

Appendix M
Response to Agency Comments Tables

Comment/Response Table (Revised 9/27/06)

Draft Remedial Investigation Work Plan submitted for review 22 June 2006; comments received 23 August 2006

Former Trabuco Bombing Range, Rancho Santa Margarita, CA

Comments provided by: Omo Patrick, Project Manager, Dept. of Toxic Substances Control (DTSC), in a letter dated 18 August 2006.

Comment Number	Page/Reference	COMMENT	RESPONSE
1	General	The RI Work Plan made a lot of references to procedures that would be developed and implemented based on the USACE guidance and manual. DTSC is not familiar with these guidance and manuals referenced. DTSC recommends that the ACE provide as an appendix copies of sections from these guidance and manuals used in the development in the RI Work Plan.	The referenced material cited is public information on the internet that can be readily accessed by search engine. The reference material is too voluminous to include in the field work plan. Consequently, ITSI has provided a copy of the subject references to DTSC on CD.
2	General	<p>It is stated that “two percent of the remaining undeveloped acreage at the former Trabuco Bombing Range will be characterized by geophysical methods followed by intrusive investigation. This is more than the 1.5% minimum acreage required by the USACE’s Engineering Manual EM 1110-1-4009, Section 7.10, and as presented and agreed at Technical Project Planning meetings with stakeholders.”</p> <p>DTSC typically requires 100% total geophysical survey coverage and anomaly investigation of all former arms and bombing ranges. However, based on site specific conditions, this requirement is subject to the current and future land use, the environmental condition, and the topography of the area? DTSC requires the ACE provide the basis for the 1.5% minimum acreage requirement. What is the scientific rational this requirement is based on? Has this manual been scientifically peer reviewed?</p> <p>Furthermore, the stakeholders were provided limited information without the benefit of reviewing the ACE’s guidance and manuals referenced during the technical project planning meetings. The stakeholders agreed to the proposed concept for the RI Work Plan development with the caveat that the stakeholders reserve their right to comment on the RI Work Plan or to request additional information as deemed applicable and relevant to the Trabuco Remedial Investigation.</p>	<p>Remedial Investigations of this type are meant to characterize a site for further decision-making, and not intended to provide 100% coverage. The USACE Engineer Manual, Engineering and Design, Ordnance and Explosive Response, EM 1110-1-4009, Chapter 7, Table 7.4, Pg 7-24 lists 1.5% geographical coverage as the minimum for investigations of 150 to 1000 acres. The USACE guidance of 1.5% geophysical coverage for an investigation has empirically proven itself at numerous MMRP sites to be the most reasonable balance of technical effectiveness and cost to provide a representative sample for site investigations. This representative sample is subsequently used as a decision-making tool to determine a remedial action plan. In addition, the USEPA accepts 1.5% as a statistical representation when characterizing a site.</p> <p>The TPP is created as a vehicle for the exchange of information; as such the meetings are a tool for the stakeholders to request information. USACE provided the stakeholders with a CD that contained the site data at the first meeting, and guidance regarding the TPP process was provided at the second meeting. DTSC is invited to take advantage of the TPP process by requesting the information and guidance they lack.</p>
3	General	Please note and revise all applicable pages of the RI Work Plan to reflect that the Innovative Technical Solutions, Inc., Project Manager (PM) will discuss all significant potential modifications with the USACE, State PM, and other Stakeholder Representatives for discussion, concurrence or approval, and acceptance.	Comment noted, contractually ITSI’s project point of contact is the USACE Project Delivery Team (PDT) led by the Project Manager. DTSC/stakeholders functional access to the project is the USACE Project Manger or PDT, however as we have already seen there is a dynamic communications network where information flows from USACE and our contractor to DTSC and stakeholders.

