

**RADIOACTIVE  
CONTAMINATION  
AT DAYTON CANYON  
FROM THE  
SANTA SUSANA FIELD  
LABORATORY**

**COMMENTS ON RADIOLOGICAL  
MONITORING**

by

**Daniel Hirsch  
President**

**Committee to Bridge the Gap**

**[www.committeetobridgethegap.org](http://www.committeetobridgethegap.org)**

**13 November 2006**

**Prepared with support from  
the Citizens Monitoring and Technical Assessment Fund**

**COMMITTEE TO BRIDGE THE GAP**

1637 BUTLER AVENUE, SUITE 203  
LOS ANGELES, CALIFORNIA 90025  
(310) 478-0829

13 November 2006

Jose Diaz  
Yvette LaDuke  
Department of Toxic Substances Control  
1011 North Grandview Avenue  
Glendale, California 91201

Re: Centex Homes/Dayton Canyon Radiological Monitoring

Dear Mr. Diaz and Ms. LaDuke:

Thank you for the opportunity, belated though it may be, to comment on protocols for radiological monitoring at the proposed Centex housing development in Dayton Canyon just east of the Santa Susana Field Laboratory. Unfortunately, despite promises by DTSC to the contrary, the opportunity to comment comes after the fact – after the adoption and employment of those protocols for the vast majority of radiological measurements in Dayton Canyon – making such public review and comment opportunity an empty gesture.

Nonetheless, I hereby submit written comment, attached, on the technical details of the matter, but I wish at the outset to go on record expressing concern about how the Department is handling this belated effort at soliciting public input. Please consider these comments on the process part of the record.

To provide some perspective on these concerns, let me provide a bit of history. Local citizens have long urged DTSC and Centex to perform measurements for toxic and radioactive materials at the proposed housing development in Dayton Canyon, because of its proximity to SSFL. Both entities long resisted these requests. Finally, a year and a half ago, the *Daily News* ran a story raising questions why such measurements had not been undertaken. Two days later, the developer sent out a contractor to take measurements for perchlorate. Extremely high concentrations were found.

Because the contamination was found in Dayton Creek--which originates a short distance away at an area of SSFL which used large amounts of and is heavily contaminated with perchlorate--the public presumed there would be a serious effort to determine potential connections. Instead, as if to reinforce that there couldn't possibly be any connection between Dayton Canyon and the contaminated SSFL site just upstream, a decision was made to have the Glendale office of DTSC investigate Dayton while a Sacramento team continued to deal with SSFL. From day one, it appeared as if the Glendale DTSC team were under directions to clear the Dayton project to go ahead and to declare that there was no relationship between the contamination in the two nearby locations.

Rather than being treated as the entity DTSC was supposed to be serving, the public seemed to be viewed as a potential impediment to that predetermined outcome. In particular, the opportunity for public input prior to DTSC making decisions was treated as a nuisance that would get in the way of closed-door deals between DTSC, the developer, and, at a distance, Boeing.

So, decisions about monitoring and cleanup were made privately between DTSC and the developer, and then announced to the public as a *fait accompli*, in one case, a few hours before the approved actions were to begin. Promises were repeatedly made that this wouldn't happen again; and the promises were repeatedly broken.

For example, DTSC had promised that radiation monitoring wouldn't be done without a prior opportunity for public review and comment on the proposed protocols for the measurements. Nonetheless, without any such opportunity, the developer, with DTSC approval, conducted a radiological survey last year using hand-held survey equipment, a largely useless way of assessing radiological contamination, designed more for PR than for environmental investigation. Furthermore, the developer's contractor claimed background radiation was 360 millirem per year and he therefore used the counter to look for radiation at levels 150% of that, or over 500 millirem/year. However, background radiation in the area is less than 50 millirem per year, an order of magnitude lower than that claimed by the developer. The public's right to review and comment – and thereby prevent such a biased and erroneous set of measurements – was abrogated. The measurements were made, with no opportunity for public review and comment.

In response to the outcry over this and other abrogations of promises to permit meaningful prior public review and comment, DTSC committed as follows:

DTSC, in consultation with USEPA Region 9 and the State of California Department of Health Services, is developing a Sampling and Analysis Plan (SAP) that will specifically address potential radiological contamination. SAP will be based on the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The SAP will have three components: 1) an alpha/gamma survey of the entire site using hand-held instruments; 2) collection of discrete samples for analysis of gross alpha and gamma radiation; and 3) analysis of discrete samples for isotope-specific analysis of strontium-90, Cesium-137 and Plutonium-238. **The SAP will be posted on the DTSC website and available for comments.**

*Response to Comments on Preliminary Endangerment Assessment and Site Characterization Workplan, emphasis added*<sup>1</sup>

---

<sup>1</sup> The public presumes this is a DTSC document, as it is posted on DTSC's website and responds to public comments submitted to DTSC on the PEA and Workplan. However, DTSC ambiguously lists the document on its website as "Centex Homes Response to Comments on PEA and Site Characterization Workplan," to make matters more confusing, DTSC lists on its

Thus it was promised that no radiation measurement would be undertaken until there was a draft Sampling and Analysis Plan (SAP) --radiation sampling protocol -- posted and an opportunity for prior public input. It was further promised that US EPA would be brought in to help establish the protocols, that agencies, not the developer, would prepare the SAP, and that the SAP would rigorously follow the EPA's MARSSIM guidance. None of these commitment was fulfilled.

