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DOE Gap Analysis Comments

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Environmental Impact Statement – Draft Gap Analysis (Area IV SSFL EIS)

August 14, 2008

ABSTRACT

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August 14, 2008

Department of Energy
Ms. Stephanie Jennings
NEPA Document Manager
5800 Woolsey Canyon Road
Canoga Park, CA 91304

Task Order:DE-AT30-08CC60021/ET17

Draft Gap Analysis Report

Dear Ms. Jennings,

Thank you for the opportunity to comment in the Draft EIS Gap Analysis Report issued June 1, 2008. Our comments on the Draft EIS Gap Analysis for the Santa Susana Field Laboratory include both general comments as well as more specific concerns for moving forward in this process.

General Comments:

We believe that cumulative risks based on both chemical and radiological impacts to the site must be considered and the approach seems to artificially segment the impacts making them individually less significant (which previously resulted in a flawed FONSI decision according to the Northern California Superior Court decision) which would have resulted in NO FURTHER INVESTIGATION when known contamination has been migrating off-site for decades.

Averaging and Segmentation:

The approach to identifying "gaps" should first include this primary gap of segmentation.

Averaging of results over zones would also artificially lower the need for further investigation by including low and non-detects averaged with the detects found in the zone, thus resulting in an average result that might fall under the "action levels" while not paying adequate attention to the results found in those areas. These higher findings are important clues to migration pathways not previously identified. We have unexplained elevated concentrations of both chemical and radioactive contamination down-gradient from the lab in all directions. The pathways followed are not adequately understood to properly apply corrective measures and therefore must be analyzed for new pathways not previously identified.

Detection levels should not be explained away as anomalies. Instead, a scope of work should be developed to thoroughly investigate these issues so the unanswered questions of elevated strontium and cesium (among others), which are both fission products that resulted from the work that went on at the SSFL site, can be explained and remedied. In recent seep and springs analysis done in November of 2007, elevated strontium was identified in an offsite seep leading to Dayton Canyon. This further demonstrates a need for site-wide investigation.

Need for Site-wide investigation for proper completion of EIS

Site-wide investigation is a necessary step to identifying the hazards left behind from 50 years of ultra-hazardous activities. Radiological investigation of all 4 operational areas as well as the buffer-zones to the north and south of the site must be included due to previous findings of radiological contaminants that have migrated from their origin at the site.

Borrow areas for soil back-filling operations have been used resulting in "moved" soils from area to area and across property boundary lines. This requires close investigation to understand possibly buried or covered surface soils and debris as these activities have been documented in historical reports.

We are very concerned that the Data Gap does not acknowledge the need to investigate the entire site despite the fact that hazardous waste was moved from area to area, including areas outside of Area IV.

Comments relating to specific areas of the report:

1.2 Area IV Background and Description

While the responsibility for the impacts of rocket-test operations lie with Boeing, NASA and related entities as described, such as the Department of Defense, the investigation of how chemical and radiological impacts from DOE operations and how they occurred in concert with rocket-test operations and how facilities with common features were shared should be explored. It is crucial that all chemical and radiological impacts are properly identified for corrective measures as necessary to meet State Law requirements as set forth in SB990.

Data Gap Analysis Methodology

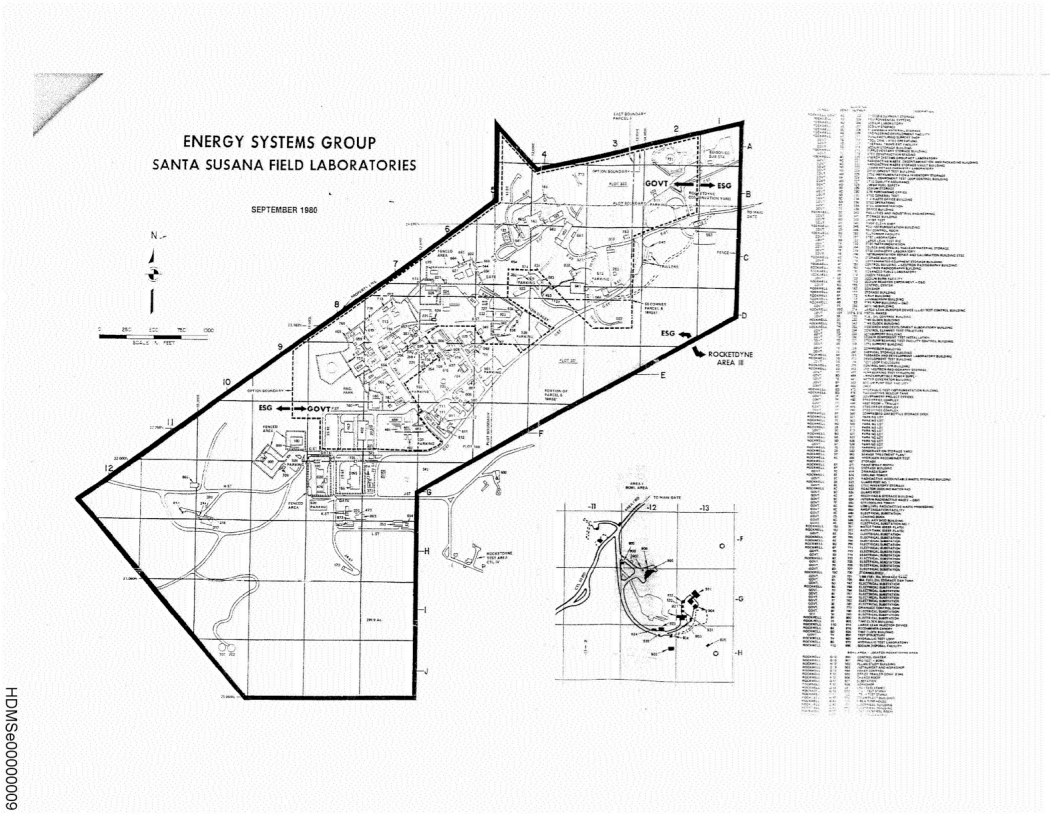
In the executive summary it states that more than 200 reports and more than 30000 data records were reviewed. Considering that more than 30000 rocket-tests occurred at the SSFL and operations of over fifty years must be considered, these numbers are staggeringly low! Historical records should include the log-books of every facility in Area IV as we are told by former workers that these log-books would provide the necessary information to understand those operations, accident/event documentation and daily insight to the risks and hazards involved. Soil and groundwater impacts must be considered site-wide in order to make an accurate and responsible determination for corrective measures needed at the site.

