

## **Secret Negotiations Between CalEPA & Boeing to Breach Cleanup Obligations for the Santa Susana Field Laboratory**

### Introduction

The Santa Susana Field Laboratory (SSFL) is one of the most contaminated sites in California. It is a former nuclear reactor and rocket testing facility, where at least four reactor accidents and numerous other releases occurred, causing widespread radioactive and toxic chemical contamination. Although the pollution began three quarters of a century ago, and the infamous partial meltdown occurred about 65 years ago, the contamination hasn't been cleaned up.

In 2007, after long work by community members and elected officials, the state entered into a legally binding Consent Order with the three Responsible Parties (RPs); Boeing, NASA, and the Department of Energy (DOE).<sup>1</sup> That Order required cleanup of soil be completed by 2017 and the permanent groundwater remedy put in place by that same time. However, since signing the Consent Order, the RPs have all affirmatively refused to meet their obligations under the cleanup agreements and the state has failed to enforce the Order.<sup>2</sup> **Fifteen years after signing the agreement and five years after the promised soil cleanup was to be completed, it has not even begun; similarly, the required permanent groundwater remedy has not been installed.**<sup>3</sup> Furthermore, the state and the RPs have been taking additional troubling steps to further delay the cleanup and weaken the required cleanup standards.

At the heart of the current crisis are secret negotiations between Boeing and CalEPA<sup>4</sup> to gut the cleanup standards that Boeing must meet, which appear to directly contradict public commitments by CalEPA Secretary Jared Blumenfeld.

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<sup>1</sup> 2007 [Consent Order with the three Responsible Parties](#)

<sup>2</sup> Separate Agreements on Consent (AOCs) were also executed by DTSC with DOE and NASA in 2010, adding specific detail to their cleanup requirements, but the deadline for completion remained 2017, and they too have not been carried out nor enforced.

<sup>3</sup> A few "interim measures" have been undertaken.

<sup>4</sup> The negotiations with Boeing have been undertaken by two CalEPA divisions—the Los Angeles Regional Water Quality Control Board and the Department of Toxic Substances Control. As stated on the Regional Board's [webpage](#) regarding the negotiated agreements, "Both the Los Angeles Water Board and DTSC are part of the California Environmental Protection Agency."

CalEPA Secretary Blumenfeld Repeatedly Promised There Would be No Negotiations With Boeing, But Rather There Would Be Strict Enforcement of the 2007 Cleanup Order



In 2020, Secretary Blumenfeld repeatedly promised there would be no such negotiations. In a speech<sup>5</sup> in Simi Valley during the SSFL Work Group, with numerous elected officials and their staff and community members present, Blumenfeld committed as follows (**click on the quote to be taken to the video clip**):

- [\*\*“Those are legally binding agreements. We will hold them to those agreements. And as I said, but I will say it again: our job is to regulate, not to negotiate.”\*\*](#)<sup>6</sup>
- [\*\*“We don’t have a lot of tolerance for having a negotiation. All the meetings that I go to like, ‘are we opening up the Consent Order?’ The answer is no. ‘Are we opening up the Order on Consent?’ Which I’ll talk through in a minute. And the answer is no.”\*\*](#)<sup>7</sup>
- [\*\*“What we have in front of us, which I’ll describe, is agreements. And we’re really not here to negotiate; this is not a negotiation, this is about implementation.”\*\*](#)<sup>8</sup>

<sup>5</sup> [SSFL Workgroup meeting video](#), February 13, 2020, Simi Valley, California.

<sup>6</sup> Footage timestamp: 8:05; emphasis added

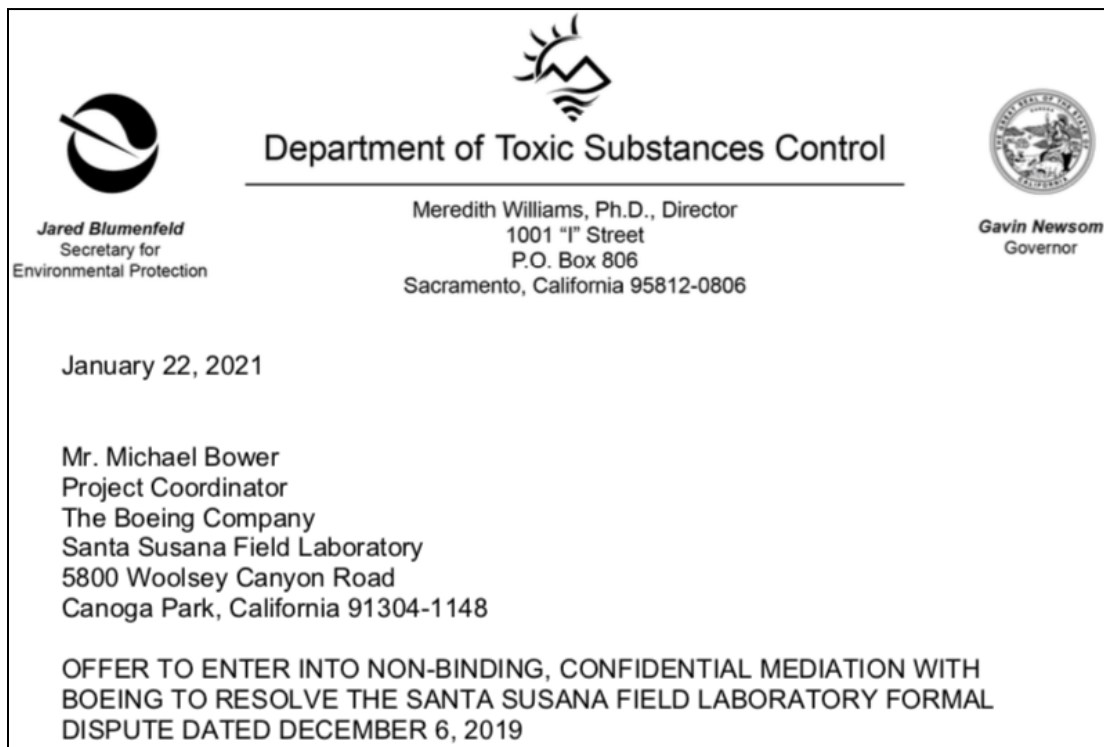
<sup>7</sup> Footage timestamp: 9:35; emphasis added

<sup>8</sup> Footage timestamp: 3:55; emphasis added

- ["They are the regulator; the regulator means they set the cleanup standards. \*\*this is not a ongoing negotiation with the polluters.\*\* The polluters have a role, they have to pay for it and they have to adhere to the standards that we have."](#)<sup>9</sup>

Despite Promises There Would Be No Negotiation With Boeing, DTSC and the Regional Board Secretly Entered Into Such Negotiations With Boeing

Nonetheless, despite these repeated public pledges by the Secretary, less than a year later, the Department of Toxic Substances Control ("DTSC") (which, as seen in the letter below, is under Blumenfeld's authority), wrote to Boeing offering to enter into "confidential mediation" along with the Los Angeles Regional Water Quality Control Board ("Regional Board").<sup>10</sup> Boeing accepted the offer the next day.<sup>11</sup>



<sup>9</sup> Footage timestamp: 7:15; emphasis added

<sup>10</sup> January 22, 2021: ["Offer to Enter Into Non-Binding, Confidential Mediation With Boeing to Resolve the Santa Susana Field Laboratory Formal Dispute, Dated December 6, 2019"](#). The letter stated, "DTSC has invited the Los Angeles Regional Water Quality Control Board (Regional Board) to participate in the mediation because of its jurisdiction over surface water at the SSFL and its role in advising DTSC on its laws, policies and regulations regarding groundwater at the site."

<sup>11</sup> January 23, 2021: ["Letter from Michael Bower, Boeing to Grant Cope, DTSC regarding DTSC's November 19, 2019 Directive Regarding Groundwater Corrective Measures Studies and Risk Assessments at SSFL"](#)

The subject of the secret discussions was Boeing's desire to leave the great majority of the contaminated soil and most of the contaminated groundwater in its parts of SSFL not cleaned up, and to be freed of its NPDES obligations to prevent the release of contaminated surface water. The letters setting forth the dispute to be discussed,<sup>12</sup> and referenced in the mediation offer, have not been announced to the public nor are they posted on DTSC's SSFL Document Library in a fashion identifying them as the basis for the negotiations, despite their importance.<sup>13</sup> The Committee to Bridge the Gap had to submit a Public Records Act request in order to obtain them.<sup>14</sup>

The letters that form the basis for the dispute and negotiation are not labeled on the DTSC Document Library as having anything to do with a dispute but rather "DTSC Comments for CMS GW Risk Assessment Goals" and Boeing's response to those comments entitled "Letter from David Dassler, Boeing to Director Meredith Williams, DTSC responding to DTSC letter dated Nov 19 2019 regarding Groundwater Corrective Measures Studies and Risk Assessments." Indeed, the January 2021 letter offering secret mediation and accepting it refer only to groundwater corrective measures and risk assessments, when the actual disagreement set forth in the Boeing December 2019 letter is a *frontal attack on the requirement to clean up the site to residential standards as required by the 2007 Consent Order and pursuant to the Standardized Risk Assessment Methodology Rev. 2 Addendum (SRAM2 Addendum)*.<sup>15</sup> All this creates at least the appearance of trying to bury from public attention the fact that the repeated promises that there would be no negotiation with Boeing over cleanup requirements were being broken.

DTSC in its January 22, 2021, offer to initiate confidential mediation, while failing to disclose the actual topics to be negotiated, in passing acknowledges that they go to the core of the cleanup obligations under the 2007 Consent Order:

The issues at the core of and related to this dispute are *fundamental to compliance with the 2007 Consent Order*, which describes the required process to determine Boeing's cleanup responsibilities at SSFL."

