Y/SUB/96-99069C(Y27)/2

Y-12

OAK RIDGE
Y-12
PLANT

LOCKHEED MARTIN

MANAGED BY
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

UCN-13672 (28 6-95)

FISCAL YEAR 1996 WELL PLUGGING AND ABANDONMENT PROGRAM Y-12 PLANT, OAK RIDGE, TENNESSEE

APRIL 1997

Prepared by

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Under Purchase Order 91B-99069C-Y27

for the

Water Compliance Department
Environmental Compliance Organization
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee

Managed by

Lockheed Martin Energy Systems, Inc.
for the
U.S. Department of Energy
Under Contract Number DE-AC05-84OR21400

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SEPTEMBER 1996

96-043MS/082296

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

contributed to the preparation of this document and should not be considered an eligible contractor for its review.

CONTENTS

FIGURES v
TABLES v
ACRONYMS vii
EXECUTIVE SUMMARY ix

1. INTRODUCTION 1-1

2. GENERAL GEOLOGY 2-1
   2.1 LOCATION AND PHYSIOGRAPHY 2-1
   2.2 STRATIGRAPHY 2-1

3. WELL PLUGGING AND ABANDONMENT 3-1
   3.1 DRILLING CONTRACTOR 3-1
   3.2 PLUGGING AND ABANDONMENT METHODS 3-1
   3.3 GROUTING PROCEDURES 3-3
   3.4 WASTE MANAGEMENT PRACTICES 3-3
   3.5 DEVIATIONS FROM NORMAL PLUGGING AND ABANDONMENT PROCEDURES 3-4

4. PLUGGING AND ABANDONMENT SUMMARIES 4-1
   4.1 GUM BRANCH ROAD FUNCTIONAL AREA 4-1
   4.2 EAST CHESTNUT RIDGE 4-7
   4.3 ASH DISPOSAL BASIN 4-9
   4.4 LOWER EAST FORK POPLAR CREEK FLOODPLAIN 4-10
   4.5 MISCELLANEOUS SITES 4-11

5. QUALITY ASSURANCE 5-1

6. HEALTH AND SAFETY 6-1

7. REFERENCES 7-1

APPENDIX A: ACTIVITY/PROGRESS REPORTS A-1
APPENDIX B: PLUGGING AND ABANDONMENT DIAGRAMS B-1
APPENDIX C: WASTE MANAGEMENT PLAN C-1
APPENDIX D: DISPOSAL AND SCREENING RECORDS D-1
APPENDIX E: EQUIPMENT DECONTAMINATION SUMMARIES E-1
APPENDIX F: WELL LOCATION MAPS F-1

FIGURES

2.1. Generalized geologic cross-section through the Y-12 Plant and vicinity.....2-2

2.2. Bear Creek Valley geologic map.....2-3

2.3. Generalized geologic cross-section of the member formations of the Conasauga Group.....2-4

2.4. Stratigraphic units in the vicinity of the Y-12 Plant.....2-5

TABLES

3.1 Summary of drilling contractor services provided at each abandoned well, piezometer, or boring.....3-2

4.1 Summary of decommissioned well construction data, Part I.....4-2

4.2 Summary of decommissioned well construction data, Part II.....4-4

6.1 Action levels used for well plugging and abandonment.....6-1

ACRONYMS

ADB	Ash Disposal Basin
API	American Petroleum Institute
BCGS	Below current ground surface
BGS	below ground surface
BMP	best management practices
BTOC	Below top of casing
Energy Systems	Lockheed Martin Energy Systems, Inc. (formerly Martin Marietta Energy Systems, Inc.)
FID	flame ionization detector
FY	fiscal year
GBRFA	Gum Branch Road Functional Area
GWPP	Groundwater Protection Program
Highland	Highland Drilling Company
HSEA	Health, Safety, Environment, and Accountability Organization
ID	inside diameter
IR	Ingersoll-Rand
LEFPC	Lower East Fork Poplar Creek
OD	outside diameter
ORR	Oak Ridge Reservation
OVA	organic vapor analyzer
P&A	plugging and abandonment
PID	photoionization detector
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
SAIC	Science Applications International Corporation
TD	total depth

EXECUTIVE SUMMARY

This report is a synopsis of the progress of the well plugging and abandonment program at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee, from August 1995 through August 1996. A total of 27 wells, piezometers, and borings were plugged and abandoned during the period of time covered in this report. All wells and borings were plugged and abandoned in accordance with the *Monitoring Well Plugging and Abandonment Plan for the U.S. Department of Energy, Y-12 Plant, Oak Ridge, Tennessee* (HSW, Inc. 1991).

1. INTRODUCTION

In September 1995, Science Applications International Corporation (SAIC) was authorized by Lockheed Martin Energy Systems, Inc. (Energy Systems) to provide technical oversight for the plugging and abandonment (P&A) of obsolete, damaged, and obstructing groundwater monitoring wells, piezometers, and coreholes in the vicinity of the Oak Ridge Y-12 Plant at Oak Ridge, Tennessee from October 1, 1995 through September 30, 1996. The scope of the authorized oversight was to supervise drilling activities and to provide health and safety monitoring during those activities. Energy Systems provided procedures and guidelines for P&A, waste disposal, and health and safety monitoring requirements.

The criteria for determining the need for the P&A of monitoring wells, piezometers, and coreholes were stated in the *Monitoring Well Plugging and Abandonment Plan for the Department of Energy Y-12 Plant, Oak Ridge, Tennessee* (HSW, Inc. 1991). The P&A of a well, piezometer, or boring occurred if: (1) its construction did not meet current standards (substandard construction); (2) it was irreparably damaged or had deteriorated beyond practical repair; (3) its location interfered with or otherwise impeded site operations, construction, or closure activities; or (4) special circumstances existed as defined on a case-by-case basis and approved by the Y-12 Plant Groundwater Protection Program (GWPP) Manager.

This report presents a summary of the activities performed during the fiscal year (FY) 1996 Plugging and Abandonment Program, and includes all wells decommissioned between August 1995 and July 1996. Note: the wells decommissioned from August 1995 to September 30, 1995 (part of the Federal FY 1995) are included in this summary report because the FY 1995 summary report deadline required that preparations begin before the end of the fiscal year. A total of 27 monitoring wells, piezometers, and borings were decommissioned in the period covered by this report (well location maps are found in Appendix F). In addition to this introduction, this summary report contains:

- general geologic setting of the Y-12 Plant and vicinity;
- discussion of well P&A methods, grouting procedures, and waste management practices (a Waste Management Plan for Drilling Activities is included in Appendix C);
- summaries of plugging and abandonment activities at each site; and
- quality assurance/quality control (QA/QC) and health and safety protocols used during the FY 1996 Plugging and Abandonment Program.

Copies of the well activity/progress reports, P&A diagrams, well cuttings field screening/disposal sheets, and equipment decontamination summaries are included in Appendices A, B, D, and E, respectively.

All decommissioned wells were maintained by the Y-12 Plant GWPP within its administrative area, which includes Bear Creek Valley from Y-12 Plant proper to the Clinch River, the southern flank of Pine Ridge, Chestnut Ridge, and parts of Bethel Valley.

2. GENERAL GEOLOGY

2.1 LOCATION AND PHYSIOGRAPHY

The Oak Ridge Y-12 Plant is located in Bear Creek Valley on the U.S. Department of Energy Oak Ridge Reservation (ORR), in the southwestern corner of Anderson County. The area of interest covered by this report includes Pine Ridge (which bounds Bear Creek Valley to the north), Chestnut Ridge (to the south of Bear Creek Valley), and parts of Bethel Valley.

The ORR, occupying an area of approximately 55 square miles, lies in a portion of the Tennessee section of the Valley and Ridge Physiographic Province (McMaster 1963). This province is characterized by narrow, elongated ridges and valleys trending northeast-southwest. Resistant sandstone, siltstone, and siliceous limestone and dolostone typically form the ridges; the valleys are commonly underlain by less resistant shale and soluble carbonates (Rodgers 1953). Elevations within the ORR range from about 900 ft to just over 1200 ft above mean sea level.

2.2 STRATIGRAPHY

Four major stratigraphic units, classified according to lithology, fossils, and age, underlie the Bear Creek Valley and vicinity. From oldest to youngest, these units are the Rome Formation, Conasauga Group, Knox Group, and Chickamauga Group. The formations located in and around Bear Creek Valley generally strike N47°E to N67°E. Regional dips range from 30° to 50° to the southeast (King and Haase 1987). Figures 2.1 and 2.2 represent a generalized geologic cross section and map, respectively, that illustrate the locations and stratigraphic relationships of the major stratigraphic groups and formations that occur in the Bear Creek Valley area.

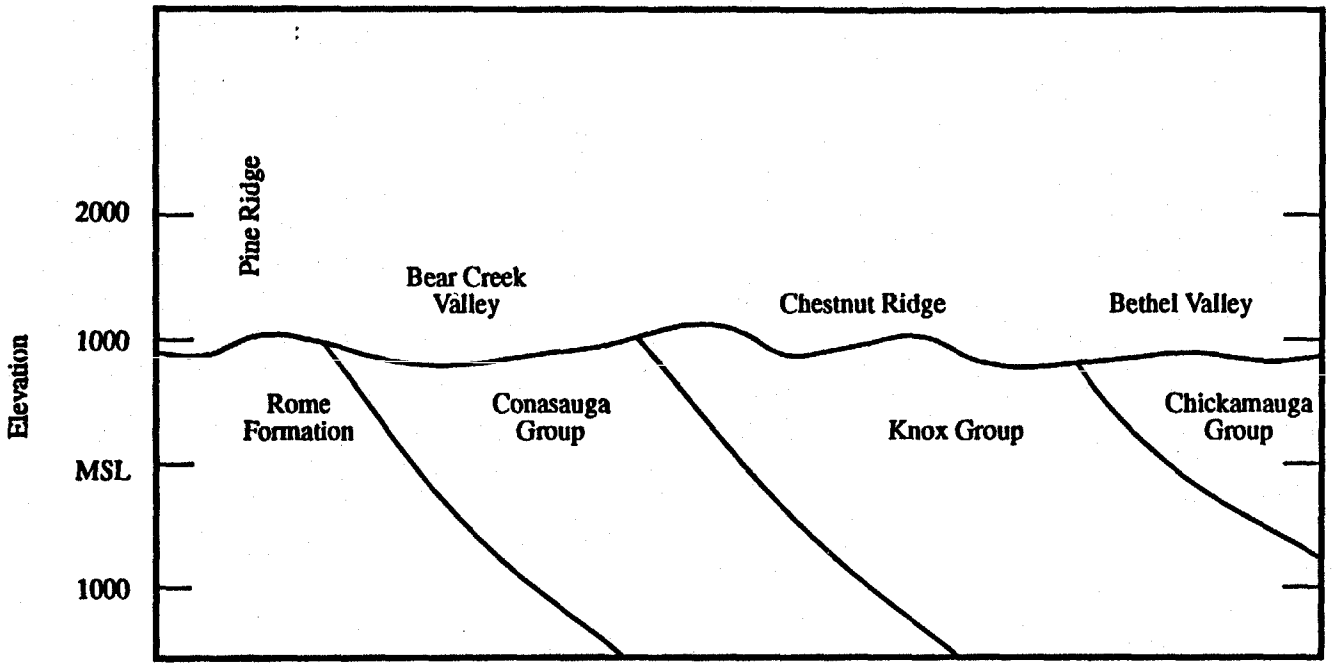
The Rome Formation, which forms Pine Ridge, is of Lower Cambrian age and consists of interbedded sandstone, shale, and siltstone with local beds of dolostone (McMaster 1963).