Full historical review of each building must include all former uses of the building. We have examples of buildings that were used as seemingly benign storage, were also used for contaminated laundry. The radioactive contamination resulting from these operations also emphasizes the human impact of these operations, and how contaminants may have been carried home to their families by employees who's clothing had become contaminated. This also emphasizes the risk of causing further impacts to ecological receptors from wind and rain moving the contaminants from the top of "The Hill" down to the people below. This should be looked at from the facility outward until a true delineation of the COI impacts of each. It is especially important to emphasize in the northern buffer-zone(s) which is not adequately shown to be targeted for sampling. These areas are extremely steep and filled with seeps and springs that have not been adequately identified.

Site-wide approach necessary to find all impacts in need of remediation

In addition to all the historical maps submitted under cleanuprocketdyne.org's comments on the EIS Scoping Alternatives (please consider each of the maps in HDSME00000001.pdf of the historical documents provided) as additional proven evidence that operational boundaries did not necessarily apply to the contaminants derived from those operations.

Another example that illustrates that the workers went beyond the operational boundaries to: work, park their car, and ate lunch in various areas outside of Area IV. For example, there was "Goldie's Lunch Shack" at the Bowl Area in Area I which is also considered to be part of ETEC in looking at the ETEC brochure and the even in the map as recent as 1980 indicates this to be true.



"Goldie's Lunch Shack" was a permanent structure that was open daily during operations for meal-support for the site due to it's remote location according to *Rocketdyne*[1] a published historical book on the site.

MARSSIM

The discussion on the evaluation and suitability of the radionuclide data makes a statement (Para. 3, page E-2) "…under principles stated in the Multi-Agency Radiation Survey and Site Investigation Manual." This leaves the impression that only certain principles and sections of the manual were applied. The Data Gap Report should be modified to include an affirmative statement that **all** guiding principles of MARSSIM are being applied to the EIS reporting process.

According to MARSSIM the absence of radioactive contamination can be demonstrated by: (1) documenting the amounts, kinds and uses of radionuclides as well as the processes involved; More specifically, process knowledge and the nature of the use that either no or immeasurable quantities of radioactive material remain onsite—whether on surfaces, buried, imbedded, submersed, or dissolved. The submittal to the regulatory

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[1] *Rocketdyne* By Robert S. Kraemer, Vince Wheelock, *American Institute of Aeronautics and Astronautics* and published by AIAA which is self-titled the "World's Forum for Aerospace Leadership

authority should include possession history, use of the radioactive materials, and, where applicable, results of all leak tests throughout the operational history of the site.

Buried radioactive contamination

There have been numerous documented and undocumented burials of contaminated waste, equipment and debris in onsite landfills that were neither designed for such storage, nor were they lined to prevent migration of the contaminants. There have been some failed attempts to find buried debris have occurred over the years. Part of the Data Gap must include a real effort to locate and identify all buried debris. Therefore the Gamma Walkover Survey must be enhanced to include a detailed thorough search for alpha and beta emitters as well. This is part of the MARSSIM process and should be implemented here.

Data Gap Study Results

It is stated that the GIS database was queried to determine what chemicals and radionuclides had been detected in Area IV as well as the frequency of detection and the number of samples exceeding the PRG, MCL, and ESL screening criteria. This is a flawed approach as many radionuclides were either never sampled for, or rarely sampled for based on an argument that they didn't need to look. Example: finding of tritium in 1989, only after the insistence by USEPA [Dempsey] that sampling for tritium was necessary. They found tritium despite the arguments that there was no need to look. The query of a database where insufficient sampling has been done historically would then give you an artificially low result of findings that the Data Gap approach stated will further compound the lack of sampling with a lack of a need to look further. This is not the purpose of a data-gap approach. In order to find all the potentially missing data so that all radioactive contamination may be identified, the full library of COIs according to USEPA and CDPH that have been specifically defined for the SSFL must be used here as well.

Removal of any data using an arbitrary number such as 20 samples for frequency of detection comparison is inappropriate due to the past practices of lacking sampling programs for certain COIs and therefore inappropriate.

Soil – Delineation of soil contamination must move outward to buffer-zone(s) and off-site locations where deemed appropriate based on the unique geologic properties of the formation below, the steep down-gradient terrain leading to a children's camp as well as looming housing developments nearby. This should be reflected in all maps included in the report.

Gamma Walkover Survey - Walkover Survey should be supplemented by an effort to identify alpha and beta emitters as well and should use instrumentation and equipment and procedural guidelines based on CDPH and USEPA recommendations. Survey procedures as written by CDPH for the recent Area 1 Burnpit RAD screening

should be applied here, to include specifications of walking speed, distance to ground, as well as grid design.

We are very concerned to see that the claim of "100% Gamma Walk-over Survey states in section E-5 that "Nearly 100% of the accessible portions of Area IV have been subject to some level of ground survey in support of building removals…"

It further states that the recommendation is for a 100% walkover of all areas that lack MARSSIM compliant surveys. In one sentence it states that nearly the entire site has been surveyed and then goes on to state that only 9 acres were actually MARSSIM compliant. Statements by USEPA and CDPH have been made, claiming prior surveys were not done adequately or with the right equipment or protocols, so all areas must be re-done under current protocols with USEPA and CDPH recommended equipment using all the data available than that which was referenced to make decisions on "impacted areas" in the past. 100% in this context is taken to mean 100% of the site by the public, and that is very different from 100% of the portions of the site that are deemed by DOE to be impacted. The fact that DOE prior assessment of the site resulted in a FONSI decision further illustrates the potential bias in this process.

