

**FORMER SHOOTING RANGE OVERSHOT AREA
VISIBLE LEAD SHOT REMOVAL WORK PLAN
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

By

**Haley & Aldrich, Inc.
San Diego, California**

For

**The Boeing Company
Canoga Park, California**

**File No. 20080-147
August 2008**

The Boeing Company
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, CA 91304-1148

Certified Mail

August 11, 2008
In reply refer to SHEA-107625

Mr. Jose Marcos
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630-4700

RE: Former Shooting Range Overshot Area
Visible Lead Shot Removal Work Plan
Santa Susana Field Laboratory
Ventura County, California

Dear Mr. Marcos:

Pursuant to your request, enclosed is the document titled *Former Shooting Range Overshot Area, Visible Lead Shot Removal Work Plan, Santa Susana Field Laboratory, Ventura County, California*.

This work plan presents proposed activities for the manual removal of visible lead shot in the vicinity of the former Rocketdyne-Atomics International Rifle and Pistol Club, Inc. shooting range area (Former Shooting Range), located on the Sage Ranch property, immediately north of the Santa Susana Field Laboratory (SSFL), Ventura County, California. Boeing plans to remove visible lead shot in the Overshot Area, immediately north of the Former Shooting Range. Lead shot will be removed primarily by manual methods; however, a vacuum truck may be used for larger areas of lead shot accumulation in proximity to the Sage Ranch trail. Boeing estimates that field activities will begin in October 2008.

Please contact me if you have any questions or wish further to discuss this document.

Very truly yours,



Art Lenox
Environmental Remediation

AJL:bjc
Enclosure

cc: Norm Riley, DTSC
Guenther Moskat, DTSC
Susan Wilcox, DTSC
Gerard Abrams, DTSC
Laura Rainey, DTSC
Susan Houghton, DTSC



Mr. Jose Marcos, DTSC (SHEA-107625)

August 11, 2008

Page 2

Kasia Grisso, CH2M Hill

William Jeffers, DTSC

CA State University – Northridge

Simi Valley Library

LA Public Library, Platt

Ranger Tim Miller, MRCA

Gary Brennglass, The American University, Brandeis Bardin Campus

Ben Stuart, MWH

James Pappas, DTSC

Richard Farson, Haley & Aldrich



Haley & Aldrich, Inc.
9040 Friars Road
Suite 220
San Diego, CA 92108-5860

Tel: 619.280.9210
Fax: 619.280.9415
HaleyAldrich.com



11 August 2008
File No. 20080-147

The Boeing Company
5800 Woolsey Canyon Road
MC: 033-T487
Canoga Park, California 91304-1148

Attention: Mr. Art Lenox

Subject: Former Shooting Range Overshot Area
Visible Lead Shot Removal Work Plan
Santa Susana Field Laboratory,
Ventura County, California

Dear Mr. Lenox:

Enclosed is our work plan for the removal of visible lead shot in the former Rocketdyne-Atomics International Rifle and Pistol Club shooting range area at the above-referenced site. This work plan outlines planned activities for the manual removal of visible lead shot in the "Overshot Area" immediately north of the former shooting range and the Northern Drainage streambed.

We appreciate this opportunity to work with The Boeing Company on this project. Please advise if you have any questions or wish to discuss this work plan further.

Sincerely yours,
HALEY & ALDRICH, INC.


Richard M. Farson, P.E.
Vice President




Sheldon D. Clark
Vice President

Enclosures

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1. INTRODUCTION

This work plan presents proposed activities for the manual removal of visible lead shot to be completed by The Boeing Company (Boeing) in the vicinity of the former Rocketdyne-Atomics International Rifle and Pistol Club, Inc. shooting range area (Former Shooting Range), located on the Mountains Recreation Conservancy Authority (MRCA) Sage Ranch property, immediately north of the Santa Susana Field Laboratory (SSFL), Ventura County, California (Figure 1).

The visible lead removal activities will occur in the “Overshot Area”, immediately north of the Former Shooting Range area and the Northern Drainage streambed (Figure 2). This area contains both relatively steep hillsides with sandstone outcrops and relatively flat ground which comprises the Sage Ranch trail adjacent to the Northern Drainage. The approximate extent of the Overshot Area is shown on Figure 2.

Lead shot that is present on the Former Shooting Range and within the Northern Drainage streambed will be addressed during removal operations per the 31 August 2007 *Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan, Santa Susana Field Laboratory, Ventura County* prepared by Haley & Aldrich, Inc. (Haley & Aldrich).

Approximately seventeen tons of lead shot and clay target debris were reportedly removed during initial lead shot removal activities performed by Rockwell within the Former Shooting Range and the Overshot Area in 1993 (Rockwell International, 1993). Boeing continued to remove additional lead shot that surfaced after rainfall events and conducted voluntary lead shot removal in 1998 and 2006 (MWH Americas, 2008).

