

**Monitoring Well Abandonment Report  
Multiple Sites at Fort McClellan**

**Fort McClellan  
Calhoun County, Alabama**

**Prepared for:**

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## **List of Acronyms**

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ADEM	Alabama Department of Environmental Management
ALDOT	Alabama Department of Transportation
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CWM	chemical warfare material
FTMC	Fort McClellan
JPA	Anniston-Calhoun County Fort McClellan Development Joint Powers Authority
PVC	polyvinyl chloride
Shaw	Shaw Environmental, Inc.
SI	site investigation
USACE	U.S. Army Corps of Engineers
UST	underground storage tank

## 1.0 Introduction

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Shaw Environmental, Inc. (Shaw) completed well abandonment activities at multiple sites located within the former Fort McClellan (FTMC) in Anniston, Alabama. These activities were in support of environmental investigations conducted by Shaw under contract with the U.S. Army Corps of Engineers (USACE), Mobile District. A total of 147 monitoring wells were abandoned at the following 22 sites:

- Old Toxic Training Area, Parcel 188(3).
- Agent ID Training Area, Parcel 509(3).
- CBR Proficiency Area, Parcel 517(3).
- GSA Warehouse Area, Parcel 151(3).
- Ammunition Supply Point, Parcel 197(3).
- Former Sandel Flame Thrower Range, Parcel 97(3).
- Former Rifle/Machine Gun Range, Parcel 104Q.
- Impact Area Near the Stump Dump, Parcel 135Q.
- Range, Choccolocco Corridor, Parcel 143Q-X.
- Ranges South of Range 25, Parcels 224Q, 226Q and 227Q.
- Ranges West of Iron Mountain Road , Parcels 73Q-X, 91Q-X, 115Q, 116Q-X, 117Q-X, 129Q-X, 151Q, 181(3), 194(3)/518(3), 200Q, 201Q, 228Q, 229Q-X, 231Q, 232Q-X, Washington Tank Range, and 1950 Rocket Launcher Range.
- Possible Range and Impact Area, Choccolocco Corridor, Parcels 237Q and 238Q.
- Former Probable Range, Parcel 247Q.
- Range 24 Lower, Parcel 81Q.
- Range 32, Hand Grenade Range, Parcel 90Q.
- Former Rifle/Machine Gun Range, Parcel 98Q.
- Former Rifle/Machine Gun Range, Parcel 99Q.

- Range 30, Confidence Course (Firing Line), Parcel 88Q; Former Rifle/Machine Gun Range, Parcel 102Q, Former Grenade Range/Area, Parcel 106Q-X; Tank Sub-Caliber/Carbine Transition/Machine Gun Range (OA-08) Grenade Court (OA-15) & Unnamed Small Arms Range.
- Former Tank Ranges, Parcels 92Q-X and 93Q-X, Former Grenade Range, Parcel 107Q-X, and Impact Areas, Parcels 133Q-X & 134Q-X.
- Iron Mountain Road Ranges; Range 12, Parcel 70Q.
- Fill Area at Range 30, Parcel 231(3).
- Background well BK-G08.

The site locations at the former FTMC are shown on Figure 1. The well designations of the abandoned wells are listed in Table 1. The monitoring wells were abandoned in accordance with Alabama Department of Environmental Management (ADEM) Groundwater Branch guidelines (IT Corporation, 2000) from November 2006 through January 2007. All known monitoring wells at these sites were abandoned with the following exceptions:

- Ranges West of Iron Mountain Road – four wells (HR-91Q-MW09, HR-232QX-MW04, HR-232QX-MW05 and HR-232QX-MW19) were not abandoned.
- GSA Warehouse Area – two wells (FTA-151-MW07 and FTA-151-MW08) were not abandoned.
- Ranges South of Range 25 – three wells (HR-224Q-MW03, HR-224Q-MW04 and HR-226Q-MW02) were not abandoned.
- Background Wells – three wells (BK-G03, BK-G04 and BK-G06) were not abandoned.

The Ranges West of Iron Mountain Road site is located within very rough and hilly terrain that required extensive road improvement prior to abandonment operations. Visible evidence of polyvinyl chloride (PVC) pipe was found during well abandonment activities near well location HR-91Q-MW09. It is assumed that HR-91Q-MW09 was inadvertently destroyed during clearing and construction operations for the Alabama Department of Transportation (ALDOT) Eastern Bypass Corridor. The remaining three monitoring wells (HR-232QX-MW04, HR-232QX-MW05 and HR-232QX-MW19) were not abandoned because they are located near Training Area T-5, which is currently undergoing a remedial investigation and the wells are being used for monitoring.

Two monitoring wells (HR-151-MW07 and HR-151-MW08) located within the GSA Warehouse Area appear to have been destroyed during underground storage tank (UST) removal activities.

Three monitoring wells (HR-224Q-MW03, HR-224Q-MW04 and HR-226Q-MW02) located at the Ranges South of Range 25 site are not located on Army property. The Anniston-Calhoun County Fort McClellan Development Joint Powers Authority (JPA) is responsible for abandonment of these wells.

Three background wells (BK-G03, BK-G04, and BK-G06) were not abandoned. Two of these wells (BK-G03 and BK-G04) are located on JPA property. The third background well (BK-G06) was not abandoned because of an ongoing remedial investigation at the Ranges Near Training Area T-24A. BK-G06 will be abandoned along with the other wells at the site following site closeout.

Additionally, three monitoring wells (GSBP-155-MW01, GSBP-155-MW02, and GSBP-155-MW03) located at the Ground Scar North of Landfill No. 3 were not abandoned because they are located in close proximity to Landfill No. 3; this site is also undergoing a remedial investigation and the wells are being used for monitoring.

## **2.0 Site Descriptions**

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This section provides brief descriptions of the former FTMC and the 22 sites where well abandonments were performed.

### **2.1 Facility Description**

FTMC was a U.S. Army base located in Calhoun County in the foothills of the Appalachian Mountains in northeast Alabama. The base, which was closed under the Base Realignment and Closure process in 1999, was comprised of two main tracts of land: Main Post and Pelham Range. The installation previously included the Choccolocco Corridor, a 4,488-acre tract of land that was leased from the State of Alabama from the 1940's until 1998. The city of Anniston is located to the south and west and the city of Weaver to the northwest of the Former Main Post installation. Pelham Range is located approximately five miles due west of the former Main Post and adjoins the Anniston Army Depot to the south.

### **2.2 Site Descriptions and Background**

The well abandonments were performed at the 22 sites discussed below:

### **2.2.1 Chemical Warfare Material Sites**

Under contract with the USACE-Mobile District, Shaw completed site investigations (SI) at the following chemical warfare material (CWM) sites from 2001 to 2002. Based on the results of the SI, the U.S. Army implemented no further action at the CWM sites with regard to Comprehensive Environmental Response Compensation and Liability Act (CERCLA)-regulated hazardous substances in 2003.

**Old Toxic Training Area, Parcel 188(3).** Parcel 188(3), known as the Old Toxic Training Area is located in the west-central portion of the former Main Post. Shaw installed four permanent groundwater monitoring wells (CWM-188-MW01, CWM-188-MW02, CWM-188-MW03 and CWM-188-MW04) as part of an SI in 2001.

**Agent ID Training Area, Parcel 509(3).** Parcel 509(3), known as the Agent ID Training Area is located in the central portion of the former Main Post. Shaw installed four permanent groundwater monitoring wells (CWM-509-MW01, CWM-509-MW02, CWM-509-MW03 and CWM-509-MW04) as part of an SI in 2001.