(emphasis added)

The documents we had to obtain via the Public Records Act show that DTSC's assertion – that the matters negotiated were fundamental to compliance with the 2007 Order which determines Boeing's cleanup obligations – is an understatement. The 2007 Order requires a cleanup to at least residential standards. Boeing now was refusing such a cleanup standard and insisting on

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<sup>12</sup> See [December 6, 2019, Letter from Dave Dassler, Boeing, to DTSC Director Meredith Williams, Dispute Regarding DTSC's November 19, 2019 Directive Regarding Groundwater Corrective Measures Studies and Risk Assessments at SSFL](#); and [November 19, 2019, Letter from Mindy Mathias, DTSC, to Boeing, DOE, and NASA, Groundwater Corrective Measures Study Reports and Groundwater Risk Assessments, Santa Susana Field Laboratory, Ventura County, California](#). See also [proposed Memorandum of Understanding between Boeing and the LA Regional Water Board](#), which resulted from the negotiations.

<sup>13</sup> [SSFL Document Library](#)

<sup>14</sup> [Email RE: Public Records Act Request](#) and [Email Response to Public Records Ask Request](#)

<sup>15</sup> In that letter, Boeing says it will refuse to clean up the site to a residential standard, as it had promised, and asserts that because of its conservation easement, it

a vastly less protective cleanup. In short, it wants to leave a huge portion of the contamination not cleaned up. That is a key part of what the secret negotiations were all about.<sup>16</sup>

### The Entry Into Negotiations Was Kept Secret; They Had to Be Disclosed By an NGO

The entry into confidential mediation with Boeing was not publicly announced by DTSC or the Regional Board. Public Employees for Environmental Responsibility (PEER) had to notify the public via a news release.<sup>17</sup>

In response, DTSC issued a statement asserting that the mediation with Boeing was done in coordination with DTSC's "partners" Committee to Bridge the Gap (CBG) and the Natural Resources Defense Council (NRDC), who, DTSC asserted, had been informed in advance. In fact, neither CBG nor NRDC had been informed in advance of the DTSC-Boeing negotiations, despite having had two meetings with DTSC Deputy Director Grant Cope, the author of the letter initiating the mediation offer, shortly after his letter, during which he did not volunteer that such mediation had been offered and accepted.<sup>18</sup> CBG and NRDC had to issue a statement to the news media correcting the DTSC assertion and making clear that the two organizations were not DTSC's "partners" in the negotiations with Boeing and had not been informed in advance of their initiation.<sup>19</sup>

It cannot be claimed that "confidential mediation" is somehow different than the negotiations Secretary Blumenfeld promised would not occur. Mediation is simply negotiation with a mediator present. Nor can it be claimed that the purpose of the mediation is strict enforcement of the 2007 Consent Order rather than giving in to Boeing's demands in any fashion.<sup>20</sup> The word "mediation" comes from the Latin "mediatus", which means to divide in half or arrive in the middle. Thus, the purpose of the Boeing-DTSC secret mediation was to compromise with Boeing's insistence it wants to be relieved of the cleanup obligations in the 2007 Consent Order.

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<sup>16</sup> In its December 6, 2019 letter (p. 2), Boeing falsely claimed that a prior informal dispute had resulted in DTSC agreeing that the residential standard and consumption of homegrown produce would not be included in the Standardized Risk Assessment Methodology. In fact, the prior disagreement was that DTSC directed that Boeing combine the SRAM-based residential garden Risk-Based Screening Level (RBSL) column in the SRAM with the column for other residential pathways into a single residential-with-garden RBSL column. Boeing refused, and in the discussions that followed, DTSC said that to expedite matters, it would perform the residential garden calculations for the SRAM. [April 5, 2018, letter from DTSC's Mohsen Nazemi to Boeing's Dave Dassler.](#)

<sup>17</sup> [PEER News Release](#)

<sup>18</sup> DTSC Deputy Director Grant Cope wrote Boeing's Michael Bower on January 22, 2021, offering the confidential mediation, and Bower responded affirmatively on the 23rd. NRDC and CBG met with Cope on the 25th, during which meeting he did not disclose the mediation offer. NRDC and CBG met again with Cope on February 4, again without Cope volunteering disclosure of the mediation. At the end of the meeting, NRDC's Geoff Fettus, having heard about the matter elsewhere, asked Cope whether there was such a mediation commencing; only at that point did Cope concede mediation had been initiated. [DTSC statement.](#)

<sup>19</sup> Indeed, even after the NRDC-CBG statement correcting the misrepresentation, DTSC's website continues to [post](#) the assertion. (last accessed July 25, 2022.) [CBG and NRDC statement.](#)

<sup>20</sup> For example, DTSC continues to claim the purpose of the confidential mediation with Boeing is to "resolve" an unnamed "dispute" and "hold Boeing accountable to the 2007 Consent Order." [SSFL Status Report February 2022 Issued 04/12/2022](#), p. 2

Indeed, the final result was a secret deal that was not an arriving in the middle but an almost complete capitulation of the regulator to the polluter it was supposed to regulate.<sup>21</sup>

### CalEPA Actions Trigger Elected Officials' Concerns

When the public and elected officials learned of the secret CalEPA-Boeing negotiations, great concern was expressed. For example, 11 mayors, city councilmembers, and county supervisors, wrote Blumenfeld saying:<sup>22</sup>

As elected local government representatives of the communities surrounding the Santa Susana Field Laboratory (SSFL), we are writing to express our strong concerns about ongoing delays in the clean-up of this highly contaminated toxic waste site, and to urge you to compel its prompt clean-up per the established State agreements and schedule.

Knowing your detailed familiarity with the site, its contamination, and your agency's responsibility for these matters, we will not re-address those issues in this letter. Instead, we ask that you consider the families of children with childhood cancer in our communities, the parents and residents who must worry that they might be next, and those who worry about the safety of their own backyards and the dust that comes in their windows or the rainwater running by their homes and schools, or carcinogens in the smoke and ash when the site catches fire. State clean-up action has been far too little and far too late, and extensive toxic contamination remains on site.

It is now four years after the clean-up was supposed to have been completed per adopted agreements, and as yet the promised soil clean-up has not begun. We are opposed to any action that would significantly delay or weaken site clean-up.

**We are specifically concerned with the following activities of your agency:**

- **No State effort to enforce the 2007 Consent Order and 2010 Administrative Orders on Consent.**

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<sup>21</sup> Since the deal was released, to great criticism, DTSC has tried to claim it entered the negotiations and cut the deal because of the threat of a lawsuit by Boeing. Caving in on public health under pressure from a polluter isn't defensible, but in any case the threat of legal action doesn't appear to explain why DTSC went into negotiations with Boeing over weakening the cleanup but did not negotiate with LA City, LA County, and Ventura County, all of which have long strongly supported the full cleanup required under the agreements and have indicated consideration of legal action against DTSC if it didn't enforce those agreements.

<sup>22</sup> [Letter to CalEPA Secretary Blumenfeld](#) from Ventura County Supervisors Linda Parks and Robert O. Huber; Los Angeles County Supervisor Sheila Kuehl; Mayor Claudia Bill-de la Peña of Thousand Oaks, Mayor Janice Parvin of Moorpark, Mayor Paul Grisanti of Malibu, Mayor James R. Bozajian of Calabasas, Mayor Stuart E. Siegel of Hidden Hills, Mayor Denis Weber of Agoura Hills; Councilmember John Lee of Los Angeles, and Councilmember Ruth Luevanos of Simi Valley, October 14, 2021.

- **Confidential negotiations between DTSC and Boeing that could delay or weaken clean-up by Boeing as required by the Consent Order and Administrative Order on Consent (CO & AOC).**
- **Proposed further delays in the Programmatic Environmental Impact Report while having not addressed shortcomings in the EIR that the City of LA, the County of Ventura, and others identified over three years ago.**
- **Possible changes to the Standardized Risk Assessment Methodology (SRAM2 Addendum) that would allow Boeing to delay and weaken clean-up.**

(emphasis added)

On the same date, U.S. Senator Alex Padilla, and Congressmembers Julia Brownley, Brad Sherman, J. Luis Correa, and Grace Napolitano also wrote to Secretary Blumenfeld “to express our concerns about delays in the required clean-up.”<sup>23</sup> They stated:

The 2007 Consent Order and 2020 Administrative Orders on Consent govern cleanup of the site and tasked the Department of Toxic Substances Control (DTSC) with responsibility for overseeing the clean-up. These Orders required that soil cleanup be completed by 2017, however, the agreed-upon soil remediation at the site has yet to begin. We are deeply concerned about the lengthy delays in the clean-up of SSFL, and we understand there have been reports that DTSC may be considering additional changes to the Standardized Risk Assessment Methodology, which may result in additional delays to the clean-up of soil contamination at SSFL.

We strongly support the existing cleanup agreements between the state and the three responsible parties. These agreements should be vigorously enforced and proceed with all appropriate urgency.