1.1 Objectives and Scope of Visible Lead Shot Removal in Overshot Area

The objective and scope of work related to this work plan is provided below:

- A visual survey of the Overshot Area will be conducted to identify lead shot removal areas;
- A biological survey of the Overshot Area will be conducted in order to identify sensitive and/or endangered species/habitats. Locations of protect-in-place plants/animal habitats will be identified and marked in the field;
- A re-survey for significant archeological/cultural resources will be conducted to identify protect-in-place locations;
- Non-sensitive vegetation will be removed in the Overshot Area (using appropriate equipment) to access surficial soils where lead shot may be present;
- Erosion and sediment control best management practices (BMPs) will be maintained at the base of the rock outcrops to catch future lead shot during runoff events;
- Visible lead shot will be removed from the Overshot Area using manual equipment such as shovels, buckets, brooms, and a sieve to separate the lead shot from the soil;
- A vacuum truck may be used for larger areas of lead shot accumulation in proximity to the Sage Ranch trail;
- Removed lead shot will be containerized and labeled for proper off-site disposal; and

- Lead shot removal activities will be documented in a summary report. The summary report will include a description of activities and the amount of lead shot removed.

1.2 Facility Description

The former shooting range is approximately 3.5 acres in size and is located in the MRCA – Sage Ranch property adjacent to the northeastern portion of SSFL Area I, near the Main Gate (Figure 1). The former shooting range consists of the remnants of an asphalt parking lot and the exposed ground downrange area bounded by bedrock outcrops to the north. No buildings or other structures currently exist at the former shooting range.

The Northern Drainage roughly bisects the former shooting range area, extending east to west. An unpaved hiking trail (Sage Ranch trail) generally parallels the drainage on the north side. Beyond the former shooting range to the north of the Sage Ranch trail, the area is characterized by relatively steep outcrops of the Chatsworth Formation. Activities described in this work plan will be conducted in the area of the Sage Ranch trail and the outcrop area immediately north of the Sage Ranch trail (Figure 2).

1.3 Site Features

The elevation of the former shooting range area is approximately 1,850 feet above mean sea level (MSL). The downrange area north of the asphalt parking lot is relatively level exposed soil vegetated with annual and perennial grasses, weeds, shrubs, and small trees. Vegetation is relatively dense in some areas. Large bedrock outcrops occupy the western portion of the former shooting range area and bedrock outcrops form the hills rising to the north of the range. Surface water discharge is ephemeral, resulting from rainfall, and flows into the Northern Drainage which extends east to west through the former shooting range.

The Northern Drainage descends from an elevation of approximately 1,900 feet MSL east of the former shooting range to approximately 1,610 feet MSL at Outfall No. 009, approximately 1.5 miles to the west-northwest. Surface water in the drainage flows west to Outfall No. 009, then north into Meier Canyon and subsequently to Arroyo Simi in the Calleguas Watershed, entering the Pacific Ocean at Mugu Lagoon.

1.4 History of Former Shooting Range Operations

In 1972, the Rocketdyne – Atomics International Rifle and Pistol Club, Inc. entered into a lease with John A. Dundas, et. al., care of Mr. Orrin G. Sage; for the purpose of operating a trap/skeet shooting range within land north of the SSFL (measuring approximately 450 feet by 450 feet). The shooting range was operated by the Rocketdyne – Atomics International Rifle and Pistol Club, Inc., independent of Boeing or its predecessors.

A succession of 5-year lease extensions were entered into in 1977, 1982, and 1987 between the Rocketdyne – Atomics International Rifle and Pistol Club, Inc., and Mr. Orrin G. Sage, an officer of the Geopac Corporation, the successor to John A. Dundas, et. al. In July 1990, the property foreclosed and was sold to the Santa Monica Mountains Conservancy (SMMC), through the MRCA. Due to SMMC's efforts to turn the Sage property into a public park and a wildlife corridor preservation area, the range was closed in April 1991.

In 1994, the former shooting range was identified as Solid Waste Management Unit (SWMU) 4.20 in the RCRA Facility Assessment (RFA) (SAIC, 1994). As described in the next section, removal actions for lead shot and debris have been conducted since 1992.

1.5 History of Maintenance / Removal Activities

In 1992 Rockwell agreed to perform site restoration at the former shooting range. The goal of the restoration activities was the removal of the visible lead shot and clay targets. In 1993, Rockwell participated in voluntary maintenance cleanup operations under agreements with MRCA and the California Conservation Corps (CCC). In subsequent years, Boeing identified additional lead shot in the former shooting range area and initiated voluntary maintenance and removal actions in 1998 and 2006.