**CBR Proficiency Area, Parcel 517(3).** Parcel 517(3) is located in the central portion of the former Main Post. Shaw installed four permanent groundwater monitoring wells (CWM-517-MW01, CWM-517-MW02, CWM-517-MW03 and CWM-517-MW04) as part of an SI in 2001.

### **2.2.2 Fuel Training Area Sites**

**GSA Warehouse Area, Parcel 151(3).** The GSA Warehouse Area (Parcel 151[3]) is located in the north-central portion of the former Main Post. Braun Intertec Corporation installed four permanent monitoring wells (FTA-151-MW07, FTA-151-MW08, FTA-151-MW09 and FTA-151-MW10) during UST closure activities in June 1994. However, Shaw personnel conducted a site visit prior to abandonment activities and it appears that two wells (FTA-151-MW07 and FTA-151-MW08) were destroyed and the UST removed or possibly abandoned in-place.

Parcel 4(7) was a petroleum, oil, and lubricant facility located within Parcel 151(3). Six groundwater monitoring wells (FTA-151-MW01, FTA-151-MW02, FTA-151-MW03, FTA-151-MW04, FTA-151-MW05 and FTA-151-MW06) exist at the site.

Based on the results of the SI and UST closure activities, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in December 2002.

**Ammunition Supply Point, Parcel 197(3).** The Ammunition Supply Point is located in the central portion of the former Main Post. Shaw installed eight groundwater monitoring wells (FTA-197-MW01, FTA-197-MW02, FTA-197-MW03, FTA-197-MW04, FTA-197-MW05, FTA-197-MW06, FTA-197-MW07 and FTA-197-MW08) during the SI.

Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in March 2001.

### **2.2.3 Ground Scar Sites**

**Ground Scar with Pit North of Landfill No. 3, Parcel 155(3).** The Ground Scar with Pit North of Landfill No. 3 is located in the northwest portion of the former Main Post. The ground scar is located in a wooded area just north of Landfill No. 3. Shaw installed three permanent groundwater monitoring wells (GSBP-155-MW01, GSBP-155-MW02 and GSBP-155-MW03) at the site.

Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in July 2004.

**Former Sandel Flame Thrower Range, Parcel 97(3).** The Former Sandel Flame Thrower Range is located in the northern-central portion of the former Main Post. Shaw installed four permanent groundwater monitoring wells (GSBP-97-MW01, GSBP-97-MW02, GSBP-97-MW03 and GSBP-97-MW04) as part of an SI.

Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in October 2001.

### **2.2.4 Historical Range Sites**

**Former Rifle/Machine Gun Range, Parcel 104Q.** The Former Rifle/Machine Gun Range is located in the north-central portion of the former Main Post. Shaw installed two permanent groundwater monitoring wells (HR-104Q-MW01 and HR-104Q-MW02) as part of an SI. Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in September 2005.

**Impact Area Near the Stump Dump, Parcel 135Q.** The Impact Area Near the Stump Dump is located in the central portion of the former Main Post. Shaw installed two permanent groundwater monitoring wells (HR-135Q-MW01 and HR-135Q-MW02) as part of an SI. Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in December 2001.

**Range, Choccolocco Corridor, Parcel 143Q-X.** The Range, Choccolocco Corridor is located within Choccolocco Corridor and east of the former Main Post. Shaw installed two permanent groundwater monitoring wells (HR-143Q-MW01 and HR-143-MW02) as part of an SI. Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in June 2004.

**Ranges South of Range 25, Parcels 224Q, 226Q and 227Q.** The Ranges South of Range 25 are located in the central area of the former Main Post. Shaw installed nine monitoring wells within the area of investigation during the SI. Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in June 2002.

**Ranges West of Iron Mountain Road, Parcels 73Q-X, 91Q-X, 115Q, 116Q-X, 117Q-X, 129Q-X, 151Q, 181(3), 194(3)/518(3), 200Q, 201Q, 228Q, 229Q-X, 231Q, 232Q-X, Washington Tank Range, and 1950 Rocket Launcher Range.** The Ranges West of Iron Mountain Road site is located in the southwestern portion of the former FTMC Main Post. Shaw installed 73 permanent groundwater monitoring wells at the site as part of an SI; however, seven of these monitoring wells (HR-73Q-MW02, HR-73Q-MW04, HR-91Q-MW06, HR-116Q-MW13, HR-229Q-MW01, HR-232QX-MW14, and HR-232QX-MW15) were subsequently abandoned. It should be noted the ALDOT is clearing the land for the Eastern Bypass Corridor.

Based on the results of the SI, the U.S Army implemented no further action at this site with regard to CERCLA-regulated hazardous substances in August 2005.

**Possible Range and Impact Area, Choccolocco Corridor, Parcels 237Q and 238Q.** The Possible Range, Parcel 237Q-X and Impact Area, Parcel 238Q-X are located in the southeastern section of the Choccolocco Corridor. Shaw installed three permanent groundwater monitoring wells (HR-237Q-MW01, HR-237Q-MW02, and HR-238Q-MW01) as part of an SI.

Based on the results of the SI, the U.S Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in August 2002.

**Former Probable Range, Parcel 247Q.** The Former Probable Range is located in the southwestern corner of the former Main Post. Shaw installed six permanent groundwater monitoring wells (HR-247Q-MW01, HR-247Q-MW02, HR-247Q-MW03, HR-247Q-MW04, HR-247Q-MW05 and HR-247Q-MW06) as part of an SI.

Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in October 2003.

**Range 24 Lower, Parcel 81Q.** Range 24 Lower is located in the east-central area of the former Main Post. Shaw installed two groundwater monitoring wells (HR-81Q-MW01 and HR-81Q-MW02) as part of an SI. Based on the results of the SI, the U.S. Army implemented no further action with regard to CERCLA-regulated hazardous substances in May 2002.

**Range 32, Hand Grenade Range, Parcel 90Q.** Range 32 is located in the southeastern portion of the former Main Post. Shaw installed five permanent groundwater monitoring wells (HR-90Q-MW01, HR-90Q-MW02, HR-90Q-MW03, HR-90Q-MW04, and HR-90Q-MW05) as part of an SI. The U.S. Army implemented no further action with regard to CERCLA-regulated hazardous substances in February 2002.

**Former Rifle/Machine Gun Range, Parcel 98Q.** The Former Rifle/Machine Gun Range, Parcel 98Q, is located near the intersection of MOUT Road and Syracuse Street in the north-central portion of the former FTMC Main Post. As part of an SI, Shaw installed two permanent groundwater monitoring wells (HR-98Q-MW01 and HR-98Q-MW02) at the site.

**Former Rifle/Machine Gun Range, Parcel 99Q.** The Former Rifle/Machine Gun Range is located in the north-central portion of the former Main Post. Shaw installed one groundwater monitoring well (HR-99Q-MW02) during an SI in 2002. Based upon the results of the SI, the U.S. Army implemented no further action with regard to CERCLA-regulated hazardous substances in April 2003.

**Range 30, Confidence Course (Firing Line), Parcel 88Q; Former Rifle/Machine Gun Range, Parcel 102Q, Former Grenade Range/Area, Parcel 106Q-X; Tank Sub-Caliber/Carbine Transition/Machine Gun Range (OA-08) Grenade Court (OA-15) & Unnamed Small Arms Range.** The Range 30 Firing Line is located in the northern part of the former Main Post, east of Reilly Airfield. Shaw installed five permanent groundwater

monitoring wells (HR-88Q-MW01, HR-88Q-MW02, HR-88Q-MW03, HR-102Q-MW01, and HR-106Q-MW01) as part of an SI in 2002.

