>23</sup> See [RFI report for Systems Test Facility IV](#), *ibid*, pdf pg. 2857

# DTSC Orders Boeing to Remove All Risk Estimates, Based on False Claims USEPA Was Updating Input Parameters and a New SRAM Would Be Needed

In the face of rising public concern about the startling risk estimates buried in the 2015 RFI reports, DTSC, on December 9, 2016, issued a remarkable new [letter](#) to Boeing, directing Boeing to submit RFI reports *without including risk estimates*. DTSC's excuse for this effort to suppress embarrassing risk findings was transparently thin:

The United States Environmental Protection Agency (US EPA) is updating input parameters used in the risk assessment calculations. The US EPA changes will require an update (addendum) to the Santa Susana Field Laboratory (SSFL) Standardized Risk Assessment Methodology (SRAM), Revision 2 (SRAM Rev.2). However, the addendum cannot be completed until final risk assessment parameters are resolved.

This pretext for excluding disconcerting risk estimates from RFI reports after the furor over the huge Boeing risk estimates buried in its 2015 RFI reports was all the more remarkable when one examines the basis for the assertion that the SRAM will need to be revised because US EPA "is updating input parameters used in the risk assessment calculations." The basis for this claim appears to be an email sent by DTSC's Don Greenlee to US EPA's Stuart Walker on September 8, 2016, in which Greenlee asked:

EPA OSWER Directive 9200.1-120: This directive includes an updated list of exposure factors to be used for human health risk assessment entitled "Attachment 1. Recommended Default Exposure Factors (2014)." *Is there an update to this list expected anytime soon, and if so, what is the anticipated due date? If applicable, any chance that we could get a look at the draft update?*

(emphasis added)

US EPA's Walker responded:

I talked with my colleague Rich Kapuscinski who worked on the 2014 Directive, and he said they are not currently working on a new guidance.

(emphasis added)

So, in August 2014 SRAM2 Addendum was issued, nine years after SRAM2. Less than a year later Boeing issued RFI reports that had buried in them

extraordinarily high risk estimates, based on SRAM2 Addendum. After the public furor, DTSC orders Boeing to stop including risk estimates and says a new SRAM will be needed, supposedly based on EPA updating input parameters to be used in risk assessment calculations, when in fact EPA had three months earlier told DTSC no such update was in the works. Just two years after SRAM2 Addendum was issued, DTSC asserts an update to the SRAM will be needed as its excuse for telling Boeing to stop releasing risk estimates in RFI report. And more than five years have passed without the revised SRAM being prepared. Note also that to this day EPA has not issued a revised OSWER Directive 9200.1-120.

What really was going on is transparent: the Boeing risk estimates, despite tremendous efforts to bury them, caused tremendous public concern when disclosed, so DTSC told Boeing to stop including them, and used as its excuse a supposed need to revise the SRAM a mere 2 years after its issuance, purportedly based on EPA planning to issue updated exposure parameters, after EPA told DTSC it in fact had no plans to do so.

[Greenlee in his September 2016 email to Walker asked a second question, the EPA answer to which will be discussed in the subsequent discussion of the 2017 draft PEIR and DTSC Director Meredith Williams' assertions in September 2021 of a supposed EPA error, which she has subsequently admitted was not the case. Briefly, EPA said that for its *radioactivity* PRG calculator it was upgrading from using a single value for intake of fruits and a single value for intake of vegetables to using specific values for individual types of fruits and vegetables and that it was similarly upgrading from a single value for soil uptake factors and for mass loading factors to individual measured values for different fruits and vegetables. DTSC has refused to make these changes.]

### The Draft Program Environmental Impact Report

In late 2017 – 10 years after the 2007 Consent Order, 7 years after the 2010 Administrative Orders on Consent, and at the very end of their deadlines for cleanup to have been *completed* – DTSC finally got around to issuing a *draft* Program EIR for the cleanup. DTSC now claims it may issue the final PEIR later this year,<sup>24</sup> five years after the deadline for completion of cleanup, and that cleanup itself will not start until some additional time thereafter, after Corrective Measures Studies and then Soil Remediation Plans are submitted, reviewed, and approved. The draft PEIR itself had estimated cleanup to not be completed until 2038–**21 years after the deadline**—and that was before the five years' delay in releasing the final PEIR. **DTSC's extraordinary efforts**

---

<sup>24</sup> The most recent DTSC [estimate](#) is fall 2022. The promised release has slipped, year after year.