As indicated in our statement of 25 October 2006, attached to our current comments as Appendix I, the developer's report on its radiation measurements states:

"Due to the proximity of the Sterling Site to the SSFL, a radiological survey was planned as part of the Preliminary Endangerment Assessment Workplan, to evaluate the radiological conditions at the Sterling Homes site. As part of this evaluation, DTSC and DHS were to prepare a Radiological Sampling and Analysis Plan (SAP) to conduct the radiological survey, sampling, and laboratory analysis. The SAP was not prepared, and DTSC instructed Allwest Remediation to perform the survey, and collect samples at a rate of approximately 10 percent of the grids monitored, as described in the workplan approved by DTSC."

Thus, despite promises to the contrary, the developer went ahead with radiation measurements by its self-selected contractor and its self-selected protocols, with DTSC acquiescence but without any opportunity for public input. The measurement procedures were outrageous. A

---

website the document as having a date of 1 October 2006, but the first page of the document states it is a response to comments submitted by Committee to Bridge the Gap on 14 October 2006. The document, posted by DTSC on its website, clearly is memorializing commitments made by DTSC. It is possible – and we ask DTSC to clarify the matter – that DTSC, instead of considering the public comments submitted to it, handed them over to the developer to respond for the agency, but if that were true, that would be even more scandalous a conflict-of-interest.

We note that DTSC, in its handout at the 25 October 2006 states, on p. 22, as “Next Steps,” that “Centex to submit Final Supplemental Radiological Investigation SAP incorporating public comments (November 13, 2006).” This suggests that DTSC has indeed outsourced to the developer the duty of responding to public comments submitted to the agency, which would be an extraordinarily improper step. [We note that the date listed for Centex to submit the document incorporating the public comments is 13 November, the same day the comments are due, again a puzzling matter.]

In the same document, DTSC, in response to criticisms of the developer inappropriately claiming background was 360 millirem for radiation detected by Geiger Mueller detector, committed that it would review existing background surveys for the area to determine adequate background levels. This hasn't been done; there is no consideration in the documents currently being commented upon of what values should be used for such an area Geiger counter survey; and despite the criticisms raised of the competence of the developer's contractor for claiming such a high background value and relying on Geiger counters, DTSC permitted the scan anyway.

Geiger counter was used for much of the work, totally inappropriate to catch the kind of contamination likely. "Background" that was ten times actual background was employed. For the handful of soil measurements, concentrations were compared to Lawrence Livermore nuclear weapons laboratory, one of the most contaminated places in the country, as supposed "background." Other comparisons were made to the contaminated McLellan Air Force base outside Sacramento -- with significant plutonium and other radionuclide contamination, as well as the site of a nuclear test reactor. They further compared the Dayton measurements to Brandeis Bardin Camp Institute and Runkle Ranch as "background" -- even though both have been found to be contaminated by Boeing's SSFL activities. They further compare the Dayton measurements to maximum values found anywhere in the U.S. - when nuclear weapons fallout, for example, contaminated other parts of the country far higher than California (because we are upwind of the Nevada Test Site). All of this was done without opportunity for public input, despite DTSC's promises that no measurements would be undertaken without the protocols first being posted and public input solicited. The appearance is clear: the public had to be frozen out of the process of establishing radiation protocols for the investigation of the site because they couldn't withstand scrutiny otherwise, and there was pressure to "clear" the proposed development site as OK.

## **THE CURRENT SITUATION**

### **1. The relevant documents cannot be readily found on the DTSC website.**

DTSC has now belatedly solicited public comment. The public announcement/flyer of the availability of the documents directs the public to [www.envirostor.dtsc.ca.gov/public](http://www.envirostor.dtsc.ca.gov/public). But one cannot readily get to the documents from that URL. No Dayton documents are posted at that URL. All one sees is a form to fill out with city, county and zip when you are inquiring about sites near you. If you do that, and type in, say, Chatsworth, you get five sites, none of which is Dayton Canyon. If you use Basic Search, and type in Dayton Canyon, you get zero records. If you type in Centex, you get 3 choices, one of which is right. When you click on "report," you get a bit of description of the site and its APNs, but only one link to a document is listed, a 2005 Voluntary Cleanup Agreement. Nothing about the radiation sampling protocols. Similarly, even if one can figure out that you need to type in a zip code, one merely gets a listing for the Centex property without the relevant documents listed. Most people will just give up at that point; if one is persistent and starts clicking everything on the page, by clicking on "community involvement" you get to a confused page that has some of the documents. But even then, the documents are out of order (within the document itself). For example, one document just begins on page 4.