The Conasauga Group, of Middle to Upper Cambrian age, has been subdivided into six formations of alternating, predominantly shale and limestone lithologies. The six formations, from oldest to youngest, are the Pumpkin Valley Shale, Rutledge Limestone, Rogersville Shale, Maryville Limestone, Nolichucky Shale, and Maynardville Limestone. Detailed lithologic descriptions of these formations are given in King and Haase (1987). Figure 2.3 presents the relative positions of the member formations of the Conasauga Group, in cross section, as they appear in Bear Creek Valley.

Chestnut Ridge, to the south of Bear Creek Valley, is underlain by siliceous dolostones of the Knox Group. This upper Cambrian to lower Ordovician-aged unit is divided into five formations that are, from oldest to youngest, the Copper Ridge Dolomite, Chepultepec Dolomite, Longview Dolomite, Kingsport Formation, and Mascot Dolomite. Detailed lithologic descriptions of the Knox Group formations are published in Milici (1973).

All of the bedrock formations in Bear Creek Valley and vicinity are overlain by unconsolidated deposits of fill, alluvium, colluvium, and in situ weathered bedrock (residuum and saprolite). The thickness of unconsolidated deposits overlying the Conasauga and Chickamauga Groups (occupying valleys) ranged from approximately 1.0 ft to as much as 46.0 ft. Unconsolidated deposits overlying the Knox Group on Chestnut Ridge are considerably thicker than those in the adjacent valleys.

Figure 2.4 is a generalized stratigraphic column of the major stratigraphic units and accepted subdivisions of the Y-12 Plant area bedrock formations.



Source: McMaster 1963

Fig. 2.1. Generalized geologic cross-section through the Y-12 Plant and vicinity.

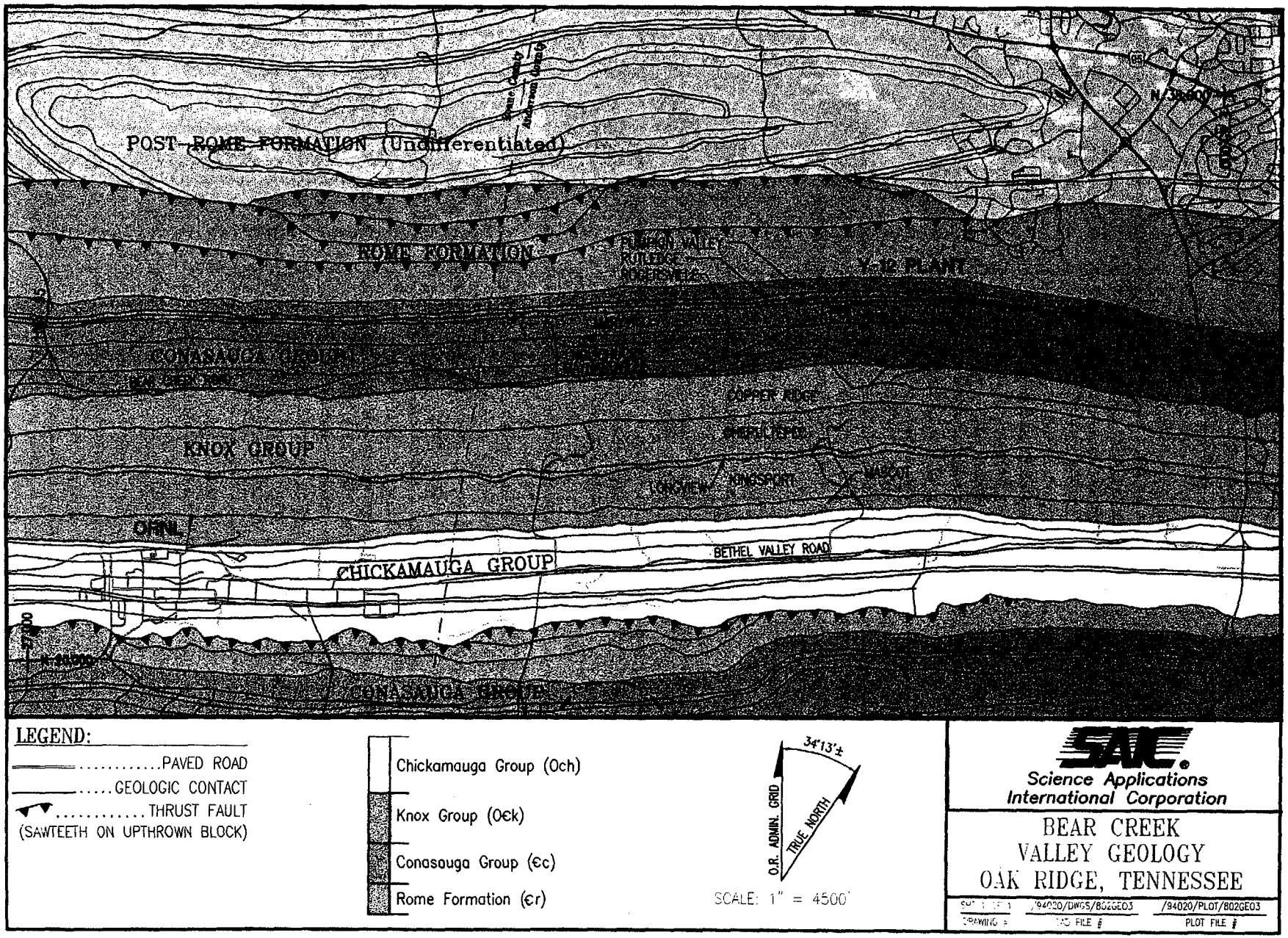
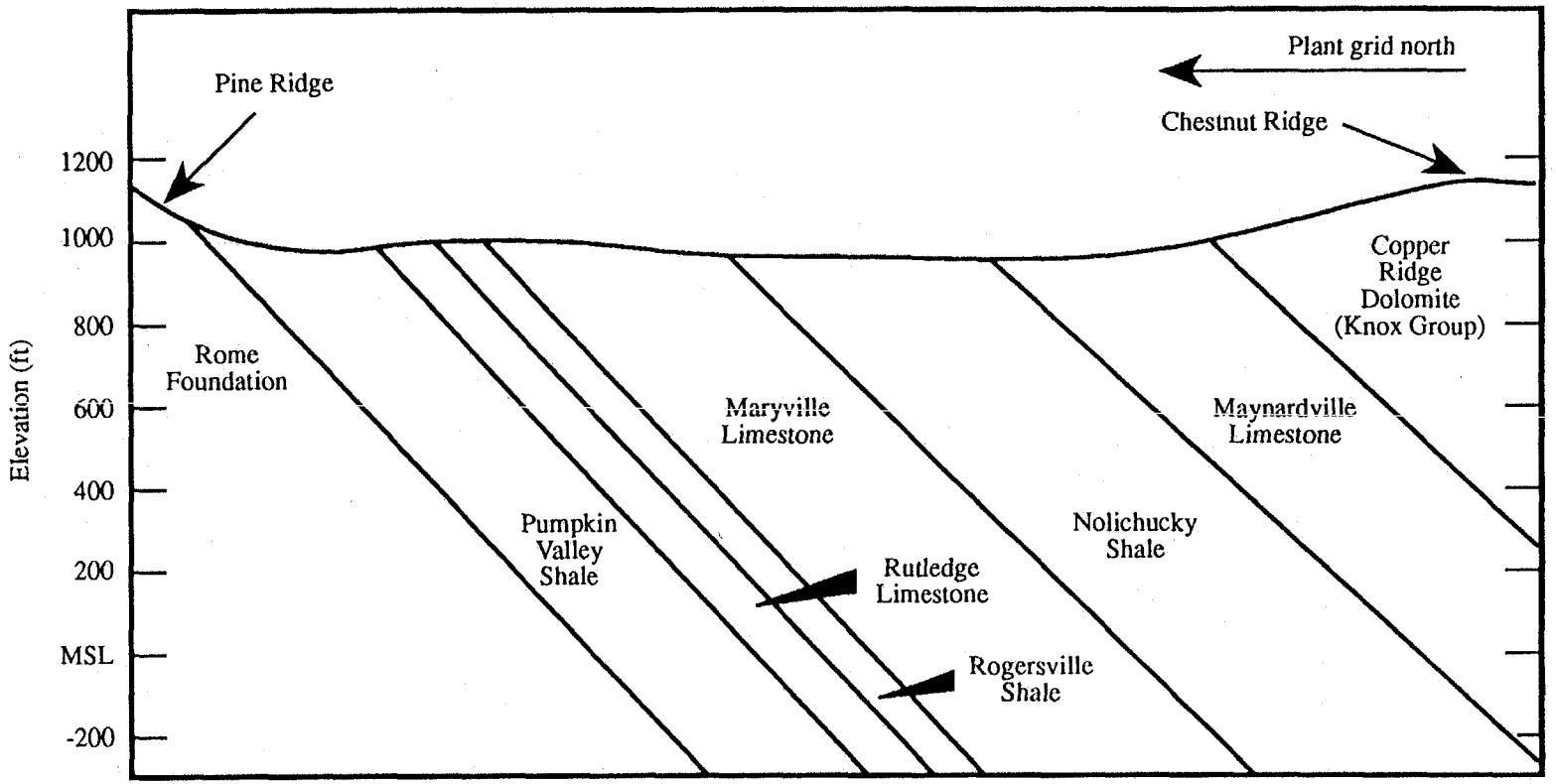


Fig. 2.2. Bear Creek Valley geologic map.



Horizontal scale: 1 cm = 200 ft
Vertical scale: 1 cm = 200 ft
No vertical exaggeration

Source: King and Haase 1987

Fig. 2.3. Generalized geologic cross-section of the member formations of the Conasauga Group.

Age	Group	Formation	Approximate Thickness (ft)		
			King and Haase 1987	Milici 1973	McMaster 1963
Middle Ordovician	Chickamauga	Undifferentiated	Not Determined		1750
Lower Ordovician	Knox	Mascot Dolomite	Not Determined	400-800	3000 (undivided)
		Kingsport Formation		200-320	
		Longview Dolomite		250-450	
		Chepultepec Dolomite		725-880	
Middle & Upper Cambrian		Copper Ridge Dolomite		900-1000	
	Conasauga	Maynardville Limestone	418-450		1500 (undivided)
		Nolichucky Shale	422-550		
		Maryville Limestone	346-445		
		Rogersville Shale	90-120		
		Rutledge Limestone	90-120		
		Pumpkin Valley Shale	260-320		
Lower Cambrian		Rome	Not Determined		800+

Fig. 2.4. Stratigraphic units in the vicinity of the Y-12 Plant.

3. WELL PLUGGING AND ABANDONMENT

3.1 DRILLING CONTRACTOR

The principal drilling contractor for plugging and abandonment activities at the Y-12 Plant during FY 1996 was Highland Drilling Company (Highland). All plugging and abandonment activities were performed by Highland (Table 3.1).

