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**U.S. Army Corps of Engineers**

Via email: david.s.clark@usace.army.mil

Attention: David Clark, Project Manager

Subject: **Comments**  
**Remedial Action Work Plan**  
Former U.S. Customs and Border Protection Firing Range  
Nogales, Arizona

Dear Mr. Clark:

GeoTek Contracting and Remediation, LLC (GeoTek) is submitting the following comments to the Remedial Action Work Plan for the Former US Customs and Border Protection Firing Range, referred to as the Site in the document titled *Final Remedial Action Work Plan for the Former U.S. Border Protection Firing Range, Nogales, Arizona* prepared by Sol Solutions, LLC and J.C. Palomar, Inc. Joint Venture (Sol-JCP, LLC), dated January 2018 (referenced as the Work Plan in these comments). GeoTek personnel, who formerly worked for Allwyn Environmental, completed a Phase I Environmental Site Assessment (ESA) of the Site and several other Phase I/II ESAs on properties adjoining the Site. As a result, we are very familiar with the environmental issues associated with the Site and adjoining properties. Based on this knowledge and as outlined in the following comments, it is our professional opinion that the proposed Remedial Action does not adequately address the environmental impacts to the Site and the adjoining Properties resulting former activities at the Site, nor will it attain the Remedial Action Objectives (RAOs) outlined in the Work Plan.

1) General

The Remedial Action addresses only the Site. However, Allwyn Environmental conducted a Phase II Environmental Site Assessment (ESA) on land immediately adjoining the Site and documented the results in a report titled *Phase II Environmental Site Assessment, Two Properties Impacted by Small Arms Shooting Range (Parcel Nos. 113-49-006 and 113-49-027)*, dated December 11, 2009 and discovered off-Site soil contained lead in concentrations up to 25,000 milligrams per kilogram (mg/kg). In addition, lead was found to be present in the wash that runs to the west of the Site at concentrations exceeding the Project Action Level (PAL) for lead. The Remedial Action does not address contamination on these surrounding properties, which was likely caused by historical operations at the Site.

2) The Remedial Action does not address potential lead impacts to groundwater. In accordance with Arizona rules and regulations, residual concentrations in the soil cannot cause or threaten contamination of groundwater to exceed an Aquifer Water Quality Standard (AWQS) or surface water standard. The Arizona Department of Environmental Quality (ADEQ) has established minimum Groundwater Protection Levels (GPLs), which are soil cleanup levels considered protective of groundwater quality. As listed in *A Screening Method to Determine Soil Concentrations Protective of*

*Groundwater Quality*, dated September 1996, the minimum GPL established for lead is 290 mg/kg. The Work Plan should be revised to describe how the Remedial Action will be conducted to address potential groundwater contamination due to past activities at the Site, including activities such as groundwater assessment, groundwater remediation (if necessary), alternative GPL calculations (if necessary), and soil remediation to GPL standards.

3) General

The site is enrolled in the ADEQ Voluntary Remediation Program (VRP) and is identified by Site Code 511695-00. The Work Plan does not address these program requirements or the goal to obtain a determination from ADEQ that no further action is required to address contamination at the site (NFA Determination). What role, if any, will ADEQ have in the cleanup of this site? What type of regulatory agency closure is expected to be attained resulting from the Remedial Action?

4) General

Persons and firms providing services regulated by the Arizona Board of Technical Registration (BTR) must be certified and registered with the BTR. In addition, firms providing contracting services must be registered with the Arizona Registrar of Contractors. Sol Solutions, LLC, J.C. Palomar, Inc., or the Joint Venture (Sol-JCP, LLC) do not appear to meet either of these requirements.

5) Section 1, Page 1

The Work Plan states the State of Arizona, through ADEQ and the U.S. Environmental Protection Agency (EPA) are the regulatory agencies for this remediation. The State of Arizona has primacy for hazardous waste management, stormwater control, and air quality, so it is unclear what jurisdiction EPA has for this project.

6) Section 2.1, Page 2

The document states the Site is located on Santa Cruz County Assessor's Parcel Number (APN) 112-29-010B and is depicted in Figure 2. However, the U.S. Border Patrol Firing Range is shown encroaching on APNs 113-49-027 and 113-49-006 to the west and APN 113-49-027 to the south. Are these areas included in the proposed Remedial Action?