There is simply no reason not to provide a URL that takes people to the documents in question, and have them in a form readily accessible. This "hide the ball" approach reinforces the impression that DTSC continues to be reluctant at best about providing a meaningful opportunity for review and comment.

I had to go instead to the main DTSC page, go to cleanup, to sites, and eventually find the materials. But these were completely mixed up.

**2. The documents that one can find via the main DTSC page (clicking on cleanup and then sites and then Centex) are without meaningful titles.**

If you manage to find the links to the documents via the main DTSC page -- and we guess far less than 1 in 10 people who try will succeed in finding the documents, given the difficulties DTSC has unnecessarily created -- you are left with five links with meaningless titles:

Centex%20RAD%20Survey%20Report\_Figure2.pdf  
Centex%20RAD%20SAP\_Figure3.pdf  
Centex%20RAD%20SAP\_Figure1.pdf  
and so on.

The actual documents are not Figures; they are each 100+ page piles of mixed up text. One cannot readily tell which file comes first, second, third, or even what the files are. Surely the Department could not have gone more out of its way to make public comment difficult.

**3. Pages All Out of Order, as Though Someone Shuffled a Deck of Cards, to Make Public Comment Even More Impossible.**

When one opens the various files, the text begins at random. The file called Figure 3.PDF begins with a Title Page called "Appendix B"; the next page is page 2 of some unidentified letter to Jose Diaz. Where is page 1? From whom is the letter? What is its date? The file called Figure1.PDF has a title page called Supplemental Radiological Investigation Sampling and Investigation Plan. The next page is page 4. Where are pages 1-3? Mixed in later like cards were shuffled. The file called Figure2.PDF begins on a page 000015 and Section 4. Where are pages 00001-14 and Sections 1-3? Another file has everything in the Figure 2 file, plus the missing Sections 1-3. Why is Figure 2.pdf included at all -- it appears, but we cannot tell for sure, to be duplicative of another file. Similarly, the Radiological Investigation report seems to be included two or three times in the mass of papers.

There is an old rule in bureaucracy: if you really don't want public input, because you've made deals with a developer or polluter that cannot withstand the light of day, throw the public a mass of disorganized, out of order, duplicative papers; better still, make it difficult to even locate the documents in the first place. In this case, the vast bulk of the papers are about what the developer has been permitted to already do, without public input--making comment meaningless anyway. But to make sure the comment opportunity is truly meaningless, DTSC has made it virtually impossible for anyone to find the documents or, once found, to make heads or tails of them. They are little all shuffled together, out of order, duplicative. You are supposed to make it easy for the public to comment, not close to impossible.

Despite these obstacles, and the fact that the comment opportunity is largely after the fact, please find enclosed our comments.

Sincerely,

/S/

Daniel Hirsch  
President

cc w/ enclosure: Deputy Director Rick Brausch  
Senator Sheila Kuehl  
Assemblymember Fran Pavley

**Comments on Radiological Monitoring  
of Dayton Canyon**

by

Daniel Hirsch  
President  
Committee to Bridge the Gap

13 November 2006

Prepared with support from the Citizens Monitoring and Technical Assessment Fund



# Comments on Radiological Monitoring of Dayton Canyon

by

Daniel Hirsch  
President  
Committee to Bridge the Gap

## Abstract

Despite strenuous efforts by DTSC and contractors for the proposed developer of the Dayton Canyon property to obscure the fact, the radiological measurements made at the site demonstrate that it is contaminated with radioactivity from the Santa Susana Field Laboratory (SSFL), the Atomic Energy Commission/Department of Energy nuclear reactor testing facility nearby.

Cesium-137 was found in the Dayton Canyon West area at levels on average twice that of local background. Five of the fourteen samples taken in that area were “hotter” than the hottest of any measured value for local background. The developer used a detection limit for strontium-90 so high that levels way over background would come back “non-detect”; even so, three of the strontium measurements were higher than anything seen in local background. Geiger counter measurements were on average several times background. The pattern of contamination was consistent with SSFL as the source, with higher readings in the part of the Dayton property closest to SSFL. Even so, when averaged over the entire Dayton Canyon area, cesium-137 measured on average 1.6 times average background. The hottest cesium measurements found in Dayton were 1.77 times as radioactive as the hottest measurements made of local background.

The developer’s consultants try to divert attention from these facts by misleadingly comparing the measured values at Dayton with the nuclear weapons laboratory at Livermore, a contaminated air force base in Sacramento, and contaminated areas of the Brandeis Bardin Camp Institute and Runkle Ranch abutting SSFL. Similarly, DTSC inappropriately refuses to use EPA’s mean local background figures and essentially “trims” high measured values at Dayton.