Highland Drilling Company utilized either an air rotary drilling rig, a utility augering truck, or a backhoe outfitted with an auger motor to plug and abandon wells during FY 1996. An Ingersoll-Rand (IR) XL-750 air rotary drilling rig was used in the decommissioning of wells: 1004, GW-002, GW-448, GW-452, GW-670, LL/HAZ-06, LL/HAZ-11, LL/HAZ-12, LL/HAZ-14, P&A 1, P&A 2, and P&A 3. An IR T4W air rotary rig was used on wells: B-1, B-3, 1095, 1096, GW-007, GW-295, and GW-297. An Altec Auger Truck was used in the decommissioning of wells GW-660 and GW-669. A Ford 455 backhoe equipped with an auger motor was used on wells GW-671 and GW-721. Wells 56-4C, GW-320, GW-321, and GW-672 were plugged/grouted in place; no drilling equipment was utilized in the decommissioning of these wells.

3.2 PLUGGING AND ABANDONMENT METHODS

Four generalized plugging and abandonment methods, approved by the Tennessee Department of Environment and Conservation, were followed. The four methods are discussed in *Monitoring Well Plugging and Abandonment Plan for the Department of Energy Y-12 Plant, Oak Ridge, Tennessee* (HSW, Inc. 1991). These methods are applicable to different types of well, piezometer, or boring construction. Wells that were plugged and abandoned during FY 1996 required the use only of methods A or C.

Method A is used for wells constructed of ≤ 7.0-in. outside diameter (OD) steel or stainless steel well casing, typically completed with 5.0- to 20.0-ft well screens and sand filter packs. Wells completed in bedrock may also have 8.0- to 12.0-in. OD steel or polyvinyl chloride (PVC) surface casing extending from ground surface to the top of bedrock. Some wells may also be completed with a conductor casing in place. Method A involves the over wash and removal of casing with washover pipe. Once the well casing has been removed, the borehole is reamed with a tricone bit at least 0.25 in. larger in diameter than the original bore. American Petroleum Institute (API) Class A (Type I) neat cement is tremied to within 4.0 ft of the surface (if there is no surface casing or conductor casing) and, after verification of the depth to the grout plug, the remaining 4.0 ft of bore is capped using compacted noncontaminated soil or local materials. If the well was completed with surface casing, the first grout plug is tremied to the bottom of the surface casing and allowed to cure. The surface casing is then over washed in the same manner as the inner casing, and grout is tremied from the bottom to within 4.0 ft of the surface. If the well was also completed with a conductor casing, it is removed in a manner similar to that for the surface casing. During FY 1996, method A was followed for the plugging and abandonment of wells GW-002, GW-007, GW-295, GW-297, GW-320, GW-321, GW-660, GW-669, GW-670, GW-671, and GW-672.

Method C is used for wells constructed of 7.0-in. OD or smaller PVC well casing, typically completed with 5.0- to 20.0-ft well screens and sand filter packs. Wells completed in bedrock may also have 8.0- to 12.0-in. OD steel or PVC surface casing extending to bedrock in addition to conductor casing. In method C, the well casing is removed by either over washing or (if the well casing material allows) by milling the well casing with a tricone roller bit. In both cases, the bore is reamed to at least 0.25 in. larger than the original diameter. The initial grout plug is created by placing API Class A neat cement by tremie to within 4.0 ft of the surface or to the bottom of surface casing. If surface casing or conductor casing is used in the well construction, removal is

Table 3.1. Summary of drilling contractor services provided at each abandoned well, piezometer, or boring

Well Number	Contractor	Service supplied
1004	Highland Drilling Company	Plugging and abandonment of a PVC screened well
1095	Highland Drilling Company	Plugging and abandonment of a PVC screened well
1096	Highland Drilling Company	Plugging and abandonment of a PVC screened well
56-4C	Highland Drilling Company	Plugging and abandonment of a PVC screened well
B-1	Highland Drilling Company	Plugging and abandonment of a PVC piezometer
B-3	Highland Drilling Company	Plugging and abandonment of a PVC piezometer
GW-002	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-007	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-295	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well with a surface casing
GW-297	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well with surface casing
GW-320	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-321	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-448	Highland Drilling Company	Plugging and abandonment of a PVC screened well
GW-452	Highland Drilling Company	Plugging and abandonment of a PVC screened well
GW-660	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-669	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-670	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-671	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-672	Highland Drilling Company	Plugging and abandonment of a stainless-steel screened well
GW-721	Highland Drilling Company	Plugging and abandonment of a PVC recovery well
LL/HAZ-06	Highland Drilling Company	Plugging and abandonment of a PVC screened well
LL/HAZ-11	Highland Drilling Company	Plugging and abandonment of a PVC screened well
LL/HAZ-12	Highland Drilling Company	Plugging and abandonment of a PVC screened well
LL/HAZ-14	Highland Drilling Company	Plugging and abandonment of a PVC screened well
P&A 1	Highland Drilling Company	Plugging and abandonment of a PVC screened well
P&A 2	Highland Drilling Company	Plugging and abandonment of a PVC screened well
P&A 3	Highland Drilling Company	Plugging and abandonment of a PVC screened well

done as described in method A. The bore is capped using compacted, noncontaminated soil to the surface. During FY 1996, method C was used in the plugging and abandonment of wells 1004, 1095, 1096, 56-4C, B-1, B-3, GW-448, GW-452, GW-721, LL/HAZ-06, LL/HAZ-11, LL/HAZ-12, LL/HAZ-14, P&A 1, P&A 2, and P&A 3.

3.3 GROUTING PROCEDURES

Screened Monitoring Wells and Piezometers

Following removal of screen and casing from these wells, and subsequent conditioning of the borehole, neat cement grout was placed into the bore to within ≤ 4.0 ft of the bottom of surface casing (if no surface casing was present, grout was brought to within ≤ 4.0 ft of the ground surface). After the grout had cured, surface casings (if any) were removed, and neat cement grout was placed into the reamed bore to within 4.0 ft below ground surface (BGS). This grout was allowed to cure, and the remaining open bore was filled with a clay/soil plug.

Highland either hand-mixed API Class I (Type I) grout used in P&A or used premixed cement of the same specifications delivered to the site by a cement subcontractor. In bores > 20.0 ft deep, grout was tremied through 1.5-in. OD PVC tremie pipe at a depth of approximately 10.0 to 20.0 ft from the bottom of the bore. Grouting of boreholes ≤ 20.0 ft deep or where the danger of bridging was negligible was accomplished by pouring or by pumping grout through a short hose into the bore.

3.4 WASTE MANAGEMENT PRACTICES

A waste management plan for the plugging and abandonment program was supplied by Energy Systems (Appendix C). Because the majority of the abandonment sites were outside areas of known or suspected contamination, drilling cuttings and water were discharged to the ground surface or to an excavated cuttings pit, provided that field screening criteria for radiation, volatile organics, and pH were not exceeded.

In the event that drill cuttings exceeded acceptable disposal limits, Health, Safety, Environment, and Accountability Organization (HSEA) personnel directed subcontractor personnel in the proper disposal techniques.

Organic Vapors

A headspace analysis of the cuttings composite from well GW-660 measured in excess of acceptable disposal limits. After re-sealing the sample and allowing the appropriate incubation period (1-hr), the headspace was again analyzed, and again found to exceed the disposal limits. HSEA directed the oversight geologist to allow the cuttings to aerate overnight and resample the following day. A headspace analysis of a composite of the same cuttings the following day resulted in measurements that were in the acceptable range for on-site disposal. The source of the high headspace reading was not identified. The initial headspace analysis of the cuttings composite from well GW-007 exceeded the disposal limits. A headspace measurement of the same sample after re-sealing and a 1-hr incubation period fell within acceptable disposal limits. The source of the high headspace reading was not determined, and the cuttings were spread on the ground surface at the well location.

pH

A measure of the pH of the cuttings composites of many wells was in excess of acceptable disposal limits. In all cases, cement fragments/dust in the cuttings composite were identified as the source of the high pH. The wells in which a high pH was measured are as follows: B-1, GW-002, GW-007, GW-295, GW-448, GW-670, and LL/HAZ-14. In all cases, the cuttings were scattered around the well location with no further action taken.

3.5 DEVIATIONS FROM NORMAL PLUGGING AND ABANDONMENT PROCEDURES

Due to certain irregularities or unusual circumstances in the installation of the well to be decommissioned, deviations from the approved P&A methods were necessary to complete the P&A. Authorization to deviate from P&A methods was obtained from HSEA prior to beginning P&A activities. Generally, deviations of this type included: milling of PVC well casing/screen while simultaneously reaming the wellbore to fresh material, thereby streamlining the applicable P&A method; using bentonite aggregate instead of cement to bridge voids, cavities, or fractures; and abbreviating P&A activities at a well when removal of the well casing/screen was deemed impractical (either casing could not be extracted or waste generation was a concern).

The following is a list of deviations (other than the generalized ones listed above) that occurred during FY 1996:

1095

Procedures state that the wellbore be reamed to fresh material to a depth 1.0 ft beyond the total depth (TD) of the original wellbore. Reaming of well 1095 stopped approximately 2.0 ft short of the target depth due to a risk of getting the bit stuck.

GW-007

The casing (2 3/8-in. OD) in well GW-007 was being overwashed and the wellbore reamed to fresh material in one pass. Elevated organic vapors in the breathing zone during intrusive activities terminated the P&A of GW-007 prior to completion. The well casing and screen were extracted from the wellbore, which collapsed to the point where reaming terminated. The reamed borehole was plugged and capped in accordance with procedures.

GW-295

Well GW-295 was incompletely decommissioned. The surface casing had to be cut, leaving approximately 13.0 ft at the bottom of the borehole. The remainder of the P&A of well GW-295 was accomplished in accordance with procedures.

GW-297

As in the case of well 1095, the cased portion of well GW-297 was not reamed to the proper depth. Circulation was lost, and a risk of getting the hole opener stuck in the hole developed.

GW-721

In an effort to reduce waste, well GW-721 was decommissioned using nonintrusive methods. The casing/screen were pulled out of the ground, and the resulting hole plugged to 1.2 ft BGS using bentonite aggregate. The remaining hole was capped in accordance with procedures.

LL/HAZ-14

Well LL/HAZ-14 was completed in a reamed exploratory core hole. The well was incompletely decommissioned as the bit moved off of the well/wellbore while drilling/reaming, and recovery was impossible.

4. PLUGGING AND ABANDONMENT SUMMARIES

This section provides a brief P&A summary of each of the 27 wells decommissioned for the Y-12 Plant GWPP during FY 1996. The wells are arranged numerically within the same geographic region or operational area. A summary of the recorded well construction and location information is presented in Tables 4.1 and 4.2 (Jones, Thompson, and Field 1995, Y/TS-881/R3). Occasionally, minor differences existed between reported construction and actual construction. These differences, as well as deviations from the P&A procedures, are included below. Some wells had no listing in the Subsurface Data Base (Y/TS-881/R3). Some of the information for these wells reported in Tables 4.1 and 4.2 is based on field observations.