In Response to the Elected Officials’ Letters to CalEPA Secretary Blumenfeld, the DTSC Director Promised that the Negotiations Were Restricted to Carrying Out the 2007 Order

Director Williams wrote<sup>24</sup> to the local electeds on February 17, 2022, promising:

- **DTSC is committed to continuing to enforce the 2007 Consent Order (2007 Order) and the 2010 Administrative Order on Consent (2010 AOCs). The 2007 Order and 2010 AOCs are legally binding documents pursuant to the California Health and Safety Code Section 25355.5(a)(1)(B). As authorized by this law, DTSC issued the orders and will use that authority to ensure compliance with these agreements.**

<sup>23</sup> [U.S. Senator Letter to Blumenfeld](#)

<sup>24</sup> [Director Williams February 17, 2022 letter response](#) to local electeds

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- As the regulator with the objective of **holding each of the responsible parties to their clean up obligations**, DTSC is currently in non-binding mediation with Boeing with the aim of expediting the long-overdue cleanup. If the mediation fails to yield an outcome **consistent with the 2007 Consent Order**, we will pursue litigation and other alternatives to hold Boeing accountable to the 2007 Consent Order.

(emphasis added)

Williams in her response<sup>25</sup> to Senator Padilla and the four Congressmembers made similar promises:

DTSC is currently participating in non-binding mediation to **hold Boeing accountable to the 2007 Consent Order** and long-overdue cleanup.

(emphasis added)

Despite Repeated Promises That the Negotiations Were Limited to Enforcing the 2007 Consent Order, the Boeing Agreement In the End “Supersedes” Much of the 2007 Order

In fact, much of the 76-page 2007 Consent Order is overridden by the 796-page Agreement.<sup>26</sup> Indeed, the first question in a Frequently Asked Questions document about the deal is, “Does the Settlement Agreement replace the 2007 Consent Order? If not, how do they relate?”<sup>27</sup> The answer given is: “Some sections of the 2007 Consent Order are **superseded** by the Settlement Agreement...”<sup>28</sup> The FAQ answer continues by indicating that Exhibit 22 to the Agreement contains a chart as to which parts of the Order remain applicable versus being superseded by the Agreement.

The State Promised That Any Agreement Arising from the Negotiations Would be Issued as a Proposal for Public Comment and Subject to Rigorous Environmental Review. It Broke Those Promises Too.

When the secret negotiations were revealed to the public – not by CalEPA, but by Public Employees for Environmental Responsibility – CalEPA issued a response claiming that any agreement would be issued as a proposal that would be subject to public review and input.

In its February 12, 2021 press statement<sup>29</sup>, DTSC made the following assurance:

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<sup>25</sup> [Director Williams January 26, 2022 letter response](#) to Senator Padilla and Congressmembers Brownley, Napolitano, Correa, and Sherman

<sup>26</sup> [DTSC-Boeing Cleanup Settlement Agreement](#), May 9, 2022.

<sup>27</sup> [Boeing Settlement Agreement FAQ page](#) (Last accessed July 25, 2022)

<sup>28</sup> Ibid.

<sup>29</sup> [“DTSC Statement on SSFL Mediation.”](#) DTSC Press Release, February 12, 2021.



Any proposal coming from a settlement will not only *comply with California's strong public health and environmental laws*, but it will also include opportunities for public input to allow for robust community engagement.

(emphasis added)

However, this promise was broken as well. Instead, the agreement was issued in final form, with no opportunity for public review and comment, no hearing, and no environmental review.

m. The Parties hereby acknowledge, understand and agree that no hearing or further action is required before this Agreement becomes effective as provided in Section 13.

IT IS SO AGREED

DATED: May 9, 2022

DEPARTMENT OF TOXIC SUBSTANCES  
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DATED: May 9<sup>th</sup>, 2022

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The Local Governments With Long History of Support for the Cleanup Agreements and Deep Opposition to Weakening Them Were Frozen Out of the Process Entirely

The City of Los Angeles and the Counties of Los Angeles and Ventura were all completely frozen out of the process of reaching the agreement. Ironically, just a few weeks earlier, LA County had passed a resolution reiterating its long position for a cleanup of SSFL to background

and directing the County Counsel “to work with the Los Angeles City Attorney and Ventura County Counsel and other affected jurisdictions, and nongovernmental organizations supporting the 2007 and 2010 cleanup agreements, to explore legal action as necessary to ensure that the 2007 and 2010 agreements by all parties are carried out...”<sup>30</sup> The City of Los Angeles a couple of years earlier had directed the City Attorney to initiate litigation if the existing cleanup agreements were not carried out, and appropriated funds for hiring outside counsel.<sup>31</sup> Ventura County similarly has a long history of calling for full compliance with the 2007 and 2010 cleanup agreements, and has also directed its County Counsel to explore joint litigation with the LA City Attorney should a cleanup lesser than background be attempted.<sup>32</sup>

#### DTSC Also Breached Its Promise that the Proposed Result of the Negotiations Would Be Subject to Full Compliance with State Environmental Laws

The lack of environmental review is particularly egregious. The 796-page agreement has major environmental impact – it relaxes cleanup standards by huge factors – but there has been no Environmental Impact Report or similar environmental review conducted before it was adopted. DTSC says it will issue a Final Program EIR in the autumn, but that will be *after the fact*.<sup>33</sup> No environmental review was conducted prior to adoption of the agreement, and no opportunity for public comment on such environmental review has occurred.

#### In Announcing the Agreement, CalEPA, DTSC, and the Regional Board Claimed That it Would Result in “Strengthening” the Cleanup Requirements and Impose “Strict” Standards; in Fact, the Agreement Dramatically Weakens Them

The news release proclaimed:

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<sup>30</sup> [May 3, 2022 Kuehl and Barger Motion](#) RE: Santa Susana Field Lab Cleanup

<sup>31</sup> [Los Angeles City Council 2019 Resolution documents](#)

<sup>32</sup> [Ventura County Board of Supervisors December 12, 2017 Letter](#) RE: Draft Program Environmental Impact Report for the Santa Susana Field Laboratory Project. [Ventura County April 9, 2019 Meeting Agenda](#).

<sup>33</sup> DTSC [Draft Program Environmental Impact Report \(EIR\)](#), September 2017

FOR IMMEDIATE RELEASE

May 9, 2022



Department of  
Toxic Substances  
Control



CalEPA  
California Environmental  
Protection Agency



## California holds Boeing accountable for cleanup at toxic Santa Susana Field Laboratory

*Comprehensive framework sets stage for stringent cleanup  
of Boeing's areas of responsibility at the site*

**SACRAMENTO** – In a major development to strengthen the cleanup of contaminated soil, groundwater, and stormwater runoff at the Santa Susana Field Laboratory (SSFL) in southeastern Ventura County, the California Environmental Protection Agency (CalEPA) today announced a comprehensive framework that establishes strict cleanup protocols and timelines for The Boeing Company.

**This leads to a FUNDAMENTAL EMPIRICAL QUESTION: IS IT TRUE THAT THE AGREEMENT STRENGTHENS THE CLEANUP? In Fact, the actual Agreement MASSIVELY WEAKENS cleanup requirements for soil, groundwater, and surface water**

Nowhere in the agreement or the press statements about it is any comparison between the new cleanup standards and the ones previously in effect under the 2007 Consent Order. When one reviews the changes, however, the new numbers are **scores of times weaker, hundreds of times weaker, and even thousands of items weaker**, depending on the toxic chemical and its location. The great majority of cleanup standards have been weakened.

Buried in pdf pages 132-7 of the Agreement are pages of new Risk-Based Screening Levels (RBSLs) that one would need a magnifying glass to read. Below is the first of those pages.

**Soil Risk Based Screening Levels for a Hypothetical Future Resident No Garden, Hypothetical Future Resident with Garden, Hypothetical Future Resident, and Hypothetical Future Site Worker**