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Comment Number	Page/Reference	COMMENT	RESPONSE
4	General	DTSC strongly recommends that soil sampling depth must be based on geomorphic data produced by erosion since the project site has undergone multiple erosions in the past 20 years. The proposed soil sampling depth of 0-2 inches may provide little to no information on the residual munitions constituent.	The USACE recommends a site specific sample depth of 2 inches at Trabuco based on (1) Cold Regions Research Laboratory (CRRL) studies have shown that MC dispositions are typically located on the top 2 inches of the surface, (2) The Military Munitions Center of Expertise, Technical Update March 2005, Munitions Constituent (MC) Sampling page 3, recommends 0-2 inch sampling depth, (3) much of the proposed sampling locations are areas that have been undisturbed and undeveloped with limited access, (4) sample collection at a deeper depth may bias the results on the low end due to sample dilution. As a field-directed change, samples can be taken at a deeper depths if there obvious erosion, development, overlying soil disturbance or soil piles at the pre-selected sample location.
5	Section 3.2, Identification of Areas of Concern, Page 3-9, Bullet 2	The bullet states that "The pathway for human exposures...In other words, there is no reason for humans to be exposed to materials that are buried 20 to 30 feet deep under the golf course." DTSC require the ACE to verify that the MEC buried is not leaching to groundwater. Since groundwater within the site and burial location occurs primarily in the water-bearing alluvial and colluvial deposits within, and adjacent to, the Arroyo Trabuco and Tijeras stream courses, the impact of potential MEC leaching to groundwater must be discussed and addressed as part of the remedial investigation work plan and report.	The USACE agrees to open discussions with DTSC for satisfactory resolution of the golf course burial site issue. The USACE intends to undertake the current field investigations as written in the work plan.
6	Figure 3.2, Proposed Geophysical Transect and Grid Locations	Please provide additional transect and grid to cover the south east of Target-108 and the Chiquita Ridge Wilderness area. The DTSC Project Geologist electronic version of this comment will be emailed separately to the ACE Project Manager.	Agreed and comment incorporated.

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Comment Number	Page/Reference	COMMENT	RESPONSE
7	Chapter 7, Environmental Protection	The draft RI Work Plan submitted failed to address the endangered-species specific mitigation measures during the RI activities. As a result, DTSC requires the inclusion of the endangered-species specific mitigation measures in the final RI Work Plan. The information will enable our eco-toxicologist to better evaluate the RI activities impact, if any, on the endangered-species health and habitat. Additionally, a certified Biologist and archeologist are required as part of the field team during the RI activities.	<p>USACE will update the work plan with a figure of the work area compared to biological concerns and describe that the project will avoid areas of sensitivity with the use biological field assistance. A USACE (or other) biologist will exercise avoidance during the implementation of its field program when it is in sensitive areas designated in the figure. DTSC Eco-biologists have subsequently visited the site and are in agreement that avoidance measures are the preferred alternative to complete project activities at the site.</p> <p>The USACE biologist has been actively engaged in the preparations, planning, and implementation of the field program. Specifically the following mitigation measures will be undertaken:</p> <ul style="list-style-type: none">- Endangered species habitat has been identified and will be avoided during the investigation.- The USACE (or other) biologist will be present during startup for personnel training for identification of threatened and endangered species and habitat.- As safety allows, the USACE biologist will review riparian areas with the investigation crew to provide first hand identification and instruction of what areas to avoid.- These measures will be incorporated into the work plan. <p>With regard to the cultural comment; USACE MMRP activities operate under a programmatic agreement with the State Historical Preservation Office. The USACE Cultural Resource Specialist will be present at ground disturbing activities (as safety allows) and as outlined in the Programmatic Agreement.</p>

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Comments provided by: Alice Gimeno-O'Brien, DTSC Cypress, in a letter dated 18 August 2006.

Comment Number	Page/Reference	COMMENT	RESPONSE
1	Page 1-1, section 1.1 Project Authorization, paragraph 1.1.b	<p>It states, "... on site actions will not require Federal or State permits;"</p> <p>State substantive requirements applicable to treatment, i.e., for blow-in-place (BIP) or on-site consolidated detonation of munitions and explosives of concern (MEC) must be addressed as Applicable or Relevant and Appropriate Requirements (ARARs) in any CERCLA activity. California Code of Regulations, title 22, section 66264.600, article 16, "Miscellaneous Units" should be identified as an appropriate ARAR for BIP or treatment of MEC. At a minimum, DTSC requires that all proposed removal actions for MEC during the remedial investigation (RI) must meet state regulatory requirements contained in the California Health and Safety Code section 25356.1. An MEC removal action plan or remedial action plan, or equivalent documents, approved by DTSC must incorporate all substantive requirements of state law, including public participation and review, California Environmental Quality Act compliance, and all other technical elements to ensure protection of public health and the environment. Please incorporate.</p>	<p>Comment noted, as in similar efforts underway and already completed, USACE believes this RI/FS work plan meets and is equivalent to the DTSC requirements as discussed in this comment. We will add text stating that USACE considers the RI WP equivalent to the RAW RAP process.</p>
2	Page 3-4, first bullet	<p>The second sentence references a conceptual site model. Where is the conceptual site model (CSM) presented in this work plan? A preliminary CSM should be included in this document.</p>	<p>Agreed and comment incorporated.</p>

