Site 1 Well Rehabilitation, Destruction, and Well Installation Report

TETRA TECH
301 E. Vanderbilt Way, Suite 450
San Bernardino, California 92408
TC# 23521-1005 / November 2010

TABLE OF CONTENTS

1.0 INTRODUCTION 1-1

2.0 OBJECTIVES 2-1

3.0 FIELD WORK 3-1
- 3.1 WELL DESTRUCTION BY PRESSURE GROUTING 3-1
- 3.2 WELL REHABILITATION 3-3
  - 3.2.1 Extraction Well EW-15 3-3
  - 3.2.2 Monitoring Well MW-24 3-4
- 3.3 WELL INSTALLATIONS 3-4
  - 3.3.1 MW-101 3-5
  - 3.3.2 MW-102 3-5
- 3.4 WELL DEVELOPMENT 3-5
- 3.5 LABORATORY ANALYSES 3-6
- 3.6 INVESTIGATION DERIVED WASTE 3-6
- 3.7 BIOLOGICAL MONITORING 3-7

4.0 SUMMARY 4-1

5.0 REFERENCES 5-1

6.0 ACRONYMS AND ABBREVIATIONS 6-1

LIST OF FIGURES

1 Site Location 1-2

2 Well Locations 3-2

LIST OF TABLES

1 Calculated Grout Volumes versus Actual Volumes Placed 3-3

2 Summary of Analytical and Geotechnical Laboratory Results 3-8

LIST OF APPENDICES

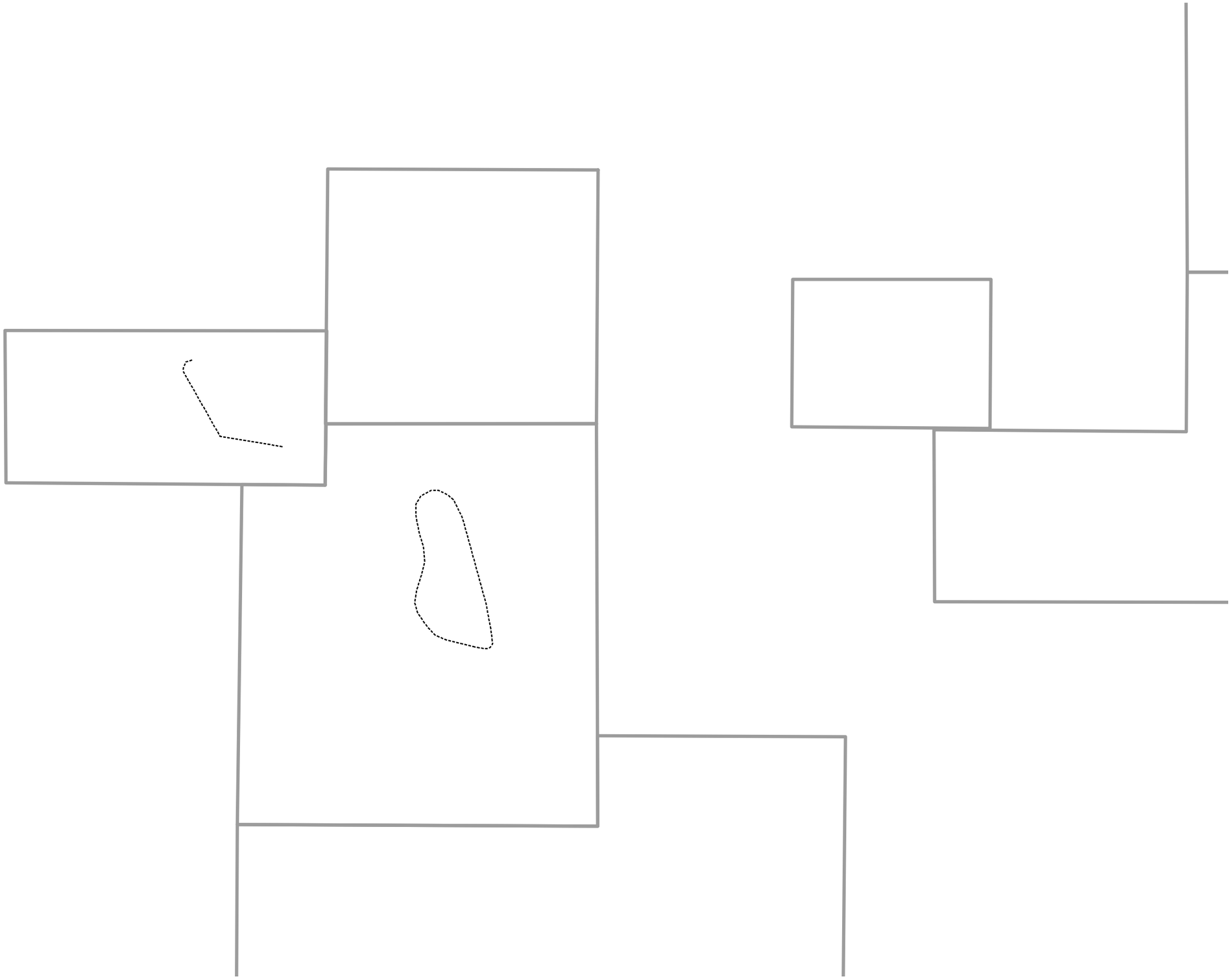
APPENDIX A County of Riverside Department of Environmental Health Well Permits

APPENDIX B Boring Logs and Well Construction Diagrams

APPENDIX C Laboratory Data Packages

APPENDIX D Investigation Derived Waste Laboratory Data Package and Manifests

T



and the depth to the bottom of the well was measured at 96.25 feet btoc. A bailer was then used to bail out the remaining sediment from the bottom of the well. Due to the well's limited recharge, the well was bailed dry after removing approximately 6 gallons of water. The well was allowed to recharge and was again bailed dry. This cycle was repeated until approximately 31 gallons of water and sediment had been removed from the well and the bottom of the well felt hard when tagged wth a water level meter probe. The total depth of the well was measured at 98.67 feet btoc.

