

# **SSFL Exceedances**

**Many in the community have wondered whether contamination from the Santa Susana Field Laboratory has been migrating offsite. We examined this question by analyzing monitoring reports for surface water releases from SSFL over the last few years.**

**When it rains, the rain picks up contamination from the soil and carries it offsite. Boeing is required to monitor discharges of surface water from its site at various outfalls.**

## **SLIDE 1**

**This map reveals the number of outfalls located in the Santa Susana Field Laboratory. An outfall is a place where surface water, like rain runoff in streams, leaves the site. Contaminants from the outfalls are measured against pollution limits and benchmarks in Boeing's National Pollutant Discharge Elimination System, or NPDES permit.**

**There are 19 outfalls at SSFL and there is 1 receiving point, the Arroyo Simi. At these locations, contaminants in the water are measured. It is important to see that outfall 8 discharges into Dayton Canyon. Outfall 9 goes into the Arroyo Simi. Surrounding outfalls also output into Meier Canyon and Bell Canyon (point with laser).**

## **SLIDE 2**

**Throughout the years 2008 through 2014, there have been a total of 216 exceedances from these outfalls at the Santa Susana Field laboratory. An exceedance is a release offsite above limits set in the NPDES permit. In other words, 216 times in the last few years, contaminants have migrated from SSFL in surface water at levels above those specified in the site's pollution discharge permit.**

**The next slide will show how many exceedances there have been at each outfall.**

## **SLIDE 3**

**Outfall 1: 41 exceedances**

**Outfall 2: 27 exceedances**

**Outfall 4: 7**  
**Outfall 6: 5**  
**Outfall 8: 8 exceedances**  
**Outfall 9: 38**  
**Outfall 10: 7**  
**Outfall 11: 23 exceedances**  
**Outfall 12: 4**  
**Outfall 13: 6**  
**Outfall 14: 5**  
**Outfall 18: 16 exceedances**  
**Outfall 19: 3**

**Arroyo simi Receiving water : 26**

**SLIDE 4**

**This chart reiterates the numerical value according to the outfalls.**

**Overall, the total number of exceedances since 2008 is 216.**

**SLIDE 5**

**On average, this is about 35 exceedances per year. In other words, roughly three dozen times each year pollution has been migrating offsite from SSFL at levels above those set by its pollution discharge permit.**

**The next slide will show the breakdown of the exceedances of specific chemicals found.**

**SLIDE 6**

**On the left is a list of the contaminants and on the right is the corresponding number of exceedances. The output of iron exceeded the daily permit limit 33 times. It also exceeded the daily mass limit 3 times. Dioxin exceeded the daily permit limit 50 times.**

**SLIDE 7**

**However these numbers don't end here. Manganese exceeded the daily permit limit 20 times. Lead on the other hand, has had 27 exceedances. Once again, the total sum of all these contaminants adds up to 216. This means that 216 times the contaminants have left the site have surpassed the permit limit over the past 6 years.**

#### **SLIDE 8**

**Dr. Dodge previously spoke about the health effects of lead. This chemical is one of the more frequently found exceedances from the Santa Susana Field Laboratory. Over the past 6 years, it has surpassed the daily and monthly permit limit 32 times.**

#### **SLIDE 9**

**Another hazardous contaminant frequently found at SSFL is dioxin. Dr. Dogde also spoke about the health effects of this contaminant. This too has been found surpassing the daily and monthly permit limit 66 times.**

#### **SLIDE 10**

**SSFL's monitoring reports indicate that dioxin was detected at up to 500 times the permit limit.**

#### **SLIDE 11**

**The exceedances found at the outfalls reveal that there is migration from the site into areas surrounding and beneath the SSFL. However, these chemicals are not the only ones that have migrated from the site. We will now discuss perchlorate in particular.**

**As already mentioned, the Santa Susana Field Laboratory is an elevated site where major rocket testing occurred. Perchlorate is a component of certain rocket fuels and large quantities, in excess of a ton, were used and disposed of at SSFL. Because of this, large concentrations of perchlorate can be found in the soil and water.**

**This map shows previous perchlorate concentrations found in and around SSFL. There were high concentrations of perchlorate on site at levels such as 670 parts per billion and 180 parts per billion. Importantly, there were also concentrations detected in monitoring wells in Simi Valley like 19.28 and 15.2 parts per billion. A study by Dr. Ali Tabidian, Professor of Hydrogeology at Cal State Northridge, concluded that the contamination of wells in Simi Valley with perchlorate was likely the result of perchlorate contamination that migrated from SSFL.**