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Comment Number	Page/Reference	COMMENT	RESPONSE
3	Page 3-3	<p>Geophysical surveys will be conducted on approximately 10 acres using a combination of 100-foot by 100-foot grids, 3-foot wide meandering path, and 3foot wide transects. Two of the ten acres will be kept in reserve for field results from the geophysical survey and intrusive investigation. Please note that DTSC should be involved with the decision process for selecting the location of these reserve grids.</p> <p>Step 6: A meandering path is proposed for the majority of site. Should there be more transect lines or more grids in the vicinity of the adobe hut since this was a potential bomb target area? How were the other grid locations selected? Would it be better to determine MC sampling locations after the geophysical survey and intrusive investigation to determine high density MEC areas?</p> <p>Step 7 Optimize the Design for Obtaining Data, first bullet: It states that data collected from the grids near the suspected bomb target areas will provide valuable information on MEC density. Will MC sampling be done in these areas of higher MEC density?</p>	<p>DTSC has been involved in the planning process throughout the project participating in four TPP meetings. A portion of the 2 acre sampling area held in reserve has been allocated to the Chiquita Ridge Wilderness area, in Response to Omo Patrick Comment 6. Lastly, the remaining acreage is held for field direction to high density MEC areas based on the on-going investigation. DTSC is welcome to join the site geophysicist at the site as the investigation results are collected and interpreted.</p> <p>As shown on Figure 3.2, Proposed Geophysical Transects and Grid Locations, the highest allocation of transects, grids, and meandering paths are in the vicinity of the Adobe Hut, as noted by the commenter. Other grid locations include undeveloped areas closest to two additional targets, the Geophysical Proveout site, and the magazine and demolition sites. The geophysical survey will be used to influence the Phase II MC Sampling locations as suggested.</p> <p>Agreed and comment incorporated. Phase I sampling will be conducted to determine the presence or absence of MC contamination. As suggested, results of the geophysical survey will be used to steer the location of the follow-on Phase II samples.</p>
4	Page 3-7, paragraph 3.1.5.b	It states, "The procedures outlined in this Work Plan are for non-time critical removal actions." The work entailed in this work plan is for an RIFS which is to lead to a final remedy for the site. Removal actions for BIP may be undertaken during the RI. Please clarify what is being referenced as the non-time critical removal actions.	Comment incorporated and text corrected to say "Remedial Investigation".
5	Pages 3-8 and 3-9, paragraphs 3.2.g and 3.2.h	Several tons of MEC were buried 20 to 30 feet beneath the current surface of the 8th fairway of the Tijeras Creek Golf Course and Army Corps does not intend to investigate this area. What types of impacts could this mass of MEC be in terms of fate and transport of potential MC, metal content, the heavy irrigation on the golf course, the proximity to groundwater, etc? Will this area be included in the base line risk assessment? Please clarify.	The USACE agrees to open discussions with DTSC for satisfactory resolution of the golf course burial site issue. The USACE intends to undertake the current field investigations as written in the work plan.
6	Page 3-18, paragraph 3.4.2.6.a	It states that 3-foot line spacing will be used for the grids per the geophysical prove-out (GPO). However, the conclusions and recommendations on Page 36 of the GPO states that the grid based surveys will be spaced 2.5 feet apart. Please reconcile this difference.	Agreed and comment incorporated that the line spacing for grids is 2.5 feet apart. The 3 feet width is for meandering path width, while the 2.5 feet is for additional coverage for line spacing in grids.

