

Final Minutes – Meeting and Field Visit at CSSA

SWMU Investigations and Closures
Ecological Risk Assessment for North Pasture
and
Field Visit to North Pasture and Sites near North Pasture

Camp Stanley Storage Activity
Boerne, TX

Parsons, DACA87-02-D-0005, Delivery Order DY01
November 29, 2007

Date: Thursday, November 29, 2007
Time: 10:00 A.M. – 2:00 P.M.
Place: Camp Stanley Storage Activity, Boerne, Texas
Subject: Work Plan & Technical Approach for Ecological Risk Assessment for North Pasture and Field Visit to North Pasture and Sites near North Pasture

Attendees:

Glaré Sanchez	CSSA	210-295-7453
Julie Burdey	Parsons	512-719-6062
Cheryl Overstreet	USEPA Region VI	214-665-6643
Greg Lyssy	USEPA Region VI	214-665-8317
John Wilder	TCEQ	512-239-2579
Sonny Rayos	TCEQ	512-239-2371
Jorge Salazar	TCEQ	210-403-4059
Bob Edwards	Noblis	210-408-5552
Ron Porter	Noblis	210-403-5406
Ken Rice	Parsons	512-719-6050
Carlos Victoria	Parsons	512-719-6007
Lea Aurelius	Parsons	512-719-6017
Mike Chapa	Weston	210-248-2428
Katie Mittmann	Weston	512-773-0017

INTRODUCTION AND OVERVIEW

The meeting was held at Camp Stanley Storage Activity. Attendees included representatives from CSSA, TCEQ, USEPA (Region VI), Noblis, Weston Solutions, Inc., and Parsons. The sign-in sheet is provided in **Attachment A**. A copy of the slide presentation is provided in **Attachment B**. **Attachment C** is a copy of the figure and tables for surface water and sediment data collected at the northeast pond.

OBJECTIVES OF MEETING AND FIELD VISIT

The objectives of the meeting were to discuss the ecological risk assessment (ERA) for the North Pasture, including the Draft Work Plan for the ERA (in preparation), and to visit the solid waste management units (SWMU) and make field observations regarding the vegetation, creek beds, ponds, and other environmental conditions within and near the North Pasture. The meeting attendees provided technical input on several items to be addressed in the Draft Work Plan. TCEQ and Noblis mentioned the importance of using the ERA to develop ecological protective concentration levels (PCL) that can be used with human health PCLs to determine nature and extent of contamination.

Several main items that were discussed at the meeting are listed below.

- There was some discussion about the 2,4-DNT result listed in Slide 5. Parsons mentioned that numerous samples have been collected over many years at the North Pasture sites and that 2,4-DNT was only detected in two samples. Exclusion of chemicals from risk analysis based on detection frequency was discussed. Exclusion based on low detection frequency is recommended in TCEQ and USEPA guidance for risk assessments (*i.e.*, TCEQ and USEPA recommend exclusion if detection frequency is 5 percent or less). In addition, actions are planned for removing the areas of high concentrations of contaminants shown in Slide 5 (based on human health and ecological criteria).
- There was also some discussion regarding the high concentration of lead shown on Slide 5. The high concentration was found near a mound located in the northeast portion of SWMU B-8. Removal actions and additional sampling will be conducted in this area (timing will depend on funding) so that contaminant levels remaining in soils will be below human health and ecological criteria.
- The two ponds in the North Pasture were discussed. The northeast pond (also referred to as the windmill tank) is ~0.91 acre in size and is ~650 feet downgradient from SWMU B-20/21. Handouts were also provided regarding surface water and sediment samples taken from the northeast pond (Attachment C). It was mentioned that Parsons should include the surface water and sediment results and a figure showing the sample locations in the Draft ERA Work Plan and to compare the results to ecological benchmarks. Thus, for these minutes and for the Draft Work Plan, the information has been updated for comparisons to TRRP 2006 ecological benchmarks.
- The northwest pond (also referred to as the drop zone tank) is <1/2 acre in size. During the field visit to this pond, it was decided that there would not be a need to sample this pond.
- It was emphasized at the meeting that the ERA should focus on development of area-wide PCLs and not site-specific PCLs.
- There was some discussion about what soil concentrations were appropriate to use in the ERA, such as the maximum detected concentration or the 95 percent upper confidence level (95% UCL). It was suggested that a starting place for the ecological data could be the human health criteria. For example, the PCL values for residential criteria would be considered the maximum concentration remaining