2. LEAD SHOT REMOVAL ACTIVITIES

Boeing plans to remove visible lead shot in the Overshot Area as a voluntary clean up/maintenance activity. Pre-field activities, lead shot removal activities, management, and containerization, labeling, and disposal are described below.

2.1 Site Access

Permission to access the Sage Ranch property for this project will be obtained from MRCA.

2.2 Biological Resources Survey and Installation of Protective Measures

Prior to debris removal activities, a representative of Padre Associates, Inc. (Padre) will conduct a biological survey of the Overshot Area for the presence of special-status plants and wildlife.

Sensitive plants (e.g., Santa Susana tar plant, Braunton's milk-vetch, and Plummer's Mariposa lily) will be flagged to alert workers of their presence and facilitate protection during lead shot removal activities. The potential presence of special-status birds, reptiles and mammals will be determined and documented.

2.3 Archaeological Resources Survey

Prior to lead shot removal activities, a representative of W and S Consultants will conduct a cultural resource survey of the Overshot Area, which was not included in the 2007 surveys for the Northern Drainage and Former Shooting Range (W and S, 2007). Identified cultural resources will be protected-in-place prior to work activities.

2.4 Installation of BMPs

Where feasible, a shallow swale or silt fence will be installed between the Sage Ranch Trail area and the sandstone outcrops north of the trail. This measure is intended to limit the future downhill transport of lead shot from the Overshot Area. Removal of lead shot from the swale or behind the silt fence will occur on an as needed frequency.

2.5 Visible Lead Shot Removal

Visible lead shot will be removed using manual methods within the Overshot Area shown on Figure 2. Prior to the start of work, sensitive biological and/or archeological resources will be protected and BMPs will be installed as described above. Non-sensitive vegetation will be removed in areas where it would hinder removal of the lead shot debris.

Visible lead shot will be manually removed using a square head shovel; approximately the upper ½-inch of soil and lead shot will be removed and placed in a 5-gallon bucket. Each bucket may then be sieved to physically remove the lead shot from the soil. A vacuum truck may be used for larger areas of lead shot accumulation in proximity to the Sage Ranch trail.

The lead shot will then be transferred to a DOT-approved container. Each container will be appropriately labeled and staged for off-site disposal. The lead shot will likely be transported

off-site as hazardous waste to Chemical Waste Management, Inc., a Class I Landfill located in Kettleman City, California.

Health and safety procedures related to the lead shot removal activities in the Overshot Area will be provided in an amendment to the site-specific Health and Safety Plan (HASP) related to the 31 August 2007 *Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan, Santa Susana Field Laboratory, Ventura County*. The HASP includes standard work procedures, field action levels for upgrade of personal protective equipment (PPE), field monitoring requirements, emergency procedures, and emergency contacts. A copy of the HASP will be available to all personnel participating in the lead shot removal activities.

Transporter site entry and egress, traffic control procedures, waste staging, loading, and documentation, and transportation routes for waste generated during the lead shot removal activities in the Overshot Area will be provided in an amendment to the September 2007 *Transportation Plan for Former Shooting Range/Northern Drainage, Clay Target Debris Removal, Santa Susana Field Laboratory, Ventura County, California* prepared by Haley & Aldrich.

3. REPORTING

A summary report will be prepared following completion of lead shot removal activities in the Overshot Area. The report will include:

- Pre-removal conditions and extent of visible lead shot;
- A summary of lead shot removal activities;
- Amount of lead shot removed for off-site disposal;
- Conclusions and recommendations; and
- Copies of waste manifests and weight tickets from the disposal facility.