Groundwater – Site Conceptual Model submitted to DTSC has been rejected based on the fact that the retardation and dispersion theories have not been adequately demonstrated with site-derived data. Recent hydrologic tests should be analyzed in this process to help determine aquifer connection based on reactions to recent core-hole pump tests.

Groundwater Seeps have not been adequately identified specifically in the northern buffer-zone(s). This step of identification of seeps should be further investigated to give a more complete look at these migration pathways for contaminants coming off the hill. The statements made in this section of the gap-analysis leave the reader believing that groundwater seeps will only be investigated if there is adequate water for sampling. This is a crucial step that must be scheduled based on rain-events and not driven by a reporting schedule. We have had rain each and every year so there is no legitimate excuse for lacking data except that no priority has been put on this sampling. This is one of the primary drivers to better understanding the impacts to the surrounding communities below. A sampling work-plan should be implemented with scheduling directly related to rain-events of the coming season. This must be considered a significant gap that must be resolved in the EIS process.

Soil Vapor – SV testing is extremely useful in determining the impacts of shallow groundwater contamination as well providing better insight to the flow of the shallow vs. deep aquifers below the site. Soil vapor sampling using EPA specified sampling density grids will help identify areas that are currently less understood due to lacking historical records. Especially in areas such as the road leading from The Old Conservation Yard (OCY) to well RD56a and RD56b that is pictured here with what appears to be hundreds of barrels and containers of waste (which was

the purpose of the OCY), but in this case, it is shown that the storage of the barrels of waste went beyond the property boundary and that of the operational area of the facility. This road leads to Areas II and III and therefore further supports the need for site-wide investigation that is not limited to Area IV.

Surface Water impacts that have not been adequately addressed, and are illustrated here based on these storage areas not adequately addressed in the gap analysis. It is stated in the Surface Water summary that NPDES monitoring is "deemed sufficient" however recent submissions from the public have resulted in new sampling being necessary because of missed drainages that were not captured under the NPDES monitoring program. Specifically, the Building 56 Landfill and Excavation area which is a connection to groundwater is considered a data-gap by the monitoring program and therefore new sampling points have been suggested to support outfall 7 as well as outfalls 5 and 6 from the Sodium Burnpit and ESADA portions of Area IV that are missed. This must also be considered a significant data gap here.

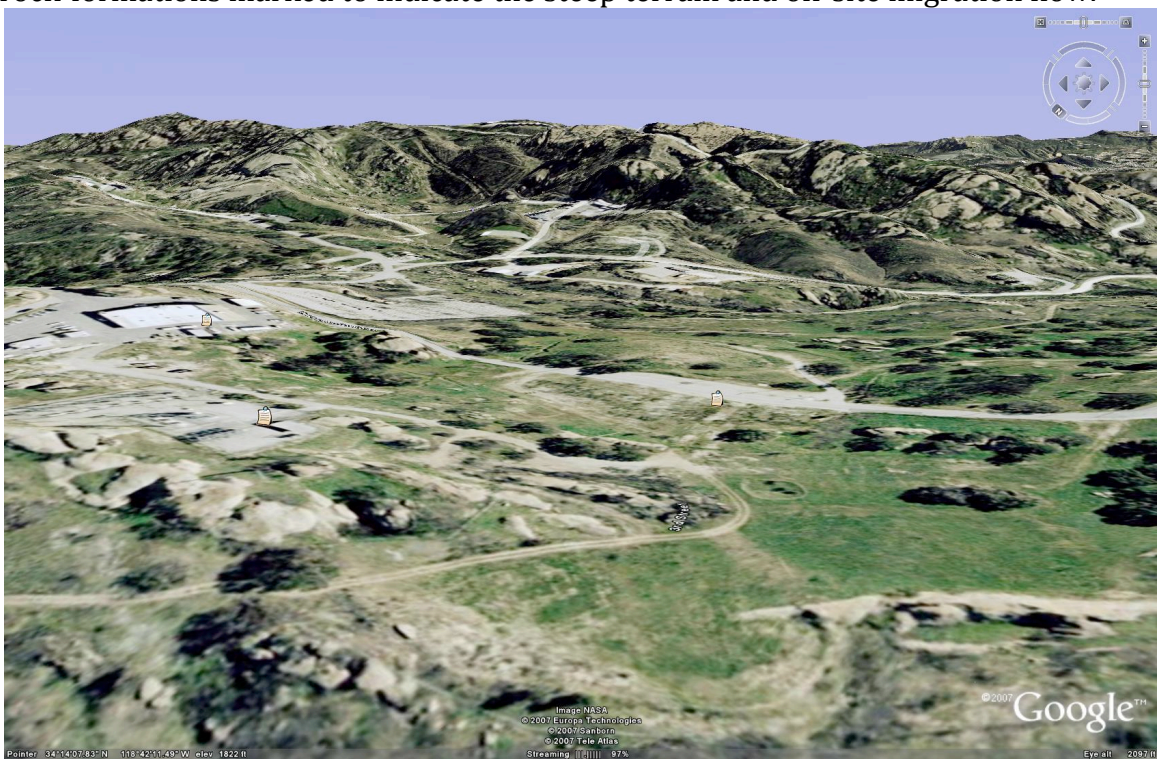
Effluent drainage from Building 100 is also not adequately captured and this housed several reactors in addition to the computerized tomography equipment that is considered to be the largest in the world. Reviewing recent EECA reports identifying these areas as non-radiological despite their nuclear operational history must also be considered significant data gaps. The data collected from the sampling in response to Watercode 13383 in the following document:

http://cleanuprocketdyne.org/documents/Waterboard/OrderWateCode13383.pdf

Please consider this data in the gap analysis and additional sampling to properly identify missed drainages in the area, including many seeps and springs that may have not been identified.

The lower portion and road leading to the left in the photograph shown below, of the Old Conservation Yard in Area IV, leads to RD56a and based on the rock formations on the lower right, the waste storage went far beyond the intended boundaries of the facility. This is also a very steep hillside leading down to the Brandeis Bardin Camp. Please note that RD56a is placed outside of Area IV.