at the site and that all analytical results lower than the human health criteria would be used for the ERA. It was decided that all sample results below the human health criteria would be used to determine maximum detected concentrations and 95% UCLs for the ERA. Several scenarios for use of the analytical soils data were discussed. Based on this discussion, the screening comparisons will initially use the maximum detected concentration that is below the human health PCL. If a COPC is retained through this initial screening, then the 95% UCL concentration will be calculated as the exposure point concentration (EPC), only using the data below the human health PCL.

- The Draft ERA Work Plan needs to justify home range and time in area for migratory birds.
- For the hawk and fox (wide-ranging predator species), the exposure for the acreage of the combined sites needs to be adjusted.

Summary of Items to be Included in the Draft ERA Work Plan. In addition to the items noted in the September 14, 2007 meeting, the following items were discussed at this meeting to be included in the Work Plan:

- Updated map (Location and Status of Sites).
- For sites that have been closed, describe what standards were used. All closed sites at CSSA were closed to RRSI (background) criteria. All No Further Action (NFA) sites also have no COPCs above RRSI (background) criteria.
- Select realistic exposure parameters and provide justification for selection of the parameters.
- As discussed above, the starting point for the use of data in the ERA will be the human health criteria.
- Updated (2007) endangered bird map.
- Sediment and surface water results for the northeast pond, map showing sampling locations, and comparison of results to current ecological benchmarks.

FIELD VISIT

Following the slide presentation and open discussions, a field visit to the North Pasture was conducted. The field visit included visiting the four APAR sites, and the creek beds and two small ponds in the North Pasture. At the time of the field visit, the creeks were dry and the rocky creek beds were visible. There is no water in the creeks except immediately following a rain event. The field visit also included viewing a few sites in the Inner Cantonment.

MEETING ADJOURNED

The meeting adjourned following the field visit.

ATTACHMENT B
Slide Presentation

Meeting and Field Visit Ecological Risk Assessment for North Pasture

November 29, 2007

Camp Stanley Storage Activity
Boerne, TX

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DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY
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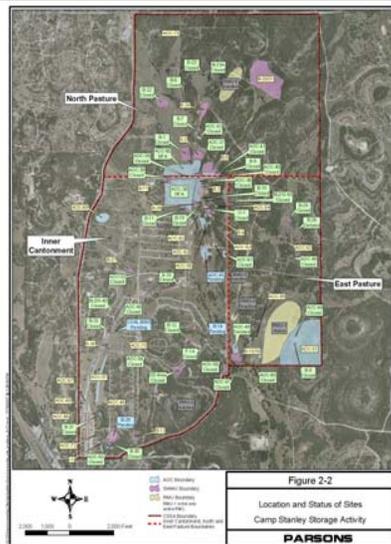
Agenda for November 29, 2007 Meeting Ecological Risk Assessment at Camp Stanley Storage Activity - Boerne, Texas

Time: Thursday, November 29, 2007, 10:00 am to 2:00 pm
Place: Camp Stanley Storage Activity, Meeting and Field Visit

Proposed Order of Meeting and Field Visit

Topic
MEETING
Introduction and Opening Remarks
Overview of CSAA - North Pasture ERA
Overview of Contamination Sites
<ul style="list-style-type: none"> • Update of Key Showing Status of Sites (CSAA and North Pasture) • Sources of Contamination and Chemicals of Potential Concern at CSAA of North Pasture • Funds and Interrelated Drainage Uninvestigated Area (North Pasture) • Sites Near North Pasture (Other Containment, Sources of Contamination, COPCs, and Land Use)
Ecological Risk Assessment
<ul style="list-style-type: none"> • Outline of ERA Work Plan • Habitat and Selection of Indicator Species • Ecological Conceptual Site Model • Estimation of Recipient Organisms
FIELD VISIT
FOLLOW-UP QUESTIONS FROM FIELD VISIT