4.1 GUM BRANCH ROAD FUNCTIONAL AREA

The Gum Branch Road Functional Area (GBRFA) is located in west Bear Creek Valley, north of Bear Creek. The area is bounded on the west by Highway 95. The GBRFA has been and continues to be the site of several groundwater characterization studies for either research or proposed industrial purposes. A total of 7 wells were decommissioned from the GBRFA during FY 1996 due to obsolescence, lack of security and identity, or lack of construction records.

In addition, site evaluation to construct a low-level waste repository in the GBRFA is ongoing as one of several candidate sites. Wells that were plugged in the GBRFA during FY 1996 were done so, in part, because they could potentially impede construction of a facility.

GW-448

Well GW-448 was an obsolete PVC-screened well constructed in a 6 1/8-in. diameter borehole with a reported depth of 44.5 ft. The reported total depth of the substandard well was 44.3 ft, but a pre-P&A tag yielded a TD of 44.6 ft.

A 2.3-ft section of steel protective casing was removed after breaking up the concrete pad. The PVC well casing and screen were drilled up while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 45.6 ft BGS. The reamed wellbore was grouted between 45.4 ft and 4.0 ft BGS by pumping 13, 94-lb sacks of neat, Type I Portland cement through 40.0 ft of PVC tremie pipe inserted to 38.0 ft BGS. The remaining 4.0 ft of the borehole was capped with clay soil.

GW-452

Well GW-452 was an obsolete PVC-screened well constructed in a 6 5/8-in. diameter borehole with a reported depth of 19.0 ft. The reported TD of the substandard well was 18.6 ft BGS (confirmed with a weighted tape prior to beginning P&A activities).

After the concrete pad had been broken up and removed, a 3.0-ft section of steel casing protecting the well casing stick-up was removed along with 2.0 ft of the well casing (which had come apart at a connection). The remaining PVC casing and screen were drilled up while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth at 20.0 ft BGS. The reamed wellbore was grouted between 19.5 ft and 3.0 ft BGS by pouring 7, 94-lb sacks of neat, Type I Portland cement directly into the borehole. The remaining 3.0 ft of the borehole was capped with clay soil.

Table 4.1. Summary of decommissioned well construction data, Part I[a]

Well number	Y-12 Plant Coordinates		Surface elevation (ft MSL)	Total depth (ft BGS)	Functional area	Other names	Screened (S) Open interval (O)
	Northing	Easting					
1004	29732	50456	981.12	29.0	S3 Ponds	YGMW-03, YMW-09, AP-04	S
1095	28088	63601	1002.60	118.0	Sediment Disposal Basin	YGMW-21, SD-01, YSD-11	S
1096	27430	63553	1045.90	68.0	Sediment Disposal Basin	YGMW-22, SD-02, YSD-12	S
56-4C	29815	56804	959.05	76.3	Y-12 Plant Site	None	S
B-1[b]	28499	61702	980.70	53.2	Urea Pile (East Chestnut Ridge)	MW-1	S
B-3[b]	28519	61765	977.70	36.1	Urea Pile (East Chestnut Ridge)	MW-3	S
GW-002	30294	47547	979.06	60.0	Oil Landfarm	None	S
GW-007	29810	47981	962.52	16.5	Oil Landfarm	None	S
GW-295	27802	62184	1090.40	146.0	Landfill III (East Chestnut Ridge)	None	S
GW-297	27885	62057	1098.90	120.0	East Chestnut Ridge Waste Pile	None	S
GW-320	26253	57084	922.41	200.0	Ash Disposal Basin	None	S
GW-321	26275	57026	923.10	98.6	Ash Disposal Basin	None	S
GW-448	29884.44	31737.97	872.20	44.5	Gum Branch Road area	None	S
GW-452	29768.40	32589.50	872.90	19.0	Gum Branch Road area	None	S
GW-660	32819	63543	875.3	11.0	East Fork Poplar Creek	AN: E-1	S
GW-669	40249	50619	829.9	9.4	East Fork Poplar Creek	AN: E-10	S
GW-670	40237	50616	830.3	21.8	East Fork Poplar Creek	AN: E-11	S
GW-671	40106	50605	830.1	8.9	East Fork Poplar Creek	AN: E-12	S
GW-672	26269.06	57042.11	926.73	28.0	Ash Disposal Basin	None	S
GW-721	31287.23	63157.62	1140.29	6.0	East Pine Ridge	None	S
LL/HAZ-06	29770.43	32123.31	879.80	30.0	Gum Branch Road area	None	S
LL/HAZ-11	30223.26	32138.85	931.30	33.0	Gum Branch Road area	None	S
LL/HAZ-12	30086.28	32124.05	908.80	35.0	Gum Branch Road area	None	S
LL/HAZ-14[c]	30236.57	32157.15	932.47	350.0	Gum Branch Road area	None	*S*
P&A 1	29920[d]	28560[d]	Unknown	Unknown/*22.0*	*Gum Branch Road area*	Unknown	*S*
P&A 2	30800[d]	27820[d]	Unknown	Unknown/*23.9*	*Gum Branch Road area*	Unknown	*S*
P&A 3	29780[d]	36850[d]	Unknown	Unknown/*35.8*	*Gum Branch Road area*	Unknown	S
OR-04[e]	29653	32884	859.17	56.0	Gum Branch Road area	None	Unknown

Table 4.1 (continued)

MSL = mean sea level
BGS = below ground surface

[a]*Source*: Jones, Thompson, and Field 1995
[b]*Source*: Ogden Environmental and Energy Services 1993
[c]Wellbore was originally an NX-core hole; completed as a monitoring well.
[d]Coordinates are approximate.
[e]Well OR-04 was not physically located in the field. The well was assumed destroyed.

Italicized entries indicate data obtained from field observations.

Table 4.2. Summary of decommissioned well construction data, Part II[a]

Well number	Protective Casing Depth/OD (ft,BGS/in.)	Surface Casing[a] Type	Surface Casing[b] Depth/OD (ft,BGS/in.)	TOWR (ft,BGS)	TOFR (ft,BGS)	Plugging and Abandonment Method	Rock Formation(s)[c]
1004	*None*	PVC/#40	29.0/6.5	12.0	27.0	C	Maynardville/Nolichucky
1095	*None*	PVC/#40	118.0/6.5	42.0	-NA-	C	Knox
1096	*None*	PVC/#40	68.0/6.5	60.0	-NA-	C	Knox
56-4C	*None*	PVC/#40	76.3/4.5	14.5	28.5	C	Nolichucky
B-1[d]	*None*	PVC	21.0/2.37	*-NA-*	*-NA-*	C	*Knox*
B-3[d]	*None*	PVC	36.0/2.37	*-NA-*	*-NA-*	C	*Knox*
GW-002	*1.9/5.5, Unknown/6.62*	SS/#304	60.0/2.37	2.5	36.4	A	Maryville
GW-007	*5.1/6.62*	SS/#304	16.5/2.37	7.0	-NA-	A	Nolichucky
GW-295	*123.0/10.75*	SS/#304	146.0/4.5	62.0	94.0	A	Knox
GW-297	*105.6/1075*	SS/#304	120.0/4.5	77.0	94.0	A	Knox
GW-320	*None*	SS/#304	110.0/4.5	-NA-	-NA-	A	Knox
GW-321	*None*	SS/#304	98.0/4.5	-NA-	-NA-	A	Knox
GW-448	*0.5/6.62*	PVC/#40	44.3/2.37	*4.0*	*17.3*	C	*Nolichucky*
GW-452	*0.8/6.62*	PVC/#40	18.6/2.37	*13.3*	*19.0*	C	*Nolichucky*
GW-660	*3.1/6.62-in.*	SS/#304	8.4/2.37-in.	11.0	NA	A	Rome
GW-669	*3.1/6.62-in.*	SS/#304	5.7/2.37-in.	*9.4*	-NA-	A	Rome
GW-670	*7.1/12-in.*	SS/#304	10.0/4.5-in.	*-NA-*	*-NA-*	A	Rome
GW-671	*1.2/6.62-in.*	SS/#304	5.6/2.37-in.	*8.8*	*-NA-*	A	Rome
GW-672	*None*	SS/#304	28.0/4.5	28.0	*-NA-*	A	Knox
GW-721	*None*	PVC/#40	6.0/12.0	-NA-	6.0	C	Rome
LL/HAZ-06	*None*	PVC/#40	30.0/6.5	13.0	-NA-	C	Nolichucky
LL/HAZ-11	*None*	PVC/#40	33.0/6.5	16.5	-NA-	C	Maryville
LL/HAZ-12	*None*	PVC/#40	35.0/6.5	13.5	35.3	C	Maryville
LL/HAZ-14[e]	*None*	PVC/#40	349.0/2.37	20.0	35.0	C	Maryville/Rogersville (204.5)
P&A 1	*None*	*PVC/#80*	*22.0/6.62*	*4.0*	*22.0*	C	*Maryville*
P&A 2	*None*	*PVC/#80*	*Unknown/6.62*	*-NA-*	*-NA-*	C	*Pumpkin Valley*
P&A 3	*None*	*PVC/#80*	*Unknown/6.62*	*-NA-*	*-NA-*	C	*Nolichucky*
OR-04[f]	*Unknown*	*Unknown*	*Unknown*	8.0	24.5	*NA*	Nolichucky

Table 4.2 (continued)

TOWR = Top of weathered rock
TOFR = Top of fresh rock

[a]*Source*: Jones, Thompson, and Field 1995
[b]Denotes surface casing for open-interval wells or well casing for screened interval wells
[c]Depth of contact given in parentheses
[d]*Source*: Ogden Environmental and Energy Services 1993
[e]Wellbore was originally an NX-core hole; completed as a monitoring well.
[f]Well OR-04 was not physically located in the field. The well was assumed destroyed.

Italicized entries indicate data obtained from field observations.

LL/HAZ-06

Well LL/HAZ-06 was an obsolete PVC-screened well constructed in an 8.0-in. diameter borehole with a reported depth of 30.0 ft. The reported TD of the substandard well was also 30.0 ft BGS. Note: Prior to P&A activities on well LL/HAZ-06, site preparations necessitated the removal of approximately 2.0 ft of soil around the well collar. A pre-P&A tag of the well with a weighted tape resulted in the bottom of the well now being at 27.7 ft below current ground surface (BCGS).

The PVC casing and screen were milled while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 29.1 ft BCGS. The reamed wellbore was grouted between 28.2 ft and 3.6 ft BCGS by pouring 9, 94-lb sacks of neat, Type I Portland cement directly into the borehole. The remaining 3.6 ft of the borehole was capped with clay soil.

LL/HAZ-11

Well LL/HAZ-11 was an obsolete PVC-screened well constructed in an 8.0-in. diameter borehole with a reported depth of 33.0 ft. A pre-P&A tag of the depth of the substandard well (32.6 ft BGS) indicated a small accumulation of sediment.

The PVC well casing and screen were milled while the wellbore was reamed to fresh material using an 8 1/2-in. diameter tricone roller bit to a depth of 34.3 ft BGS. The reamed wellbore was grouted from 34.3 ft to 1.3 ft BGS by pouring and pumping (through 30.0 ft of 1.5-in OD PVC tremie pipe inserted to 29.0 ft BGS) a total of 18, 94-lb sacks of neat, Type I Portland cement into the borehole. The remaining 1.3 ft of the borehole was capped with clay soil.