The following photograph from GoogleEarth depicts the same area with those same rock-formations marked to indicate the steep terrain and off-site migration flow.



Under Media Evaluated (Table ES-1), it is acknowledged that there are gaps in building surface data and that additional data is required to assess human health risks. In addition, photographic data to document effluent pipes and other important features prior to demolition of any more buildings on the site, would lead to more efficient evaluation of the contamination to be found. By understanding where the pipes were, we can then have a better idea as to where leaks may have occurred since the HSA (Historical Site Assessment) was not adequately reviewed for this data gap analysis. Data presented in the Group 6 report of the RCRA Facility Investigation indicates that pipes led from the SRE scrubbers to the SRE pond for release and was distributed to the reclaimed water system in some cases. This describes many points of failure when considering pipe leaks that occurred. The SAIC 1991 Technical Enforcement document states many examples of leaks from USTs and ASTs as well as pipe distribution systems that sometimes went unchecked for more than a year. These are examples that emphasize the importance for an accurate visual picture of each facility, supporting storage and tanks and distribution systems and how the facility supported or interacted with the operations of other facilities across the site including wastewater storage ponds like the R2 and Silvernale.

Air - It is astonishing to see that air is not considered to be a data-gap. In just recent weeks I was reminded of the 2005 fire that swept across the site and burned several "out buildings"

We have seen from the photographs shown on the news and online that the fire burned across Area IV, right up to the boundary of Building 55 (the Nuclear Materials Building, which is somehow not considered radiological on the EECA map shown last year). There have been concerns by firefighters who fought the blaze as to what they might have been exposed to, and they were told that no information was available.[2] This must be considered a data-gap and should be investigated accordingly. The 2005 brush fire as well as regular fire events that occurred at the site must be considered to be extraordinary in nature with much higher potential for risk to the public and therefore all ambient air data must be provided for all fire events and should also include data for weeks following each event to follow the change in air-quality and smoke impacts which may contain these radioactive elements due to the burning of potentially contaminated vegetation.

Sediment – Internal drainages should be considered a data-gap especially since so much effort has been put on removing internal compliance points which has resulted in a further lack of data. Sampling should include deeper sampling where sediment meets bedrock, going 5-10ft bgs. There is lacking data to understand the stratus of the strike and dip geology and how migration to these sediment drainages specifically to the north of the site should be investigated further.

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[22] http://rocketdynearchives.com/areaiv/building4020hotlab.html
http://rocketdynearchives.com/areaiv.html

In a recent YouTube short-film published under the title "Corrupted Nature" by Brigham Maher, testimony was shown regarding the lacking equipment and expertise for monitoring of radionuclides by Ventura County which we also see in the responses by Ventura County post 2005 fire when at the October Workgroup Meeting (10/05) a representative from Ventura County AQMD testified that it was really just a courtesy call because they "…don't have the ability to monitor up there." This emphasized the importance of adequate monitoring that should be made available for review in this important process where these primary decisions are being considered – what to do moving forward.

We would encourage you to review all 33 episodes of the "Corrupted Nature" series because it shows the communities concerns but also provides first-hand accounts by former workers who are telling us what happened and what to look for (episode 29). We hear about buried waste, we know about undocumented landfills such as the one just to the south of Coca that we have identified to representatives of Boeing, NASA, and DOE. We learned of this area from first-hand accounts from former workers pointing at a map and talking about how they got there from the front gate. They spoke of moving from area to area, as well as of burying contaminated equipment and debris which was also discussed in the NIOSH hearings held in Simi Valley so we know that it did at least occur some of the time because we have many personal stories that support this claim and many more that are shown in the interviews of neighbors and former workers of the site on "Corrupted Nature."

The testimony provided in the Cappello-Noel trial (Lawrence O'Connor v Boeing), included testimony of the fire-fighters that worked at the site who handled the Burn-pit operations and spoke of out-of-control quantities of reactive and very dangerous materials. Discussion in the litigation transcripts regarding the Ultra-Hazardous Activity Doctrine which we believe applies here, also supports and acknowledges the many years of operations where the greatest care was not taken, at least not in the case of where to put the waste. We must move forward now with a level of caution and standard appropriate with this known information.

Historical photographs of the OCY were provided by Mr. Dan Kurowski through discussions with his widow (he was a former worker who spent many years at the SSFL.


C O M M I T M E N T · T O · E X C E L L E N C E

MANAGER'S AWARD

Presented to

Dan Kurowski

In recognition of the successful "no-cost" transfer of hazardous chemicals, saving $84,000 in disposal costs

April 1995
Date

Manager

Rockwell International
Rocketdyne Division

Mr. Kurowski's application for the Energy Workers Radiation Compensation Act was denied, stating that his dose was too low despite the fact that a co-worker (last name - Waco) died of acute radiation exposure from an accident where one of the casks exploded (referred to as pigs by the employees) where Mr. Kurowski was standing nearby. He also made claims that he observed a deer drinking from the Silvernale Pond, then staggering just a few feet and dying. Part of his job based on instructions from his supervisor at the time, included packaging up the deer and other wildlife specimens for shipment and analysis. Mr. Kurowski died of cancer but his records, application and narrative information is a valuable resource that should be thoroughly reviewed in this process to help gain better insight to the practices that went on at the time and to hopefully preclude others from his fate.

1.4.4 California Radioactive Materials Regulations

As an Agreement State under the provisions of the Atomic Energy Act, CDPH has oversight authority of the cleanup of radioactive materials. Cleanup and release of facilities with radioactively contaminated materials must be performed in accordance with California regulatory standards. The DOE must consider these standards as part of the decontamination and decommissioning of Area IV facilities. The DOE must therefore make an affirmative statement on the DOE's intent to follow SB990 standards, which are specifically the standards set forth by the State of California. Associated drainages to Area IV must include all drainages site-wide,

leading from the site to the surrounding communities in all directions regardless of operational area. Faults that extend across the site, extend beyond these property boundaries and also act as migration pathways that emphasize the potential risk for cross-contamination from area to area.