**at foot-dragging have resulted in imminent endangerment to the surrounding communities.**

Whereas an EIR is supposed to represent the independent work of the agency, DTSC allowed the Responsible Parties to write much of it, and redline key portions of the internal drafts. Of particular concern here is Appendix K, “Draft Excavation and Offsite Disposal Volume Estimate for Boeing Areas I, III, and Southern Buffer.” The Appendix says it is based on “excavation and offsite disposal volumes submitted by The Boeing Company,” although it asserts DTSC “independently evaluated” them.<sup>25</sup> These estimates of how much contaminated soil would need to be removed to meet cleanup requirements were required to be based on the Consent Order and the existing SRAM2 Addendum. Yet Boeing and DTSC ignored those requirements and radically shrunk the estimated volume of soil that would have to be cleaned up, to a small fraction of what the Consent Order and SRAM2 Addendum would require. They did this by making two radical, improper departures from the SRAM, and misrepresenting both. These are important for the discussion that will follow about subsequent efforts by DTSC over the last two years to let Boeing out of most of its cleanup obligations by “redefining” the required cleanup standard, via supposed changes to the SRAM.

First of all, the PEIR Appendix K proposed to reduce by a factor of four the amount of contaminated backyard produce presumed to be consumed. It claimed it was doing this by assuming that 25% of one’s fruits and vegetables were from one’s garden,<sup>26</sup> but this turned out to be completely false. The PEIR took the values for home grown produce in the SRAM, which came from US EPA and were measured values for actual home grown produce consumption, and divided *that* by four, thus reducing the actual home grown produce values four-fold. It did this by failing to use the Contamination Fraction (CF) of 1 that is in the SRAM,<sup>27</sup> and also used by USEPA, and changing it instead to 0.25.<sup>28</sup> The CF is the fraction of backyard produce assumed to be contaminated, and the SRAM and USEPA rightly require one to assume all (100%) is contaminated.

Nonetheless, the Boeing/DTSC Appendix K Scenario 2 failed to use the SRAM value, without disclosing it wasn’t, and instead used a CF=0.25. That one factor alone allows four times higher concentrations for many contaminants, and thus far less cleanup. This misrepresentation becomes of great importance when Boeing approached DTSC Director Williams in mid-2020 with a supposed breakthrough offer of cleaning up to a “25% garden,” which they falsely described as assuming a quarter of one’s produce came from one’s garden, and which she believed.

---

<sup>25</sup> Appendix K, p. i.

<sup>26</sup> Appendix K, p. 2, Scenario 2

<sup>27</sup> SRAM2 Addendum, pdf p. 1129

<sup>28</sup> Appendix K, pp. vi; table 3, Scenario 2



The Committee to Bridge the Gap and the Natural Resources Defense Council had exposed this misrepresentation about the “25% garden”—and breach of the SRAM—in detailed 2017 [comments submitted on the draft PEIR](#).<sup>29</sup> The [Southern California Federation of Scientists’ comments](#) similarly exposed in detail this four-fold weakening of standards regarding the false claims that would allow for multiplying actual backyard produce consumption by the erroneous 0.25 (i.e., reducing cleanup levels by about a factor of four).<sup>30</sup> Yet Director Williams and DTSC staff years later were still pushing for changing the CF to 0.25; only after many months of explanation by CBG and NRDC of the assertion’s erroneous nature did they finally back off it. It was clear that the detailed 2017 comments on the draft PEIR had been completely ignored.

Buried in Appendix K, however, was the sleeper: the huge departure from the SRAM and biggest effort to dramatically weaken the cleanup, efforts which continue to this day despite repeated demonstration of its erroneous nature. On pdf p. 30 of the draft PEIR Appendix K one finds Table 2, “Summary of Updated Parameters Used to Calculate Human Health Risk Based Screening Levels.” All but one of the entries is basically trivial—changing the body weight of an adult from 70 to 80 kg, the exposure duration for an adult from 24 to 20 years, skin contact area for an adult from 5,700 to 6,032 cm<sup>2</sup> and for a child from 2,800 to 2,373 cm<sup>2</sup>.