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Comments provided by: Alice Gimeno-O'Brien, DTSC Cypress, in a letter dated 18 August 2006 (continued).

Comment Number	Page/Reference	COMMENT	RESPONSE
7	Page 3-23, paragraph 3.5.1.b	It states, "If acceptable to move, suspected or known UXO/MEC will be placed into the on site explosives storage magazine for destruction at a later date." For clarity, please reference in this sentence the location of the MEC demolition area at the site.	Agreed and comment incorporated.
8	Page 3-27, paragraph 3.5.9.c	Will MC sampling be done pre and post BIP? Please clarify.	Yes. Refer to Work Plan page 414 of 507, Data Quality Objectives, which states " <i>Munitions Constituents analysis (MC) by the collection of soil samples in designated locations and before and after each blow-in-place event.</i> "
9	Page 3-28, paragraph 3.5.12.d	Please include that DTSC will be notified when a BIP will be taking place.	Agreed and comment incorporated.
10	Page 6-5, table 6.2	Please clarify why the practice rockets on this table are designated N/A for net explosive weight (NEW) when table 3.2 on page 3-25 has the practice rockets having fillers of black powder and propellant.	Table 3.2 shows the complete unexpended and unfired rocket contents. The motor for the practice rockets when on the aircraft (before being fired) contained an igniter and propellant charge. However, the practice rockets contained no explosives-filled warhead due to their nature. After the motor is fired, the igniter and propellant are consumed and fully expended to propel the rocket to its destination (i.e. the target), leaving no residual propellant or NEW in the rocket carcass. However, the possibility of finding an unfired rocket exists (dropped off the aircraft without firing) due to the training nature of the bombing range.
11	Page 7-7, paragraph 7.4.a	It states, "This project is a non-time-critical removal action under CERCLA." This project is a Remedial Investigation under CERCLA. Please clarify what is meant here.	This is a misnomer and has been corrected to read "Remedial Investigation".
12	Appendix E, Munitions Constituents Sampling and Analysis Plan, page 1-2	The second sentence states, "This SAP is intended to determine, conclusively, the absence or presence of MCs within the former Trabuco Bombing Range." Please delete the word "conclusively." Just as the Army Corps can not determine conclusively all MEC will be absent after the final remedy, the same can be said about MC. The entire site is 1800 acres and only 500 acres is part of this investigation. Of the 500 acres, only about 10 acres will undergo a geophysical survey and only 20 surface soil samples taken. How was the number 20 for sampling determined?	The word "conclusively" has been deleted. The number of 20 Phase I soil samples was selected by USACE as representative to determine absence or presence of contamination. It is noted that another 20 Phase II samples are held for discretionary sampling during the Remedial Investigation, based on the Phase I results. Samples are biased to locations where there is the highest likelihood of detecting MC. In addition, with the 7-wheel sampling approach we are obtaining a sample that represents a larger surface area as opposed to a single discreet sample. The number of soil samples was presented and discussed with DTSC at the TPP meetings.

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Comment Number	Page/Reference	COMMENT	RESPONSE
13	Page 1-2, last paragraph	How were the sample locations determined? Should sampling locations be determined after the geophysical survey to bias locations to high density MEC areas? Will background samples be taken?	Sample locations were selected as the closest undeveloped area nearest to the former bomb or rocket target. In fact, these should be the locations of the highest density of MEC. In an effort to incorporate the intent of this comment, the Phase II sample locations (discretionary and held in reserve) will utilize the results of the geophysical investigation to direct the location of the Phase II samples. The location of Phase I soil samples was presented and discussed with DTSC at the TPP meetings.
14	Page 1-3, second paragraph	How was the two inch sampling depth determined? Explosive residues are usually within the top 5-10 cm of soil.	See Response to Omo Patrick General Comment 4. The sampling depth of 0 to 2 inches is standard for MMRP FUDS composite soil sampling.
15	Page 1-5, Note at end of table 1.1	Why aren't metals being analyzed during Phase I soil sampling outside of the demolition site?	In response to this comment, USACE agrees to add the metals COCs Iron, Zinc, Titanium and Lead to the analyte reporting list.
16	Page 2-4, second full paragraph, last line	It states, "Proposed sampling locations may change to include areas of noted MEC contamination, if any." Sampling in areas of MEC contamination would be the appropriate biased sampling point.	Agreed and comment incorporated. Phase II MC sampling will be steered towards areas of highest MEC contamination.
17	Page 3-1, bottom bullet	What are the indicator compounds during Phase I?	COC metals Iron, Lead, Titanium, and Zinc are the indicator compounds to be used.
18	Page 3-2, top two bullets	It may be useful to sample for phosphorus and zinc oxide to have as reference numbers for future FUDS MC sampling efforts.	Red Phosphorus (not White Phosphorus) was used as a marker load in spotting charges. There is no analytical method or Human Health risk value for Red Phosphorus, which is why it is not on the analyte list.
19		Please ensure that all sections of the Corps' Military Munitions Center for Expertise Technical Update March 2005, Standard Format for Military Munitions for RI reports are encompassed in the RI report.	Commented incorporated.