1.6.3 Senate Bill 990 Consideration

An affirmative statement on the intent to follow standards set forth based on SB990 should be included and should specifically use the PRG table as defined by USEPA with out alteration. This statement should not only include EIS evaluation of rural residential risk assessment, but also include assurances that every effort will be made to use the lowest scientifically available detection limits, and chemical analysis processes as recommended by USEPA and CDPH as necessary to get the best possible information on the more difficult radioisotopes such as strontium 90. This needs to include higher counting time for sample analysis and prior agreement on how to deal with non-detects within this process. Input parameters should **not** be adjusted to reduce the ecological receptor risk based on consumption of homegrown fruits, vegetables and animals for meat and dairy products.

1.6.6 Building Materials

In addition to community concerns about prior shipments offsite for disposal, we are also concerned about the level of documented disposal information. We have seen photographs on GoogleEarth that show what appears to be several trucks moving down the road in the buffer-zone (south). We have also seen photographs last February that indicate what appears to be trucks on the Chesebro Fire Road that leads to the Calabasas Landfill back entrance. In our last visit to see the burnpit in Area 1 where we were accompanied by Blythe Jameson and Art Lenox as well as Gerard Abrams and Laura Rainey of DTSC when a panel truck drove up from the Bell Canyon entrance to the south. There is documentation about onsite disposal and burial within .5 miles of the burn-pit and therefore this should be investigated in the gap-analysis process. Records confirm disposal to the local landfill in Calabasas including liquid hazardous waste[3]. While we have been assured that these back roads are not an appropriate transportation route for waste disposal, we continue to see evidence to the contrary that should be further investigated.

There are concrete and soil debris piles throughout the site in all operational areas as well as in the buffer-zones. It was widely known that environmental

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3 http://h2ohno.com/images/1979_Calabasas_Landfill_Industrial_Hazardous_Liquid_Waste_Report_William_Preston_Bowling_Rocketdyne_Boeing_Santa_Susana_Nuclear_Field_Lab_H2Ohno_Dot_Com.pdf

decontamination by way of decay over time, was used historically throughout the site, and therefore because these piles are not labeled, it must be assumed that they many contain radioactively contaminated materials and therefore should be sampled using the highest scrutiny using the most thorough RAD class and exposure unit protocols and sampling density.

It seems that MARSSIM survey unit size limits have been modified to reduce the sample numbers claiming that it will still be proportional to contamination potential. The purpose of the MARSSIM survey unit size limits is to avoid missing potential areas of contamination by averaging too wide an area. This is an important example that demonstrates that MARSSIM is not being adequately followed and provides a risk that the reduced sample density will result in a reduced clean-up of contamination at the site. MARSSIM guidelines are to be followed in all areas and this appears to be another example showing that this is not necessarily the case based on statements in the Data Gap Analysis Report.

Aerial Dispersion/Evaporation

Skyline Tanks and Sprinkler System were documented to be used for the purpose of evaporation of contaminated water. This activity resulted in spreading the contaminated water over a wide area therefore all of the SSFL property in areas 1,2,3 and 4 must be considered.

Soil Sampling

Soil Sampling in the past has had challenges with adequate soil for sampling being available due to the rock-outcroppings that cover so much of the site. Sampling depth should be 2-10ft bgs with an effort to go deeper when possible. Because of splits, and the number of regulatory entities interested in sample results, a special effort to increase sample size so that adequate soil material is available to analyze for all constituents of interest (COIs) using the varied processes necessary to garner those results.

Comments on Figures included in the narrative text and tables:

Figure 1-3 - Exposure Units (EU)

Boundaries drawn to divide the Area IV portion of the site into 16 exposure units create an artificial segmentation of areas of concern, which could then result in a sampling workplan that will separate areas from the operational areas they belong or are related to. If historical data is to be used, these boundaries should coincide.

Hot Lab

RIHL Building, which was removed years ago, is in exposure unit EU09 and is included with Building 55 (nuclear materials building) but the footprint of the parking lot to this facility is in EU12. The parking lot would be an important point-source for loading and unloading mishaps which did occur. It is widely known that

the most likely time for spills and reactive accidents is during anytime which the material is mobilized or transferred. This facility received waste from all over the country as well as from the Canoga, and DeSoto-Rocketdyne facilities. The RIHL footprint burned in the 2005 fire spreading the contamination through the combustion of surface- vegetation leading to these contaminants being spread across a wider area through resulting brush-fire smoke blowing throughout the local area.

Exposure Units Segmentation and Exclusion

Exposure Units exclude buffer-zone areas to the north despite reassurances that these areas will be sampled. They need to be included in the primary workplan and not be treated as an after-thought.

EU01 includes the Old Conservation Yard (OCY) but fails to include the lower road area previously referenced that had historical radioactive waste storage. This area must include the buffer-zone portions as they are directly related to historical operations and releases of hazardous materials. In Figure 1-4 showing RAD class determinations, it shows this same area where hundreds of barrels and casks were stored as class 3, thereby recommending the lowest possible sampling quantity per acre. Figure F1-1[4] shows that only one sample was taken at each of these areas. The lower road area should be added to a new EU zone and perhaps the remaining buffer-zone areas should be divided into two or three additional exposure unit zones.

EU03 is the SRE facility but excludes the related hazardous waste storage facility artificially segmenting these operations HWMF Building T133 which has moved from one end of the SRE facility to the other and currently is the only standing structure remaining within the SRE complex. Downstream areas from SRE pond which had releases both downstream and through effluent pipes to other areas must be further sampled on a much tighter grid leaving no areas without samples within this facility area. The top of the road where they had "temp hot storage" historically, is excluded from this area as well, and this is inappropriate as this was some of the most hazardous materials.

The delineating circles identified as North Slope Debris Areas A, B, and Storage Areas do not adequately define these areas and inadequate sampling has been shown for any determinations to be made here. Debris on this hillside has been observed by the writer to include a storage can (possibly 30 gallon size) with a very thick lid that could indicate radioactive material storage in the past and should be further reviewed and sampled for verification.