ADEM indicated in a letter dated August 30, 2006, that it concurred with the Army's responses to comments on the Draft-Final SI report for this site, which recommended no further action with regard to CERCLA-regulated hazardous substances, and considered all comments to be resolved.

**Former Tank Ranges, Parcels 92Q-X and 93Q-X, Former Grenade Range, Parcel 107Q-X, and Impact Areas, Parcels 133Q-X and 134Q-X.** The Former Tank Ranges are located in the northern portion of the former Main Post. Shaw installed ten permanent groundwater monitoring wells (HR-92Q-MW01, HR-92Q-MW02, HR-92Q-MW03, HR-92Q-MW04, HR-93Q-MW01, HR-93Q-MW02, HR-93Q-MW03, HR-93Q-MW04, HR-107Q-MW01 and HR-107Q-MW02) as part of an SI in 2002 (Table 2). Based on the results of supplemental soil sampling conducted in 2007, this site is pending no further action with regard to CERCLA-regulated hazardous substances.

**Iron Mountain Road Ranges; Range 12, Parcel 70Q.** The Iron Mountain Road Ranges are a series of former small arms ranges located in the western portion of the former Main Post, east of Iron Mountain Road and south of Summerall Gate Road. Shaw installed eight monitoring wells at the ranges as part of an RI in 2001. However, only two of the wells (HR-70Q-MW01 and HR-70Q-MW02) at Range 12, Parcel 70Q, are the Army's responsibility to abandon. The remaining wells will be abandoned by the JPA.

### **2.2.5 Print Plants and Motor Pools**

**Fill Area at Range 30, Parcel 231(3).** The Fill Area at Range 30, Parcel 231(3), is located in the northern-central portion of the former FTMC Main Post, approximately 500 feet southeast of Falcon Road. Shaw installed four temporary groundwater monitoring wells (PPMP-231-GP01, PPMP-231-GP02, PPMP-231-GP03, and PPMP-231-GP11) during the SI.

Based on the results of the SI, the U.S. Army implemented no further action at the site with regard to CERCLA-regulated hazardous substances in 2006.

### **2.2.6 Background Wells**

Two existing background wells (BK-G06 and BK-G08) are located on U.S. Fish and Wildlife property. One background well (BK-G06) is located in the vicinity of the Ranges Near Training Area T-24A and the second background well (BK-G08) is located just north of Bains Gap Road

in the western-central area of the former Main Post. The remaining two background wells (BK-G03 and BK-G04) are located on JPA property in the northern area of the former Main Post near Landfill No. 4 and Reilly Lake. Therefore, both background wells are JPA's responsibility to abandon.

### **3.0 Field Activities**

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This section describes the well abandonment field activities conducted by Shaw from October 23, 2006, through February 1, 2007.

#### **3.1 Well Abandonment Activities**

The 147 monitoring wells were abandoned in place according to ADEM guidelines. These wells are listed in Table 1. The goals of monitoring well abandonment were to:

- Prevent vertical migration of fluids within the monitoring well being abandoned
- Prevent intermixing of waters from different water-bearing zones
- Eliminate physical hazards (e.g., open boreholes)
- Preserve aquifer properties.

ADEM guidance states that in-place abandonment is complete when cross contamination cannot occur between various zones and contamination cannot enter from the surface.

Shaw contracted Boart Longyear to perform the well abandonment activities. A Shaw geologist supervised Boart Longyear personnel to ensure that all wells were the correct recorded depth (i.e., no foreign objects or obstructions present), estimate the required amount of grout needed, and document the abandonment procedures. Grout was mixed to appropriate ADEM standards, and sufficient decontaminated tremie pipe was placed to the bottom of the well. The field geologist completed a well abandonment form for each of the wells. The well abandonment forms are included as Appendix A.

***In-Place Abandonment Procedures.*** In-place abandonment leaves the well intact and is used when the construction details are known. The ADEM procedures for in-place abandonments are as follows:

1. Upon initiation of abandonment activities, the well was checked for obstruction (e.g., dedicated purge pumps, sample pumps, monitoring equipment), and any obstructions were removed from the well.

2. Using a weighted tape, the total depth of the well was measured (Table 1).
3. The wells were determined to be void of granular material (e.g., sand pack, formation sediment).
4. A neat grout mixture was prepared consisting of American Society for Testing and Materials Type I portland cement, water, and bentonite. The organic-free bentonite was added at a ratio of 5 pounds of bentonite per 94-pound bag of cement to produce a grout of 5-percent bentonite by weight. The grout was mixed with 6.5 to 7 gallons of water to create a pumpable slurry. The amount of neat grout needed to abandon each well was determined by calculating the volume of each well and is shown in Table 1. The well volume was calculated using the following formula:

$$V = \frac{\pi D^2 h}{4}$$

Where:

- V = Well volume in cubic feet
- D = Diameter of well in feet
- h = Depth of well, from top of casing, in feet
- $\pi = 3.14$

5. A decontaminated tremie pipe with a side-discharge tip was assembled and extended to the bottom of the well.
6. Once thoroughly mixed, the grout was pumped through the tremie pipe to the bottom of the well. The grout was forced through the well screen, into the filter pack (sand pack), and up the inside of the well casing to seal any holes and cracks that were present. The tremie pipe was slowly raised as the grout was tremied in place.
7. The grout was allowed to settle for 2 to 4 hours. Shaw personnel conducted a second visit to ensure that the well was grouted to ground surface.
8. After the second visit, the grout was allowed to cure for a minimum of 24 hours to ensure that it did not settle below ground surface.
9. Once the grout hardened, all surface completion materials (i.e., well stickup, protective steel casing, well pad, and protective posts) were removed to approximately 2 feet below ground surface. The 2-foot annulus was then filled with concrete to ground surface and a 2-foot by 2-foot by 1-foot-thick concrete surface pad was placed over the abandoned well. The concrete pad was completed flush with the ground surface.

### **3.2 Equipment Cleaning**

All equipment used in the abandonment process (i.e., tremie pipe, weighted tape, and tools) was thoroughly cleaned using a high-pressure steam cleaner supplied by Boart Longyear. Potable water was obtained at the Shaw field office and transported to the site in clean poly tanks.

### **3.3 Disposal of Spent Well Materials**

Spent well materials (i.e., steel bumper posts, PVC well casings, concrete, steel manhole covers, well locks, etc) and any other solid waste generated during well abandonment activities were placed in construction debris roll-off containers provided by Boart Longyear. The roll-off containers were then transported to the Tri-Corners Landfill for disposal as nonhazardous waste.

### **3.4 Variances/Nonconformances**

Six variances to the site-specific work plan were recorded during the completion of the well abandonments. The variances did not alter the intent of the abandonment process or procedure presented in the work plan (Shaw, 2006). The variances to the work plan are summarized in Table 2, and the variance reports are included in Appendix B.

## **4.0 Summary**

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Shaw abandoned 147 wells at 22 sites at the former FTMC in accordance with ADEM guidelines. Well abandonment activities began on October 23, 2006, and were completed on February 1, 2007. All known monitoring wells at the sites were abandoned in place, except for four wells (HR-91Q-MW09, HR-232QX-MW04, HR-232QX-MW05 and HR-232QX-MW19) at the Ranges West of Iron Mountain Road site; two wells (FTA-151-MW07 and FTA-151-MW08) at the GSA Warehouse Area; three wells (HR-224Q-MW03, HR-224Q-MW04 and HR-226Q-MW02) at the Ranges South of Range 25; three wells (GSBP-155-MW01, GSBP-155-MW02 and GSBP-MW03) at the Ground Scar North of Landfill No. 3, and three background wells (BK-G03, BK-G04 and BK-G06).