LL/HAZ-12

Well LL/HAZ-12 was an obsolete PVC-screened well constructed in an 8.0-in. diameter borehole with a reported depth of 35.0 ft. An apparent accumulation of sediment prevented confirmation of the total depth of the well (also reported to be 35.0 ft). A pre-P&A tag of 30.8 ft was measured.

The PVC casing and screen were milled while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 36.3 ft BGS. The reamed wellbore was grouted from 31.0 to 3.0 ft BGS by pouring a total of 16, 94-lb sacks of neat, Type I Portland cement into the borehole. The remaining 3.0 ft of the borehole was capped with clay soil.

LL/HAZ-14

Well LL/HAZ-14 was originally an NX corehole that had been reamed to 6 1/8-in. diameter to serve as a monitoring well. The obsolete/substandard well had an unconfirmed reported depth of 349.0 ft.

An initial attempt to drill up the PVC well casing and screen using a 6 3/4-in. diameter tricone roller bit failed when the bit failed to stay on the well. The well casing and annular cement column were over washed from 0.0 ft to 40.6 ft BGS using 8 1/4-in. inside diameter (ID), 9 1/2-in. OD washover pipe. The well casing was drilled up while the wellbore was reamed to fresh material using a 7 7/8-in. diameter tricone roller bit. The boring was terminated at 74.9 ft BGS as the bit had again strayed from the wellbore.

The reamed wellbore was grouted from 71.0 ft to 2.2 ft BGS by pumping (through 70 ft of 1.5-in. OD PVC tremie pipe inserted to 67.0 ft BGS) and pouring a total of 26, 94-lb sacks of neat, Type I Portland cement into the borehole. The remaining 2.2 ft of the borehole was capped with clay soil.

OR-04

Well OR-04 was a well of unknown construction. A brief search for the well at its approximate location revealed no evidence of a well boring or casing stick-up. The well was assumed destroyed, and no further action taken.

P&A 1

Well P&A 1 was an unidentified PVC-screened well constructed in a borehole of unknown size and depth. The substandard well also lacked a locking mechanism to prevent unauthorized access. A pre-P&A tag with a weighted tape placed the bottom of the well at 22.0 ft BGS.

The PVC casing and screen were milled while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 23.7 ft BGS. The reamed wellbore was grouted between 22.9 ft and 2.0 ft BGS by pouring 8, 94-lb sacks of Type I Portland cement directly into the borehole. The remaining 2.0 ft of the borehole was capped with clay soil.

P&A 2

Well P&A 2 was an unidentified PVC-screened well constructed in a borehole of unknown size and depth. The substandard well also lacked a locking mechanism to prevent unauthorized access. A pre-P&A tag with a weighted tape measured the bottom of the well at 23.9 ft BGS.

The PVC casing and screen were milled while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 25.4 ft BGS. The reamed wellbore was grouted between 23.3 ft and 3.0 ft BGS by pouring 9, 94-lb sacks of neat, Type I Portland cement directly into the borehole. The remaining 3.0 ft of the borehole was capped with clay soil.

P&A 3

Well P&A 3 was an unidentified PVC-screened well constructed in a borehole of unknown size and depth. The substandard well also lacked a locking mechanism to prevent unauthorized access. A pre-P&A tag with a weighted tape measured the bottom of the well at 35.8 ft BGS.

The PVC casing and screen were milled while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 36.9 ft BGS. The reamed wellbore was grouted between 31.8 ft and 2.0 ft BGS by pouring 9, 94-lb sacks of neat, Type I Portland cement directly into the borehole. The remaining 2.0 ft of the borehole was capped with clay soil.

4.2 EAST CHESTNUT RIDGE

The eastern end of Chestnut Ridge (located south of the Y-12 Plant) was the site of concentrated P&A efforts during FY 1996. The Sediment Disposal Basin, the Urea Pile, and the East Chestnut Ridge Waste Pile are all sites on Chestnut Ridge where at least one well was decommissioned during FY 1996. The Sediment Disposal Basin is located at the crest of the ridge near the easternmost edge of the Y-12 Plant. Wells 1095 and 1096 were located at this site. Piezometers B-1 and B-3 were installed in the Urea Pile, along the East Patrol Road, approximately midway between East Fork Poplar Creek, and the crest of Chestnut Ridge. Wells GW-295 and GW-297 were part of the East Chestnut Ridge Waste Pile monitoring networks, and were located near where the East Patrol Road crests Chestnut Ridge.

1095

Well 1095 was an obsolete PVC-screened well constructed in an 8.0-in. diameter borehole. The total reported depth of the substandard well was 118.0 ft; however, a pre-P&A tag of the bottom yielded a depth of 119.5 ft.

A total of 10.5 ft (including stick-up) of 6.5-in. OD PVC casing was removed from the borehole. The remaining PVC casing and screen were milled while the wellbore was reamed to

fresh material using an 8 1/2-in. diameter tricone roller bit to a depth of 117.0 ft BGS. The reaming was terminated short of the target depth due to lost circulation and the risk of getting the bit stuck.

A total of 53, 94-lb sacks of neat, Type I Portland cement were pumped into the reamed wellbore, but were apparently absorbed by large cavities in the bedrock interval. A plug of bentonite was formed between 40.6 ft and 26.0 ft BGS from 9, 50-lb sacks of 3/8-in. bentonite aggregate, hydrated. The wellbore was grouted between 26.0 ft and 3.7 ft BGS by pumping another 9, 94-lb sacks of neat, Type I Portland cement into the borehole. The remaining 3.7 ft of the borehole was capped with clay soil.

1096

Well 1096 was an obsolete PVC-screened well constructed in an 8.0-in. diameter borehole. The total reported depth of the substandard well (and confirmed by pre-P&A tag) was 68.0 ft.

The PVC well casing and screen were milled while the wellbore was reamed to fresh material using an 8 1/2-in. diameter tricone roller bit to a depth of 69.0 ft. The reamed wellbore was grouted from an unknown depth (abundant cuttings clinging to the borehole wall precluded an accurate tag of the bottom) to 1.3 ft BGS by pouring and pumping (through 30.0 ft of 1.5-in. OD PVC tremie pipe inserted to 29.0 ft BGS) a total of 25, 94-lb sacks of neat, Type I Portland cement into the borehole. The remaining 1.3 ft of the borehole was capped with clay soil.

B-1

Piezometer B-1 was constructed of PVC, and had been installed in an 8.0-in. diameter borehole with a depth of 53.2 ft. The obsolete piezometer, which was dry during most of the year, was screened between 6.0 ft and 21.0 ft BGS (the casing bottom had been confirmed using a weighted tape prior to P&A activities). The substandard piezometer had a locking cap, which was not functional to prevent unauthorized access.

The PVC casing and screen were milled while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 54.3 ft BGS. Upon removal of the tools, a significant collapse of the borehole occurred. The reamed wellbore was grouted from 16.0 ft BGS to the ground surface by pouring 9, 94-lb sacks of neat, Type I Portland cement directly into the borehole.

B-3

Piezometer B-3 was constructed of PVC, and had been installed in an 8.0-in. diameter borehole with a depth of 36.1 ft. The obsolete piezometer, which was dry during most of the year, had a reported TD of 36.1 ft (a pre-P&A tag with a weighted tape measured the piezometer bottom at 35.8 ft BGS). The substandard piezometer had a locking cap, which was not functional to prevent unauthorized access.

The PVC casing and screen were milled while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 37.5 ft BGS. The reamed wellbore was grouted from 35.2 ft BGS (minor collapse of the borehole had occurred) to the ground surface by pumping 15, 94-lb sacks of neat, Type I Portland cement into the borehole through 30.0 ft of PVC tremie pipe inserted to 29.0 ft BGS, and pouring another 6, 94-lb sacks of cement directly into the borehole.

GW-295

Well GW-295 was an obsolete well that was dry for most of the year. The stainless-steel well was reportedly installed in a 10.0-in. diameter borehole with a depth of 146.0 ft. The reported TD of the well was also 146.0 ft, but a pre-P&A tag with a weighted tape measured the bottom of the well at 146.7 ft BGS. The well also contained steel surface casing to a reported depth of 123.0 ft.

The well casing and screen were over washed using 5.0-in. ID, 6 1/2-in. OD washover pipe to a depth of 143.4 ft BGS, and removed. The completion interval of the well was reamed to fresh material using a 9 7/8-in. diameter tricone roller bit to a depth of 148.4 ft BGS. The reamed completion interval was grouted between 140.3 ft and 112.0 ft BGS by pumping 33, 94-lb sacks of neat, Type I Portland cement into the borehole through 140.0 ft of PVC tremie pipe inserted to 136.0 ft BGS. Note: The completion interval cement plug was later drilled out to 131.0 ft BGS.

The surface casing was over washed using 12-in. ID, 13 3/4-in. OD washover pipe to a depth of 111.9 ft BGS. At that point, over washing had become so slow (about 0.5 ft per day) that a decision was made to cut the casing off and proceed with the P&A of this well. The surface casing was cut off, and a total of 110.4 ft was recovered. The cased interval was reamed to fresh material using a 15.0-in. diameter hole opener to a depth of 107.5 ft BGS.

The initial attempt to grout the borehole failed when 4 cubic yds of delivered cement, when poured into the borehole, washed away into the formation. A plug was formed between 102.5 ft and 87.0 ft BGS by using 34, 50-lb sacks of 3/8-in. bentonite aggregate. The borehole was then plugged between 87.0 ft and 1.0 ft BGS by pouring a total of 8.0 cubic yds of delivered concrete directly into the borehole. The remaining 1.0 ft of the borehole was capped with clay soil.

GW-297

Well GW-297 was an obsolete well that was dry for most of the year. The stainless-steel well was reportedly installed in a 10.0-in. diameter borehole with a depth of 120.0 ft. The reported TD of the well was also 120.0 ft, but a pre-P&A tag with a weighted tape measured the bottom of the well at 120.7 ft BGS. The well also contained steel surface casing of an unknown amount (depth).

The well casing and screen were over washed using 4 1/2-in. ID, 6 1/2-in. OD washover pipe to a depth of 112.4 ft BGS, and removed. The completion interval of the well was reamed to fresh material using a 9 7/8-in. diameter tricone roller bit to a depth of 121.0 ft BGS. The reamed completion interval was grouted between 117.0 ft and 113.0 ft BGS by pumping 12, 94-lb sacks of neat, Type I Portland cement into the borehole through 120 ft of PVC tremie pipe inserted to 117.0 ft BGS. The reamed wellbore from 113.0 ft to 94.7 ft BGS was plugged by pouring 10, 50-lb sacks of 3/8-in. bentonite aggregate, and allowing to hydrate. Note: The hydrated bentonite was removed to a depth of 105.0 ft BGS while over washing the surface casing.

The surface casing was over washed using 11 7/8-in. ID, 13 3/4-in. OD washover pipe to a depth of 105.0 ft BGS, and removed. The cased interval was reamed to fresh material using a 15-in. diameter hole opener to a depth of 67.9 ft BGS. At this point, down-hole conditions created the possibility of borehole collapse and subsequent loss of drill stem, so reaming was discontinued. A bentonite plug of 10, 50-lb sacks of 3/8-in. bentonite aggregate was placed on top of the fill remaining in the borehole from 44.1 ft to 41.8 ft BGS. The borehole was grouted between 41.8 ft and 2.9 ft BGS by pouring 4.0 cubic yds of delivered cement plus 17, 94-lb sacks of neat, Type I Portland cement directly into the borehole. The remaining 2.9 ft of the borehole was capped using a mixture of bentonite aggregate and clay soil.

