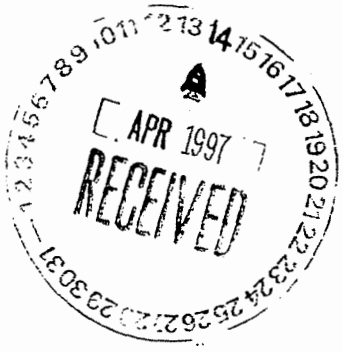
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105



APR 0 8 1997

Jerry Gaylord
Rocketdyne Division
Boeing North American, Inc.
P.O. Box 7922
Canoga Park, CA 91309-7922

Re: Area IV Characterization Study and Rocketdyne Letter 97RC1766

Dear Mr. Gaylord:

EPA has completed its review of Rocketdyne's Area IV Radiological Characterization Survey, dated August 15, 1996. Although we are now formally transmitting Gregg Dempsey's comments as an enclosure to this letter, Gregg previously detailed his concerns to you in a telephone call on February 20, 1997. Additionally, we have included further comments in this letter. We expect that your response will adequately address our concerns or that Rocketdyne will conduct another survey of Area IV.

The applicable cleanup standard for releases of radionuclides from Rocketdyne should derive from the Comprehensive Environmental Response and Liabilities Act (CERCLA). To our knowledge, all radionuclide contamination stems from work conducted for the U.S. Department of Energy (DOE). Section 120 of CERCLA requires DOE to follow the Comprehensive Environmental Response and Liabilities Act (CERCLA) guidelines, rules, regulations and criteria to address releases of radionuclides (a hazardous substance under CERCLA).

CERCLA guidelines and regulations include the cancer risk range for remedial alternatives of one in one million to one in ten-thousand ($1x10^{-6}$ - $1x10^{-4}$). (For some radionuclides, background may be the appropriate cleanup level, even though it may exceed a $1x10^{-6}$ or even a $1x10^{-4}$ risk level.) The Characterization Survey cited an EPA cleanup standard of 15 millirem per year based on draft regulations, and a support document, from EPA's Office of Air and Radiation. As you may already know, EPA recently withdrew this proposed regulation. However, EPA is considering the 15 millirem cleanup standard as guidance under CERCLA.

While 15 millirems per year may represent an acceptable upper limit for a cleanup standard, it should not be used as a screening level. Rocketdyne should consider appropriate remedial alternatives for any contamination above background which poses a cancer risk above one in a million. For your assistance in determining a one in a million risk, we have enclosed a copy of RISKCALC, a copy of the users manual and a number of associated documents.

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In order to compare radionuclide levels from Area IV with background and other cleanup levels, the Characterization Survey calculated the mean and 95% confidence limit for all of Area IV. Although this may be useful to demonstrate that widespread contamination is not present in Area IV, EPA will compare individual areas, within Area IV, to the relevant cleanup standard, not the entire area.

The characterization survey reported that tritium was found at 8,500 picocuries per liter in one sample. While EPA agrees that this level of tritium does not require cleanup, Rocketdyne should verify that Building 10 is the source of the contamination and determine if cleanup is necessary closer to the building. Reference 5, cited in the Characterization Study as proof that Building 10 is the source of contamination, contains no soil sampling results near Building 10.

If you have any questions regarding EPA's comments, please contact Tom Kelly, at (415) 744-2070.

Sincerely,

Julie Anderson, Director
Waste Management Division

cc: Hannibal Joma, DOE
Edgar Bailey, DHS
Phil Chandler, DTSC
Joshua Workman, RWQCB
Daniel Hirsch, SSFL Workgroup
Barbara Johnson, SSFL Workgroup
Dr. Jerome Raskin, SSFL Workgroup
Dr. Sheldon Plotkin, SSFL Workgroup

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RADIATION AND INDOOR ENVIRONMENTS NATIONAL LABORATORY
P.O. BOX 98517
LAS VEGAS, NEVADA 89193-8517

FEB 2 1997

MEMORANDUM:

SUBJECT: Area IV Radiological Characterization Survey

FROM: Gregg Dempsey, Director
Center for Environmental Restoration,
Monitoring and Emergency Response