The proposed supplemental work is deeply flawed, based on a misrepresentation of the underlying data, poor detection levels, and an *a priori* assumption that there can’t be contamination coming from SSFL. It should be rejected.

The actions by the developers’ consultants should disqualify them from carrying out further work and analysis at Dayton. A new, independent team needs to be brought in that has public confidence, and the work done over, from the beginning.

## Discussion

### 1. Conflict of Interest in Having the Developer Choose and Control the Contractors Performing the Radiological Investigation and Analysis

The evaluation of possible contamination at the proposed Dayton Canyon development resulting from its proximity to the highly polluted SSFL nearby has been troubled from its outset. Given the financial interest the developer has in a finding that the site is not contaminated by SSFL, it was inappropriate for DTSC to permit Centex Homes to select the contractor to perform the evaluation. Centex has a tremendous financial incentive for a clean bill of health; the contractors are being paid and controlled by the developer; the conflict of interest is overwhelming. As we will see below in discussion of the work by Allwest in establishing the protocols and carrying them out, and Cabrera in analyzing (or “spinning”) the data obtained, this resulted in distortion of measurements so severe that DTSC should never have tolerated the situation—and should insist on starting over from the beginning, with truly independent entities.

### 2. The Geiger Counter Measurements

The distortion of science by this conflict of interest was apparent immediately. Allwest Remediation, the contractor, proposed to use a Geiger-Mueller counter to monitor the site; a technique good for PR but very poor for true evaluation. Demonstrating his lack of knowledge about radiation, or perhaps hoping that the public would not know the difference, the Allwest contractor claimed local background radiation of the sort that could be picked up by a Geiger counter was 360 millirem per year. He said he would use 150% of that figure, or 540 millirem/year, as the level to trigger additional investigation.

However, local background has been measured, for years, by the California Department of Health Services (DHS) and Boeing as 40-50 millirem/year, about 5 micro-rem/hour. See, e.g., Table 5-11, *Site Environmental Report for Calendar Year 2004, DOE Operations at the Boeing Company Santa Susana Field Laboratory*. Thus, Allwest inflated local background levels by an order of magnitude.

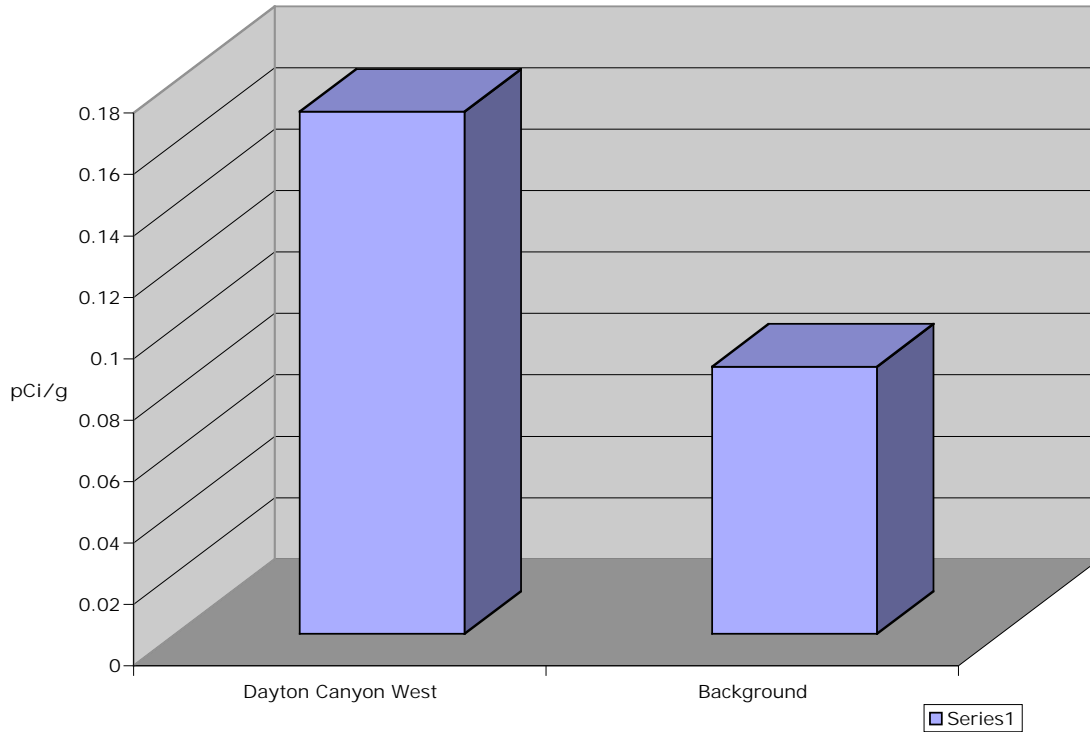
**When one compares the Allwest readings against actual measured local background, one finds that the Dayton Canyon measurements (averaging about 15-20 microrem/hour) were 3-4 times mean local background. Furthermore, the mean highest values were found in the West section of the property – the portion closest to SSFL and the portion that also had the highest cesium-137 measurements.**