4.3 ASH DISPOSAL BASIN

The Ash Disposal Basin (ADB) is located on the southern flank of Chestnut Ridge, west of Kerr Hollow Quarry. The ADB consists of a dammed impoundment situated in a shallow drainage valley, and was the collection site for the disposal of Y-12 Plant steam plant coal ash residue. Three stainless-steel screened wells located in the dam itself were decommissioned during FY 1996.

Wells GW-320, GW-321, and GW-672 were all located on a narrow bench near the middle of the dam. These three wells were decommissioned in preparation for a project to strengthen the dam and regrade some of the adjacent slopes.

GW-320

Well GW-320 was a stainless-steel screened well constructed in an 8.0-in. diameter borehole with a reported depth of 200.0 ft. The well screen was reportedly located between 100.0 ft and 110.0 ft BGS. The screened interval of the well was plugged using 2, 50-lb sacks of 3/8-in. bentonite aggregate from 110.3 ft (actual tagged depth) to 91.6 ft BGS. The remaining casing was plugged from 91.6 ft to 1.0 ft below top of casing (BTOC) by pumping 8, 94-lb sacks of neat, Type I Portland cement through 1.0-in. ID PVC tremie pipe installed to 87.0 ft BGS into the well. The well casing and protective casing were removed flush with the ground surface.

GW-321

Well GW-321 was a stainless-steel screened well constructed in an 8.0-in. diameter borehole with a reported total depth of 98.6 ft BGS. The well screen was reportedly located between 98.0 ft and 87.3 ft BGS. The screened interval of the well was plugged from 98.4 ft (actual tagged depth) to 86.7 ft BGS using 1 1/2, 50-lb sacks of 3/8-in. bentonite aggregate. The remaining casing was plugged from 86.7 ft to the top of the casing using 6, 94-lb sacks of neat, Type I Portland cement through 1.0-in. ID PVC tremie pipe installed to 85.0 ft BGS into the well. The well casing and protective casing were removed flush with the ground surface.

GW-672

Well GW-672 was a stainless-steel screened well constructed in an 8.0-in. diameter borehole with a reported total depth of 28.0 ft. The well screen was reportedly located between 28.0 ft and 18.0 ft BGS. The screened interval of the well plugged from 28.3 ft (actual tagged depth) to 13.1 ft BGS using 2, 50-lb sacks of 3/8-in. bentonite aggregate. The remaining casing was plugged from 13.1 ft to the top of the casing by pumping 2, 94-lb sacks of neat, Type I Portland cement into the well. The well casing and protective casing were removed flush with the ground surface.

4.4 LOWER EAST FORK POPLAR CREEK FLOODPLAIN

The Lower East Fork Poplar Creek (LEFPC) originates in the Y-12 Plant, and flows east and north toward the city of Oak Ridge through a water gap in Pine Ridge at Scarboro Road. The creek then flows alongside Illinois Avenue, and roughly parallel to the Oak Ridge Turnpike flowing west out of the city.

A number of shallow water table and bedrock wells had been installed within the LEFPC floodplain to investigate potential groundwater contamination in the vicinity of the creek. Several of these wells, located on private properties, were decommissioned during FY 1996.

GW-660

Well GW-660 was an obsolete stainless-steel screened well constructed in an 8 3/4-in. diameter borehole with a reported total depth of 11.0 ft. A 12.0-in. OD, 8 1/4-in. ID, hollow-stem auger was used to overdrill the 2 3/8-in. OD stainless steel well casing and screen and 6 5/8-in. OD steel conductor casing and ream the wellbore to fresh material to a depth of 11.6 ft BGS (auger refusal). The reamed wellbore was plugged from 8.3 ft to 1.3 ft BGS by pouring 7, 50-lb sacks of 3/8-in. bentonite aggregate into the borehole. The remaining 1.3 ft of hole was capped with clay soil.

GW-669

Well GW-669 was an obsolete stainless-steel screened well constructed in an 8 3/4-in. diameter borehole with a reported total depth of 9.4 ft. The 2 3/8-in. OD stainless steel well casing and screen were pulled out of the ground, along with 6 5/8-in. OD steel conductor casing. A 12.0-in. OD, 8 1/4-in. ID, hollow-stem auger was used to ream the wellbore to fresh material to a depth of 9.7 ft BGS (auger refusal). The reamed wellbore was plugged from 9.6 ft to 2.7 ft

BGS by pouring 6, 50-lb sacks of 3/8-in. bentonite aggregate into the borehole. The remaining 2.7 ft of hole was capped with clay soil.

GW-670

Well GW-670 was an obsolete stainless-steel screened well constructed in an 8 3/4-in. diameter borehole with a reported total depth of 21.8 ft. The 4 1/2-in. OD well casing and screen were over washed using 9.0-in. OD, 8.0-in. ID steel washover pipe, and removed. The wellbore was reamed to fresh material using a 9 7/8-in. diameter tricone roller bit to a depth of 22.9 ft BGS. The reamed completion interval was grouted from 22.9 ft to 5.2 ft BGS by pumping 7, 94-lb sacks of neat, Type I Portland cement into the borehole through 20.0 ft of 1.5-in. OD PVC tremie pipe inserted to 19.0 ft BGS.

The 12.0-in. OD steel surface casing was over washed using 13 1/4-in. OD, 12.0-in. ID steel washover pipe, and removed. The cased portion of the wellbore was reamed to fresh material using a 16.0-in. diameter hole opener to a depth of 8.3 ft BGS. The reamed cased interval was grouted from 8.3 ft to 3.6 ft BGS by pouring 5, 94-lb sacks of neat, Type I Portland cement directly into the borehole. The remaining 3.6 ft of hole was capped with clay soil.

GW-671

Well 671 was an obsolete stainless-steel screened well constructed in an 8 3/4-in. diameter borehole with a reported total depth of 8.9 ft. The 2 3/8-in. OD stainless steel well casing and screen were pulled out of the ground, along with 6 5/8-in. OD steel conductor casing. A 12.0-in. OD, 8 1/4-in. ID, hollow-stem auger was used to ream the wellbore to fresh material to a depth of 8.8 ft BGS (auger refusal). The reamed wellbore was plugged from 8.7 ft to 3.4 ft BGS by pouring 6, 50-lb sacks of 3/8-in. bentonite aggregate into the borehole. The remaining 3.4 ft of hole was capped with clay soil.

4.5 MISCELLANEOUS SITES

During the FY 1996 P&A activities, a number of wells were decommissioned that were from single- or dual-well sites scattered throughout the Y-12 Plant property. This section provides a brief description of the P&A of each of these wells (including location), presented in numerical order. A total of four wells are summarized here.

1004

Well 1004 was located south of Bear Creek Road, in a small drainage down-gradient from the S3 Site cap. The obsolete PVC-screened well was constructed in an 8.0-in. diameter borehole with a reported depth of 29.0 ft. An apparent accumulation of sediment prevented confirmation of the total depth of the well (also reported to be 29.0 ft). A pre-P&A tag of 27.9 ft BGS was measured.

The PVC casing and screen were milled while the wellbore was reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 30.0 ft BGS. The reamed wellbore was grouted between 29.5 ft and 2.8 ft BGS by pumping 13, 94-lb sacks of neat, Type I Portland cement into the borehole through 30 ft of PVC tremie pipe inserted to 29.0 ft BGS. The remaining 2.8 ft of the borehole was capped with clay soil.

56-4C

Well 56-4C was located at the southeast corner of Building 9623 in the Y-12 Plant area. The casing stick-up had been broken off flush with the ground surface.

The well consisted of 4 1/2-in. OD PVC casing and screen installed to 76.3 ft BGS in a 6.0-in. diameter borehole. A 31.0-ft long section of 3 1/2-in. OD PVC casing had been inserted in the top of the well. A pre-P&A tag of the depth of the well resulted in a solid bottom at 73.4 ft.

The well casing and screen were plugged from 73.4 ft to 11.5 ft BGS using 3/8-in. bentonite aggregate. The remaining casing was plugged, from 11.5 ft to the ground surface, by pouring 1, 94-lb sack of neat, Type I Portland cement into the well.

GW-002

Well GW-002 was located off the Haul Road, north of the Oil Landfarm (which is part of the Bear Creek Burial Grounds, west of the Y-12 Plant). The obsolete (upgradient) well was stainless steel, and had been installed in a 6.0-in. diameter borehole, 60.0 ft deep. The reported TD of the well was 57.7 ft, however, a pre-P&A tag with a weighted tape measured the bottom of the well at 59.8 ft BGS.

The steel conductor casing, along with most of the PVC surface casing and part of the stainless steel well casing was pulled out of the ground prior to P&A. The remaining well casing and screen were over washed using 5.0-in. ID, 6 1/2-in. OD washover pipe to a depth of 62.2 ft BGS, and recovered. The wellbore was then reamed to fresh material using an 8 3/4-in. diameter tricone roller bit to a depth of 62.2 ft BGS. The reamed wellbore was grouted between 61.6 ft and 1.0 ft BGS by pumping 25, 94-lb sacks of neat, Type I Portland cement into the borehole through 61.0 ft of PVC tremie inserted to 60.0 ft BGS, then pouring another 3, 94-lb sacks of cement directly into the borehole. The remaining 1.0 ft of the borehole was capped with clay soil.

GW-007

Well GW-007 was also part of the Oil Landfarm monitoring network. The obsolete well located near the center of the Oil Landfarm, was stainless steel, and had been installed in a 6.0-in. diameter borehole with a reported depth of 16.5 ft. The reported TD of the well was 14.3 ft; a pre-P&A tag with a weighted tape to confirm the TD was not possible due to blockage within the casing.

The well casing, along with the steel conductor casing, was over washed (and the wellbore reamed to fresh material) using 8.0-in. ID, 9 1/4-in. OD washover pipe to a depth of 9.3 ft BGS. At this depth, organic vapor levels in the breathing zone exceeded exposure criteria. Drilling operations were suspended and P&A of the well in place was authorized after organic vapor levels dropped below screening criteria.

A total of 19.6 ft of stainless steel well materials (casing, screen, and silt trap) were removed from the borehole. The reamed wellbore was grouted between 9.3 ft and 2.4 ft BGS by pouring 4, 94-lb sacks of Type I Portland cement directly into the borehole. The remaining 2.4 ft of the borehole was capped with clay soil.

GW-721

Well GW-721 was located in the Water Treatment Facility complex at the east end of Pine Ridge. The obsolete well had been a recovery well for contaminated groundwater related to a nearby underground fuel tank. The PVC well was constructed in a 22.0-in. diameter borehole, 8.0 ft deep, whose annulus was sealed with bentonite.

The PVC screen and casing were pulled out of the ground. The borehole left by the extracted well was plugged between 4.5 ft and 1.2 ft BGS by pouring 4, 50-lb sacks of 3/8-in. bentonite aggregate into the borehole and allowing to hydrate. The remaining 1.2 ft of the borehole was capped with clay soil.