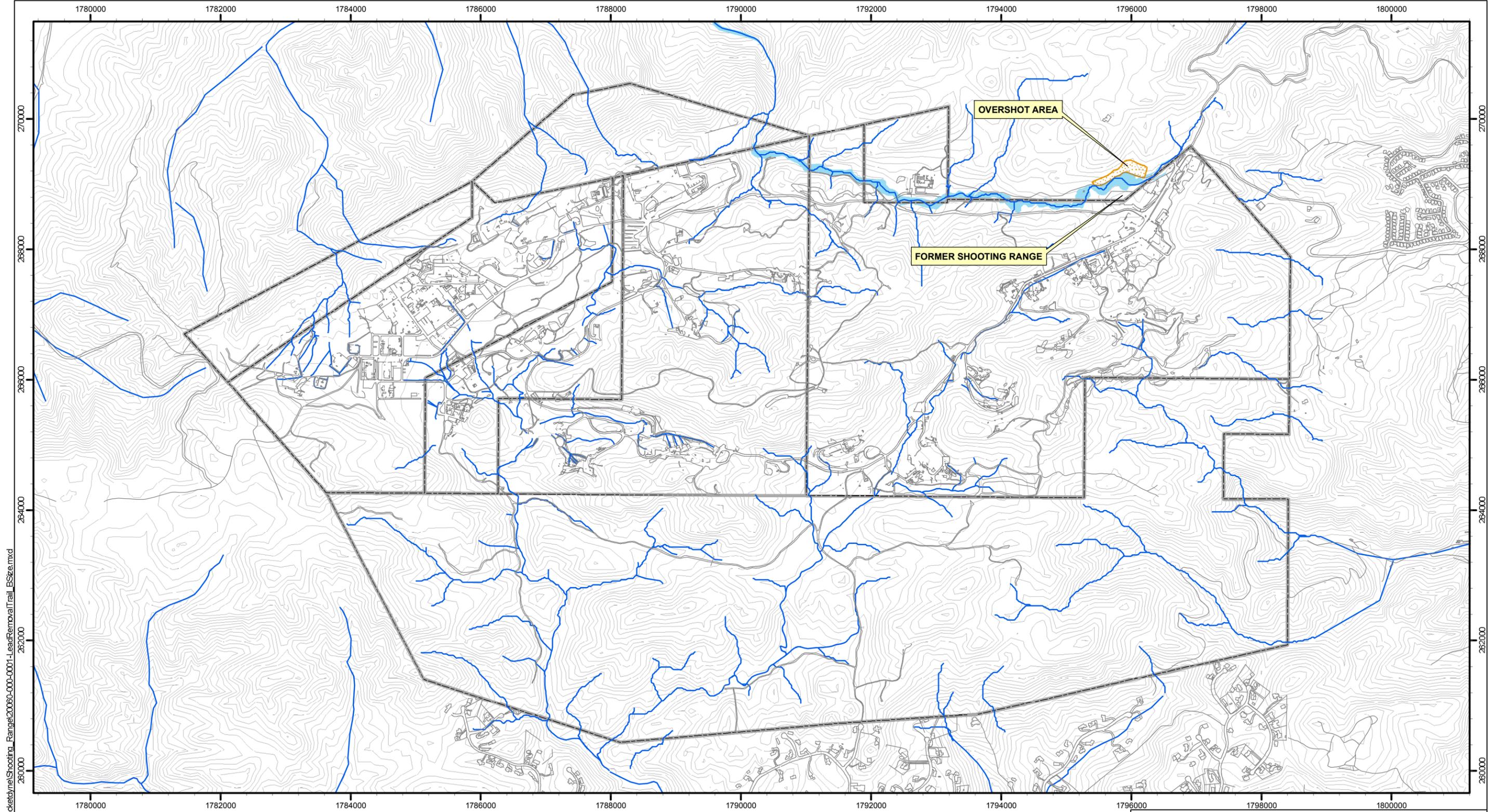
4. SCHEDULE

Boeing estimates that field activities will begin in October 2008. Lead shot removal activities within the Overshot Area are anticipated to occur immediately following activities related to the 31 August 2007 *Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan, Santa Susana Field Laboratory, Ventura County*. A summary report will be available approximately 8 weeks following completion of field activities.

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REFERENCES

1. Haley & Aldrich, Inc., 2007. *Report on Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan, Santa Susana Field Lab, Ventura County, California*. 31 August 2007.
2. MWH Americas, Inc., 2008. Electronic mail correspondence from Shelby Valenzuela to Richard Farson, Haley & Aldrich, Inc., 08 April 2008.
3. Rockwell International, 1993. Letter from S.R. Lafflam, Rockwell, to R. Skie, MRCA, Gun Club Cleanup Agreement. 22 January 1993.
4. SAIC, 1994. *Final RCRA Facility Assessment Report for Rockwell International Corporation, Rocketdyne Division, Santa Susana Field Laboratory, Ventura County, California*.
5. W and S Consultants, 2007. *Phase I Archeological Survey, SSFL North Drain Study Area*. 02 September 2007.

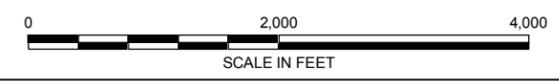
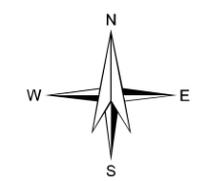


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LEGEND

-  OVERSHOT AREA
-  STREAM
-  NORTH DRAINAGE AREA
-  SITE AREA BOUNDARY

Coordinates: CA State Plane, NAD 27, Zone V, US Survey Ft.



HALEY & ALDRICH THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

LOCATION OF FORMER SHOOTING RANGE AND OVERSHOT AREA

SCALE: AS SHOWN
AUGUST 2008

FIGURE 1