These wells were not abandoned in place because they were previously destroyed, are being used for future monitoring for ongoing remedial investigations, or are located on JPA property.

The 22 sites where abandonment activities occurred were:

- Old Toxic Training Area, Parcel 188(3).
- Agent ID Training Area, Parcel 509(3).

- CBR Proficiency Area, Parcel 517(3).
- GSA Warehouse Area, Parcel 151(3).
- Ammunition Supply Point, Parcel 197(3).
- Former Sandel Flame Thrower Range, Parcel 97(3).
- Former Rifle/Machine Gun Range, Parcel 104Q.
- Impact Area Near the Stump Dump, Parcel 135Q.
- Range, Choccolocco Corridor, Parcel 143Q-X.
- Ranges South of Range 25, Parcels 224Q, 226Q and 227Q.
- Ranges West of Iron Mountain Road, Parcels 73Q-X, 91Q-X, 115Q, 116Q-X, 117Q-X, 129Q-X, 151Q, 181(3), 194(3)/518(3), 200Q, 201Q, 228Q, 229Q-X, 231Q, 232Q-X, Washington Tank Range, and 1950 Rocket Launcher Range.
- Possible Range and Impact Area, Choccolocco Corridor, Parcels 237Q and 238Q.
- Former Probable Range, Parcel 247Q.
- Range 24 Lower, Parcel 81Q.
- Range 32, Hand Grenade Range, Parcel 90Q.
- Former Rifle/Machine Gun Range, Parcel 98Q.
- Former Rifle/Machine Gun Range, Parcel 99Q.
- Range 30, Confidence Course (Firing Line), Parcel 88Q; Former Rifle/Machine Gun Range, Parcel 102Q, Former Grenade Range/Area, Parcel 106Q-X; Tank Sub-Caliber/Carbine Transition/Machine Gun Range (OA-08) Grenade Court (OA-15) & Unnamed Small Arms Range.
- Former Tank Ranges, Parcels 92Q-X and 93Q-X, Former Grenade Range, Parcel 107Q-X, and Impact Areas, Parcels 133Q-X & 134Q-X.
- Iron Mountain Road Ranges; Range 12, Parcel 70Q.
- Fill Area at Range 30, Parcel 231(3).
- Background well BK-G08.

A concrete surface pad was constructed on top of each abandoned well. All spent well materials were removed and properly disposed.

## **5.0 References**

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IT Corporation, 2000, *Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*, March.

Shaw Environmental, Inc. (Shaw), 2006, *Letter Work Plan for Monitoring Well Abandonments at Multiple Sites (Revision 1), Fort McClellan, Calhoun County, Alabama*, Final, October.

## TABLES

Table 1

**Monitoring Well Abandonment Summary  
Multiple Sites  
Fort McClellan, Calhoun County, Alabama**

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Well Designation	Well Type	Northing	Easting	Ground Elevation (ft amsl)	Total Depth Measured (ft bgs)	Screen Length (ft)	Well Material	Date Grouted	Volume of Grout Used (ft <sup>3</sup> )	Surface Completion Date
CWM-188-MW01	Residuum	1167028.50	668098.55	812.13	30.0	15	2" ID SCH 40 PVC	11/16/2006	2.0	12/18/2006
CWM-188-MW02	Residuum	1167106.61	668150.95	807.07	25.0	15	2" ID SCH 40 PVC	11/30/2006	1.0	12/18/2006
CWM-188-MW03	Residuum	1167098.93	668264.01	813.98	40.0	15	2" ID SCH 40 PVC	11/16/2006	1.4	12/19/2006
CWM-188-MW04	Residuum	1167273.55	668236.68	805.29	25.0	15	2" ID SCH 40 PVC	11/16/2006	1.6	12/18/2006
CWM-509-MW01	Residuum	1168384.53	671298.71	783.99	19.0	10	2" ID SCH 40 PVC	12/1/2006	0.5	12/19/2006
CWM-509-MW02	Residuum	1168481.03	671377.42	784.52	19.0	10	2" ID SCH 40 PVC	12/1/2006	0.5	12/19/2006
CWM-509-MW03	Residuum	1168525.86	671279.35	782.20	11.8	10	2" ID SCH 40 PVC	12/1/2006	0.3	12/19/2006
CWM-509-MW04	Residuum	1168586.93	671467.48	784.64	21.5	15	2" ID SCH 40 PVC	12/1/2006	0.5	12/19/2006
CWM-517-MW01	Residuum	1167812.95	668973.19	812.06	35.0	10	2" ID SCH 40 PVC	11/16/2006	1.6	12/18/2006
CWM-517-MW02	Residuum	1167768.84	669232.74	786.19	18.0	10	2" ID SCH 40 PVC	11/16/2006	1.5	12/18/2006
CWM-517-MW03	Residuum	1167981.67	669204.63	775.08	10.0	5	2" ID SCH 40 PVC	12/1/2006	0.3	12/19/2006
CWM-517-MW04	Residuum	1168141.85	669129.43	772.50	14.0	10	2" ID SCH 40 PVC	11/16/2006	1.3	12/18/2006
FTA-151-MW01	Residuum	1170366.83	670165.38	749.91	8.4	*10	4" ID SCH 80 PVC	11/30/2006	1.0	12/19/2006
FTA-151-MW02	Residuum	1170373.05	670140.91	749.73	12.7	*10	4" ID SCH 80 PVC	11/30/2006	1.1	12/19/2006
FTA-151-MW03	Residuum	1170408.08	670020.25	748.05	10.0	*10	4" ID SCH 80 PVC	11/30/2006	1.2	12/20/2006
FTA-151-MW04	Residuum	1170437.09	670094.50	747.56	10.0	*10	4" ID SCH 80 PVC	11/30/2006	1.1	12/19/2006
FTA-151-MW05	Residuum	1170422.07	670163.26	749.10	7.4	*10	4" ID SCH 80 PVC	11/16/2006	1.0	12/19/2006
FTA-151-MW06	Residuum	1170409.96	670233.57	748.95	11.5	*10	4" ID SCH 80 PVC	11/16/2006	1.2	12/19/2006
FTA-151-MW09	Residuum	1170305.12	668968.94	*745-750	16.0	*10	4" ID SCH 80 PVC	11/30/2006	1.4	12/19/2006
FTA-151-MW10	Residuum	1170318.16	668956.08	*745-750	15.0	*10	4" ID SCH 80 PVC	11/30/2006	1.4	12/19/2006
FTA-197-MW01	Residuum	1175243.00	674134.22	806.62	12.0	10	2" ID SCH 40 PVC	11/30/2006	0.3	12/16/2006
FTA-197-MW02	Residuum	1174968.82	673040.87	782.76	15.0	5	2" ID SCH 40 PVC	11/16/2006	1.0	12/16/2006
FTA-197-MW03	Residuum	1174522.44	672850.36	787.51	26.0	10	2" ID SCH 40 PVC	11/16/2006	1.3	12/19/2006
FTA-197-MW04	Residuum	1174054.20	672872.18	789.33	29.0	15	2" ID SCH 40 PVC	11/16/2006	1.6	12/19/2006
FTA-197-MW05	Residuum	1174621.74	673959.74	932.41	66.0	15	2" ID SCH 40 PVC	11/16/2006	2.4	12/19/2006
FTA-197-MW06	Residuum	1173772.56	673273.07	801.08	29.5	15	2" ID SCH 40 PVC	11/16/2006	2.0	12/19/2006
FTA-197-MW07	Residuum	1174188.61	673785.44	847.82	89.0	20	2" ID SCH 40 PVC	11/16/2006	2.7	12/19/2007
FTA-197-MW08	Residuum	1173947.70	673554.77	819.86	54.0	15	2" ID SCH 40 PVC	11/16/2006	2.7	12/19/2006
GSBP-97-MW01	Residuum	1166613.40	669525.05	795.24	15.5	10	2" ID SCH 40 PVC	11/19/2006	1.5	12/18/2006
GSBP-97-MW02	Residuum	1166629.48	669687.84	802.10	19.0	10	2" ID SCH 40 PVC	11/19/2006	1.5	12/19/2006
GSBP-97-MW03	Residuum	1166509.92	669812.17	804.81	22.0	15	2" ID SCH 40 PVC	11/19/2006	1.5	12/16/2006