Allwest claims it used the Geiger counter readings to select locations for taking soil samples. But if so, it appears to have used the readings to *avoid* grids that were indicated as having the highest radiation levels. Pages 22-23 (Figures 3-1 and 3-2) of the Cabrera memorandum provides posting plots of lowest and highest exposure rate readings in each grid square, and then shows which grids were selected for soil sample analysis. Remarkably, the grids marked on both figures as having the highest exposure rates are almost without exception NOT selected for followup soil analysis for specific radionuclides.

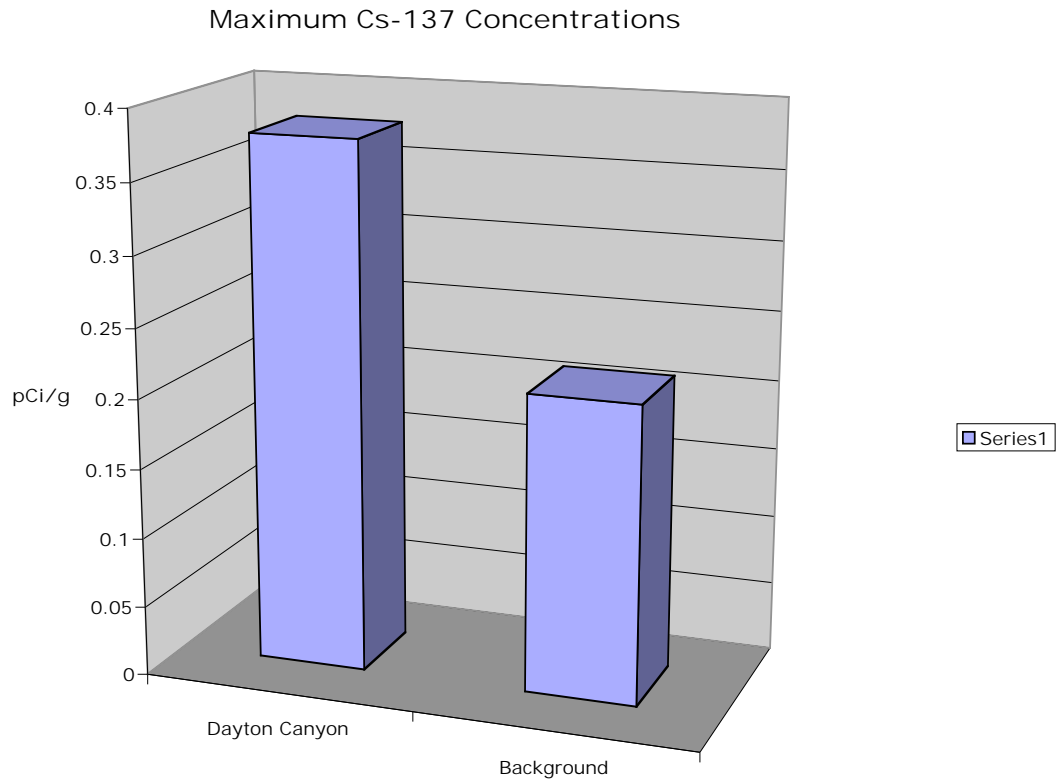
### 3. Cesium-137 Contamination

The 14 soil samples measured for cesium-137 in Dayton Canyon West, the area closest to the SSFL, averaged 0.17 pCi/g. Local background, as measured under US EPA control, averages 0.087 pCi/g. See McLaren-Hart 1995 study, Table 20, Background Levels of Radioactivity in Soil. **Thus, cesium-137 in Dayton West is twice local background.**