Analyte	CAS #	Analyte Synonym *	Hypothetical Future Resident No Garden Soil RBSL (BBSL <sub>no_garden</sub> ) <sup>1</sup>			Hypothetical Future Resident with Garden Soil RBSL (BBSL <sub>with_garden</sub> ) <sup>2</sup>			Hypothetical Future Resident with Garden Soil RBSL (BBSL <sub>with_garden</sub> ) <sup>3</sup>			Hypothetical Future Resident Soil RBSL (BBSL <sub>no_garden</sub> ) <sup>4</sup>			Hypothetical Future Site Worker Soil RBSL (BBSL <sub>site_worker</sub> ) <sup>5</sup>		
			Composite Residue			Composite Residue			Composite Residue			Composite Residue			Composite Residue		
			Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)	Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)	Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)	Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)	Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)
<b>Inorganic Compounds</b>																	
Aluminum	7429905	Aluminum, Total	-	7,500-04	7,500-04	-	4,850-03	4,850-03	-	4,500-03	4,500-03	-	3,500-05	3,500-05	-	1,000-06	1,000-06
Antimony	7440200	Antimony, Total	-	2,700-02	2,700-02	-	4,400-01	4,400-01	-	4,300-01	4,300-01	-	1,200-02	1,200-02	-	2,100-02	2,100-02
Arsenic	7440282	Arsenic, Total	1.07E-01	4,000-01	4,000-01	1.34E-01	1,050-03	1,050-03	1.32E-03	1,000-03	1,000-03	4.90E-01	1,900-00	6,000-01	3,500-01	2,000-00	3,500-01
Barium	7440393	Barium, Total	-	1,500-03	1,500-03	-	2,700-02	2,700-02	-	2,700-02	2,700-02	-	3,400-04	3,400-04	-	8,800-04	8,800-04
Beryllium	7440247	Beryllium, Total	-	1,500-03	1,500-03	-	8,700-01	8,700-01	-	6,000-01	6,000-01	-	1,100-01	1,100-01	-	6,000-03	6,000-03
Boron	7440228	Boron, Total	-	1,500-03	1,500-03	-	1,300-03	1,300-03	-	1,300-03	1,300-03	-	1,100-04	1,100-04	-	2,000-05	2,000-05
Calcium	7440439	Calcium, Total (dry)	-	9,000-02	7,100-02	-	5,000-02	5,000-02	-	9,000-02	9,000-02	-	1,300-01	1,300-01	-	3,000-01	3,000-01
Cadmium	7440141	-	-	1,200-06	1,200-06	-	6,600-03	6,600-03	-	1,200-06	1,200-06	-	1,700-07	1,700-07	-	5,300-06	5,300-06
Chromium	7440479	Chromium, Total	-	4,100-04	4,100-04	-	1,400-03	1,400-03	-	5,000-03	5,000-03	-	1,900-05	1,900-05	-	1,700-05	1,700-05
Coltalt	7440484	Coltalt, Total	4,24E-02	2,200-01	2,200-01	-	1,100-00	1,100-00	4,24E-02	1,000-00	1,000-00	5,64E-03	1,070-02	1,070-02	1,80E-03	3,100-02	3,100-02
Copper	7440206	Copper, Total	-	3,000-03	3,000-03	-	2,400-03	2,400-03	-	2,400-03	2,400-03	-	1,400-04	1,400-04	-	4,100-04	4,100-04
Cyanide	51735	Cyanide, Total, Cyanide	-	2,300-01	2,300-01	-	2,100-03	2,100-03	-	2,100-03	2,100-03	-	1,300-02	1,300-02	-	1,400-02	1,400-02
Fluoride	5886488	-	-	3,000-03	3,000-03	-	9,800-01	9,800-01	-	9,800-01	9,800-01	-	1,400-04	1,400-04	-	4,100-04	4,100-04
Hexavalent chromium	18540299	Chromium, hexavalent, Chromium VI	2,96E-01	2,340-02	2,340-02	3,91E-01	1,970-01	1,970-01	3,49E-02	1,290-01	1,290-01	1,41E-00	1,000-03	1,000-03	6,10E-00	3,400-03	3,400-03
Lead	7439921	Lead, Total	-	8,000-01	8,000-01	-	6,900-00	6,900-00	-	6,900-00	6,900-00	-	1,600-02	1,600-02	-	5,000-02	5,000-02
Lithium	7439952	Lithium, Total	-	1,500-02	1,500-02	-	7,100-00	7,100-00	-	6,800-00	6,800-00	-	1,100-02	1,100-02	-	2,800-02	2,800-02
Manganese	7439965	Manganese, Total	-	1,100-03	1,100-03	-	2,200-03	2,200-03	-	2,100-03	2,100-03	-	1,470-03	1,470-03	-	6,800-03	6,800-03
Mercury	7439964	Mercury, Total	-	9,700-01	9,700-01	-	4,700-01	4,700-01	-	4,500-01	4,500-01	-	1,100-01	1,100-01	-	4,200-01	4,200-01
Methyl Mercury	2296709	-	-	7,600-00	7,600-00	-	1,000-03	1,000-03	-	1,000-03	1,000-03	-	3,970-01	3,970-01	-	1,040-02	1,040-02
Molybdenum	7439967	Molybdenum, Total	-	3,800-02	3,800-02	-	4,000-02	4,000-02	-	4,100-02	4,100-02	-	1,700-03	1,700-03	-	5,200-03	5,200-03
Nickel	7440200	Nickel, Total	-	2,000-02	2,000-02	-	2,700-01	2,700-01	-	2,000-02	2,000-02	-	2,000-03	2,000-03	-	3,000-03	3,000-03
Nitrate	7784202	Nitrate, Total	1,47E-04	-	-	-	1,700-02	1,700-02	1,47E-04	-	-	-	2,000-05	2,000-05	6,40E-04	-	-
Selenium	7784202	Selenium, Total	-	3,800-02	3,800-02	-	1,700-02	1,700-02	-	1,700-02	1,700-02	-	1,700-03	1,700-03	-	5,100-03	5,100-03
Silver	7440228	Silver, Total	-	2,400-02	2,400-02	-	4,600-01	4,600-01	-	3,900-01	3,900-01	-	2,000-02	2,000-02	-	2,400-02	2,400-02
Strontium	7440346	Strontium, Total	-	4,500-04	4,500-04	-	6,600-03	6,600-03	-	6,000-03	6,000-03	-	1,100-05	1,100-05	-	6,200-05	6,200-05
Sulfur	7440360	Sulfur, Total	-	7,600-01	7,600-01	-	4,600-01	4,600-01	-	2,100-02	2,100-02	-	2,100-02	2,100-02	-	1,600-02	1,600-02
Tin	7440315	Tin, Total	-	4,500-04	4,500-04	-	2,000-03	2,000-03	-	1,900-03	1,900-03	-	1,100-05	1,100-05	-	6,200-05	6,200-05
Tungsten	7440353	Tungsten, Total	-	7,600-01	7,600-01	-	4,600-01	4,600-01	-	2,100-02	2,100-02	-	2,100-02	2,100-02	-	1,600-02	1,600-02
Uranium	7440111	-	-	1,500-01	1,500-01	-	9,000-01	9,000-01	-	8,500-01	8,500-01	-	1,100-01	1,100-01	-	2,800-02	2,800-02
Vanadium	7440267	Vanadium, Total	-	2,000-02	2,000-02	-	2,200-02	2,200-02	-	2,100-02	2,100-02	-	1,100-03	1,100-03	-	2,200-03	2,200-03
Zinc	7440206	Zinc, Total	-	2,200-04	2,200-04	-	7,600-01	7,600-01	-	7,500-01	7,500-01	-	1,070-05	1,070-05	-	3,100-05	3,100-05
Zirconium	7440271	Zirconium, Total	-	6,100-00	6,100-00	-	4,000-01	4,000-01	-	1,700-01	1,700-01	-	8,000-01	8,000-01	-	8,400-01	8,400-01
<b>Organic Compounds</b>																	
1,1-Dichloroethane	57147	1,1-Dichloroethane	-	5,700-02	5,700-02	-	1,800-04	1,800-04	-	1,800-04	1,800-04	-	7,900-01	7,900-01	-	2,400-01	2,400-01
1,2-Dichloroethane	52070	1,2-Dichloroethane	-	8,200-00	8,200-00	-	8,500-03	8,500-03	-	8,500-03	8,500-03	-	2,900-01	2,900-01	-	5,200-01	5,200-01
1,3-Dichlorobenzene	11960	1,3-Dichlorobenzene	-	8,200-00	8,200-00	-	8,600-03	8,600-03	-	8,600-03	8,600-03	-	2,900-01	2,900-01	-	5,200-01	5,200-01
2,4-Dichlorobenzene	11962	2,4-Dichlorobenzene	2,13E-01	-	-	1,000-03	-	-	1,000-03	-	-	1,000-03	-	-	-	4,200-01	4,200-01
2-Amino-6-ethyltoluene	1052732	-	-	7,700-00	7,700-00	-	1,600-02	1,600-02	-	1,600-02	1,600-02	-	1,600-02	1,600-02	-	1,600-02	1,600-02
Hexachlorocyclopentadiene	2051420	-	-	3,200-02	3,200-02	-	8,100-07	8,100-07	-	5,600-01	5,600-01	-	1,800-04	1,800-04	-	5,600-04	5,600-04
Hydrantone	80344	Hydrantone	-	2,600-02	2,600-02	-	2,200-02	2,200-02	-	2,200-02	2,200-02	-	1,800-04	1,800-04	-	1,800-04	1,800-04
Monomethylhydrazine	60344	Monomethylhydrazine	-	1,200-03	1,200-03	-	2,200-03	2,200-03	-	1,700-08	1,700-08	-	1,400-01	1,400-01	-	4,400-00	4,400-00
Nitrobenzene	98953	Nitrobenzene	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02
Nitroethane	52830	Nitroethane	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02
Nitropropane	52830	Nitropropane	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02	-	1,100-02	1,100-02
1,3,5-Trinitrobenzene	112249	1,3,5-Trinitrobenzene	-	8,100-00	8,100-00	-	1,500-01	1,500-01	-	1,500-01	1,500-01	-	1,400-01	1,400-01	-	1,400-01	1,400-01

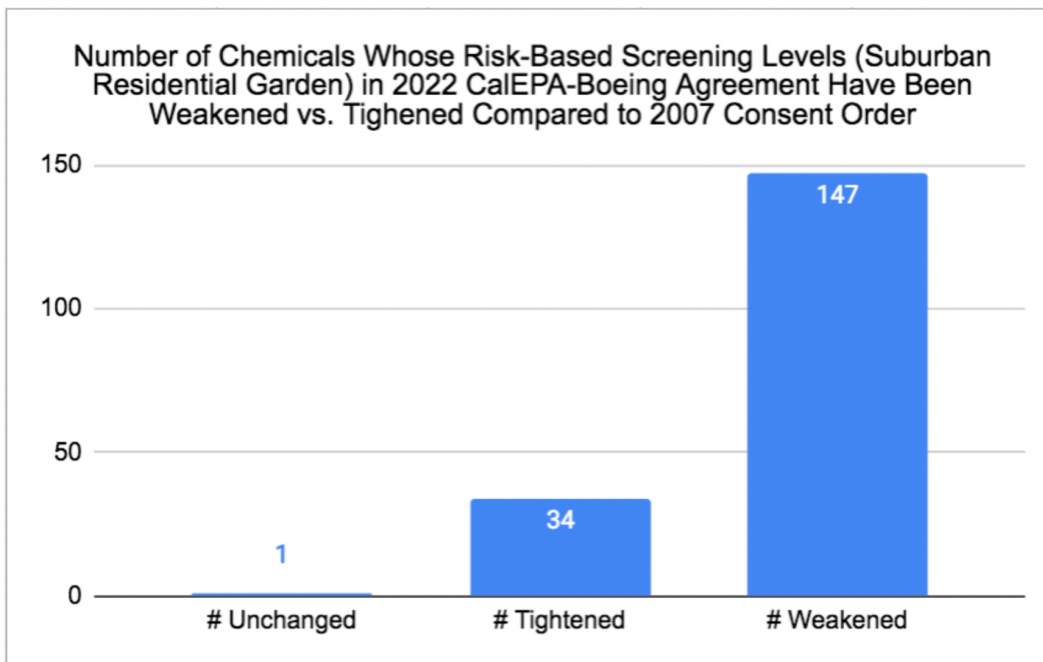
[https://www.envirostor.dtcsc.ca.gov/public/deliverable\\_documents/5013550281/SSFL%20DTSC-Boeing%20Settlement%20Agreement%20%28Final%29.pdf](https://www.envirostor.dtcsc.ca.gov/public/deliverable_documents/5013550281/SSFL%20DTSC-Boeing%20Settlement%20Agreement%20%28Final%29.pdf) (pages 132-137)

The Boeing-CalEPA deal supersedes long standing RBSLs required by the 2007 Order and based on the 2014 SRAM2 Addendum; the first page of those RBSLs is below.