EU06 includes the RMHF but the drainage where the effluent waste-water pond was formerly located before it was replaced (or enhanced) by adding a large Baker Tank for off-site disposal.

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[4] VOC COIs in Soils – EU01 0-2ft bgs

Exclusion of ASTs

In the example Survey Unit Delineation in Figure 1-4 there are two circles that are displayed in white which would indicate that these areas would not qualify for any of the three classifications, leaving the impression that these areas would not be sampled at all. Both of these areas are identified as NE AST 731, and SW AST 732 respectively. Above Ground Storage Tank footprints should not be excluded from sampling as this contradicts the very purpose of looking where we think contamination might reside.

Figure F1-0 showing the EU01 Chemical Use Areas indicates an area identified as B204 W Debris Area. Since Building 204 is a NASA building in Area II, this demonstrates that contaminants do not follow property lines, nor to the operating and disposal practices based on this information. All areas must be included in the EIS process because they are co-mingled in both operational, disposal and remedial practices.

Reports Evaluated

HSA has not been adequately reviewed and included in this process. Complete operational history of every building must be reviewed carefully. Buildings were moved and operational purposes changed which can both have profound impacts on the determination radiological and chemical impacts. In addition to the reports listed, SAIC 1991 Technical Enforcement document for the RFA should also be reviewed as it shows the history of many releases that don't seem to be equally documented in the HSA. Many releases were documented with lacking follow-up analysis and/or reporting. This should be considered a gap, and all findings should included supportive follow-up data as to how the release was actually handled, and final impacts reviewed.

Radiological Survey of the Shipping/Receiving and Old Accelerator Area – Buildings T641 and T030 written by J.A. Chapman in 1988 should also be included in this review as it gives additional insight into the Van De Graaff Accelerator program and related tritium issues. It is also indicated in the factual perspective that there was a second Accelerator so more investigation to review all related documents that can fill this data-gap should be reviewed.

Figure 2-2 Geologic Map of the Chatsworth Formation at the SSFL

It is noted that the original file was obtained from MWH from the RCRA RFI Report Surficial Media Operable Unit 2004. The original indicates a known fault titled the "Delta Structure" which is deleted from this figure. This is of great concern as this is an existing fault and possibly a migration pathway for subsurface contaminants from stormwater runoff.

Figure 2-3 Location of Perched and Continuous Near-Surface Groundwater

It is indicated on this figure that the Building 56 Landfill Excavation is filled with groundwater and has had very little sampling historically. There are also two small faults that run along the landfill area that is very steep down-gradient slope. It is documented that the SCTI Reactor Facility was deposited here, and therefore should have much higher degree of sampling here.

Table 2-1 SSFL Area IV Sources of Radionuclide Data

Each of these listed reports are indicated as "complete" which seems to indicate they are without gaps. SAIC 1994 (final) is an example where releases were documented but inadequately identified or quantified. We have questions as to the definition of "Complete" in this context.

DQO Objectives

It is inappropriate to alter the PRGs to be used for rural residential human health screening to include the consumption of fruits and vegetables only. Existing ranches in the area include chickens, goats and cattle.

Spatial and temporal boundaries need to incorporate buffer-zone areas and special attention should be given to fault areas such as around the B56 Landfill area and the Northern fault to understand migration pathways and how operational activities may have moved material to areas down-gradient from Area IV.

Previous vertical efforts to find "clean" to delineate nature and extent have been incomplete. This effort should be expanded so that eventual dispersion both down and out, are more completely understood.

3.2.6.3 Null Hypothesis

The averaging process described here is completely inappropriate considering the high values that would be found in areas where known concentrations have been found, and averaging them with areas of non-detects would result in a false confidence level of artificially low results and therefore, all sampling should be compared to the EPA defined PRG for all constituents in the library of COIs without averaging.

Background

Wilcoxon Rank Sum Test should be used to determine statistical differences between the geologic formations that exist at the site and those neighboring the site in each direction, for metals and radioisotope evaluation. By understanding the statistical differences between the formations, we should be able to use distance as a consideration in that wind changes in direction and velocity must be tempered with the topographic features that will impact those directions, making it much more difficult to rely on.

3.4.4 Groundwater Maximum Contaminant Levels

It is inappropriate to characterize the assumption for groundwater use as drinking water as a non-starter, when Simi Valley uses a percentage of groundwater in their drinking water supply. This has been proven and therefore, should be acknowledged here as a current condition, not as a conservative assumption.

Bedrock

Bedrock must be demonstrated as a barrier for contaminants and the nature of the groundwater both near-surface and deeper must be better understood to make alternative evaluations in the EIS. The cracks in the bedrock including the fault system that runs across the site should be carefully evaluated as they conflict with the "barrier" premise.

3.6.5.1 Results of Screening for Soil COI Identification

It is stated that in order "to accomplish the first data screen, pre-remediation soil data from remediated areas were removed from the dataset. Thus all data in the dataset represents soil that has not been removed from Area IV." We acknowledge that it is important to understand the current conditions of the site so that we understand how to move forward with clean-up activities. However, the removal of this information from the dataset used to determine COI identification could potentially a COI that has migrated down-gradient from it's origin and would therefore be missed in the COI investigation of other exposure units as well as potentially site-wide misses. It is important to consider the number of years that a potential COI may be been in the soil and potentially washing downstream with each rain-event prior to any soil removal activities.

Step Four – Assess detection frequency of data

This exclusion of data due to infrequency of sampling is inappropriate, especially using 20 samples as the benchmark point of departure for being deemed infrequent. Previous findings of tritium and very infrequent sampling of many other radionuclide based on the argument that it wouldn't be found have proven to be incorrect. Because so many source areas have had inadequate sampling over the years, they would easily qualify to be over-looked because (B56 Landfill is an excellent example of this).

3.6.6 Determination of Required Number of Samples

3.6.6.1 Radionuclide Sample Number for Risk Assessment and Delineation based on MARSSIM

It is inappropriate to lessen the intent of MARSSIM by stating that it is merely being used as "an analysis tool for the design of a characterization survey…" rather than as a final status survey, therefore the MARSSIM size limitations and sample density

were modified. Reduction by a factor of four will result in failing to adequately identify areas in need of remediation, soil removal and other protective measures.