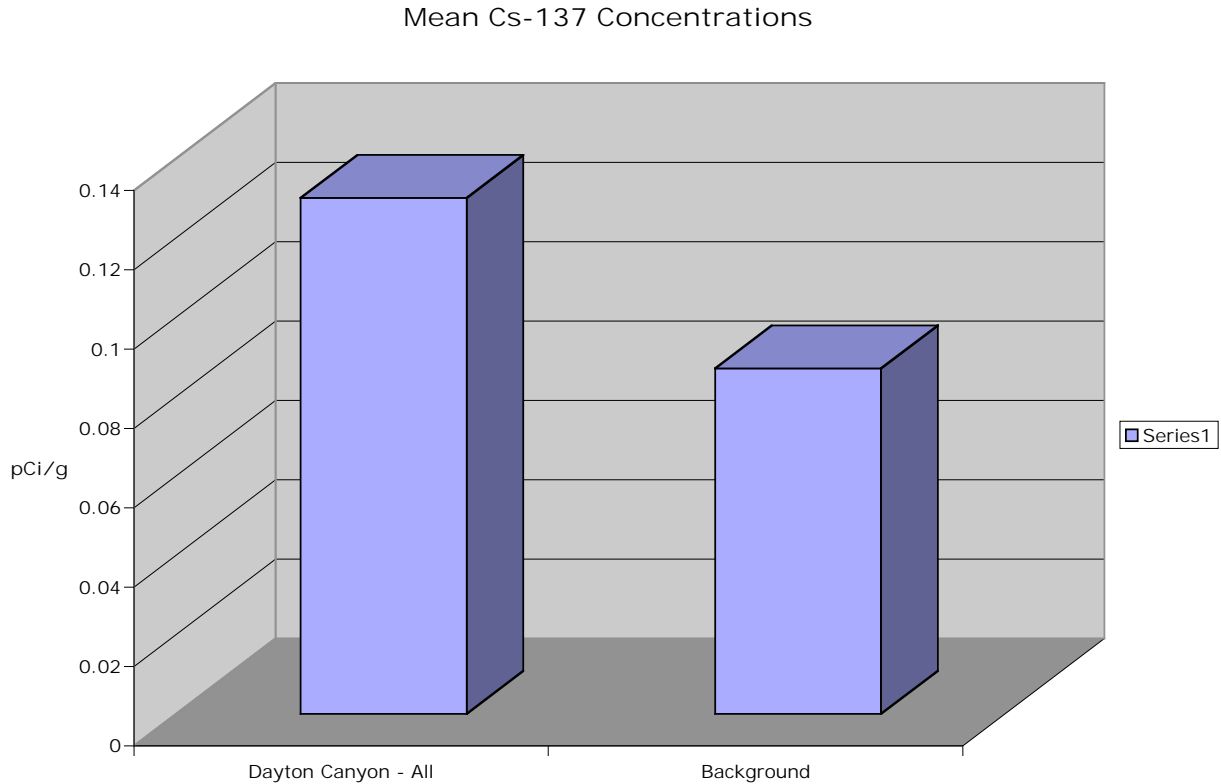
Mean Cs-137 Concentrations Dayton Canyon West v. Background



The maximum value for cesium-137 found in local background is 0.213 pCi/g. More than a third of the samples in Dayton West exceed anything seen in background. The highest value in Dayton Canyon, 0.378 pCi/g, is 1.77 times as high as the highest value in background.



Taking all samples collected throughout Dayton Canyon together, the cesium levels average 0.13 pCi/g, 1.6 times average local background.



#### 4. Strontium-90 Contamination

The McLaren-Hart background measurements were made with a detection limit of ~0.005 pCi/g and had an average value of 0.052. The developer chose to use a greatly worse detection limit, two orders of magnitude higher (i.e., couldn't "see" any strontium unless it was about 0.5 pCi/g or even higher --the highest detection limit used was 0.9). Therefore, measurements as high as ten times background couldn't be detected by this remarkably poor detection limit. It was a set-up to report as "non-detect" values that could be greatly higher than background.

Three of the Dayton strontium measurements, however, were still so high that they were above even these high detection limits. **The three measurements averaged about 10 times background. They each exceed by a large amount the hottest strontium measurements found in local background—by as much as six-fold.** When one takes the other measurements into account, using EPA's standard practices, as used for the McLaren-Hart study, of using the Detection Limit (DL) when the reading isn't above the DL, the average Dayton strontium-90 value is 12 times background. Even if you use half the DL, as is sometimes done, the average Dayton strontium-90 value is about 6 times background.

It is remarkable that DTSC apparently didn't catch the inflated detection limit for strontium-90 used by the developer and permitted such a grossly inadequate technique to be employed.

## **5. Plutonium Contamination**

The plutonium values are even more troubled by poor detection limits and inappropriate comparisons to supposed background values.

## **6. Spatial Distribution of Contamination Supports SSFL as the Source**

There is, of course, no other source in the area for cesium, strontium, and plutonium above fallout background than SSFL. If one hypothesizes SSFL as the source and airborne deposition from accidents and releases from airborne burning of contaminated items in the SSFL burnpits, one might expect higher concentrations closer to SSFL. One might also expect lower concentrations in the creekbed, as contamination that fell out from the air would be flushed out by the running water.

When one examines the cesium data, that is exactly what one finds. Dayton West, closest to SSFL, has the highest concentrations; the streambed the lowest; with the areas of Dayton further from the site lower than Dayton West.

This, as discussed below, calls into question the rationale for doing the step-outs proposed in the supplemental sampling plan.

## **7. Centex, Allwest, and Cabrera Engage in Extraordinarily Misleading Comparisons**

To determine if SSFL has contaminated Dayton Canyon, one must compare Dayton with local background. EPA has established local background values in the measurements conducted by McLaren-Hart in the early to mid-1990s. When one compares Dayton to local background, as discussed below, it is clear Dayton is radioactively contaminated – it has radioactivity that has been added, one must assume by SSFL, on top of the radioactivity in background.