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**Monitoring Well Abandonment Summary  
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Well Designation	Well Type	Northing	Easting	Ground Elevation (ft amsl)	Total Depth Measured (ft bgs)	Screen Length (ft)	Well Material	Date Grouted	Volume of Grout Used (ft <sup>3</sup> )	Surface Completion Date
GSPB-97-MW04	Residuum	1166400.65	669643.07	809.23	23.5	15	2" ID SCH 40 PVC	11/19/2006	1.5	12/16/2006
HR-73Q-MW01	Residuum	1165007.06	663389.19	891.71	119.0	30	2" ID SCH 40 PVC	11/18/2006	5.4	12/13/2006
HR-73Q-MW03	Residuum	1164386.21	663550.48	947.49	86.0	15	2" ID SCH 40 PVC	11/18/2006	4.7	12/13/2006
HR-81Q-MW01	Residuum	1170872.58	681983.47	1006.76	13.5	10	2" ID SCH 40 PVC	12/15/2006	0.5	12/17/2006
HR-81Q-MW02	Residuum	1170629.65	681864.58	994.93	33.5	15	2" ID SCH 40 PVC	12/15/2006	1.0	12/17/2006
HR-88Q-MW01	Residuum	1180343.25	674343.92	764.76	66.0	20	2" ID SCH 40 PVC	11/28/2006	1.5	12/15/2006
HR-88Q-MW02	Residuum	1180634.06	674406.87	762.62	43.0	15	2" ID SCH 40 PVC	11/28/2006	1.2	12/15/2006
HR-88Q-MW03	Residuum	1180905.9	674235.2	759.76	49.2	20	2" ID SCH 40 PVC	11/28/2006	1.2	12/16/2006
HR-90Q-MW01	Residuum	1159971.05	676368.41	935.08	19.0	10	2" ID SCH 40 PVC	11/29/2006	0.5	12/4/2006
HR-90Q-MW02	Residuum	1160053.39	675834.74	921.55	59.0	15	2" ID SCH 40 PVC	11/29/2006	1.3	12/4/2006
HR-90Q-MW03	Residuum	1159225.13	675781.73	1022.89	83.0	25	2" ID SCH 40 PVC	11/29/2006	1.8	12/4/2006
HR-90Q-MW04	Residuum	1159244.68	675551.24	1045.00	68.0	20	2" ID SCH 40 PVC	11/29/2006	1.5	12/4/2006
HR-90Q-MW05	Residuum	1159092.32	675749.52	1024.54	83.0	20	2" ID SCH 40 PVC	11/29/2006	1.9	12/4/2006
HR-91Q-MW01	Residuum	1163474.91	663077.55	1073.29	40.0	20	2" ID SCH 40 PVC	11/19/2006	1.0	12/13/2006
HR-91Q-MW02	Residuum	1163637.82	662566.88	973.92	28.0	10	2" ID SCH 40 PVC	11/21/2006	0.5	12/13/2006
HR-91Q-MW03	Residuum	1163333.66	663599.51	1052.98	87.0	20	2" ID SCH 40 PVC	11/18/2006	2.5	12/13/2006
HR-91Q-MW04	Residuum	1163330.39	663964.69	985.98	145.0	20	2" ID SCH 40 PVC	11/18/2006	3.0	12/13/2006
HR-91Q-MW05	Residuum	1162744.99	662556.9	1042.55	62.0	20	2" ID SCH 40 PVC	11/21/2006	1.5	12/13/2006
HR-91Q-MW07	Residuum	1163336.7	664470.76	873.80	39.0	20	2" ID SCH 40 PVC	11/18/2006	1.0	12/13/2006
HR-91Q-MW08	Residuum	1162591.79	664616.49	873.10	39.9	15	2" ID SCH 40 PVC	11/17/2006	1.0	12/14/2006
HR-99Q-MW02	Residuum	1178600.56	679466.16	983.67	70.0	20	2" ID SCH 40 PVC	11/28/2006	1.6	12/16/2006
HR-102Q-MW01	Residuum	1180740.44	674796.08	764.28	39.0	20	2" ID SCH 40 PVC	11/28/2006	1.2	12/15/2006
HR-104Q-MW01	Residuum	1178867.79	673621.32	762.04	30.0	15	2" ID SCH 40 PVC	11/28/2006	0.8	12/16/2006
HR-104Q-MW02	Residuum	1179282.59	673765.62	774.07	72.5	20	2" ID SCH 40 PVC	11/28/2006	1.7	12/16/2006
HR-106Q-MW01	Residuum	1181125.3	673948.38	760.73	35.0	15	2" ID SCH 40 PVC	11/28/2006	1.2	12/16/2006
HR-115Q-MW01	Residuum	1161819.38	660363.94	803.53	28.0	20	2" ID SCH 40 PVC	11/20/2006	1.0	12/14/2006
HR-115Q-MW02	Residuum	1161657.8	660446.95	806.54	30.0	15	2" ID SCH 40 PVC	11/20/2006	1.0	12/06/2006
HR-115Q-MW03	Residuum	1161527.82	660361.16	816.14	35.0	15	2" ID SCH 40 PVC	11/20/2006	2.1	12/6/2006
HR-115Q-MW04	Residuum	1161328.3	660354.22	826.09	40.0	15	2" ID SCH 40 PVC	11/20/2006	1.1	12/5/2006
HR-115Q-MW05	Residuum	1161519.28	660531.57	817.63	77.5	20	2" ID SCH 40 PVC	11/20/2006	1.7	12/6/2006
HR-116Q-MW01	Residuum	1159831.94	661249	959.98	71.2	20	2" ID SCH 40 PVC	11/14/2006	1.6	12/5/2006
HR-116Q-MW02	Residuum	1159331.7	661549.08	1021.07	84.0	20	2" ID SCH 40 PVC	11/14/2006	2.0	12/5/2006