5. QUALITY ASSURANCE

Quality control was closely monitored during all P&A activities to ensure that P&A activities conformed to Energy Systems P&A procedures (Energy Systems 1994). All task-related activities were observed and documented by a registered professional geologist employed by SAIC. Any deviations were approved by the GWPP Manager or designee. Drill rigs and all ancillary drilling equipment were steam cleaned before drilling operations at each site.* During P&A operations, equipment was routinely inspected for fuel and oil leaks, and a spill control kit was present during each abandonment.

Plastic sheeting and straw bale berms were used to contain normal drilling cuttings and water when abandonment activities occurred near surface waters. Only vegetable-oil-based or nonpetroleum thread lubricant (Well-Guard™ – a beeswax-based thread lubricant) was used when needed during drilling.

At times when cuttings were circulated and available for collection, these were sampled continuously over 10.0- to 20.0-ft intervals. All samples were screened and inspected for comparison with expected well and boring materials.

*Energy Systems personnel initiated the use of a new form, Equipment Decontamination Inspection Summary, in 1994 to be included with all P&A well reports. This form documents the steam cleaning and inspection of all equipment prior to use at each location.

6. HEALTH AND SAFETY

A Health and Safety Plan (SAIC 1992) was followed for all FY 1996 P&A activities. All on-site personnel were in compliance with training requirements mandated by 29 *CFR* 1910.120, and all were enrolled in an annual health screening and occupational medical examination program. Additionally, all personnel present on site during P&A activities wore thermoluminescent dosimeter badges collected and monitored by Energy Systems. During the period of work covered by the annual report, no personnel received radiation exposure exceeding permissible limits based on field screening. Low potential for exposure to hazardous materials at all work sites allowed use of Level D personal protection. This protective level consisted of not less than steel-toed footwear, gloves, hard hats, hearing protection in the form of plugs or muffs, and safety glasses.

Technical oversight personnel provided health and safety monitoring at the work sites using monitoring equipment supplied and maintained by Energy Systems. Instrumentation used on site typically consisted of an HNu Model HW-101 photoionization detector (PID), a Foxboro Century™ organic vapor analyzer (OVA) Model 108 or Model 128 flame ionization detector (FID), and Ludlum radiation meters. The HNu PID and OVA FID were used to detect ionizable organic vapors. Radiation detection instruments included a Ludlum Model 3 Survey Meter for detection of beta and gamma radiation with a Geiger-Mueller "pancake" type probe. Alpha radiation was monitored using a Ludlum Model 12 Count Ratemeter with a scintillation tube probe or an air probe.

In addition to screening for health and safety, drilling returns were screened per Energy Systems guidelines in a general waste management plan for drilling activities (Appendix C). This daily screening consisted of alpha, beta, and gamma radiation screening of composited drill cuttings. A headspace analysis of organic vapors and a pH measurement were also performed on this composited cuttings sample. Because grout cuttings often were a significant component of drilling returns during over washing and borehole reaming, pH levels sometimes exceeded the upper bounds of waste screening criteria. If grout cuttings were present, as identified visually, and no screening parameters other than pH exceeded guideline criteria, then no containment actions were taken. Screening results are contained in Appendix D.

Health and safety plan action levels (SAIC 1992) and waste management guideline values used during P&A activities are presented in Table 6.1.

Table 6.1. Action levels used for well plugging and abandonment

Parameter	Action level
Waste Management Guidelines:	
pH	<4.0 and >10.5 standard units
Organic vapors	>5 ppm
Alpha radiation	>500 counts per minute
Beta/gamma radiation	>100 counts per minute
Health and Safety Plan:	
pH	Below 5 or above 9
Explosivity	>25% Lower Explosive Limit
Organic vapors	>10 ppm in breathing zone
Radiation	>2 millirem/hr, and/or an 8-hr time-weighted average of 0.25 millirem/hr at chest level

7. REFERENCES

Energy Systems (Martin Marietta Energy Systems, Inc.) 1994. *Well Plugging and Abandonment Procedure, G-003, Rev. 1*, October.

HSW, Inc. (HSW Environmental Consultants, Inc.) 1991. *Monitoring Well Plugging and Abandonment Plan for the Department of Energy Y-12 Plant, Oak Ridge, Tennessee,* Y/SUB/91-YP507C/6, prepared for Martin Marietta Energy Systems, Inc.

Jones, S.B., B.K. Thompson, and S.M. Field 1995. *Updated Subsurface Data Base for Bear Creek Valley, Chestnut Ridge, and Parts of Bethel Valley on the U.S. Department of Energy Oak Ridge Reservation*, Y/TS-881/R3, June.

King, H.L. and C.S. Haase 1987. *Subsurface-Controlled Geologic Map for the Y-12 Plant and Adjacent Areas of Bear Creek Valley*, ORNL/TM-10112, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory, Oak Ridge, Tennessee.

McMaster, W.M. 1963. *Geologic Map of the Oak Ridge Reservation, Tennessee*, ORNL/TM-713, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory, Oak Ridge, Tennessee, November.

Milici, R.C. 1973. "The Stratigraphy of Knox County, Tennessee," in: *Geology of the Knox County, Tennessee.* Tennessee Division of Geology, Bulletin 70.

Ogden Environmental and Energy Services. 1993. *Subsurface Investigation and Environmental Sampling Ammonium Nitrate Study, Y-12 Plant, Oak Ridge, Tennessee*, Contract No. 88B-99977V, Release C-70, Ogden File NO. 0-4267-0074, prepared for Martin Marietta Energy Systems, Inc.

Rodgers, J. 1953. "Geologic Map of East Tennessee with Explanatory Text," Tennessee Division of Geology, Bulletin 58, Part II.

SAIC (Science Applications International Corporation) 1992. *Health and Safety Plan for Well Installation and Plugging and Abandonment Activities, Y-12 Plant, Oak Ridge, Tennessee,* Y/SUB/92-99928C(Y11/1), prepared for Martin Marietta Energy Systems, Inc., July.

APPENDIX A
ACTIVITY/PROGRESS REPORTS

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. 1004

WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT

PAGE 1 of 3

LOCATION: S3 Ponds

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: R. Phillips/J. Gallaher - Highland Drilling Co.

DRILL: Ingersoll-Rand XL-750

DATE: START: 9-5-95

FINISH: 9-7-95

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-5-95	1117	1145	Arrive at well 1004 site. Move drill rig onto location. Wellhead is
			open but has remnants of a yellow wooden box on it. Measure
			water level at 10.8 ft below ground surface (BGS). Tag bottom of
			well (soft) at 27.9 ft BGS (apparent sediment accumulation in
			bottom). Note: The Subsurface Data Base (Y/TS-881/R2)
			reports the TD of well 1004 to be 29.0 ft BGS. Background
			radiological scan of location: alpha = 0 cpm, beta/gamma = 50
			cpm. Cut off protective posts surrounding the well.
	1145	1221	Break for lunch.
	1221	1255	Position the drill rig over the well. Cut off 2.1 ft of the 6 5/8-in.
			outside diameter (OD) PVC casing stick-up. Raise the mast.
	1255	1259	Rig up with an 8 3/4-in. diameter tricone bit on a subadapter; total
			length = 4.3 ft, table height =2.4 ft.
	1259	1333	Commence drilling up the casing/reaming the wellbore using
			compressed air only. Drill/ream from 0.0 ft to 30.0 ft BGS.
			Encounter moisture (with a stale/musty odor) at 3.8 ft BGS.
			Breathing zone analysis (BZA) = 0.0 ppm. Cuttings from 0.0 ft to
			3.8 ft BGS consist of medium dark gray (N4) to medium light gray
			(N6) cement fragments; pale yellowish-brown (10YR 6/2), dry
			clay (soil); and white (N9) PVC fragments. Begin to see sand
			(filter pack) in returns at 5.5 ft BGS. Sand is wet at 9.5 ft BGS.
			Encounter water at 10.5 ft BGS. BZA at 11.9 ft BGS = 0.0 ppm.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1004
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-5-95			Encounter weathered rock at 15.5 ft BGS. Cuttings from 3.8 ft to
(cont.)			15.5 ft BGS consist predominantly of very pale orange (10YR 8/2),
			fine- to medium-grained quartz sand; with dark yellowish-brown
			(10YR 4/2), moist clay; and white (N9) PVC fragments. BZA at
			23.9 ft BGS = 0.0 ppm. Encounter fresh rock at 27.9 ft BGS.
			Cuttings from 15.5 ft to 27.9 ft BGS are pale olive (10Y 6/2), olive
			gray (5Y 3/2), dark yellowish-brown (10YR 4/2), weathered and
			stained shale; and moderate brown (5YR 4/4), weathered micrite.
			Filter sand and PVC continue. Cuttings from 27.9 ft to 30.0 ft BGS
			are medium dark gray (N4), thinly laminated shale and brownish-
			black (5YR 2/1), massive micrite.
	1333	1339	At 30.0 ft BGS. Clean out borehole. Trip out to last connection.
	1339	1357	Shut off drill rig. Wait for water to accumulate in borehole to aid
			in cleaning.
	1357	1403	Rig on, continue cleaning borehole.
	1403	1430	Trip out tools. Tag bottom of borehole at 29.5 ft BGS (0.5 ft of fill).
			Calculate a borehole volume to 4.0 ft BGS of 10.7 cubic ft,
			equivalent to 9.1 sacks of Type I cement. Lower mast. Move drill
			rig off location. Secure site and depart.
9-6-95	0830	0842	Arrive at 1004 site. Run 1.5-in. OD PVC tremie into borehole to
			29.0 ft BGS.
	0842	0923	Mix and pump-tremie (with grout plant) 13 sacks (15.3 cubic ft) of
			neat, Type I Portland cement (average grout weight of 14.4 lbs/
			gal) into the borehole. Circulate water, then 100% cement.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1004
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-6-95	0923	0950	Pull out tremie pipe. Clean up. Secure site and depart.
(cont.)			
9-7-95	0824	0829	At 1004 site. Tag cement level at 2.8 ft BGS. Cap remaining
			borehole with clay soil.
			P&A of well 1004 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. 1095

WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT

LOCATION: Sediment Disposal Basin

DRILLER: R. Phillips - Highland Drilling Co.

HELPER: H. Hall - Highland Drilling Co.