Instead of doing the scientifically appropriate comparison, the developer and its contractors engage in deceptive activity that should have resulted in DTSC disqualifying them. They compare Dayton to the nuclear weapons laboratory in Northern California, Livermore. They compare Dayton to the contaminated McLellan Air Force Base near Sacramento. They compare Dayton to U.S. maximum and average values, when the rest of the U.S. has far higher fallout levels than S. California because we are upwind of the Nevada Test site, not downwind. They compare Dayton to contaminated areas of Brandeis Camp Institute and Runkle Ranch, abutting SSFL. And when they mention in passing (Table 1, Summary Statistics) the McLaren-Hart local background figures, they misrepresent them, claiming maximum Cs-137 levels of 0.46 and average of 0.14, when the McLaren-Hart figures are in fact 0.213 maximum and 0.087 average.

## 8. DTSC Misrepresents the Data as Well

EPA established mean local background values. DTSC has decided to throw those out and instead use log-transformed averages. This is a technique which essentially “trims” high values, discounting them from their true magnitude, and shrinking the differences between Dayton and background.

DTSC argues that the distribution of both background measurements and Dayton measurements are not normally distributed, and therefore justifies its trimming of the high values by the use of log-transformed values. EPA disagrees.

Dr. Bosan cites as the basis for his taking these steps what he said was guidance to do this. In fact, the cited reference is merely a report on arsenic related to LA schools. It provides no justification to throw out the EPA mean values for radioactivity in local background.

Despite the clear data showing that cesium-137 at Dayton is elevated above background and that even with improperly inflated detection levels, strontium-90 in excess of background was also found, DTSC evades those fundamental findings. And even though the body of its own report shows cesium and strontium levels in excess of anything found in local background, the cover letter to the Centex developer by DTSC states that there were several detections of cesium, strontium, and plutonium “at the upper limits of background concentrations.” They weren’t “at the upper limit” of background – they were considerably above the upper limits.

## 9. The Proposed Supplemental Sampling is Nonsensical

Sampling, by definition, is taking a few samples that are to represent those places one hasn’t sampled. Finding contamination tells you that there is likely to be contamination in places you haven’t looked.

Since the mechanism of contamination appears to be airborne deposition from SSFL, doing stepouts from a handful of the highest concentrations is doomed to failure. It is based on the same premise DTSC has used from the beginning – that the contaminated SSFL site can’t be the source of contamination at nearby Dayton. Something else must be the cause—e.g., a terrorist.

Since there is clear evidence of widespread radioactive contamination at Dayton – average radioactivity levels exceed background – one needs to do a great many more samples, not just step outs from a handful of the highest measurements. This is designed to give DTSC and the developer the answer they wish, rather than finding out what level of contamination there is and how widespread it is.

And certainly strontium measurements with far better detection levels are essential.

**10. The developer’s contractors should be removed from the process, and truly independent entities brought in, who have public confidence, and the measurements done over again, this time correctly.**

Appendix I  
Letter from Daniel Hirsch to DTSC  
Read at Public Meeting on Dayton Canyon Radiological Investigation  
25 October 2006

Subject: Dayton Canyon radiation measurements

I have briefly reviewed the data and text about Dayton Canyon radiation, prepared by the Centex developer. I can understand why they wanted knowledgeable members of the public frozen out until they had OK'd it. A brief summary of issues raised:

1. Nearly a year ago, DTSC had made a written promise that EPA, DHS, and DTSC would prepare a draft Sampling Analysis Plan (SAP) for the radiation monitoring, and post it on the DTSC website for public review and comment before any sampling took place. DTSC broke this promise, among many others, and authorized the Centex developer to go ahead and do the radiation measurements without a SAP or public input. The public comment now being solicited is largely over procedures for measurements already made -- i.e., public input permitted only after the fact.

The developer's report on its radiation measurements states:

"Due to the proximity of the Sterling Site to the SSFL, a radiological survey was planned as part of the Preliminary Endangerment Assessment Workplan, to evaluate the radiological conditions at the Sterling Homes site. As part of this evaluation, DTSC and DHS were to prepare a Radiological Sampling and Analysis Plan (SAP) to conduct the radiological survey, sampling, and laboratory analysis. The SAP was not prepared, and DTSC instructed Allwest Remediation to perform the survey, and collect samples at a rate of approximately 10 percent of the grids monitored, as described in the workplan approved by DTSC."

Thus, here is a pretty explicit admission that the promised SAP, with input from other agencies (left out EPA), wasn't done, and DTSC just told the developer to go ahead and do the sampling itself based on its own plan, without public input.

Had there been input from EPA, and even DHS, it is doubtful such a remarkably inadequate survey would have been permitted; and public comment on the SAP beforehand would have made it difficult to do some of the more outrageous things they did here.