## **SLIDE 12**

**Perchlorate has also historically been found leaving outfall 8, the outfall which discharges into Dayton Creek. The next slide will show perchlorate concentrations for water samples with higher than detection limits obtained from the Happy Valley Outfall 8 from the years 1998-2003.**

## **SLIDE 13/14**

**As seen through the table, perchlorate has been found leaving SSFL via Outfall 8 into Dayton Creek. Some years ago, perchlorate at extremely high levels was found offsite, in sediments in Dayton Creek itself, at the site of a proposed housing development, at levels as high as 62 million parts per billion.**

**We have examined monitoring reports for two wells used by the Golden State Water Company to provide domestic water for parts of Simi Valley, the Sycamore and Niles wells.**

**Golden State Water does not include information about perchlorate in its public water quality reports, so we had to obtain records from the California Department of Public Health office in Santa Barbara.**

## **SLIDE 15**

**This is an excerpt of the Drinking Water Analyses Report for these two Simi Valley wells. This information was not accessible to the public unless specifically asked for. On this excerpt one can see 7 hits of perchlorate between 2006 through 2010. A hit means that it was above the detection level which is 4 micrograms per liter.**

## **SLIDE 16**

**For the sycamore well perchlorate was detected on October 2006 at 4.0 micrograms per liter.**

## **SLIDE 17**

**In April 2007 there was a detection of 4.3 micrograms per liter.**

## **SLIDE 18**

**In October 2008 there was a detection of 4.5 micrograms per liter.**

**SLIDE 19**

**In April 2008 there was a detection of 4.1 micrograms per liter.**

**SLIDE 20**

**In July 2009 there was a detection of 4.6 micrograms per liter.**

**SLIDE 21**

**In January 2010 there was a detection of 5.2 micrograms per liter.**

**SLIDE 22**

**In April 2010 there was a detection of 4.7 micrograms per liter.**

**SLIDE 23**

**These are all of the detections found in comparison to the Public Health Goal PHG and the Maximum Contaminant Limit MCL for California and Massachusetts. The MCL is the legal permissible limit for a contaminant. The MCL for perchlorate in California is 6 micrograms per liter. Yet, the MCL for Massachusetts is 2 micrograms per liter. Even so, the newly recommended public health goal for California is 1 microgram per liter. The public health goal is a level of a contaminant in drinking water that is set based purely on the health risks associated with the pollutant.**

**Thus, seven times perchlorate was detected in the Sycamore well at levels close to but below the California Maximum Contaminant Level but significantly above Massachusetts' limit and the newly recommended California Public Health Goal.**

**All of the results are legally permissible under the current California MCL. Yet they are at least 2 times above the Massachusetts MCL (which is 2) and 4 times above the Public Health goal (which is 1).**

**The current monitoring system uses a detection limit of 4 micrograms per liter. This means that results below 4 are noted as a non-detect even though they could be substantially above the newly recommended public health goal. We think it is essential that measurements be made with a lower detection limit, so that contamination could be seen at the proposed public health goal level.**

## **SLIDE 24**

**In addition to the 7 hits above the detection limit, there were also 76 other findings below the detection limit of 4 micrograms per liter.**

**We want to stress that none of the measurements exceeded the current California Maximum Contaminant limit, although some exceeded Massachusetts' limit and the newly recommended California public health goal. Additionally, it is our understanding that the water from these wells is blended with other water, so the perchlorate levels at the point of supply should likely be lower. But given the high detection limit used, one cannot say what those levels actually are in comparison to the recommended public health goal.**

## **SLIDE 25**

### **CONCLUSION**

**Contaminants have migrated from SSFL 216 times in surface water releases in the last few years. This includes such toxic materials as dioxins and lead.**

**Perchlorate, a toxic component of rocket fuel used in large quantities at SSFL, has been found in monitoring and drinking water wells in Simi Valley. The levels in the drinking water wells have been below California's Maximum Contaminant Limit but above Massachusetts' limit and California's newly recommended Public Health Goal.**

**Migration of contaminants is likely to continue unless SSFL is fully cleaned up.**

**Our next speakers, Cristine Peterson and Daniel McCauley, will now present analyses of how much contamination would remain at SSFL if the 2010 cleanup agreements and commitments were not carried out and Boeing's proposed alternative standards were instead allowed.**