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**Monitoring Well Abandonment Summary  
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Well Designation	Well Type	Northing	Easting	Ground Elevation (ft amsl)	Total Depth Measured (ft bgs)	Screen Length (ft)	Well Material	Date Grouted	Volume of Grout Used (ft <sup>3</sup> )	Surface Completion Date
HR-116Q-MW03	Residuum	1160867.56	662286.67	888.20	28.0	15	2" ID SCH 40 PVC	11/20/2006	1.6	12/5/2006
HR-116Q-MW04	Residuum	1161117.89	664776.06	911.42	49.2	20	2" ID SCH 40 PVC	11/17/2006	1.1	12/14/2006
HR-116Q-MW05	Residuum	1161660.86	664402.45	923.67	73.8	20	2" ID SCH 40 PVC	11/17/2006	3.4	12/14/2006
HR-116Q-MW06	Residuum	1159573.4	661592.44	997.76	50.0	20	2" ID SCH 40 PVC	11/14/2006	1.2	12/5/2006
HR-116Q-MW07	Residuum	1160508.14	662406.59	967.61	47.6	20	2" ID SCH 40 PVC	11/21/2006	1.2	12/5/2006
HR-116Q-MW08	Residuum	1160163.97	662277.53	913.71	57.0	20	2" ID SCH 40 PVC	11/21/2006	1.2	12/5/2006
HR-116Q-MW09	Residuum	1159923.48	662323.45	925.26	54.5	20	2" ID SCH 40 PVC	11/14/2006	1.2	12/5/2006
HR-116Q-MW10	Residuum	1159805.75	662637.83	970.03	104.0	20	2" ID SCH 40 PVC	11/14/2006	4.3	12/5/2006
HR-116Q-MW11	Residuum	1159605.65	662348.57	975.35	22.0	10	2" ID SCH 40 PVC	11/14/2006	0.7	12/5/2006
HR-116Q-MW12	Residuum	1160528.3	663308.14	986.68	36.0	15	2" ID SCH 40 PVC	11/21/2006	1.0	12/5/2006
HR-116Q-MW14	Residuum	1159278.08	664937.53	1130.51	108.2	20	2" ID SCH 40 PVC	11/17/2006	4.0	12/6/2006
HR-116Q-MW15	Residuum	1161653.96	662505.54	1051.03	71.0	20	2" ID SCH 40 PVC	11/21/2006	1.6	12/14/2006
HR-117Q-MW01	Residuum	1161091.37	661328.53	847.48	18.0	10	2" ID SCH 40 PVC	11/20/2006	1.3	12/5/2006
HR-117Q-MW02	Residuum	1160812.78	661139.75	904.70	26.0	10	2" ID SCH 40 PVC	11/20/2006	2.0	12/5/2006
HR-117Q-MW03	Residuum	1161375.07	660654.14	831.66	74.0	30	2" ID SCH 40 PVC	11/20/2006	2.1	12/5/2006
HR-117Q-MW04	Residuum	1160814.23	660245.95	838.98	36.9	15	2" ID SCH 40 PVC	11/21/2006	1.1	12/5/2006
HR-117Q-MW05	Residuum	1161296.64	660662.13	838.87	115.0	30	2" ID SCH 40 PVC	11/20/2006	2.6	12/5/2006
HR-117Q-MW06	Residuum	1160992.5	661710	861.11	30.0	10	2" ID SCH 40 PVC	11/20/2006	1.7	12/5/2006
HR-117Q-MW07	Residuum	1160199.73	660727.02	918.16	116.8	20	2" ID SCH 40 PVC	11/21/2006	2.7	12/5/2006
HR-117Q-MW08	Residuum	1162204.07	662083.15	995.54	35.0	20	2" ID SCH 40 PVC	11/21/2006	1.2	12/14/2006
HR-135Q-MW01	Residuum	1171551.113	676592.725	905.84	39.0	15	2" ID SCH 40 PVC	12/15/2006	1.0	12/17/2006
HR-135Q-MW02	Residuum	1171858.098	676797.016	922.83	39.0	15	2" ID SCH 40 PVC	12/15/2006	1.0	12/17/2006
HR-143Q-MW01	Residuum	1178589.85	696433.77	825.98	58.0	20	2" ID SCH 40 PVC	12/1/2006	1.5	12/17/2006
HR-143Q-MW02	Residuum	1177855.88	695810.44	825.14	40.0	15	2" ID SCH 40 PVC	12/1/2006	1.0	12/17/2006
HR-151Q-MW01	Residuum	1161743.77	660683.79	815.21	54.0	20	2" ID SCH 40 PVC	11/20/2006	2.7	12/14/2006
HR-181-MW01	Residuum	1164931.68	662670.84	884.48	72.8	20	2" ID SCH 40 PVC	11/19/2006	1.6	12/14/2006
HR-181-MW02	Residuum	1165050.89	662676.09	867.96	59.0	15	2" ID SCH 40 PVC	11/19/2006	1.4	12/18/2006
HR-181-MW03	Residuum	1165081.81	662517.05	862.46	38.0	20	2" ID SCH 40 PVC	11/19/2006	1.1	12/14/2006
HR-194-MW01	Residuum	1163833.12	660708.28	832.68	82.5	20	2" ID SCH 40 PVC	11/18/2006	4.0	12/14/2006
HR-194-MW02	Residuum	1164039.83	660436.5	820.43	64.1	20	2" ID SCH 40 PVC	11/18/2006	2.7	12/14/2006
HR-194-MW03	Residuum	1164089.92	660789.05	820.25	91.0	20	2" ID SCH 40 PVC	11/18/2006	4.0	12/14/2006
HR-201Q-MW01	Residuum	1162372.46	660515.7	841.79	45.0	20	2" ID SCH 40 PVC	11/20/2006	1.3	12/6/2006