2. They measured almost exclusively for natural radioactivity. One isn't concerned here with natural radioactivity -- one wants to know if there is artificial radioactivity, i.e., added contamination from SSFL.

3. The Geiger counter measurements are a joke; such measurements were useless. Nonetheless, the measurements came in about 3-4 times background. The developer doesn't translate the



readings into anything explainable, merely says in a conclusory way everything is OK, when its own measurements show radiation well above background. DHS reports local background as 4.8 microrem-hour and Boeing measures it as 5.2 (see Boeing annual environmental monitoring report for 2005 at p. 5-17). The developer's scan of the Dayton site recorded radiation averaging about 20 micro-rem per hour in the Dayton Canyon West (DC-West) area, for example, the area of the proposed development closest to SSFL. That is four times what DHS and Boeing report for offsite background.

4. They did measure for cesium-137 and strontium-90, two key artificial radionuclides. Here the developer misreported the readings for background from the McLaren-Hart report on Brandeis and Sage Ranch -- deflating the former and inflating the latter. The McLaren-Hart report gives background values for cesium as 0.087 picocuries/gram (pCi/g), with a maximum measured value of 0.213. The developer found for the DC-West area cesium average values of .17 pCi/g -- twice background. More than a third of the measurements were hotter than the highest cesium value found in any the background measurements, as high as 0.378.

5. For all of the Dayton measurements combined, the average cesium value is 0.13 pCi/g (we agree on that), but it inflates the McLaren-Hart background values to make it seem that Dayton was lower than background. The developer reports background from the Brandeis measurements as 0.14 pCi/g average, with a high of 0.46. But, as indicated above, McLaren-Hart background for the Brandeis & Sage Ranch investigation (same source they cite), actually reports an average of 0.089 pCi/g and a high of 0.213. Thus, Dayton average cesium level, including all the areas further away from SSFL, is 60% above background, not a bit below it as they claim by completing misquoting background. And the highest Dayton measurement is 0.38 pCi/g, 80% higher than background, when they claim it is substantially below, again by misquoting the McLaren-Hart report. (What they are doing is citing the contaminated parts of Brandeis as "background!")

6. Even more damning, they go on to compare Dayton to -- you won't believe this -- the Lawrence Livermore nuclear weapons facility. They also compare it to the McLellan Air Force base outside Sacramento where extensive radioactive contamination is being remediated (they had a reactor; nuclear weapons; bombers that flew through radioactive clouds from nuclear testing and were washed off there; and a nuclear dump with plutonium and other bad stuff found in buried barrels). The developer also compares Dayton to Brandeis, as indicated above, which, as you will recall, was contaminated by SSFL, sued, and got a large settlement; the McLaren-Hart study in fact is the initial study that found the contamination at Brandeis. Lastly, they astonishingly also compare Dayton to the contaminated Runkle Ranch area abutting SSFL to the north. You will remember that a couple of years ago Runkle was found to be heavily contaminated, particularly with strontium-90, at way above background.

7. For strontium-90, the story gets even worse. The McLaren-Hart background measurements were made with a detection limit of ~0.005 pCi/g and had an average value of 0.052. The developer chose to use a greatly worse detection limit, two orders of magnitude higher (i.e., couldn't "see" any strontium unless it was about 0.5 pCi/g or even higher --the highest detection limit used was 0.9). Therefore, measurements as high as ten times background couldn't be detected by this remarkably poor detection limit. It was a set-up to report wrong values.

8. Three of the Dayton strontium measurements, however, were still so high that they were above even these high detection limits. The three measurements averaged about 10 times background. When one takes the other measurements into account, using EPA's standard practices, as used for the McLaren-Hart study, of using the Detection Limit (DL) when the reading isn't above the DL, the average strontium-90 value is 12 times background.

SUMMARY: The use of detection limits a hundred times poorer than used for the background measurements, so that one couldn't "see" contamination that is there; of primarily measuring for natural radioactivity, when the issue is artificial radioactivity from SSFL; of misreporting background so as to make it seem as though they were below background when they are significantly above it; and other matters that skew and misrepresent the situation--all explain why it was so important DTSC should have lived up to its promise to have EPA and other agencies establish a draft Sampling Analysis Plan and permit public input prior to the measurements being made. Instead, the developer, with a huge vested interest, has been given free rein to design and perform the measurements as it sees fit, with the expected result -- a declaration that everything is clean when in fact the data show significant radioactive contamination.

What the data actually show is: the Geiger counter measurements are at about 4 times background; the cesium measurements about 60-80% above background; and some strontium measurements about ten times background.

Thus, all four areas monitored for radioactivity offsite from SSFL have shown contamination: Brandeis Bardin Camp Institute, Sage Ranch, Runkle Ranch, and now Dayton Canyon. That's four for four.