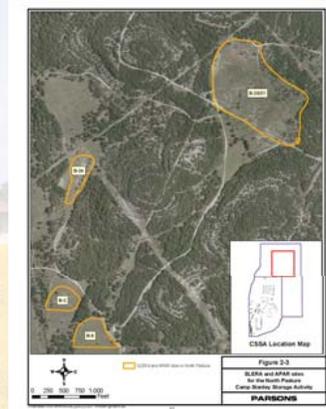
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North Pasture APAR Sites

- APAR will include SWMUs B-2, B-8, B-20/21, and B-24
- RIR planned for AOC-73
- Limited hot spot removal actions planned
- Establish appropriate residential and ecological PCLs for closure



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Sources of Contamination and COPCs (North Pasture)

- Sources of Contamination:
 - past land disposal activities (B-2, B-24, & AOC-73);
 - an open burn/open detonation unit (B-20/21); and
 - reported small arms popping furnace (B-8).
- Chemicals of Potential Concern:

	Max Value (mg/kg)	CSSA Background (mg/kg)	Eco Screening (mg/kg)	Residential Tier 1 Human Health (mg/kg)
Lead	156,640	84.5	50	500
Barium	15,493	186	500	5,143
Copper	1,515.6	23.2	61	547.6
Mercury	0.69	0.77	0.1	0.091
Zinc	406.4	73.2	120	9,921.4
DNT	550	-	NA	0.157

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Additional Sampling and Potential Removal Actions at North Pasture Sites

	Estimated Removal Volume (yd ³)	Estimated Number of Additional Investigation Samples	Anticipated Analytes
B-2	50	10	Metals, Explosives
B-8	400	10	Metals
B-20/21	250	22	Metals, Explosives
B-24	150	24	VOC, SVOC, Metals, Explosives
AOC-73	150	10	VOCs, SVOCs, Metals

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North Pasture Photos



SWMU B-2



SWMU B-8



SWMU B-24



SWMU B-20

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Sites Near North Pasture

- Sites near North Pasture that have been investigated include: B-3, B-71, B-28, and AOC-64.
- Sites near North Pasture that have not been investigated include: B-4, AOC-62, AOC-52, AOC-42, and AOC-58.

Unit	COPC	Planned Actions	Land Use
B-3	CAHs, Lead	Removal Complete	Groundwater Remedial Activities
B-71	Benzene, Metals	Limited Removal	Pasture
B-28	Nickel	None	Pasture
AOC-64	Benzene, Metals	Limited Removal	Pasture

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Ponds and Intermittent Drainages (North Pasture)

- North Pasture is in the Salado and Cibolo Creek drainage basins
- Two small ponds (tanks) in North Pasture
- No recent sampling of surface water or sediment in this area

Environmental setting as it relates to the North Pasture ERA:

- All creeks at CSSA are intermittent and only support a water habitat following rain events
- Ponds are not considered significant habitat due to size and location



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North Pasture Tanks



Drop Zone Tank



Drop Zone Tank Influent



Windmill Tank



Windmill Tank Influent

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Pond & Salado Creek Photos



Pond near SWMU B-24



Salado Creek near SWMU B-11



Salado Creek Influent from NP areas



Salado Creek flooding near gate 8

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Uninvestigated Areas (North Pasture)

- **AOC-73**
 - Work plan drafted; field work currently not initiated.
 - Site is small (<0.5 acre).
 - Reportedly a rancher's old dump site (contaminant levels expected to be low).
 - Plan to remove waste material and sample for COPC.



AOC-73

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Ecological Risk Assessment

Draft Work Plan
Ecological Risk Assessment
for North Pasture
Camp Stanley Storage Activity

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WORK PLAN OUTLINE

SECTION

- 1) Introduction –
Background
Objectives
Overview of TCEQ Tiered Approach
Reference Documents
Work Plan Organization
- 2) Site Characteristics –
Sources of Information
North Pasture Sites
AOC-73 and Other Sites in North Pasture
- 3) Steps of the SLERA Process –
Problem Formulation
Exposure Characterization
Risk Characterization