Section 4 – Data Gap Analysis Results

It is very troubling that so little data exists with regard to a statistical approach. Historically, samples were not consistently analyzed for the same suite of analytes so comparisons were less meaningful. Exposure land-use scenarios should not be used to reduce the number of samples needed because Boeing is required to clean-up the site to SB990 which requires the use most protective clean-up standard which would be rural-residential.

EU1 – Our concerns for OCY as previously identified should be reiterated here. In addition, whether the barrels were stored intentionally or not, several removal activities have taken place, each with specified intent to clean up the area, and remove all cs-137 contaminated soils. Yet each time, there was still additional cesium detects that were still above recommended levels. There have been fires and storm-events that have taken place over the years that would erode and expose this area and new depths due to resulting sediment erosion and migration from those events. It should be understood that the tightest sampling density should be used since the point of failures for releases here were primarily unknown and may have continued in some cases for years at a time.

EU2 – The NCY and Ash Pile areas include a large flat area that consists of many debris piles, many of which have vegetation growth atop making them possibly difficult to identify. Samples should be done deeper to ensure that all buried or re-configured debris and ash are properly characterized. There is much open-space in this unit that appears hummocky and therefore should be sampled as class 1. Averaging is particularly ill-advised here because we know less about what we are looking for and low and non-detects could potentially average away the contamination being remediated under the guise that the average was below the DCGL. This is a concern for all exposure units described herein.

EU3 – Hillside hot-temp storage of rad-waste is not considered here because of flaws in applied EU boundaries. Additional gaps should include the surface-water concrete swale that moves stormwater runoff from operational areas of the SRE where effluent pipes were located and led from scrubbers to ponds, to below the outfall monitoring location for outfall 4. More extensive survey is needed of the pond and pipes, which led to the former location of the HWMF Building 133. Pipe footprints (influent and effluent), should include entire length of piping with step out sampling in drainages down-gradient because any leaks that might have occurred here could be identified as serious gaps that would explain more of the groundwater contamination that we already see. This should be done for the pipe system stormwater that run/ran across edge of hillside from SRE toward the OCY.

Inadequate sampling for tritium should be addressed here as well.

SRE Pond had a release drainage pipe leading down-gradient to the Brandeis Bardin Camp which had both controlled and uncontrolled releases. Step-out drainage sampling for this area is critical to understanding COIs specifically related to the SRE operations related to stormwater run-off.

Description of estimated releases from SRE 1959 accident in appendix B is insufficient and inaccurate. In one part of the report, it describes only the cladding as being damaged where in the HSA it states that 13 of 43 fuel elements were damaged. The estimate of release has been widely disputed by experts and therefore all deposition and testimony data from witness Arjun Makijani, which was disputed in the "Christian Report" should be included here and considered for this purpose. We believe that the most conservative and protective approach must be taken here and assume the higher estimates as proposed by the SSFL-Panel Study and [Makijani] as we are analyzing this data in order to propose the most comprehensive workplan to identify all COIs. If that is truly the purpose of NEPA, then we must consider all of this data as well, because it is "probable" according to many experts. The questions should be asked: If this is true, where should we look?" for each finding/conclusion in the SSFL-Panel Study.

Building 4273 was used for contaminated laundry from personnel from the SRE operations where known accidents and spills occurred due to the storage and operations. Loading area should be specifically sampled using closer/tighter sample density and should be considered a gap here since the 1988 survey was inadequate. Two additional buildings are referenced in appendix B to be related to 4273, with no further information. These buildings should also be considered a gap.

4695 is where cold-trap fission impurities were stored. There were documented leaks that are not adequately identified. References to results "below allowable limits" is not sufficient for determination here.

4686 Temp Hot Storage of irradiated core components was up on the hill that is partially excluded from this EU. It is crucial that a more serious look at this operation, how storage was kept, leaks, cracks, and other migration pathways from this area down the hill, must be identified in detail.

All plumbing contracting and operational records (for ALL exposure units) should be examined for this area to determine what other events may have transpired that would contribute to releases from Area IV facilities. These records often include narratives for scope of work, which provides insight into the purpose and intent at the time.

These records should include all operational records for design and modifications of evaporation dispersion sprinkler systems in on operational areas such as Skyline, Happy Valley, EU14, 15, 16 where the Borrow area is located as well as any other open-space regions on the SSFL where sprinklers have been installed either currently or historically.

EU4 HWMF is currently the only standing facility in the SRE Complex, which was "clean-closed" for one purpose, and then became a drum storage area. This area should also be more closely investigated for additional leach-fields as there were prior documents such as SAIC1994, which indicated that the location for many of these leach-fields was unknown. The open-space areas should therefore be upgraded to higher sample-density and quantity for this unit and additional depth of 10-15ft bgs should be added to understand the vertical nature and extent of these areas.

The Van De Graaff Accelerator with tritium-associated releases was in this EU. In addition, the factual perspective indicates that a second accelerator was in the SRE complex. More information must be reviewed to thoroughly understand this data gap. Tritium findings in figure 4-3 support this need for further investigation.

4513 Parking lot was re-paved, reconfigured and has been used as a staging area for contaminated waste as well as probable previous use for staging for decay over time. This practice happened throughout the site and continues today, and should be considered a data-gap.

EU5 – Not enough is known about these areas. Building 29 after excavations were backfilled to allow for continued use and barrels of unknown contents must be assumed, in this case, to be radioactively contaminated soils. Both radium and cesium contamination is known from documented accidents that contaminated the area as well as personnel. Coal Gasification activities should also be reviewed more carefully to understand the relationship between this area and the Area 1 Bowl area referenced in historical documents to also engage in this operation. Similar sampling for the same suite of analytes in the Bowl Area should occur. PDU operations and releases require further scrutiny. The sampling class in EU5 is not consistent with these known operations, and should be upgraded to the closer sample density shown in Class 1.