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Additional comments provided by Jim Austreng, DTSC Sacramento, in a letter dated 18 August 2006.

Comment Number	Reference	COMMENT	RESPONSE
1		There is an absence of Quality Control (QC) blind seeding in the work plan. It is imperative that the contractor's Q/C efforts include blind seeding of selected grids to validate the field efforts and detection process meet project requirements. It is suggested that the QC program place representative blind seeds in each of the grids. Use of simulants would be acceptable if the geophysical prove-out validated the mass/size needed to simulate the munitions of interest, otherwise inert items must be utilized.	The USACE LA District intends to provide blind seeding on selected grids as part of the investigation. This, of course, is separate and in addition to the Contractor's QC program as stated in the work plan. The project will meet USACE's QC requirements in conformance with the USACE's Data Item Description (DID) MR-005-11 (attached). In addition, blind seeding was conducted by the USACE during the Geophysical Proveout. The existing Geophysical Proveout grid (including blind seeding) is still in place and will be used for instrument calibration, and worker orientation and training.
2		Please provide a copy of the Quality Assurance (QA) Plan and documentation on the blind seeding that is anticipated. DTSC will review the QA plan in anticipation of supplementing the QA program through the use of an independent QA review party. The scope of this independent QA review is site dependent.	The QA Plan is as presented in Section 3, Geophysical Investigation Plan, of the work plan. USACE will include blind seeding as part of its quality assurance surveillance plan for implementation by the USACE geophysicist, a copy of the report will be provided to DTSC.
3		There is no mention in the report that the geophysical interpretations and results will be reviewed by and signed off by a California licensed geophysicist. In accordance with the California Business and Professions Code, Chapter 12.5, Article 7835, documents that include the interpretation of geophysical data must be submitted under signature of a California licensed geophysicist.	Agreed and comment incorporated.

Comment/Response Table

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Comments provided by: Victoria Lake, Staff Environmental Scientist, and Beckye Stanton, PhD, Associate Toxicologist, Department of Fish and Game, Office of Spill Prevention and Response, in a letter dated 12 September 2006.