7) Section 2.1, Page 2

In this section and elsewhere throughout the Work Plan, the document attributes certain statements to Allwyn documents. For example, the Work Plan states USCBP continues to lease the property from the current property owner, Mr. Arbo; however, the information in the 2009 Phase I ESA report should not be used to identify the current ownership and lessee at the Site.

8) Section 2.4.1, Page 4

The document states a Phase II investigation was completed at the Site in 2009 (Allwyn Environmental, 2009). This is not correct. Allwyn completed a Phase II ESA of a limited area surrounding the Site but did not conduct a Phase II ESA of the Site.

9) Section 2.4.2, Page 5

The Work Plan states arsenic is present in soil at a concentration up to 22.8 mg/kg, which exceeds the 2014 EPA Regional Screening Level (RSL) for residential soil of 0.39 mg/kg. The appropriate PAL should be the State of Arizona Soil Remediation Level (SRL) of 10 mg/kg for residential and non-

residential uses. Furthermore, the Work Plan states arsenic is not a chemical of concern (COC) because the concentrations were consistent with both local and regional background levels of arsenic, ranging from 10 mg/kg to 40 mg/kg. While State of Arizona regulations allow background concentration to be used as a cleanup standard, a site-specific determination must be made to demonstrate the existing soil concentration represents the background concentration. Has a site-specific determination been made to demonstrate that the on-Site arsenic concentrations are representative of background concentrations?

10) Section 3.1, Page 6

As discussed in Comment No. 2, the Remedial Action does address potential groundwater impacts due to past activities at the site. The PALs must include minimum GPLs or usage of minimum GPLs.

11) Section 3.1, Page 6

The PAL should include the regulatory limit of 5.0 milligrams per liter (mg/L) for the characteristic hazardous waste level for lead.

12) Section 4.1.1, Page 7

The figure does not delineate the Exclusion Zone.

13) Section 4.2.2, Page 10

It is unclear why the residential SRL of 400 mg/kg was chosen to segregate the stockpiled soil based on hazardous waste classification, especially when the stockpiled soil will be disposed based on its hazardous waste profile. SRLs are risk-based standards used only to identify the soil concentration such that soil can be left on the Site and be protective of public health and the environment for different exposure situations; therefore, SRLs are completely independent of hazardous waste standards and do not necessarily provide an indication of whether a solid waste is a hazardous waste. A more appropriate method to use for initial screening is the "20 times rule", whereby the concentration of a metal is compared to 20 times the corresponding hazardous waste regulatory level for toxicity in 40 CFR 261.24 to assess whether the soil would be classified as hazardous waste if it was excavated. For lead, the screening level calculated using the 20 times rule is 100 mg/kg.

14) Section 4.1.7, Page 9

The report does not state if an evaluation for the need of a demolition permit was performed.

15) Section 4.1.7, Page 9

Federal and State rules and regulations for proper handling, treatment, and disposal of asbestos-containing materials and lead-based paint are applicable regardless of the age of the structure. It is likely that assessment of the structures for these materials will be required prior to demolition.

16) Section 4.1.8, Page 9

The area disturbed by the Remedial Action, including actual excavation area and roadways, is likely to result in the requirement to obtain a Stormwater Permit and/or Dust Control Permit. The Work Plan does not state whether these permit requirements were evaluated. In addition, excavation activities will likely impact the wash that runs west of the Site. The Work Plan does not state whether Clean Water Section 404/401 requirements were considered.

17) Section 4.2, Page 9

The Work Plan states soil stockpiled from the western portion of the site will likely be classified as a hazardous waste due to the lead characteristic and soil excavated from the eastern portion of the site may be classified as non-hazardous waste, and excavated soil will be segregated pending profiling and disposal. However, only one stockpile area is shown in the unlabeled figure depicting the Site. It is unclear how the materials will be stockpiled to prevent cross-contamination.

18) Section 4.2.1, Page 10

The Work Plan states in this section and throughout the document that an X-ray fluorescence (XRF) spectrometer will be employed to field-screen excavated areas for metals in real time and the XRF-measured concentrations will be compared directly against the Project Action Level (PAL) for lead. The Work Plan implies the lead concentration measured by the XRF is equal to the actual soil concentration; however, this is almost certainly not the case. What methodology will be employed to assure accurate assessment of the lead concentration is obtained?