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Well Designation	Well Type	Northing	Easting	Ground Elevation (ft amsl)	Total Depth Measured (ft bgs)	Screen Length (ft)	Well Material	Date Grouted	Volume of Grout Used (ft <sup>3</sup> )	Surface Completion Date
HR-201Q-MW02	Residuum	1162559.55	660786.52	863.16	50.0	20	2" ID SCH 40 PVC	11/20/2006	2.4	12/6/2006
HR-224Q-MW01	Residuum	1166075.13	675239.57	832.77	15.5	10	2" ID SCH 40 PVC	12/15/2006	0.5	12/16/2006
HR-224Q-MW05	Residuum	1166114.52	675108.68	826.62	8.0	5	2" ID SCH 40 PVC	12/15/2006	0.3	12/16/2006
HR-226Q-MW04	Residuum	1165823.09	675550.18	839.57	15.0	10	2" ID SCH 40 PVC	12/15/2006	0.4	12/17/2006
HR-227Q-MW01	Residuum	1164755.37	675382.68	874.08	37.0	10	2" ID SCH 40 PVC	12/16/2006	1.0	12/17/2006
HR-227Q-MW02	Residuum	1165185.03	675165.87	865.56	44.0	15	2" ID SCH 40 PVC	12/16/2006	1.2	12/19/2006
HR-227Q-MW03	Residuum	1164874.61	675395.8	873.35	23.0	10	2" ID SCH 40 PVC	12/16/2006	0.7	12/17/2006
HR-228Q-MW01	Residuum	1165662.02	664066.3	841.17	64.0	20	2" ID SCH 40 PVC	12/12/2006	1.3	12/13/2006
HR-228Q-MW02	Residuum	1165552.49	664187.88	818.82	83.0	20	2" ID SCH 40 PVC	11/17/2006	4.0	12/13/2006
HR-231Q-MW01	Residuum	1159465.51	661341.18	1012.56	84.0	20	2" ID SCH 40 PVC	11/14/2006	2.0	12/5/2006
HR-232QX-MW01	Residuum	1164235.27	661400.92	831.45	66.0	15	2" ID SCH 40 PVC	11/19/2006	1.8	12/18/2006
HR-232QX-MW02	Residuum	1164835.13	661844.34	849.28	65.0	15	2" ID SCH 40 PVC	12/7/2006	1.7	12/18/2006
HR-232QX-MW03	Residuum	1166821.54	666772.03	802.09	34.0	20	2" ID SCH 40 PVC	11/30/2006	1.0	12/18/2006
HR-232QX-MW06	Residuum	1166560.09	666380.69	791.70	33.0	15	2" ID SCH 40 PVC	11/16/2006	1.3	12/20/2006
HR-232QX-MW07	Residuum	1163835.59	659988.68	780.33	25.0	15	2" ID SCH 40 PVC	11/18/2006	0.8	12/14/2006
HR-232QX-MW08	Residuum	1164368.01	661472.32	827.90	103.0	15	2" ID SCH 40 PVC	11/19/2006	6.0	12/14/2006
HR-232QX-MW09	Residuum	1164486.62	661650.69	818.09	35.5	15	2" ID SCH 40 PVC	11/19/2006	1.8	12/14/2006
HR-232QX-MW10	Residuum	1166344.09	667673.42	830.63	44.0	15	2" ID SCH 40 PVC	11/29/2006	1.2	12/18/2006
HR-232QX-MW11	Residuum	1164962.55	662800.4	872.24	60.0	15	2" ID SCH 40 PVC	11/19/2006	1.6	12/18/2006
HR-232QX-MW12	Residuum	1164908.13	663144.17	866.71	74.5	20	2" ID SCH 40 PVC	11/18/2006	3.3	12/13/2006
HR-232QX-MW13	Residuum	1165930.52	663217.62	874.01	69.0	20	2" ID SCH 40 PVC	12/12/2006	1.5	12/13/2006
HR-232QX-MW16	Residuum	1166209.44	666539.26	851.76	40.0	15	2" ID SCH 40 PVC	11/30/2006	1.0	12/18/2006
HR-232QX-MW17	Residuum	1166673.91	667459.7	813.98	35.5	10	2" ID SCH 40 PVC	11/29/2006	1.0	12/18/2006
HR-232QX-MW18	Residuum	1166546.99	667606.52	824.03	37.5	15	2" ID SCH 40 PVC	11/29/2006	1.0	12/18/2006
HR-237Q-MW01	Residuum	1168185.09	702386.48	682.49	25.0	15	2" ID SCH 40 PVC	12/1/2006	0.7	12/20/2006
HR-237Q-MW02	Residuum	1167636.46	702285.49	680.08	15.8	10	2" ID SCH 40 PVC	12/1/2006	0.5	12/20/2006
HR-238Q-MW01	Residuum	1167789.34	704191.89	691.76	33.0	15	2" ID SCH 40 PVC	12/1/2006	1.0	12/20/2006
HR-247Q-MW01	Residuum	1153279.52	668105.75	1147.19	19.0	10	2" ID SCH 40 PVC	11/29/2006	0.5	12/4/2006
HR-247Q-MW02	Residuum	1152876.96	668671.73	1140.95	35.0	15	2" ID SCH 40 PVC	11/29/2006	0.8	12/4/2006
HR-247Q-MW03	Residuum	1153330.42	668784.42	1107.47	20.0	10	2" ID SCH 40 PVC	11/29/2006	0.4	12/4/2006
HR-247Q-MW04	Residuum	1153049.43	667942.59	1167.16	25.0	10	2" ID SCH 40 PVC	11/29/2006	0.5	12/4/2006
HR-247Q-MW05	Residuum	1152828.52	668492.19	1187.17	36.6	20	2" ID SCH 40 PVC	11/29/2006	0.8	12/4/2006

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Monitoring Well Abandonment Summary  
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Well Designation	Well Type	Northing	Easting	Ground Elevation (ft amsl)	Total Depth Measured (ft bgs)	Screen Length (ft)	Well Material	Date Grouted	Volume of Grout Used (ft <sup>3</sup> )	Surface Completion Date
HR-247Q-MW06	Residuum	1152594.51	668414.5	1201.41	35.0	10	2" ID SCH 40 PVC	11/29/2006	0.8	12/4/2006
PPMP-231-GP01	Residuum	1180250.12	674902.70	765.60	38.3	15	2" ID SCH 40 PVC	11/28/2006	1.3	12/15/2006
PPMP-231-GP02	Residuum	1180468.27	675290.82	770.57	34.8	15	2" ID SCH 40 PVC	11/28/2006	1.0	12/15/2006
PPMP-231-GP03	Residuum	1180105.56	674934.89	769.30	38.0	15	2" ID SCH 40 PVC	11/28/2006	1.3	12/15/2006
PPMP-231-GP11	Residuum	1179996.19	674959.13	773.79	39.0	20	2" ID SCH 40 PVC	11/28/2006	1.3	12/15/2006
HR-107Q-MW01	Residuum	1181390.39	677472.61	807.71	35.0	15	2" ID SCH 40 PVC	12/7/2006	0.8	1/29/2007
HR-107Q-MW02	Residuum	1181053.26	677495.76	814.15	90.0	15	2" ID SCH 40 PVC	12/7/2006	2.0	1/29/2007
HR-92Q-MW01	Residuum	1181725.74	677610.88	812.85	11.5	5	2" ID SCH 40 PVC	12/7/2006	0.3	1/29/2007
HR-92Q-MW02	Residuum	1181025.36	678277.44	851.48	90.0	20	2" ID SCH 40 PVC	12/7/2006	2.0	1/29/2007
HR-92Q-MW03	Residuum	1180844.90	678481.98	856.85	56.0	20	2" ID SCH 40 PVC	12/7/2006	1.2	1/29/2007
HR-92Q-MW04	Residuum	1180590.42	678461.17	868.59	60.0	20	2" ID SCH 40 PVC	12/7/2006	1.3	1/29/2007
HR-93Q-MW01	Residuum	1180613.32	677653.19	819.93	60.0	20	2" ID SCH 40 PVC	12/7/2006	1.3	1/31/2007
HR-93Q-MW02	Residuum	1180626.17	677936.02	834.22	104.0	20	2" ID SCH 40 PVC	12/7/2006	2.3	1/29/2007
HR-93Q-MW03	Residuum	1180085.74	677932.41	830.67	44.0	20	2" ID SCH 40 PVC	12/7/2006	1.0	1/31/2007
HR-93Q-MW04	Residuum	1179555.94	677549.11	889.23	40.0	15	2" ID SCH 40 PVC	12/7/2006	1.0	2/6/2007
HR-98Q-MW01	Residuum	1179769.61	680511.89	985.07	30.0	15	2" ID SCH 40 PVC	12/7/2006	0.7	1/29/2007
HR-98Q-MW02	Residuum	1179007.18	680876.68	1028.00	70.0	20	2" ID SCH 40 PVC	12/7/2006	1.5	1/29/2007
HR-70Q-MW01	Residuum	1161721.29	664879.80	897.90	29.6	20	2" ID SCH 40 PVC	1/31/2007	0.7	2/1/2007
HR-70Q-MW02	Residuum	1161730.76	664882.64	897.88	76.0	10	4" ID SCH 40 PVC	1/31/2007	6.6	2/1/2007
BK-G08	Residuum	1170209.19	681059.61	966.00	55.0	*10	4" ID SCH 40 PVC	12/15/2006	4.8	12/17/2006

\* Based on field observations, drill log, and/or report.

amsl - Above mean sea level.

ft - Feet.

ft<sup>3</sup> - Cubic feet.

bgs - below ground surface.

Horizontal coordinates referenced to the U.S. Plane Coordinate System, Alabama East Zone, North American Datum of 1983.