**Table 1**  
Summary of the Tables Which Risk Based Screening Levels for Chemicals in Soil at the Site.

Analyte	CAS #	Analyte Synonym *	Hypothetical Future Resident No Garden Soil RBSL (BBSL <sub>no_garden</sub> ) <sup>1</sup>			Hypothetical Future Resident with Garden Soil RBSL (BBSL <sub>with_garden</sub> ) <sup>2</sup>			Hypothetical Future Resident with Garden Soil RBSL (BBSL <sub>with_garden</sub> ) <sup>3</sup>			Hypothetical Future Resident Soil RBSL (BBSL <sub>no_garden</sub> ) <sup>4</sup>			Hypothetical Future Site Worker Soil RBSL (BBSL <sub>site_worker</sub> ) <sup>5</sup>		
			Composite Residue			Composite Residue			Composite Residue			Composite Residue			Composite Residue		
			Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)	Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)	Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)	Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)	Cancer (ppb)	Noncancer (mg/kg)	Lowest (mg/kg)
<b>Inorganic Compounds</b>																	
Aluminum	7429905	Aluminum, Total	-	7,500-04	7,500-04	-	4,850-03	4,850-03	-	4,500-03	4,500-03	-	3,500-05	3,500-05	-	1,000-06	1,000-06
Antimony	7440200	Antimony, Total	-	2,700-02	2,700-02	-	4,400-01	4,400-01	-	4,300-01	4,300-01	-	1,200-02	1,200-02	-	2,100-02	2,100-02
Arsenic	7440282	Arsenic, Total	1.07E-01	4,000-01	4,000-01	1.34E-01	1,050-03	1,050-03	1.32E-03	1,000-03	1,000-03	4.90E-01	1,900-00	6,000-01	3,500-01	2,000-00	3,500-01
Barium	7440393	Barium, Total	-	1,500-03	1,500-03	-	2,700-02	2,700-02	-	2,700-02	2,700-02	-	3,400-04	3,400-04	-	8,800-04	8,800-04
Beryllium	7440247	Beryllium, Total	-	1,500-03	1,500-03	-	8,700-01	8,700-01	-	6,000-01	6,000-01	-	1,100-01	1,100-01	-	6,000-03	6,000-03
Boron	7440228	Boron, Total	-	1,500-03	1,500-03	-	1,300-03	1,300-03	-	1,300-03	1,300-03	-	1,100-04	1,100-04	-	2,000-05	2,000-05
Calcium	7440439	Calcium, Total (dry)	-	9,000-02	7,100-02	-	5,000-02	5,000-02	-								

Agreement to the standards it replaces.<sup>35</sup> Rather than “strengthening” the standards, as claimed in the CalEPA-DTSC-Regional Board news release, the great majority of the RBSLs are weakened (i.e., higher levels of contamination would be allowed to remain not cleaned up):



Not merely are most of the contaminants limits weakened, but they are weakened by substantial amounts. The RBSLs for PCBs and dioxins, for example, set forth in the Agreement are roughly 20 times higher than the prior RBSL. In other words, twenty times higher levels of contamination would now be allowed:

<sup>35</sup> Here we have compared the residential garden RBSLs, the second colored column in both sets of tables. Separately we have combined the residential garden and non-garden exposure pathways in the SRAM and compared those combined RBSLs with the combined residential RBSLs in the Agreement; the extent of weakening of standards is similar to the comparison of just the garden pathways described here.

**Suburban Residential Garden PCB Risk Based-Screening Levels (RBSL) Comparison**

Polychlorinated Biphenyls (PCBs)	RBSL Pursuant to 2007 Consent Order <sup>a</sup> (mg/kg)	2022 CalEPA-Boeing Agreement RBSL <sup>b</sup> (mg/kg)	Factor By Which Standard Has Been Weakened
Aroclor 1016	0.0138	0.247	18
Aroclor 1242	0.000486	0.00993	20
Aroclor 1248	0.000486	0.00971	20
Aroclor 1254	0.000488	0.0101	21
Aroclor 1260	0.000489	0.0109	22
Aroclor 5460	0.000486	0.00993	20
PCB TEQ	0.0000000075	0.000000158	21

**Suburban Residential Garden Dioxins Risk Based-Screening Levels Comparison**

PCDDs (Dioxins)	RBSL Pursuant to 2007 Consent Order <sup>a</sup> (mg/kg)	2022 CalEPA-Boeing Agreement RBSL <sup>b</sup> (mg/kg)	Factor By Which Standard Has Been Weakened
2,3,7,8-TCDD TEQ	0.00000000751	0.000000161	21

<sup>a</sup> SRAM Final Revision 2 Addendum, Human Health Table pp. 1071-1073

<sup>b</sup> SSFL-DTSC-Boeing Settlement Agreement, Attachment 3 Exhibit 5, pp. 132-136

**The Cleanup Standards Are Further Weakened by a Factor of 5 in Some Areas and 100-Fold in the Rest**

The RBSLs are based on a  $1 \times 10^{-6}$  (one in a million, or “de minimis”) cancer risk and a Hazard Quotient of 1 for non-cancer risks.<sup>36</sup> The CalEPA-Boeing deal allows a “multiplier” of 5 over those cancer and non-cancer risks for parts of the property;<sup>37</sup> i.e. allowing cleanup standards that are 5 times weaker than the already weak RBSLs.<sup>38</sup> The Agreement states:

**Resident with Garden-based cleanup areas will be proposed** where the SOF [Sum of the Fractions] results are above 5 times the de minimis cancer risk of 1 in a million or a non-cancer hazard of 1 (i.e., **a cumulative cancer risk >5 x 10<sup>-6</sup> and a cumulative non-cancer hazard index >5**) on a sample point specific basis where the sample includes the identified COCs/ROCs (herein termed the ‘5X multiplier’ approach).”

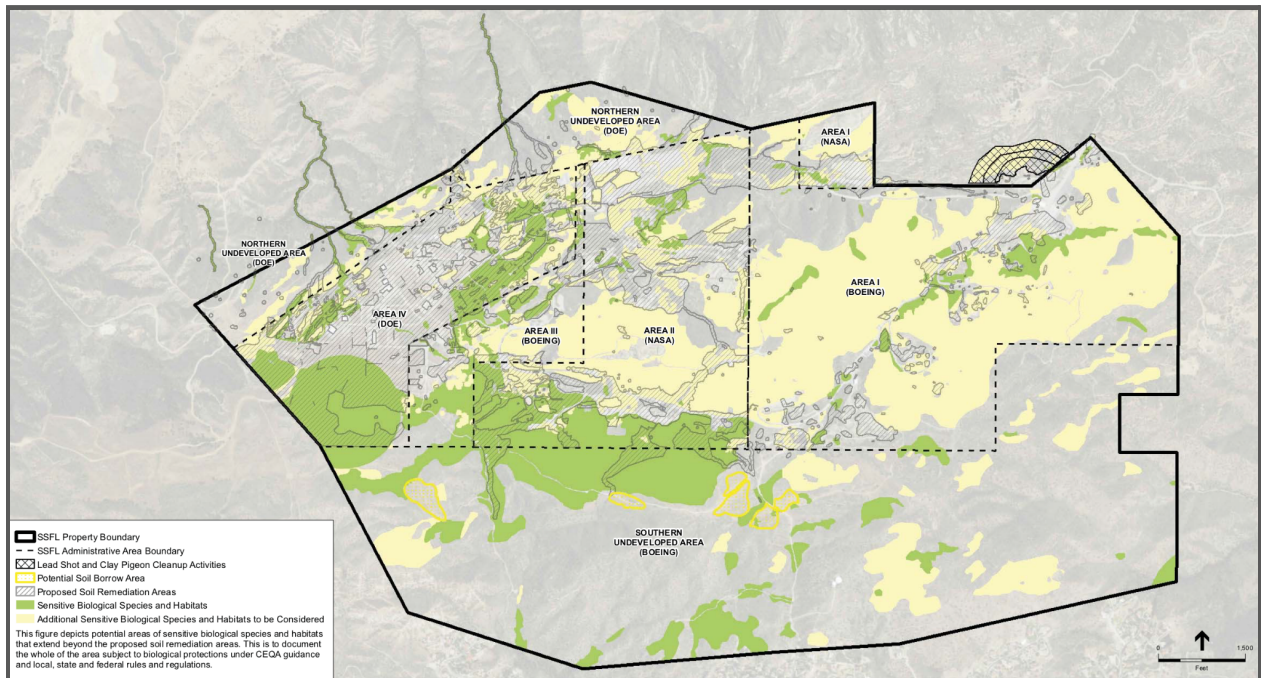
See Agreement, Exhibit 8, Attachment 1, “5X Multiplier Supplement for Resident with Garden Procedures for Identifying CMS [Corrective Measure Study] Areas,” pdf p. 195

<sup>36</sup> DTSC-Boeing Agreement, *supra*, pdf p. 195

<sup>37</sup> DTSC-Boeing Agreement, *supra*, pdf pp. 192-6

<sup>38</sup> Under the Agreement, areas with estimated cancer risks greater than  $5 \times 10^{-6}$  and non-cancer risks (HI) greater than 5 will not be considered for Corrective Measure Study areas. DTSC-Boeing Agreement, *supra*, pdf p. 195

In the figure<sup>39</sup> below, the portions of operational areas (Area III and most of Area I) owned by Boeing that are colored gray would be subject to this factor of 5 weakening.<sup>40</sup> For the rest of the Boeing site, areas asserted to have at least moderate biological significance, there would be a **100-fold** weakening of standards in addition to the large weakening of the RBSLs. As mentioned above, RBSLs are based on a  $10^{-6}$  risk; the Agreement allows “leaving in place” contamination in those areas at  $10^{-4}$ , 100 times weaker.<sup>41</sup> These areas are colored yellow and green in the DTSC figure below.