Comment Number	Page/Reference	COMMENT	RESPONSE
1	Page 1-12, Section 1.6.3b, Table 1-1	Titanium tetrachloride is listed as a possible “inert material” of the MK 4 practice bomb. Please clarify that this chemical may be inert from an explosive standpoint, but is regulated as an “extremely hazardous substance” according to the U.S. National Library of Medicine’s Hazardous Substances Database (http://toxnet.nlm.gov/cgi-bin/sis/search/f?./temp/~IVU58Q:1:BASIC). This chemical is a severe, corrosive irritant, and reacts with moisture to form hydrochloric acid, titanium oxychloride, and heat. In addition to direct effects of exposure, residues in soil may also decrease soil pH.	<p>In response to this comment, the USACE agrees to analyze for the metal Titanium. After extensive research, the possibility that signal cartridges containing Titanium Tetrachloride (TiCl₄) cannot be ruled out. However, the probability that TiCl₄ was used is slight. Titanium Tetrachloride has never been used in the Mk 4 signal cartridge used in all of the 3 lb. practice bombs (AN-Mk 23 and AN-Mk 5), which represent roughly 90 percent of the practice bombs used at Trabuco. However, the CXU-3 signal charge containing Titanium Tetrachloride may have been used in the 25 lb. AN-Mk 76 practice bomb.</p> <p>There is no metric to associate soil pH with TiCl₄. Soil pH results cannot be used to prove or disprove the presence or absence of TiCl₄. Instead, the USACE agrees to analyze and report the metal Titanium as an indicator to confirm or deny the presence or absence of Titanium Tetrachloride.</p>
	Page 2-10, Section 2.5	The text does not mention having a biologist on any of the field teams. DFG-OSPR recommends that a biologist accompany the field teams, particularly in the riparian woodland areas, to identify and ensure avoidance of sensitive natural communities and areas that may be occupied by special-status species.	Refer to Response to Omo Patrick Comment 7.
3	Page 3-1, Section 3.1.1	The test states: “the selected alternatives will address [munitions and explosives of concern] MEC and [munitions constituents] MC contamination in a manner that meets acceptable levels of protection to human health with respect to the intended future land use at the site.” The selected alternatives should also achieve levels protective of wildlife and the environment.	Agreed and comment incorporated.
4	Page 3-2, Section 3.1.1	Surface water samples from Trabuco and Tijeras Creeks would be needed to evaluate overall exposure and potential risk to ecological receptors from MC. Surface runoff from areas with munitions debris could be contaminated. Surface water data would be used to evaluate the water ingestion pathway for ecological receptors, estimate concentrations in aquatic prey, and determine direct exposure to aquatic and benthic organisms in the creeks.	The USACE is conducting the proposed MC sampling to confirm or deny the presence or absence of MC contamination. Since, no source of MC contamination has been identified, it is premature to conduct a screening level ecological risk assessment (SLERA) and determine potential risk to ecological receptors. It is agreed that this matter may not be finally resolved until after the MC sampling is completed and reported.

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Comment Number	Page/Reference	COMMENT	RESPONSE
5	Page 3-2, Section 3.1.2b	<p>a. Step 1: Problem Statement. The problem statement should address potential risk to current and future human and ecological receptors.</p> <p>b. Step 2: Identify the Decision. MC may be present due to historic bombing in areas from which MEC were previously removed. Therefore, exposure to MC in areas where MEC are not currently present should also be addressed. In addition, response alternatives should achieve protection of the environment as well as human health.</p> <p>c. Step 3: Identify Inputs to the Decision. As mentioned above, surface water samples collected and analyzed for MC may be considered.</p> <p>d. Step 4: Define the Study Boundaries. The locations from which MEC have been found previously should be considered, in addition to the former target locations.</p> <p>e. Step 5: Develop Decision Rules. U.S. Environmental Protection Agency (EPA) Region 9 preliminary remediation goals (PRGs) were developed for human health and do not address potential ecological impacts. A screening level ecological risk assessment (SLERA) should be conducted to determine potential risk to ecological receptors.</p>	See Response to Comment 4.
6	Page 3-7, Section 3.1.6	The proposed follow-up activities include a qualitative risk assessment. DFG-OSPR recommends a quantitative SLERA for MC be completed.	See Response to Comment 4.
7	Page 3-10, Section 3.3.2a	The text should be clarified to state that very limited trees and shrubs will be removed, if any. The three acres of “brush” that will be removed should be changed to “annual grassland,” as was described during the field visit.	Agreed and comment incorporated.
8	Page 3-26, Section 3.5.9b	Detonation in place should be done in a manner that minimizes impacts to surrounding habitat and wildlife, including direct impacts and disturbance impacts.	Agreed and comment incorporated.
9	Page 3-31, Section 3.5.13.2a	See comment above regarding need for surface water sampling.	See Response to Comment 4.
10	Page 7-1, Section 7.1	Specific measures to avoid or reduce impacts to sensitive natural communities, including coastal sage scrub, wetland and riparian areas, and aquatic habitats should be detailed in the work plan. A map showing sensitive habitat areas overlain with areas of potential impact should be included. Please detail potential project impacts to biological resources, as discussed verbally during the field visit.	See Response to Omo Patrick Comment 7.

