DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

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NMED Hazardous Waste Bureau

A. David Budak
Deputy Base Civil Engineer
550 Tabosa Avenue
Holloman AFB NM 88330-5840

New Mexico Environment Department
Attn: Mr. John Kieling (Acting Chief)
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe NM 87105-6303

Dear New Mexico Environment Department

Holloman Air Force Base is pleased to submit the Selection Criteria for PID Screening Levels at sites SD-27 and SS-39 for your review as directed by Mr. Brian Salem during his 8 Feb 12 site visit.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Mr. David Scruggs of our Asset Management Flight at (575) 572-5395.

Sincerely

A. DAVID BUDAK, GS-14, DAFC

Attachment:
Selection Criteria for PID Screening Levels

cc:
(w/ Atch)
Mr. David Strasser
Hazardous Waste Bureau
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Albuquerque NM 87109

(w/o Atch)
Mr. Will Moats
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USEPA, Region 6 (6PD-F)
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Dallas TX 75202

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SELECTION OF PID SCREENING LEVEL FOR SOIL EXCAVATIONS AT SITES SD-27 AND SS-39, HOLLOMAN AIR FORCE BASE, NM

On February 8, 2012, Brian Salem of NMED requested that Tetra Tech provide the photoionization detector (PID) meter reading that will be used as an indicator of when the excavation of contaminated soil is complete at Sites SD-27 and SS-39. Use of the PID as a field screening tool during the excavation is one of several criteria that will help determine when clean soil has been reached, when excavation can stop, and when confirmation samples will be collected. Other important criteria include the presence of visible staining (as was noted in the soil cores), olfactory evidence (as noted in the soil cores), and the extensive set of soil samples with laboratory results that define the pre-excavation area of impacted soil in three dimensions at each site. As documented in the ACM Addendum report for SD-27 (Tetra Tech, 2012), the lateral and vertical limits of the soil excavation are determined by the area of soil that exceeds the vapor intrusion (VI) to indoor air 1e-5 risk level (it is noted that this area includes all soil that also exceeds direct contact risk). Therefore, the goal of the excavation is to remove soil that exceeds the VI 1e-5 risk level for any chemicals of concern (COCs). At SS-39, the limit of proposed soil removal at most excavations sites is also guided by the goal of removing soil that exceeds VI cleanup goals, although not exclusively (i.e., does not apply to metals).

Site SD-27

The soil boring logs for the 31 soil borings installed at SD-27 during the ACM site investigation are provided in the ACM Addendum report (Tetra Tech, 2012). The logs include the PID meter (10.6 eV lamp) readings recorded during examination of the soil cores and selection of samples that were sent to the laboratory for analysis. These readings have been plotted on a line graph to demonstrate the range of PID readings in parts-per-million (ppm) that were observed for all samples, including duplicates. PID readings were available for 80 soil samples (readings were not recorded for 3 samples). For plotting purposes, PID readings of "0" were plotted as 0.015 on the graph to visually document their existence in the data set.

Two graphs were created using the above described data. Graph 1 displays the PID reading verses the NMED residential direct contact (DC) SSL and Graph 2 displays the PID reading verses the calculated VI SSL. In Graph 1, samples that contained one or more chemicals that exceeded the NMED DC SSL are identified in red; samples in blue did not contain an exceedance. In Graph 2, samples that contained one or more chemicals that exceeded the calculated VI SSL are identified in red; samples in blue did not contain an exceedance. A marker line indicating a PID reading of 50 ppm has been provided on both graphs.

On Graph 1, it is shown that use of a PID screening level of 50 ppm will result in a high degree of confidence that any soil that exceeds DC SSLs will be excavated. On Graph 2, it is shown that use of a PID screening level of 50 ppm will also result in a substantial degree of confidence that most soil that contains an exceedance of the VI SSL will be excavated. While a few samples contained an exceedance of the VI SSL at PID readings below 50 ppm (4 of 80 samples), the occurrence is limited. Use of a PID reading of 50 ppm is also deemed reasonable in light of other field observations and laboratory data

that will be employed to make the field determination of when clean soil has been reached (i.e., olfactory and/or staining evidence and the mature set of pre-excavation soil samples results that confidently delineate the limits of impacted soil). Subsequently, confirmation samples will be collected from both the side walls and bottom of the excavation to document the post-excavation site conditions.

Site SS-39

The soil boring logs for the 16 soil borings installed at SS-39 during the ACM site investigation are provided in the ACM Addendum report (Tetra Tech, 2012). These logs include the PID meter (10.6 eV lamp) readings recorded during examination of the soil cores and selection of samples that were sent to the laboratory for analysis. It should be noted that the ACM soil sample locations at SS-39 were step out locations intended to delineate the lateral and/or vertical extent of contamination impacts around previously identified hot spots (based on previous investigations). The ACM laboratory sample results show that relatively few of the ACM samples contained detections of chemicals or detections that exceeded cleanup criteria. Consistent with the laboratory evidence, the PID readings for all of the ACM samples were very low or "0". It is also noted that the 10.6 eV lamp used in the PID meter is not capable of ionization of some of the chlorinated chemicals that were detected during the previous investigations (e.g., 1,1,1-TCA, methylene chloride). In light of these results, an attempt to plot and interpret the PID data with regard to SSL exceedances was not conducted.