In summary, when taken together, for much of the Boeing site, toxic chemical cleanup standards are being weakened 100s or 1000s of times. Many of the Risk Based Screening Levels are initially weakened by a factor of 20. Next, the Agreement mandates using standards 5-times weaker than the RBSLs for parts of the site (thus in aggregate 100 times weaker than present standards). For other parts of the site, there is instead a 100-fold weakening of the already weakened RBSLs, for a total weakening by a factor of ~2000 for many of the toxic chemicals.

Committee to Bridge the Gap conducted a further comparison of these numbers with the additional multipliers added. Included below, for example, are the results for the chemical classes of PCBs and Dioxins:

<sup>39</sup> DTSC Draft Program EIR, 2017, *supra*, Figure 1-5

<sup>40</sup> The DTSC Draft Program EIR provides a map showing areas of supposed biological significance; it is the most current such delineation by DTSC available. *Ibid.*

<sup>41</sup> DTSC-Boeing Agreement, *supra*, pdf p. 200

**Suburban Residential Garden PCB Risk-Based Screening Levels (RBSLs) and Cleanup Standard Comparison**

Polychlorinated Biphenyls (PCBs)	RBSL Pursuant to 2007 Consent Order <sup>a</sup> (mg/kg)	2022 CalEPA-Boeing Agreement RBSL <sup>b</sup> (mg/kg)	Factor By Which RBSL Has Been Weakened	Factor by Which Cleanup Standard Has Been Weakened in Non-Biological Areas (5x Multiplier) <sup>c</sup>	Factor by Which Cleanup Standard Has Been Weakened in Biological Areas (100x Multiplier) <sup>d</sup>
Aroclor 1016	0.0138	0.247	18	89	1,790
Aroclor 1242	0.000486	0.00993	20	102	2,043
Aroclor 1248	0.000486	0.00971	20	100	1,998
Aroclor 1254	0.000488	0.0101	21	103	2,070
Aroclor 1260	0.000489	0.0109	22	111	2,229
Aroclor 5460	0.000486	0.00993	20	102	2,043
PCB TEQ	0.000000075	0.00000158	21	105	2,107

**Suburban Residential Garden Dioxins Risk-Based Screening Levels (RBSLs) and Cleanup Standard Comparison**

PCDDs (Dioxins)	RBSL Pursuant to 2007 Consent Order <sup>a</sup> (mg/kg)	2022 CalEPA-Boeing Agreement RBSL <sup>b</sup> (mg/kg)	Factor By Which RBSL Has Been Weakened	Factor by Which Cleanup Standard Has Been Weakened in Non-Biological Areas (5x Multiplier) <sup>c</sup>	Factor by Which Cleanup Standard Has Been Weakened in Biological Areas (100x Multiplier) <sup>d</sup>
2,3,7,8-TCDD TEQ	0.0000000751	0.00000161	21	107	2,144

<sup>a</sup> SRAM Final Revision 2 Addendum, 2014, Human Health Table, pdf pp. 1071-1073

<sup>b</sup> SSFL DTSC-Boeing Settlement Agreement, May 9, 2022, Attachment 3 Exhibit 5, pdf pp. 132-136

<sup>c</sup> See 2022 SSFL DTSC-Boeing Agreement, pdf pp. 192, 194-196

<sup>d</sup> See 2022 SSFL DTSC-Boeing Agreement, pdf p. 200, Exhibit 11

Note: As the table indicates, for the great majority of the contaminants, the RBSLs and cleanup standards have been weakened in the new Agreement. All factors identified in columns D, E, and F greater than 1 indicate that the new Agreement values are less stringent than the previous ones. For a few chemicals, there has been a tightening, represented by numbers that are less than 1 (e.g. 0.9).

Cleanup levels for other toxic chemicals are weakened by different factors, but for much of the site by at least a factor of 100. One can easily become desensitized to the real world implication of these numbers, but it is vital to understand that even a 2-fold weakening of a standard could have detrimental effects to SSFL’s biological receptors and to human beings in the surrounding communities, let alone a more than **two thousand-fold weakening**.

The Multipliers of 5 and 100 Are *Not* Based on CERCLA or RCRA Risk Range

Under CERCLA, the Superfund Law, which DTSC follows, the cancer risk point of departure is  $1 \times 10^{-6}$ . Under certain circumstances, such as when meeting that risk level is not feasible, a decision can be made to fall back to higher risk levels, never greater than  $10^{-4}$ , but to do so one must consider the nine balancing and other criteria required, and do so in a public process where there is public input and factors such as public acceptance are taken into account.<sup>42</sup> This has not been done at SSFL.

<sup>42</sup> [United States Environmental Protection Agency Guide to Selecting Superfund Remedial Action](#), OSWER 9355.0-27FS, April 1990, pdf p.3



The five- and hundred-fold multipliers at SSFL are *not* based on falling back from the legally required  $1 \times 10^{-6}$  default risk level. Indeed, CalEPA and DTSC have repeatedly stated that the risk level that they are requiring for the cleanup is  $1 \times 10^{-6}$ . See, e.g., the numerous statements by CalEPA Secretary Blumenfeld and DTSC personnel at the June 2, 2022, public meeting to discuss the Agreement.<sup>43</sup> For example, Blumenfeld's direct assertion on the matter:

**Reducing cancer risks to one in a million is the standard used by public health experts and it's precisely what DTSC will use to measure the efficacy of our efforts and the standard to which we will hold Boeing accountable under the resident with garden cleanup.**<sup>44</sup>

(emphasis added)

DTSC Capitulated and Gave Boeing Almost Everything it Had Long Wanted – the “Suburban Residential with Garden” Standard Was So Weakened That it is Almost the Same as the Far Weaker “Recreator” Standard Boeing Had Long Demanded

Boeing had initially promised to clean up its portion of SSFL to the residential standard, but by its own admission broke that promise in 2017.<sup>45</sup> Boeing had made this promise even though it had long planned on the land being open space.<sup>46</sup> Boeing reversed course and then demanded a far less protective standard, for a recreator, in which they assumed no one was exposed to contamination more than a few hours a week, thus allowing hundreds or thousands of times higher concentration of pollutants to not get cleaned up. Of course, people living nearby are there 24/7.

DTSC promised that it would insist, however, on the promised residential standard. It said that the conservation easement Boeing had transferred was illegal, violating a requirement in the 2007 Consent Order that no cleanup obligations could be evaded by a transfer of ownership of any rights to the land.<sup>47</sup>

DTSC claims that Boeing granted and recorded the Conservation Easements without DTSC's knowledge or consent and in violation of the 2007 Consent Order. 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.” DTSC's position is 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

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<sup>43</sup> [DTSC/CalEPA Santa Susana Field Laboratory Community Meeting video, June 2, 2022](#) at 25:06, 27:46, and 1:36:42. See also [“Myths and Facts,”](#) DTSC webpage on SSFL agreement, last accessed August 2, 2022.

<sup>44</sup> *Ibid.* at 7:58

<sup>45</sup> [Kamara Sams email](#) “RE: Important Boeing Santa Susana Update,” August 22, 2017

<sup>46</sup> *Ibid.*

<sup>47</sup> DTSC-Boeing Agreement, *supra*, p. 5

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.

But in the secret negotiations, DTSC caved. It agreed to *redefine* the residential standard, weakening it by orders of magnitude, so the new “residential” cleanup level is very similar to the non-protective “recreator” standard Boeing wanted. George Orwell would have been proud.

The Dramatically Weakened Resident With Garden SSFL Cleanup Standard is Even Weaker Than it Appears Because Under the Boeing Deal it Only Applies to the Upper 2 Feet of Soil

The Agreement mandates that the Resident With Garden standard applies only to the top 2 feet of soil. Beneath that level, only the resident without garden standard, about a hundred times weaker than the already grossly relaxed resident with garden standard, would apply.

This makes little sense, as roots penetrate far deeper than two feet, as soil physicist Dr. William Bianchi has made clear in his paper, “Plant Uptake of Radionuclides and Toxic Chemicals from Contaminated Soils Below a Shallow Soil Cover” (Bianchi 2019).<sup>48</sup>

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<sup>48</sup> Bianchi, William. [“Plant Uptake of Radionuclides and Toxic Chemicals from Contaminated Soils Below a Shallow Soil Cover.”](#) August 2019.