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Comment Number	Page/Reference	COMMENT	RESPONSE
11	General	<p>The text states that no rare, endangered, or threatened wildlife species have been identified in the study area. Site-specific biological surveys would be necessary to make a determination of whether special-status species inhabit the study area. The lack of occurrences in the California Natural Diversity Database (CNDDDB) should not be used to conclude that special-status species are absent, as it is not known if the project site has been surveyed and only positive observations are reported. During the August 30, 2006 site visit, the USACE program manager stated that avoidance measures could be implemented to protect special-status species that may inhabit the site. These avoidance measures should be incorporated into the project plan as follows:</p> <ol style="list-style-type: none">a. Vegetation removal will not occur during the bird breeding season (February 1st to August 31)b. Vegetation removal and excavation will not occur within the riparian area or drainage. If activities in riparian or drainages must occur, the USACE will notify DFG according to Fish and Game Code 1600 et Seq.c. To protect the Costal California Gnatcatcher, no coastal sage scrub will be impacted and a biological monitor familiar with the species will be present on site during work within 100 feet of suitable habitat.d. To protect the Coastal Cactus Wren, no habitat suitable for this special will be impacted. Suitable habitat is coastal sage scrub with prickly pear cactus and cholla.e. To protect the arroyo toad, no project activities will occur in and adjacent to the riparian area during toad breeding season (March 15 to July1) when they are likely to be above ground. The grassland area soil is not suitable for toad burrows and therefore toads would not likely occur in this area.f. To protect Weed's mariposa lily (<i>Calochortus weedii</i> var. <i>intermedius</i>), project activities will not occur in coastal sage scrub habitat.	See Response to Omo Patrick Comment 7.

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12	Page 7-2, Table 7-1	<p>Special Concern Species. This table lists a number of special-status avian species that may inhabit the study area. It should be expanded to include other special-status plant and wildlife species known from the general vicinity, such as the Coastal Cactus Wren, arroyo toad, and Weed's mariposa lily. Two important references for developing this table are DFG's CNDDDB and the draft Orange County Southern Subregion Natural Community Conservation Plan (NCCP). The CNDDDB can be accessed via the following website: http://www.dfg.ca.gov/whdab/html/cnddb.html. Data is available through the CNDDDB digitally or as hard copy, in addition to the information that is available at the URL. Products include a personal computer application called Rarefind, hard copy graphic overlays at 1:24,000 scale, and printed text reports. Please call (916) 324-3812 with regard to any requests for additional information about the CNDDDB. The draft Orange County Southern Subregion NCCP is available at the following website: http://www.ocplanning.net/ssnccp/nccp_hcp.aspx. It is not essential to include avian species that are only listed on the National Audubon Society list, with no other listing status designations.</p>	<p>Agreed and comment incorporated. We have assembled a new Table 7-1 that includes the species listed in Tables I and II of the Final Initial Study that will be included in the final Work Plan.</p>
Appendix E, Munitions Constituents Sampling and Analysis Plan			
13	Page 1-1, Section 1.1, Page 2-4, Section 2.3.2	<p>As mentioned above, the use of EPA PRGs for human health as screening values and as the criteria for phase II sampling does not account for potential ecological receptors. Therefore, DFG-OSPR does not concur with the exceedance of EPA PRGs as the single trigger for phase II sampling, and recommends any detection of explosives require phase II sampling. For metals, concentrations above regional ambient values, if available, or an appropriate no observable adverse effect level (NOAEL) based benchmark should trigger further sampling. Possible ecological benchmarks that could be used include EPA's ecological soil screening levels (Eco-SSLs, www.epa.gov/ecotox/ecossil) and Oak Ridge National Laboratory's criteria for soil invertebrates (http://www.esd.ornl.gov/programs/ecorisk/documents/tm126r21.pdf) and terrestrial plants (http://www.esd.ornl.gov/programs/ecorisk/documents/tm85r3.pdf). Finally, pH sampling in soil for munitions potentially containing titanium tetrachloride is recommended.</p>	<p>See Response to Comment 4.</p>

Comment/Response Table

Draft Remedial Investigation Work Plan submitted for review 22 June 2006; comments received 14 September 2006

Former Trabuco Bombing Range, Rancho Santa Margarita, CA

Comments provided by: : Victoria Lake, Staff Environmental Scientist, and Beckye Stanton, PhD, Associate Toxicologist, Department of Fish and Game, Office of Spill Prevention and Response, in a letter dated 12 September 2006 (continued).