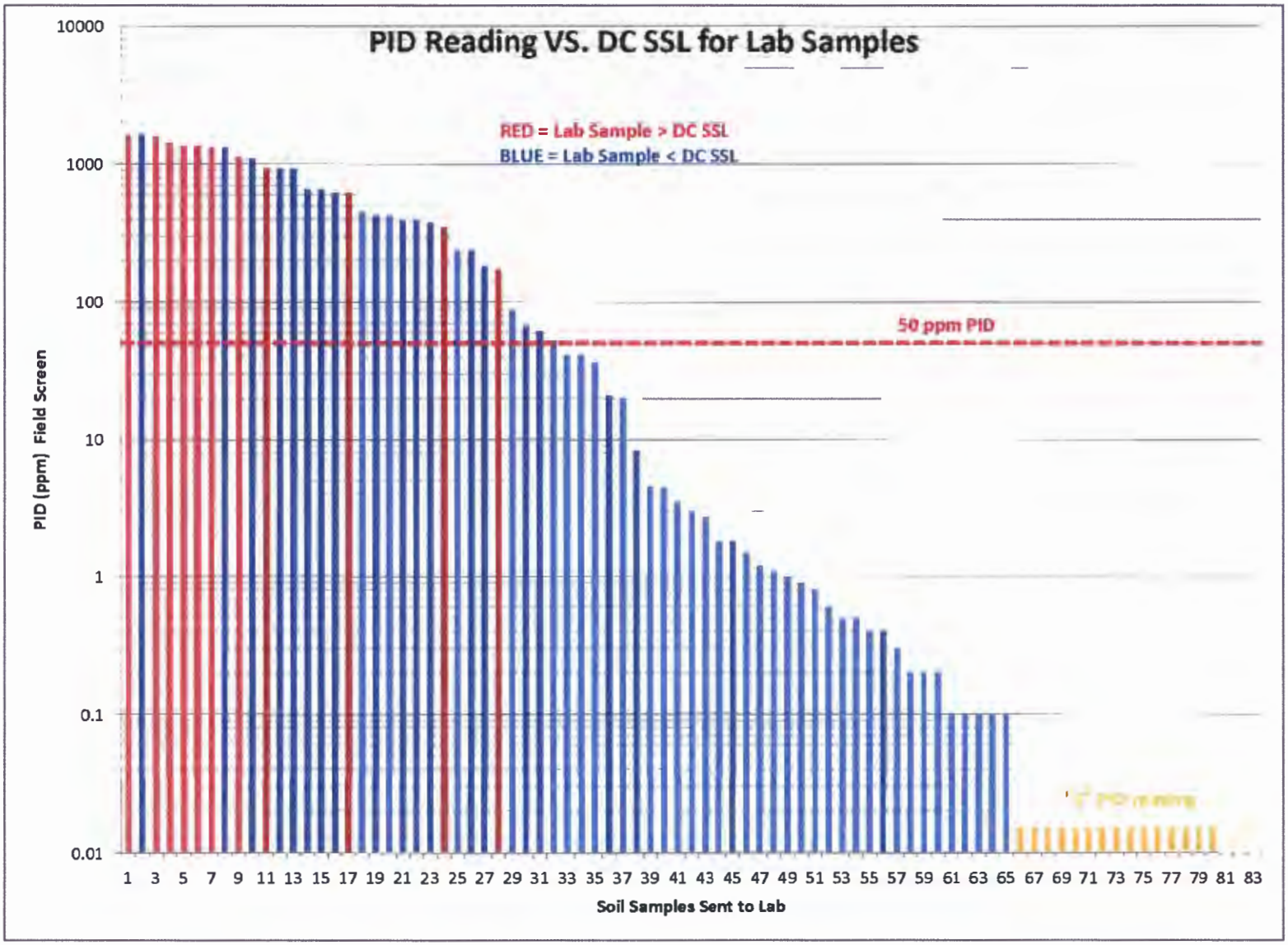
With the limited extent of contamination around the identified hot spots (sumps and collection boxes known to be potential point source release locations based on site history) and the relatively low concentrations of chemicals detected in the step out samples (orders of magnitude below hot spot concentrations for VOCs), it has been determined that the extent of contamination is well known prior to conducting the excavation at SS-39. In addition, the excavation of metals in soil at some locations does not benefit from PID screening. For all excavation areas, confirmation sampling will be conducted per the work plan.