These create the appearance of being included merely to divert attention from the showstopper change near the bottom of the table: changing the mass load factor from 0.26 to 0.0135. There is no discussion anywhere in the Appendix about the significance of the change, or even what the mass load factor is. Nowhere is there disclosure that this violates the existing SRAM, which DTSC cannot do. And there is no explanation that this buried change would result in relaxing cleanup standards by as much as twenty-fold.

The sole supposed basis for the change is cited as “Email from Stuart Walker, dated 9/13/2016.” It is remarkable that such a significant breakout from the SRAM and such a huge weakening of the required cleanup standards should be buried at the bottom of a table with no explanation, and based solely on an email. The draft PEIR appendix does not even disclose who Walker is. Although CEQA requires making publicly available all sources relied upon in an EIR, DTSC failed to do so, creating the appearance of trying to hide a key document that, if released, would turn out to not actually support the claim made.

---

<sup>29</sup> See pp. 36-41, and the associated Tables

<sup>30</sup> See pp. 2-3 and Attachment 1.

It took a Freedom of Information Act to the US EPA—where we happened to know Walker is employed—to obtain the US EPA email that DTSC claimed said the old MLF was erroneous and should be altered from 0.26 to 0.0135.<sup>31</sup> However, when obtained, it turned out the Walker email did not actually say that. Here is the actual exchange, once again with DTSC’s Greenlee asking and US EPA’s Walker responding:

Greenlee Question:

On the EPA’s “Remediation Goals for Radionuclides (PRG)” website, the Mass Loading Factor (MLF) for lettuce is still shown in the PRG User’s Guide as 0.26. Will this value be updated to coincide with the correction to wet weight of lettuce, yielding an MLF = 0.0135, to be consistent with the ORNL’s “RAIS PRGs for Radionuclides User’s Guide” website? If so, when is the correction expected to be incorporated onto the RAD PRG Website?

Walker Response:

On question 2, the MLF for fruits and vegetables of 0.26 will be changed for each [of] the produce categories (which will also have their own human ingestion rates and often their own transfer factors). There will still be a couple of produce categories with MLF similar to 0.26 (e.g., rice, cereal grains) but lettuce is in draft currently at 0.0135. I’m not sure when the new version will be out (both programmers went on vacation and just got back today). I hope less than a couple of months. Fred was supposed to get back with a status report today.

One notes that Greenlee asserted that US EPA had made a wet-dry “conversion” error and asked when the “correction” would be incorporated into the US EPA RAD PRG website. However, Walker in his response does not in fact indicate that there was any US EPA error nor any “correction.” Instead, he explains that US EPA had moved from using a single MLF value—and a single soil uptake factor and a single consumption rate—to employing individual soil uptake factors, consumption rates, and MLFs for different types of produce. While lettuce, about which Greenlee had asked, was 0.0135, other MLFs would remain unchanged, Walker says.

---

<sup>31</sup> Email of September 8, 2016 from Don Greenlee of CA Department of Toxic Substances Control-Chatsworth, to Stuart Walker of EPA, and September 13, 2016 response of Walker to Greenlee. Email exchange obtained pursuant to a Freedom of Information Act request to US EPA by Committee to Bridge the Gap dated October 25, 2017, and provided by US EPA on November 20, 2017.

DTSC, nonetheless, cherry-picked, and took the MLF for lettuce while not changing the consumption rates or soil uptake factors.<sup>32</sup> This fundamental failure, designed to dramatically relieve Boeing of most of its cleanup obligations, is discussed in more detail in our separate report, “*Summary Critique of Deal With Boeing to Weaken SSFL Cleanup Requirements.*”

## Conclusion

DTSC and Boeing have struggled mightily to erase the conclusions of Boeing’s own risk assessments for SSFL, which show extraordinarily high risks. They have done that by repeatedly falsely claiming US EPA had made an error, which US EPA has consistently refuted. And they have done that by cherry-picking – relaxing one number in a key equation while failing to correct flawed, non-conservative values in the other parts of the equation. The purpose and effect of all this is to markedly reduce Boeing’s cleanup obligations while dramatically increasing risks to the public.

---

<sup>32</sup> Note that DTSC was required to use in the draft PEIR the MLF value from the existing SRAM in effect at the time, which was 0.25; the SRAM had not been revised, and as of this date, still has not been. Furthermore, in the draft PEIR, irrespective of the propriety of using an MLF for lettuce rather than the more conservative value previously used, DTSC used a value for lettuce that US EPA had not even adopted as of that date.