19) Section 4.2.1, Page 10 and Section 4.2.2, Page 11

The Work Plan states the presence of nuisance dust will be monitored throughout construction activities using a dust meter, which is assumed to be located within the Air Monitoring Station shown located in the eastern portion of the Site. The Work Plan states that if dust readings exceed 1 milligram per cubic meter, engineering controls will be implemented to mitigate dust generation. In addition, stockpiles will be covered at the end of each workday or when speeds exceed 15 miles per hour. The Work Plan does not state how fugitive dust will be mitigated, nor does it outline methods to prevent lead-containing dust from migrating from the excavation area or stockpiles onto the adjoining properties. Since the areas containing the highest lead concentrations in soil are located along the western and southern boundaries of the Site (and away from the dust meter), it is probable that lead-containing dust will be borne by wind onto the adjoining properties and further contaminating them with lead.

20) Section 4.2.3, Page 11

The use of the XRF for confirmatory assessment to support site closure is generally not adequate or approved by ADEQ.

21) Section 4.2.3, Page 12

The Work Plan states that if COC concentrations are greater than PALs and additional funding is not available, one option is to backfill or leave the site as is. Because at least some of the excavated soil is likely to be classified as a hazardous waste, there are several hazardous waste ramifications to be considered that are not addressed in the Work Plan. First, the excavated material cannot be used for backfill because the generator does not have a permit to dispose hazardous waste at the site. Second, hazardous waste cannot remain on the site for more than 90 days because the generator does not have a permit to store hazardous waste at the site. Since this Option (b) is listed as a potential contingency for the Site, these issues should be adequately addressed in the Work Plan.

22) Section 4.3.1, Page 12

It appears that one composite sample will be collected from the “representative bucket” generated from each excavation grid by adding one scoop of soil from each bucket of soil excavated from the grid (i.e., 15 buckets for the 15 excavation grids). However, in Section 4.2.1, the Work Plan states

that soil will be stockpiled based on the XRF reading. Section 4.2.1 should be revised to state that soil will be stockpiled and adequately labeled based on excavation grid.

23) Section 4.3.2, Page 13

The Work Plan states soil classified as a hazardous waste will be transported to US Ecology in Beatty, Nevada; treated using a pozzolanic stabilization process; and disposed as a non-hazardous waste. Has the option to treat the soil on-Site using a similar process been considered?

24) Section 4.3.2, Page 13

The Work Plan states soil stockpiles for which the associated profile sample contains lead in a concentration less than 5.0 mg/L using the Toxicity Characteristic Leaching Procedure (TCLP), the soil will be managed as a non-hazardous waste and shipped to the Marana Regional Landfill. If the analytical results demonstrate the soil is non-hazardous and the soil concentrations are less than 290 mg/kg (the lower PAL), has consideration been given to using this soil as backfill material?

25) Section 4.3.4, Page 13

As stated previously, soil containing up to 25,000 mg/kg exists on the properties adjoining the Site. The site restoration activities make no mention of controls to prevent lead contained in stormwater run-on or wind-borne dust from the adjoining sites from migrating onto the Site and causing exceedances of the PAL. The Work Plan should include provision of site restoration features to prevent re-contamination of the site.

26) Section 4.3.4, Page 13

The Work Plan states 3 samples will be collected from the borrow material to be used to backfill the Site excavation, and sample analytical results will be compared to residential RSLs to confirm the materials are "clean". As discussed in earlier comments, the appropriate PAL should be the minimum GPL of 290 mg/kg. In addition, based on information provided in the Work Plan, approximately 7,900 tons of backfill material will be brought onto the Site, which equates to approximately 400 truckloads of soil. What was the statistical method used to demonstrate that three samples from the 400 trucks were sufficient to conclude that the material did not contain COCs in concentrations above the PAL? Also, what is the methodology to be used to collect the samples?

27) Section 4.3.4

The Work Plan does not address potential contamination of soil underlying and surrounding the soil stockpile area. The Work Plan should be amended to describe the process by which the area will be assessed and remediated, if necessary.

Respectfully submitted,  
**GeoTek Contracting and Remediation, LLC**

Tod R. Whitwer, P.E.  
Principal