Table 1<sup>49</sup>

Maximum Root Depth of Crops (USDA)

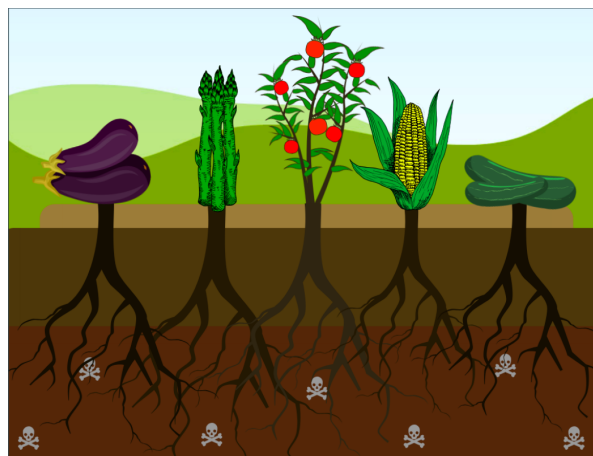
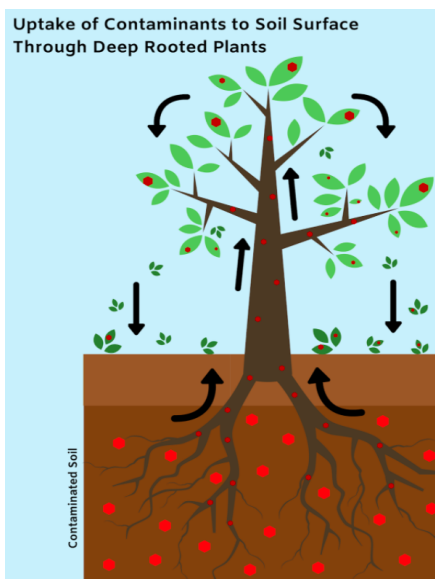
Crop	Maximum Root Depth (ft)	Crop	Maximum Root Depth (ft)
Artichoke	3	Melons	5
Asparagus	6	Parsnip	3
Beans (dry)	3	Peas	3.5
Beets	3.5	Peppers	3.5
Berries	4	Pumpkin	4
Cantaloupe	4	Soybeans	4.5
Carrots	3.5	Squash	3
Chard	3.5	Sunflower	5
Corn (sweet)	4	Sweet potatoes	5
Cucumber	4	Tomatoes	5
Eggplant	4	Turnip (white)	3
Grapes	6.5	Watermelon	5

<sup>49</sup> [National Engineering Handbook, Part 623: Irrigation, Chapter 11: Sprinkler Irrigation](#), United States Department of Agriculture, Natural Resources Conservation Service, August 2016, accessed April 15, 2019: p. 11-30

Table 2<sup>50</sup>

Maximum Root Depth of Crops (Weaver and Bruner)

Crop	Maximum Root Depth (ft)	Crop	Maximum Root Depth (ft)
Asparagus	10.5	Pea	3
Bean (Kidney)	4	Pepper	4
Bean (Lima)	5.5	Pumpkin	6
Beet	11	Radish (Early Long Scarlet)	3
Cabbage (Copenhagen Market)	5	Rhubarb	8
Carrot	7.5	Rutabaga	6
Cauliflower	4.5	Spinach	3.5
Cucumber	7	Squash	6
Eggplant	7	Strawberry	3
Kohlrabi	4	Sweet corn	5.5
Lettuce	3.75	Sweet potato	4.25
Muskmelon	3.75	Swiss Chard	7
Onion (Southport White Globe)	3	Tomato	4.25
Parsley	4	Turnip	5.5
Parsnip	9	Watermelon	4



<sup>50</sup> John Ernest Weaver and William Edward Bruner, [“Root Development Of Vegetable Crops”](#), 1927, chapters 2-14.

### The Actual Cleanup Levels Could Be Even Far Weaker Than the Already Weakened, Redefined Residential With Garden Standard

The CalEPA/DTSC/Regional Board news release said that the cleanup levels “*could be* as stringent as a ‘Resident with Garden’ exposure scenario.”<sup>51</sup> (emphasis added) Thus, even far weaker standards than the already tremendously weakened “Resident with Garden” standards could be applied. The hundred-fold and thousand-fold weakening identified above may in the end be made even less protective.

### CalEPA Misleadingly Claims Boeing Will Clean Up Radionuclides to Background, But the Vast Majority of the Boeing Contamination is Toxic Chemicals, not Radionuclides

CalEPA tries to divert attention from the extraordinary weakening of toxic chemical cleanup requirements for Boeing by asserting that *radionuclides* would be cleaned up to background.<sup>52</sup> But the majority of the radionuclide contamination is found in the nuclear area of the site, the portion for which the DOE is responsible (Area IV). *The vast majority of the contamination present in the Boeing areas of responsibility is chemical, however, and for those pollutants, as shown above, the standards have been greatly weakened.*

Chemical contamination is mentioned after this discussion of radionuclides, however this is only in the context of supposedly remediating chemical contamination to a level “that *could be* as stringent as a ‘Resident with Garden’ exposure scenario” (emphasis added) which is a problematic claim unto itself. The agreement has redefined the resident garden standard to be hundreds of times weaker than the original standard, and even then does not commit to following this weakened standard; the end result could be far worse.

The map shown below<sup>53</sup> shows the areas of the site for which Boeing and the DOE are independently responsible. Boeing’s area of responsibility, shown in yellow, is primarily contaminated with toxic chemicals; DOE’s Area IV, shown in orange, contains most of the site’s nuclear contamination. Thus the great majority of Boeing’s overall contamination *will not* be cleaned up to background levels and will instead remain onsite at elevated levels that are harmful to the health of humans and the environment, levels far higher than were required until this back-room deal eviscerated them.

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<sup>51</sup> CalEPA/DTSC/Regional Board News Release, May 9, 2022, *supra*.

<sup>52</sup> *Ibid*.

<sup>53</sup> DTSC-Boeing Agreement, *supra*.



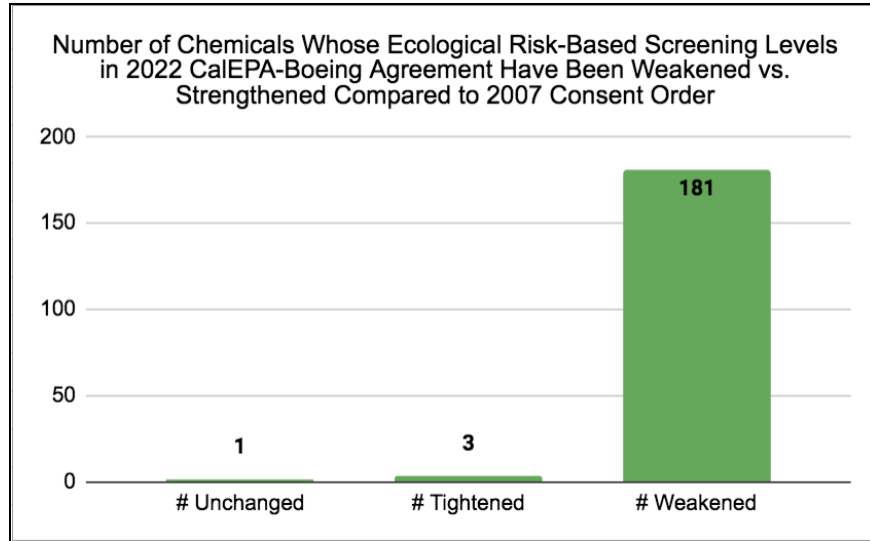
Ecological Cleanup Standards Have Also Been Markedly Weakened; Contaminants Will Now be Allowed to Remain at Levels Admitted to Cause “Observable Adverse Effects” to Biological Receptors

Until the secret negotiations resulted in the new Boeing deal, the ecological Risk Based Screening Levels (EcoRBSLs) included “Low TRVs” (Toxicity Reference Values)/Low EcoRBSLs/No Observable Adverse Effects Levels (NOAELs).<sup>54</sup> However, the Agreement suggests that the considerably higher (less protective) LOELs will instead be used.<sup>55</sup> In other words, under this Agreement, contamination levels sufficient to produce, by Boeing’s and DTSC’s admission, **observable adverse effects** on ecological receptors will apparently be allowed.<sup>56</sup>

<sup>54</sup> 2014 SRAM2 Addendum, Table 11-9, pdf pp. 1513-14, and Table 12-4, pdf pp. 1607-11.

<sup>55</sup> DTSC-Boeing Agreement, *supra*, pdf p. 199

<sup>56</sup> The reference in the Agreement to use of LOELs [and the failure to even include NOAEL in the Agreement’s glossary (pdf pp. 35-6)] is opaque and should have been made clearer in the Agreement.



The Agreement Limits Amount of Soil To Be Remediated, No Matter How Much Contamination Is Found, to a Small Fraction of the Contaminated Soil in the Boeing Areas of Responsibility

At the core of the deal with Boeing is a legally binding commitment by the state that it will not require the cleanup of more than 440,000 cubic yards of soil in the areas for which Boeing is responsible, no matter how much contamination is subsequently found.<sup>57</sup> The Agreement states that Boeing’s preferred cleanup would involve only 150,000 cubic yards.<sup>58</sup>

Furthermore, there is a binding commitment that Boeing will not be required to clean up any of the more than 200 toxic chemicals listed if their concentrations are below the greatly weakened maximum cleanup levels in the Agreement. Final cleanup standards, as we indicated above, can end up even weaker, but the Agreement prohibits them from being more protective.