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WORK PLAN OUTLINE

SECTION

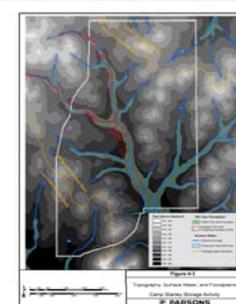
- 4) Problem Formulation –
Environmental Setting
Identification of Ecological Receptors at CSSA
Selection of Indicator Species
Contaminant Fate and Transport Analysis
Identification of Bioaccumulative COPCs
- 5) Characterization of Exposure –
Estimation of Environmental Exposure
Estimation of Receptor Uptake
- 6) Characterization of Ecological Effects –
Toxicity Data
Derivation of Toxicity Reference Values (TRVs)

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SECTION 4 PROBLEM FORMULATION

4.1 ENVIRONMENTAL SETTING

The terrestrial environment is the key habitat for the area. GW and SW exposure pathways are not considered complete. Depth to GW ranges from ~125' bgs to ~275' bgs in North Pasture area. Creeks are intermittent and usually only support a water habitat following rain events. Two ponds in North Pasture:
One is < 1/2 acre in size and ~2,400' from closest SWMU (B-24).
One is ~ 1/10th acre in size and ~650' upgradient from B-20/21.
No known caves in North Pasture – based on a Phase 1 Karst Hydrogeologic Investigation at CSSA (Veni, 2002).



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SECTION 4 PROBLEM FORMULATION

4.4 IDENTIFICATION OF COMPLETE EXPOSURE PATHWAYS

Oral – Primary exposure route

- Direct ingestion of source media
- Dietary ingestion of plant tissues
- Dietary ingestion of prey tissues containing COPCs that have bioaccumulated in tissue from the source media
- Adequate toxicological data

Dermal - negligible

- Toxicological data generally not available for wildlife

Inhalation - negligible

- COPCs not volatile (metals)
- Abundant vegetation
- Toxicological data generally not available for wildlife

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SECTION 4 PROBLEM FORMULATION

4.5 COPC FATE AND TRANSPORT ANALYSIS

4.6 IDENTIFICATION OF BIOACCUMULATIVE COPCs (metals)

Table 4.3 Example Modifying Factors in the Transfer of Inorganic COPCs from Soils to Plants and Herbivores

Element	Potential for Uptake by Vegetation	Potential for Toxicity to Herbivores
Mercury, lead	Not taken up by the roots, or not transported from roots to shoots.	Minimal potential: plants do not absorb the element or chelate it in the roots.
Copper and nickel	Minimum transfer from roots to shoots and leaves; root cell sap contains high levels of organic acids and amino acids that chelate (bind) many elements.	Low potential: element levels in plant foliage are generally safe for herbivores due to phytotoxicity limits.
Zinc	Readily transported from roots to shoots and leaves.	Moderate potential due to phytotoxicity limits.
Zinc	Variable transport to fruits and seeds: many plants restrict entry of various elements and compounds into reproductive structures.	Variable, depending on plant-specific concentration in fruits and seeds, and degree of consumption by birds and mammals.

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SECTION 5 CHARACTERIZATION OF EXPOSURE

5.1 ESTIMATION OF ENVIRONMENTAL EXPOSURE

5.1.1 Soil

5.1.2 Tissue

5.2 ESTIMATION OF RECEPTOR UPTAKE

Tissue Concentrations

- Soil-to-plant uptake factors
- Soil-to-mammal factors or multipliers

Dietary Composition – varies by species

Exposure Frequency (EF) – 100% for all species

Area Use Factor (AUF)

- Multi-site evaluation
- 100% for non-predator species
- Proportional to acreage for predator species

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SECTION 6 CHARACTERIZATION OF ECOLOGICAL EFFECTS

6.1 LITERATURE REVIEW OF TOXICITY DATA TOXICITY REFERENCE VALUES

6.2 DERIVATION OF TRVs FOR BIRDS AND MAMMALS

- ORNL – Conservative TRVs (Sample *et al.*, 1996)
- Allometric equation for intra-species extrapolations (Sample, 1999)
- PCL calculations
 - T&E species: NOAEL-based
 - Others: Mid-point NOAEL - LOAEL

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Open Discussion and Field Visit

- Overall Technical Approach of ERA Work Plan
- Field Visit
- Follow-up Questions from Field Visit

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