Comment Number	Page/Reference	COMMENT	RESPONSE
14	Page 1-3 Section 1.1.2	The text states "Current and future use of undeveloped portions of the former Trabuco Bombing Range includes open space greenways and recreational activities. The major risk for explosives residue (if present), would be through direct contact and ingestions of the top 6 inches of soil." Exposure to ecological receptors through dietary, surface water, and incidental soil ingestion pathways should also be addressed in a SLERA. DTSC guidance regarding exposure depths for ecological receptors recommends soil data from zero to six feet to be evaluated (DTSC HERD 1998).	There is no source of high explosives in the MEC, and no reason to analyze for explosives. USACE has proposed withdrawing explosives from the analyte list and replacing high explosives with COC metals Iron, Lead, Titanium, and Zinc. Also, see Response to Comment 4.
15	Page 1-3, Section 1.1.2, Page 1-5, Table 1.1, Page 2-4, Section 2.3.2, Page 3-3, Table 3.2	Both Phase I and demolition samples should be analyzed for metals. Historical munitions debris, in addition to the possible detonations during the RI, is a likely source of metal contamination.	Agreed and comment incorporated. Phase I samples and demolition samples will be analyzed for metal COCs Iron, Lead, Titanium, and Zinc.
16	Figure 2-1, Page 2-4, Section 2.3.1, Page 3-3, Table 3.2.	Additional sampling locations may be needed to characterize MC concentrations. For example, collection of samples at a set distance along each target buffer distance concentric circles in undeveloped areas would provide more definitive information on contamination nature and extent. Appendix K mentions historical use of lime (Page 10, Section 3) to delineate concentric circles around the bombing targets. This use further supports the need for soil pH measures.	The concentric circles shown on Figure 2.1 of Appendix E are not the target bullseye circles, but rather they are conceptual buffers for visualization only. To reduce confusion, these circles will be removed from the map. There is no reason to analyze for pH to detect elevated pH from lime. The lime target circles are 50 feet and 100 feet from the target bullseye, and are about 900 feet inside the developed boundaries of Rancho Santa Margarita. The sample points are at the closest undeveloped park land, about 1000 feet from the target bullseye. At a 900 foot separation distance, there is zero likelihood of detecting elevated pH due to lime target circles.
17	Page 3-1, Section 3.1.	In addition to titanium, soil pH should also be included due to the production of hydrochloric acid as a product of titanium tetrachloride reaction with water.	See Response to Comment 1 regarding soil pH.
18	Page 3-2, Section 3.1	Although zinc exists naturally and has other anthropogenic sources than munitions, zinc concentrations should still be quantified and evaluated within the context of the regional ambient levels.	Zinc will be analyzed and reported, and concentrations will be evaluated in context of project ambient samples collected in Phase I.

Comment/Response Table

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Comment Number	Page/Reference	COMMENT	RESPONSE
19	Page 3-2, Section 3.1.	Refer to comment above regarding titanium tetrachloride as “inert material.”	Agreed that Titanium tetrachloride is not an inert material and comment incorporated.
20	Pages 3-11 to 3-12, Table 3-3.	Ecological benchmarks for soil (see comment above) and water should be included for comparison to reporting limits to ensure sufficient analytical sensitivity. Sources of appropriate screening levels for water include National Ambient Water Quality Criteria (NAWQC) for aquatic life, aquatic criteria for explosives (Talmage <i>et al.</i> 1999), and Canadian WQC for those chemicals without NAWQC (http://www.ccme.ca/assets/pdf/wqg_aql_summary_table.pdf).	Refer to Response to Comment 4.
Conclusions		Overall, the work plan should include a more thorough understanding of the impacts to biological resources, specific avoidance and mitigation measures, biological monitors in sensitive habitat areas, the collection of surface water samples, and incorporation of soil analytical results into a SLERA to address potential ecological risk.	Comment noted. See specific responses above.