Recommendations

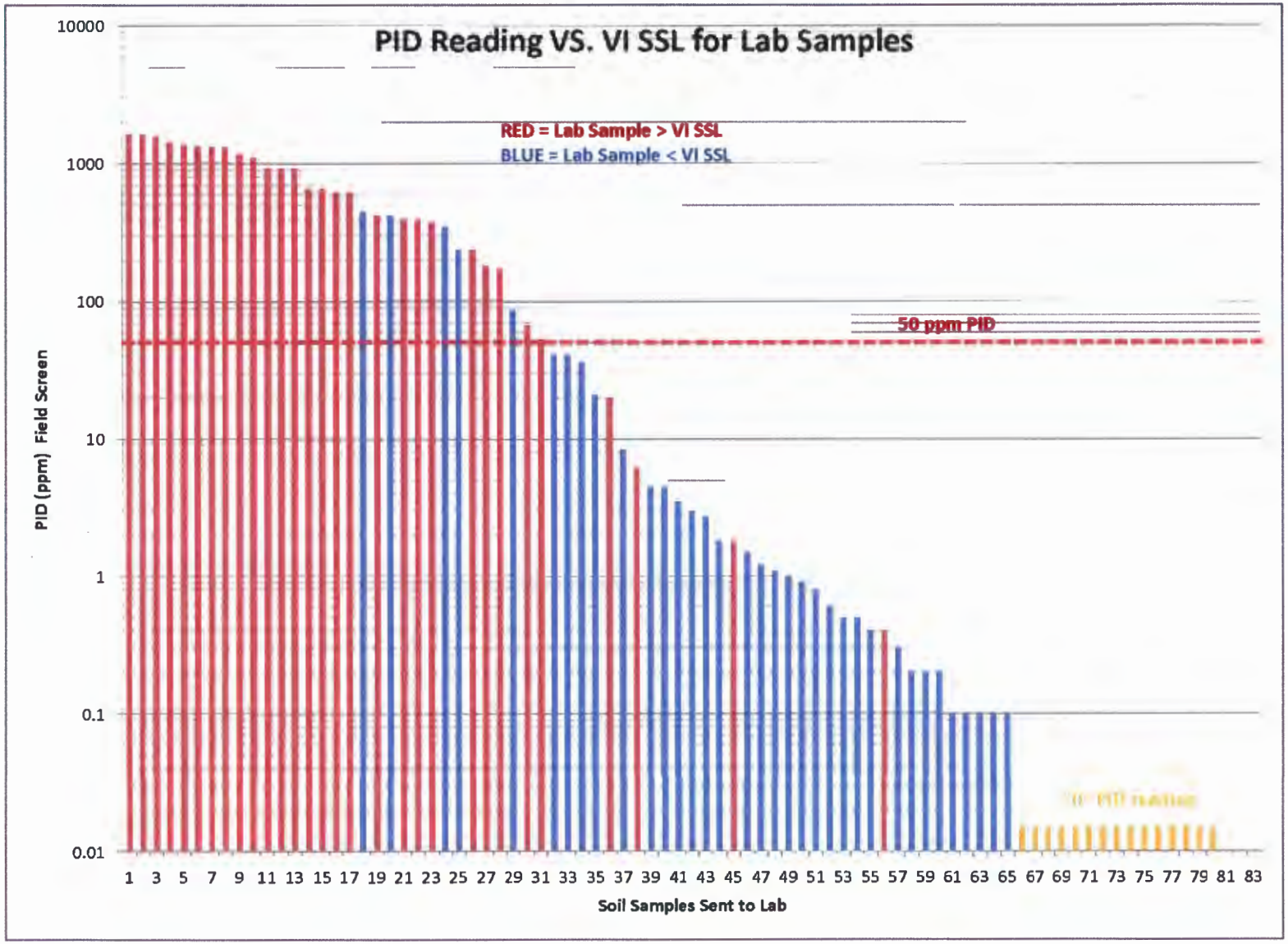
At Site SD-27 it is recommended that a PID field screening level of 50 ppm be used as the real-time indicator that the excavation has reached soils that meet the cleanup goals for VI risk. The PID meter should contain a 10.6 eV lamp that is appropriate for the petroleum fuel related chemicals detected at the site. However, as stated above and in the work plan, other field indicators may be used to extend excavation beyond the a PID reading of 50 ppm.

At Site SS-39 it is also recommended that a PID field screening level of 50 ppm is a reasonable real-time indicator that the excavation has reached soils that meet the cleanup goals for VI risk. The PID meter should contain an 11.7 eV lamp that is appropriate for the chlorinated chemicals detected at the site. However, as stated above and in the work plan, other field indicators may be used to extend excavation beyond a PID reading of 50 ppm.

Graph 1:


PID Reading VS. DC SSL for Lab Samples
RED = Lab Sample > DC SSL
BLUE = Lab Sample < DC SSL
50 ppm PID
PID (ppm) Field Screen
10000
1000
100
10
1
0.1
0.01
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83
Soil Samples Sent to Lab

Graph 2:


PID Reading VS. VI SSL for Lab Samples
RED = Lab Sample > VI SSL
BLUE = Lab Sample < VI SSL
50 ppm PID
PID (ppm) Field Screen
10000
1000
100
10
1
0.1
0.01
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83
Soil Samples Sent to Lab