Elevations referenced to the North American Vertical Datum of 1988.

2" ID sch 40 PVC - 2-inch inside diameter, Schedule 40 polyvinyl chloride.

4" ID sch 80 PVC - 4-inch inside diameter, Schedule 80 polyvinyl chloride.

**Table 2**

**Summary of Variances to the Site-Specific Work Plan  
Monitoring Well Abandonments at Multiple Sites  
Fort McClellan, Calhoun County, Alabama**

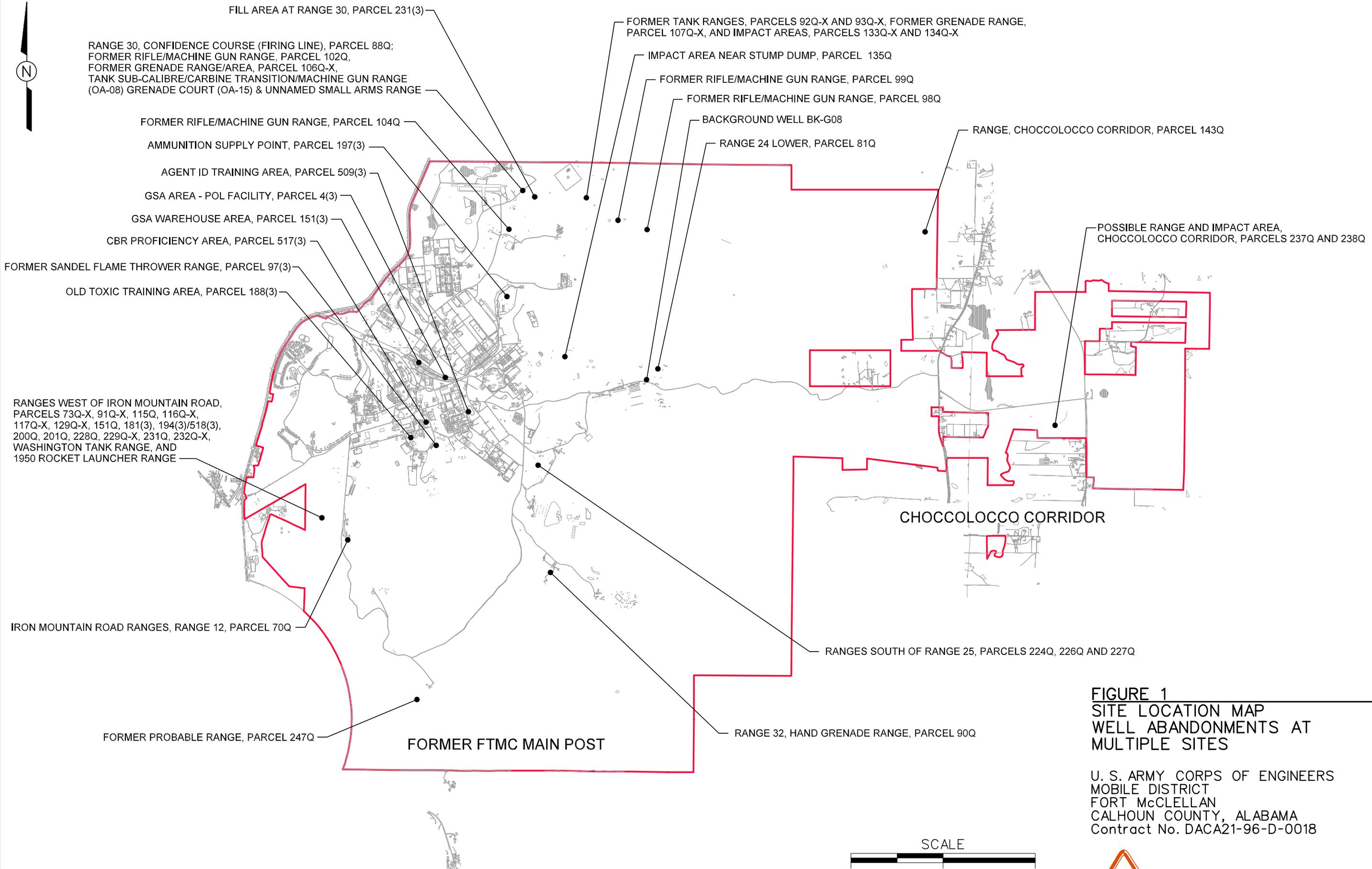
<b>Variance to the Letter Work Plan</b>	<b>Justification for Variance</b>	<b>Impact to Well Abandonment</b>
Three monitoring wells (HR-232QX-MW04, HR-232QX-MW05 and HR-232QX-MW19) located at the Ranges West of Iron Mountain Road were not abandoned because they are located within close proximity of Training Area T-5; which is currently undergoing a remedial investigation and the wells are being used for monitoring by the Joint Powers Authority (JPA).	The three wells are being used for monitoring.	None.
Three monitoring wells (GSBP-155-MW01, GSBP-155-MW02 and GSBP-155-MW03) located at the Ground Scar Near Landfill No. 3 were not abandoned because they are located adjacent to Landfill No. 3; which is currently undergoing a remedial investigation.	The three wells are currently being used for monitoring.	None.
Three monitoring wells HR-224Q-MW03, HR-224Q-MW04 and HR-226Q-MW02 located at the Ranges South of Range 25 were not abandoned because they are located on JPA property. Therefore, the Army is not responsible for well abandonment.	The three wells are not located on Army property. The JPA is responsible for well abandonment.	None.
Monitoring well HR-91Q-MW09 appears to have been destroyed during possible clearing operations for the Eastern Bypass Corridor.	The well was destroyed prior to well abandonment activities.	None.
The letter work plan stated that two background wells (BK-G03 and BK-G04) are located within the vicinity of the Ranges Near Training Area T-24A. However, both wells are actually located in the northern area of the Main Post (near Landfill No. 4 and Reilly Lake) and on JPA property. A third background well (BK-G06) located at the Ranges Near Training Area T-24A will be abandoned after the site is closed out.	Three of the four background wells were not abandoned. Two background wells (BK-G03 and BK-G04) are located on JPA property. Therefore, both background wells are the responsibility of the JPA. The third background well (BK-G06) is located at the Ranges Near Training Area T-24A and will be abandoned after the site is closed out.	None.
Ten monitoring wells (HR-92Q-MW01, HR-92Q-MW02, HR-92Q-MW03, HR-92Q-MW04, HR-93Q-MW01, HR-93Q-MW02, HR-93Q-MW03, HR-93Q-MW04, HR-107Q-MW01 and HR-107Q-MW02) located at the Former Tank Ranges and Former Grenade Range were abandoned prior to the site receiving no further action.	The ten wells were abandoned prior to receiving no further action.	The impact is yet to be determined, but groundwater contamination is not present at the site. Therefore, the impact is expected to be minimal.

**FIGURE**

DWG. NO.: 796887es.947  
 PROJ. NO.: 796887  
 INITIATOR: J. TARR  
 PROJ. MGR.: S. MORAN  
 DRAFT. CHCK. BY:  
 ENGR. CHCK. BY:  
 DATE LAST REV.:  
 DRAWN BY:

STARTING DATE: 01/24/07  
 DRAWN BY: D. BOWAR

5/16/2007  
 Standard\_Color\_Mod.tbl  
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**FIGURE 1**  
**SITE LOCATION MAP**  
**WELL ABANDONMENTS AT**  
**MULTIPLE SITES**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018