TO: Thomas P. Kelly, Enviromental Engineer
WST5
U.S. EPA, Region 9

Below are my comments on the August 15, 1996 "Area IV Radiological Characterization Survey":

In the section describing the ambient gamma survey, I am concerned about the survey grid distances. When doing a survey such as this, there should be an assurance of overlap in the center of the grid lines with the detection system. There should also be an assurance that the detector can see to a certain depth below the ground. Documents supplied to me after I raised concerns about this in our telephone conversation showed that the detection system could only see one foot below ground directly beneath the probe. This would be the best it could do, and as the angle away from the detector increased, the distance it could see into the ground also would decrease. One is lead to believe that it is possible that the detection system could miss a hidden source buried near the center of the grid. (1)

The report stated the gamma detection system was calibrated against a pressurized ionization chamber (PIC) for conversion to μR/hr. The problem with doing this is that the sodium iodide detectors and the PIC respond differently to the gamma ray energy and the subsequent radionuclide mix in the ground around them (the ambient gamma field). Moving more than a few feet in any direction would invalidate a calibration

like this. You could not be assured, therefore, of the detection limit of any particular radionuclide you might be interested in.

To adequately perform this ambient gamma survey, I would have suggested at the very minimum, a three by three inch sodium iodide. Multiple large detectors would have been better. These detectors would be somewhat collumnated to look at the ground only. It would have been better to use a lesser spacing in my detection grid (approaching ten feet). More work would have also done on the front end to know about detection depths as a function of distance both directly underneath and at a distance away from the detector.

There are similar concerns about the walking survey. Detection at depth is an important consideration as well as detector energy response. The report stated that the operators had the instrument traverse a 180-degree arc in four seconds. This is much too fast to allow the instrument to respond or an operator to note the response. It was stated later that the 180-degree arc in four seconds was not quite true, so the correct statement needs to be made in a report revision.

The study did not address anomalies in the data like a higher reading being noted in the end of a grid with no follow up in the following grid, or the following grid being "inaccessible." As grid lines are not absolute, this explanation is poor.

The two survey techniques described in the report are used to identify where soil samples are collected. If the criterion was that samples are collected where there is a 5 μR/hr difference, one cannot reasonably be assured that you have in fact detected it due to the calibration and system problems noted in the detection gear. This again leads to the conclusion that the survey could have missed radionuclides in the ground or buried sources.

The laboratory data is inconsistent in volumes II, III, and IV. There is missing chain of custody information for sections, missing calibration

information, and the information is hard to follow. Laboratory data quality seems to vary directly with the contractor staff person in charge. From my perspective, data review and data validation of contractor laboratory data is vitally important. Was a formal data validation performed or was the laboratory data accepted carte blanche? I see only a few places where data was questioned. Two incidents stand out: the supposed hot particle shown in one sample and the sample containing cobalt-60. From my perspective, I would have wanted to know that in fact I had a hot particle, not just a theory. I would also want to know why cobalt-60, with a five year half life, is in any sample at Rocketdyne. There are no credible release pathways to get cobalt on this site from outside of it.

The Committee to Bridge the Gap did some statistical analysis on the background locations chosen for comparison to Rocketdyne locations in the study and presented these concerns at the last public meeting. I see the same problem in my review of the study and would suggest that Rocketdyne either further support its choice of backgrounds, or redefine backgrounds and show their significance to the onsite findings. Since background locations define what might have to be cleaned up, this discussion is vitally important.

As a final comment, it is shown that every area under remediation (some 25% of Area IV) is excluded from this survey. This report is not quite complete without this information. The reader is left wondering what additional work is going to occur in the remediation areas, what cleanup goals were obtained, how the remediation areas and the rest of the site interrelate, and how this information might be shared (a bunch of separate reports or a compilation report). I would suggest a bridging document which is a summary of all site characterization and remediation work: "one stop shopping" if you will. A document such as this would bolster Rocketdyne's position that the site is clean.

I have shared a lot of other comments with Rocketdyne and you and feel that most of these concerns have been addressed to some degree. What I suggested to you was that the Region ask for a revised document with our concerns addressed.

If you have any questions about my comments, please call me at (702) 798-2461 or E-mail me at dempsey.gregg@epamail.epa.gov.