3.2.2 Monitoring Well MW-24

The down hole video log from monitoring well MW-24 showed rope and other debris at approximately 65 feet btoc. After removing the rope and other debris with down hole fishing tools, the total depth of the well was measured at 103.2 feet btoc. A bailer was used to further clean out the bottom of the well casing. During continued bailing, the bailer became lodged in the well casing at approximately 65 feet btoc, the same depth as the obstruction that was removed. After several attempts to retrieve the bailer, the lifting bail broke loose from the bailer and further attempts to retrieve the bailer failed. The depth to the bailer was measured and it was determined that the bailer was sitting on the bottom of the well. A call was made to the County of Riverside Department of Health Services to discuss well destruction methods. The County of Riverside agreed with the recommendations of Tetra Tech that the well should be destroyed by p-1(d w)4r J335 0 Td [(t)-2(h)-4(e 2ould w)4r (.)]TJ 0 0.003 Tc 0.015-4(i)-2(scu)-4(ss)1(<ew)4(ec)4(t)2()2(r)3(a

approximately 45 minutes. Following hydration, a cement-bentonite slurry was mixed using a mixture of one 94-

3.7 BIOLOGICAL MONITORING

To ensure that the well destruction, rehabilitation, and installation activities did not impact biological resources, a US Fish and Wildlife Service approved biologist was onsite prior to, during, and after the field operation, as specified in the Section 10B Incidental Take Permit. Prior to entering each site, the biologist would identify and mark potential or suspected areas of Stephens' Kangaroo Rat (SKR) concern. This included the ingress and egress routes as well as areas that would be occupied by heavy equipment during the actual site work. Prior to the beginning of each days activities, the biologist met the workers at the entrance to the site and escorted the drill rig and associated equipment to each well site. At the end of each day, the biologist escorted the rig and equipment out of the work areas and removed any protective boards covering potential SKR burrows. The approved biologist also conducted pre- and post

Table 2 Summary of Analytical and Geotechnical Laboratory Results

Sample No.	Depth (ft bgs)	Soil Type ASTM-D422 (USCS)	Dry Density ASTM D2937 (PCF)	Specific Gravity ASTM D854 (g/cm3)	Total Porosity (%)	Total Organic Carbon (mg/kg)	Iron EPA 6010B (mg/kg)	pH EPA 9045C (pH units)
MW-101-9	9	CL				3700	16000	8.6
MW-101-19	19	SM				9800	23000	8.5
MW-101-21	21	CL				8200	26000	8.4

5.0 REFERENCES

California Environmental Protection Agency (Cal-EPA)

1995 Monitoring Well Design and Construction for Hydrogeologic Characterization

California Department of Water Resources

1981 Water Well Standards, State of California, Bulletin 74-81

1990 Water Well Standards, State of California, Bulletin 74-90

Lockheed Martin Corporation

1996 April 1996 Water Quality Report, Beaumont Site 1, Beaumont, California, July 30, 1996.

2006a Clarification of Effects on Stephens' Kangaroo Rat from Characterization Activities at Beaumont Site 1 (Potrero Creek) and Site 2 (Laborde Canyon), August 3, 2006.

2006b Clarification of Mapping Activities Proposed under the Low-Effect Habitat Conservation Plan for the Federally Endangered Stephens' Kangaroo Rat at Beaumont Site 1 (Potrero Creek) and Site 2 (Laborde Canyon) Riverside County, California (mapping methodology included), December 8, 2006.

Montgomery, Stephen J.

2006. Notes on Mapping of Stephen's Kangaroo Rat Habitat at Beaumont Sites 1 and 2; SJM Biological Consultants, April 4

Tetra Tech, Incorporated (Tetra Tech)

2003a Lockheed Beaumont, Site 1 & 2, Phase 1 Environmental Site Assessment, Beaumont, California. March 2003.

2003b Revised Groundwater Sampling and Analysis Plan, Lockheed Martin Corporation, Beaumont Site 1, Beaumont, California. May 2003.

2003c Abandonment of Former Production Wells Work Plan, Beaumont Site 1, Beaumont, California, August 2003.

2007 Groundwater Monitoring Well Installation Work Plan, Lockheed Martin Corporation, Beaumont Site 1, Beaumont, California, February 2007.

2008 Dynamic Site Investigation Work Plan for Lockheed Martin Beaumont Site 1, Beaumont, California, May 2008

2009 Final – Site 1 Well Rehabilitation, Destruction, and Well Installation Work Plan – Revised Lockheed Martin Corporation, Beaumont Site 1, Beaumont, California.

United States Fish and Wildlife Service (USFWS)

2005 Endangered Species Act Incidental Take Permit for Potrero Creek and Laborde Canyon Properties Habitat Conservation Plan, October 14, 2005.

Tetra Tech	Tetra Tech, Inc.
USCS	unified soil classification system
USFWS	United States Fish and Wildlife Service

ENCLOSURE 2: DTSC COMMENTS AND RESPONSES

cc: Mr. Gene Matsushita
Senior Manager
Environmental Remediation
Lockheed Martin Corporation
Energy, Environment, Safety & Health
2950 North Hollywood Way, Suite 125
Burbank, California 91505

RESPONSES TO

APPENDIX B

Boring Logs and Well Construction Diagrams

APPENDIX C

Laboratory Data Packages

APPENDIX D

Investigation Derived Waste Laboratory Data Packages and Manifests