The Agreement fails to disclose what fraction of the contaminated soil on Boeing’s areas would **not get cleaned up** under its terms. Estimates can be made via several approaches; they each suggest that ~90% or more of the Boeing contaminated soil would not get cleaned up.

The Southern California Federation of Scientists (SCFS), in its comments on the draft Program EIR in 2017, provided an analysis of how much contaminated soil in the Boeing areas of responsibility would not get cleaned up, based on information included in the draft PEIR.<sup>59</sup> The SCFS estimate was 91-98% of the Boeing contaminated soil would not get cleaned up. The reader is referred to the SCFS paper for details, but we summarize the approach here, and then modify the estimates to account for the changes presented in the Agreement.

<sup>57</sup> DTSC-Boeing Agreement, *supra*, pdf p. 6

<sup>58</sup> *Ibid.*

<sup>59</sup> [Comments of The Southern California Federation of Scientists on the Draft Program Environmental Impact Report and Draft Program Management Plan for the Santa Susana Field Laboratory](#), December 7, 2017, pdf pp. 27-36

Neither Boeing nor DTSC has released any estimate of how much soil in the Boeing areas of responsibility is contaminated. SCFS thus applied the Department of Energy's own estimate of the acreage and volume of contaminated soil in its area of responsibility and extrapolated to the larger acreage of Boeing's Areas I and III. Area IV, DOE's operational area, is 290 acres, 217 of which, or approximately 75%, will require cleanup according to the draft PEIR.<sup>60</sup> Boeing's Areas I and III consist of 791 acres, 2.7 times larger than DOE's Area IV.<sup>61</sup> Assuming the same fraction of soil is contaminated in the DOE and Boeing areas, that would indicate, according to the SCFS analysis, that 593 acres of Boeing areas are contaminated.<sup>62</sup> However, the maximum cleanup estimated in the draft PEIR for Boeing is 56 acres, or 9%, leaving 91% of the acreage not cleaned up.<sup>63</sup> Under options identified in the PEIR that would result in less cleanup, up to ~98% of the contaminated acreage would not get cleaned up, according to the SCFS analysis.<sup>64</sup>

DTSC and DOE estimate that 1.26 million cubic yards of soil in DOE's area will need remediation.<sup>65</sup> If the same ratio of contaminated to overall acreage applies to soil volume, given the much larger size of the Boeing areas compared to DOE's, SCFS estimates there is 2.7 times as much contaminated soil in the Boeing operational areas as the DOE estimate for its area, or ~3.44 million cubic yards.<sup>66</sup>

The SCFS 2017 analysis can be modified to address the cleanup volumes identified in the Boeing-DTSC Agreement. The Agreement<sup>67</sup> limits the maximum amount of cleanup Boeing must do to that set forth in the summary table in Appendix K of the draft PEIR.<sup>68</sup>

The maximum soil volume set forth on p. 6 of the Agreement (~440,000 cubic yards) is based on the Appendix K table, cited in the Agreement. Subtracting the 14,000 cubic yards of soil from the offsite shooting range (see fn. 1 to the table) yields about 425,000 cubic yards to be removed, or ~12% of the total projected actual contaminated soil volume. However, that is based on the revised residential garden with a contamination fraction of 100% and thus without reduction by the multipliers of 5 or 100 (see discussion below about the multipliers). With just the multiplier of 5, that is close to the supposed 25% garden in Appendix K (25% is the

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<sup>60</sup> DTSC Draft Program EIR, 2017, *supra*, pdf p. 24, Table 1-2; Note: there is a minor discrepancy between the SCFS Report and the PEIR value for number of contaminated acres in Area IV. This does not affect the estimate of 75% of total Area IV acreage contaminated. (SCFS reports 219 acres contaminated, whereas the PEIR value is listed as 217 acres; Using this 217 value out of 290 total acres yields 75% contaminated acres as stated in the SCFS Report.)

<sup>61</sup> *Ibid.*

<sup>62</sup> Comments of The Southern California Federation of Scientists, *supra*, pdf p. 31

<sup>63</sup> *Ibid.*; DTSC Draft Program EIR, 2017, *supra*, pdf p. 24, Table 1-2

<sup>64</sup> Comments of The Southern California Federation of Scientists, *supra*, pdf p. 33

<sup>65</sup> *Ibid.* pdf p. 25, Table 1-3. The inclusion of a small volume of soil to be remediated from the Northern Buffer Zone does not alter the fundamental SCFS estimates.

<sup>66</sup> Comments of The Southern California Federation of Scientists, *supra*, pdf p. 31

<sup>67</sup> DTSC-Boeing Agreement, *supra*, pdf p. 6

<sup>68</sup> DTSC Draft Program Environmental Impact Report (EIR), [Appendix K](#), Summary Table, pdf p. 5



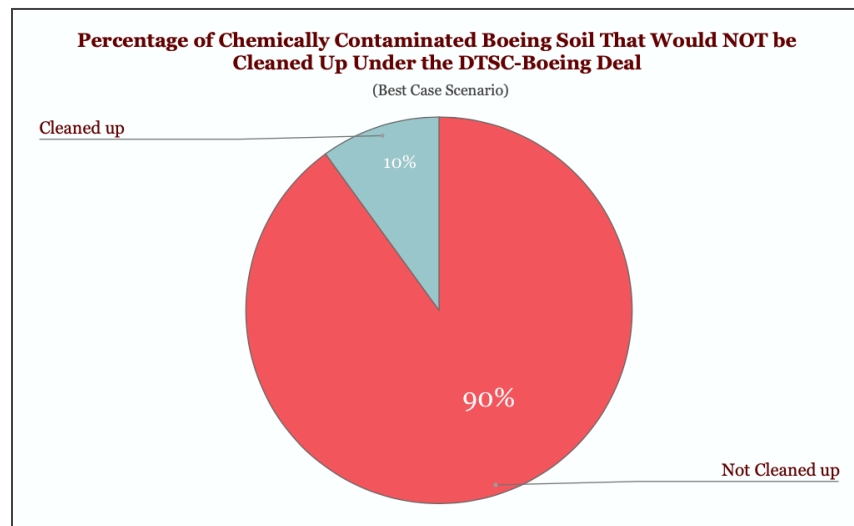
equivalent of a multiplier of 4), and thus about 90% of the contaminated soil wouldn't get cleaned up.<sup>69</sup>

The Agreement (p. 6) states that Boeing's preferred cleanup volume is 150,000 cubic yards, based on a recreational cleanup standard, which would be permitted under the Agreement. That would be ~4% of the estimated contaminated soil volume.

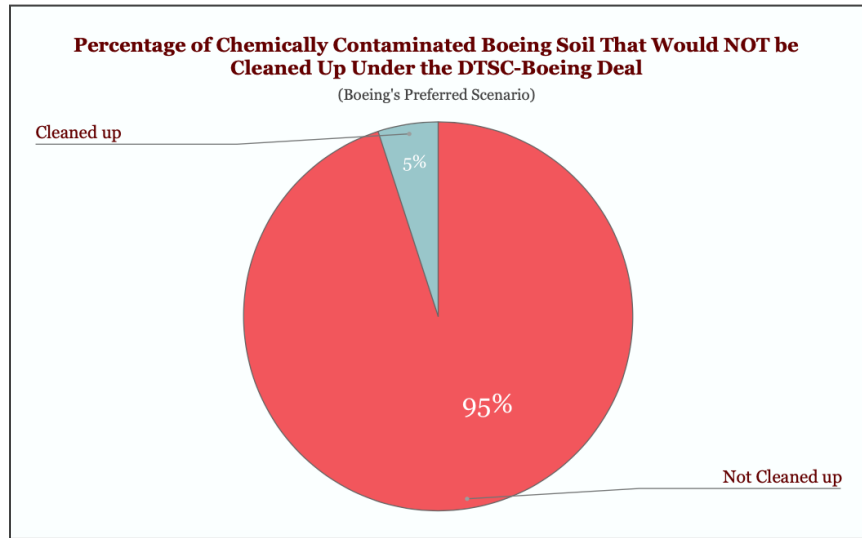
It should be noted that these estimates are based on the assumption that the DTSC and DOE estimates for how much of the DOE area is contaminated are accurate, and there are some reasons to question them. But they are the official estimates of both agencies.

There are some factors that would, if considered, result in estimates of even smaller fractions of the contaminated soil not being cleaned up. The above discussion, for example, does not take into account that Appendix K estimates are based on cleaning up down 1 or 1.5 feet below the deepest measurement exceeding the standard, whereas the Agreement has limited all cleanup to residential with garden standards to the upper 2 feet of the soil, no matter how much contamination exists below (an indefensible position, since roots, e.g., of fruit trees, go far deeper.) So the Appendix K estimates significantly overstate the soil volumes to be cleaned up. Similarly, the estimates of cleanup volumes are not lowered to account for the factor of 100 multiplier in large areas of the Boeing site

In short, roughly 90-95% of Boeing's contaminated soil would not get cleaned up, although the percentage could be even higher.



<sup>69</sup> Appendix K mistakenly asserted that a 100% garden means 100% of your produce comes from your garden; we showed DTSC months ago their error, that it actually meant that 100% of what you get from the garden, as estimated from EPA's Exposure Factors Handbook, is contaminated, the EPA default assumption—i.e., Contamination Fraction of 1. DTSC has finally admitted that. See [DTSC FAQs](#).



Conclusion

The secret negotiations between Boeing, DTSC, and the Regional Board resulted in a deal that weakens cleanup standards by factors of hundreds to thousands and would allow Boeing to walk away from cleaning up ~90-95% of its contaminated soil. This would allow continued migration of contamination offsite and continued risk to the public and environment.