EU6 Leachfields identified in this unit should also be sampled at a third depth of 10-15 ft bgs.

The removed buildings in EU6 associated with the operations of 4024 and the RMHF are zoned in the lowest class (3) for sampling density and quantity. Background is described at an astonishingly high 40μR/hr and 8,000 cts/min and then an additional 5 μR/hr is added to describe "acceptable limit" and should be considered a serious gap and be upgraded to the highest class for sampling. The standard here for "acceptable" should be examined more carefully.

RMHF asphalt has been contaminated through numerous spills and other incidents. The cracks are intermittently resealed using an asphalt swill, but cesium and strontium as well as plutonium has been found to have leaked through the surface and contaminating everything placed on the surface including the tires of parked trucks. Many fires and other accidents, pressure release events that resulting in

fires that further migrated these contaminants to surrounding areas. The associated drainage of the RMHF should also be considered a data gap.

Extraordinarily high beta/gamma was found in vegetation here demonstrating the impacts to the local environment. This further supports the need for investigation of the impacts from recent and historical brush fires that burned the surrounding vegetation releasing this high beta and gamma activity to the surrounding environs.

EU9 includes the SPTF (buildings 461/2/3) which are zoned as "class 3" inappropriately as there are documents including SAIC 1991(4) that state that the building 100 trench was formerly located below these buildings and was used for the burning of waste and construction debris. In the context of being the largest sodium pump test facility in the world, and proximity to the primary nuclear work done at the site, this area should be zoned as class 1. Consideration of prior brush fires that may have spread contamination to these surrounding areas also supports this concern.

Hotlab footprint as previously mentioned, excludes the parking lot footprint, which is crucial and should be sampled at the same higher level due to its historical operations that included nationwide materials received for de-cladding process.

EU10 states that the vertical extent of the contamination present at the Building 100 Trench may be accomplished visually. This approach is inappropriate as there is much conflicting information as to even the location of the Building 100 trench including statements made in SAIC 1994 that the SPTF (Buildings 461/462/463 were built on top of the trench formerly used to burn debris and waste. – another potential burn-pit.

The parking lot area used to store contaminated stormwater systems should also be sampled at higher levels.

Building 56 Landfill and excavation area should be sampled for all operational COIs of the former SCTI facility. This area is zoned for radiological class 3 except for the landfill area which is considered class 2. This is inappropriate since so little is known about the contents of this landfill. The excavation portion has had little to no sampling and while it is acknowledged that this is a gap, it is still classed at the lowest possible scrutiny level which is wholly inappropriate.

EU11 FSDF for interim measures had a clay-cap placed on the surface from soils found nearby at the site. This process was not considered acceptable by the public and a data gap as to the efficiency of this cap and resulting possible down-gradient contamination from seeps and springs and stormwater runoff passing across the area. The daily burn activities of this facility including the pistol range, which was used for the purpose of releasing toxic materials (gaseous or through violent reaction, combustion) over a wide area. This is therefore an area where aerial dispersion must be considered and weighed more heavily.

Reviewing Figure 4-11 shows us that chemical COIs in this area are clearly leaving the site down a drainage that is not completely understood. There are concrete swales that move and divert drainage that may cause contaminants to be missed by monitoring points for stormwater at outfalls 5 and 6 and therefore further sampling down drainage to delineate the nature and extent of these COIs is necessary. This comment also applies to EU10 for the Building 56 Landfill and excavation area which also show contaminants above the DCGL for this drainage that is also potentially missed by outfall 7 which is located up-gradient from these detects and up-gradient from the landfill itself.

EU12 includes pond dredge area, which is where the dredging materials from the Silvernale and R2 ponds have been deposited. In addition to the likely chemical contaminants from this procedure, it likely buried the missing uranium slug and therefore requires more thorough search using equipment to locate this material sub-surface. The Radiological class determined for this area is therefore inappropriate and should be upgraded to Class 1 for higher sample density.

EU13 Esada pistol range should be investigated more closely. Highly penetrating materials were used for this purpose as it was also used to ignite at distance, release gaseous materials from sealed containers at distance, all releasing toxic contaminants to the environment. Shielding materials, lead and cesium should be specifically looked for. This area should be upgraded to class 1 and distance should be considered.

EU14/15/16 – "the shark" as referred to by CDM analysts

We have received some claims from former workers that the borrow-area used for backfilling has also been backfilled with materials from other areas of the site. It is therefore necessary to look at this area with a greater degree of scrutiny. More samples, for COIs based on the operations of Area IV as a whole using adequate sampling densitys and quantities to determine any change in deposited materials. Possibly the statistical testing of the Wilcoxon Rank Sum test can be used to identify foreign soils from outside the zone vs. soils found in this valley area.

We are pleased to see the proposal of additional shallow wells in figure 4-15 but feel it could be expanded further to better delineate the radioactively impacted shallow groundwater. Figure 4-16 of existing soil samples indicates that most of the site with few exceptions, has not been adequately sampled and look forward to this new and more serious look at the impacts. We hope that our comments illustrate to you, the need to look more, and include open-space areas where disturbed soils exist.

Finally, we hope that the PRG issue with clear and agreed parameters can be resolved so that the real problems of finding solutions to difficulties in analysis, counting times, margins for error based on increased counting and iChrome chemical analysis where appropriate will be explored and used so that all parties involved including DOE, EPA and CDPH, DTSC and the public can rely and trust the data that comes from the EIS produced.

We believe that additional sampling is needed, beyond the suggested number with emphasis to going to bedrock or just short of bedrock to understand the sediment that may have gathered or settled at the cross-section where soil meets bedrock, potentially changing migration velocity and direction depending on the local conditions of each area. Going beyond 10 feet is important where possible.

Averaging is inappropriate and we hope to see a sampling plan consistent with the concerns of the community about adequacy, quantity, quality of analysis, depth, statistical sampling density to look at all impacted areas site-wide based on the migration pathways discussed herein.

We look forward to participating in this process where allowable and appreciate the consideration of our comments.

Sincerely,

Christina Walsh

Director/Founder

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