DRILL: Ingersoll-Rand T4W

DATE: START: 2-28-96

FINISH: 3-5-96

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-28-96	1017	1108	Move drill rig onto 1095 site and position over the well. Set up the
			site. Uncap the well: organic vapors in the casing headspace =
			0.0 ppm. Measure water level in well at 71.2 ft below ground
			surface (BGS). Tag bottom of well (solid) at 119.5 ft BGS. Note:
			the Subsurface Data Base (Y/TS-881/R3) reports the total depth
			of well 1095 to be 118.0 ft. Background radiological scan of
			location: beta/gamma = 60-70 cpm, no alpha (too wet).
	1108	1121	Raise the mast. Break up the concrete pad and remove the
			fragments. Attach a jawed clamp to the casing stick-up and
			attempt to pull out; the casing comes out fairly easily. Extract a
			total of 10.5 ft of 6-in. inside diameter (ID), schedule 40 PVC
			casing (includes the stick-up), casing had pulled out of a connection.
	1121	1130	Push in a 3.7-ft section of 10 3/4-in. outside diameter (OD),
			10 1/8-in ID steel conductor casing; casing stick-up = 0.4 ft.
	1130	1135	Rig up with an 8 1/2-in. diameter tricone bit on a subadaptor; length
			= 20 ft, table height = 2.8 ft. Add a 25-ft drill rod.
	1135	1220	Break for lunch.
	1220	1413	Commence drilling up the casing while reaming the wellbore. Drill/
			ream from 0.0 ft to 81.2 ft BGS using compressed air only.
			Breathing zone analysis (BZA) at 4.2 ft BGS = 0.0 ppm. Cuttings
			from 0.0 ft to 5.0 ft BGS consist of moderate brown (5YR 4/4) to

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1095
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-28-96			dark yellowish-brown (10YR 4/2), moist, clayey soil and medium
(cont.)			light gray (N6) cement fragments. Encounter moisture at 8.2 ft
			BGS. BZA at 14.0 ft BGS = 0.0 ppm. Encounter a small void at
			approximately 21 ft BGS. BZA at 29.5 ft BGS = 1.0 ppm
			(maximum), 0.2 ppm (sustained). Lower explosive limit (LEL)
			reading at 34.0 ft BGS <1% (2.8 ppm). Plenty of rig chatter in this
			area (chert lenses). BZA at 44.2 ft BGS = 0.0 ppm. Top of bedrock
			at 49.2 ft BGS. Cuttings from 5.0 ft to 49.2 ft BGS are light brown
			(5YR 5/6), moist to wet, plastic clay with rare residual chert; minor
			cement fragments; and PVC fragments. LEL reading at 53.7 ft
			BGS <1% (4.7 ppm). Encounter more moisture at 63.5 ft BGS.
			BZA at 64.2 ft and 78.6 ft BGS read 0.2 ppm and 0.0 ppm,
			respectively. Using water to drill with beginning at 64.8 ft BGS.
			Cuttings from 49.2 ft to 81.2 ft BGS consist primarily of white (N9)
			PVC fragments and dark gray (N3), massive, pelletal micrite with
			minor opaque and dark and light gray (N3-N7) banded chert.
	1413	1510	At 81.2 ft BGS. Trip out tools to the previous connection; shut off
			the drill rig, nearly out of fuel. Crew arrives, fuel drill rig.
	1510	1549	Rig back on, trip back into bore and continue drilling up casing
			while reaming the wellbore. Drill/ream casing from 81.2 ft to
			109.6 ft BGS using compressed air and water. BZA at 94.0 ft and
			107.0 ft BGS both read 0.0 ppm. Alternating hard and soft drilling
			this interval. Cuttings from 81.2 ft to 109.6 ft BGS are a continuation
			of above, plus beginning to see abundant quartz "pea" gravel in
			last half of the interval (filter pack?). Beta/gamma scan of cuttings
			range from 50 to 70 cpm for the entire interval.
	1549	1610	At 109.6 ft BGS. Clean out the borehole. Trip tools out to 49.2 ft
			BGS (stuck temporarily at 84.5 ft BGS). Out of water. Winterize
			drill rig. Secure site and depart.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1095
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-29-96	0840	0937	Arrive at 1095 site. Conduct pre-work equipment inspections. Drill
			rig won't start without ether; proceed to get some. Drill rig won't
			start without jumper cables; proceed to get jumper cables.
	0937	1008	Drill rig starts; warming up. Trip tools back into borehole; water
			level at 89.0 ft BGS.
	1008	1022	Bit on bottom, continue drilling up casing while reaming wellbore.
			Drill/ream from 109.6 ft BGS to approximately 117.0 ft BGS. Lose
			circulation almost immediately, almost no returns during the interval.
			BZA at 115.0 ft BGS = 5 ppm (residual alcohol anti-freeze effects).
	1022	1050	At 117.0 BGS. Driller is concerned about getting the bit stuck. Trip
			out tools. Stuck momentarily at 47.0 ft BGS. Call K. Jago (HSEA),
			report status. Request to use soap to clean the borehole is denied.
			Kevin directs crew to grout borehole as is. Bit out of the ground,
			tag borehole; borehole is obstructed at 38.0 BGS. Will not try to
			clean the borehole anymore.
	1050	1129	Run 1.5-in. OD PVC tremie pipe into the borehole; it also stops at
			38 ft BGS. Plan to grout one borehole volume. Calculate a
			borehole volume from 117.0 ft to ground surface of 45.6 cubic ft,
			equivalent to 38.7 sacks of Type I cement. Remove the bit, rack
			the rods, and lower the mast.
	1129	1205	Crew goes to get water for grout.
	1205	1238	Crew returns. Break for lunch.
	1238	1435	Mix and pump-tremie 35 sacks (41.3 cubic ft) of neat, Type I Port-
			land cement (average grout weight of 13.2 lbs/gal) into the borehole.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1095
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 4 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-29-96	1435	1451	Pull out tremie pipe. Clean up. Depart site.
(con't)			
3-1-96	1013	1019	At 1095 site. Tag cement level; tape stops on something solid
			(possibly a large fragment of PVC casing) at 40.6 ft BGS.
			Calculate a borehole volume to 4.0 ft BGS of 14.3 cubic ft,
			equivalent to 12.1 sacks of Type I cement. Run 1.5-in. OD PVC
			tremie pipe into the borehole to 29.0 ft BGS.
	1019	1203	Mix and pump-tremie 18 sacks (21.2 cubic ft) of neat, Type I
			Portland cement (average grout weight of 13.0 lbs/gal) into the
			borehole.
	1203	1221	Pull out tremie pipe. Clean up. Depart site.
3-4-96	0731	0737	At 1095 site. Tag cement; tape again stops at 40.6 ft BGS.
			Depart site. Report status to HSEA who directs to form a plug of
			bentonite aggregate, then grout the remaining borehole.
	0908	0915	Return to 1095 site. Slowly pour 9, 50-lb sacks of 3/8-in.
			bentonite aggregate into the borehole. Unhydrated bentonite
			level at 26.2 ft BGS. Pour approximately 50 gallons of water into
			the borehole to hydrate the bentonite. Depart site. Bentonite to
			hydrate a minimum of 4 hours.
	1405	1440	Return again to 1095 site. Tag hydrated bentonite at 26.0 ft BGS
			(bentonite swelled 0.2 ft). Calculate a borehole volume to 4.0 ft
			BGS of 8.6 cubic ft, equivalent to 7.3 sacks of Type I cement. Mix
			and pump-tremie 9 sacks (10.6 cubic feet) of neat, Type I
			Portland cement (grout weight of 13.2 lbs/gal) into the borehole
			using the pump discharge hose as the tremie. Liquid cement fills
			the borehole to 0.5 ft BGS. Clean up. Depart site.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1095
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 5 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
3-5-96	0750	0803	At 1095 site. Tag cement level at 3.7 ft BGS. Cap remaining
			borehole with clay soil.
			P&A of well 1095 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1096
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 3

LOCATION: Sediment Disposal Basin
DRILLER: R. Phillips - Highland Drilling Co.
HELPERS: H. Hall - Highland Drilling Co.
DRILL: Ingersoll-Rand T4W

DATE: START: 2-27-96
FINISH: 3-4-96
METHOD: C
LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-27-96	0859	0929	Arrive at 1096 site. The drill rig is on site, already positioned over
			the well. Uncap well: organic vapors in casing headspace =
			0.0 ppm. Measure water level at 64.3 ft below ground surface
			(BGS). Tag bottom of well (solid) at 68.0 ft BGS (reported depth).
			Background radiological scan of the location: alpha = 0 cpm,
			beta/gamma = 40-60 cpm.
	0929	0945	Crew arrives with water supply; move it onto location. Conduct
			pre-work equipment inspections.
	0945	1014	Dig around the base of the casing stick-up, break up concrete
			pad, and remove fragments. Break off the casing flush with the
			ground surface. Push in a 3.7-ft section of 10 3/4-in. outside
			diameter (OD), 10 1/8-in. inside diameter (ID) steel conductor
			casing; casing stick-up = 0.6 ft.
	1014	1022	Rig up with an 8 1/2-in. diameter tricone bit on a subadapter;
			length = 2.0 ft, table height = 3.1 ft. Add a 25-ft drill rod.
	1022	1131	Commence drilling up the casing while reaming the wellbore.
			Drill/ream from 0.0 ft to 69.0 ft BGS using compressed air only.
			Breathing zone analysis (BZA) at 3.9 ft BGS = 0.1 ppm. Cuttings
			from 0.0 ft to 3.9 ft BGS consist of moderate brown (5YR 4/4),
			moist, clayey soil; white (N9) PVC fragments; and medium gray
			(N5) cement fragments. BZA at 12.9 ft BGS = 0.6 ppm (maximum),
			0.2 ppm (sustained). Lower explosive limit (LEL) reading at

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1096
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-27-96			18 ft BGS <1% (5.4 ppm). BZA at 28.9 ft BGS = 0.0 ppm. LEL
(cont.)			reading at 33.9 ft BGS <1% (6.5 ppm). Possible lithology change
			at 40.9 ft BGS (from fill to natural clay). Cuttings from 3.9 ft to
			40.9 ft BGS are light brown (5YR 5/6), moist to sticky, plastic clay
			with rare white (N9) and medium dark gray (N4) residual chert;
			and white (N9) PVC fragments. BZA at 43.4 ft BGS = 0.5 ppm
			(maximum), 0.3 ppm sustained. Small void from 45.9 ft to 46.9 ft
			BGS. Large void 48.9 ft to 59.0 ft BGS (drill rods free-falling). BZA
			at 53.9 ft BGS = 0.0 ppm. Top of bedrock at 59.0 ft BGS. Cuttings
			from 40.9 ft to 45.9 ft BGS and 46.9 ft to 48.9 ft BGS are light
			brown (5YR 5/6) to moderate brown (5YR 4/4), moist clay with
			residual chert (as above); and PVC fragments. BZA at 63.9 ft BGS
			= 0.2 ppm. Bedrock was drilled from 59.0 ft to 69.0 ft BGS, but no
			obvious rock fragments returned; circulation is spotty. Beta/
			gamma scan of cuttings range from 40 to 70 cpm for the entire
			interval.
	1131	1205	At 69.0 ft BGS. Clean out borehole: very sticky clay, clinging to
			borehole walls. Trip out tools. Tag bottom of borehole; tape
			reaches to only 50.0 ft BGS. Much clay still remains on borehole
			walls.
	1205	1235	Break for lunch.
	1235	1314	Run 1.5-in. OD PVC tremie pipe into the borehole to try and
			breach the obstruction; it also stops at 50 ft BGS. Remove tremie
			pipe.
	1314	1350	Trip tools back into borehole, clean out borehole again. Trip out.
			Tag bottom of borehole; tape reaches only to 34.0 ft BGS (lost
			some hole in cleaning the borehole). Further cleaning may result
			in the loss of more hole. Plan to grout the borehole now.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 1096
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-27-96	1350	1414	Run the PVC tremie pipe back into the borehole to 29.0 ft BGS.
(cont.)			Calculate a borehole volume from 34.0 ft to 4.0 ft BGS of
			11.7 cubic ft, equivalent to 9.9 sacks of Type I cement.
	1414	1453	Mix and pump-tremie 14 sacks (26.4 cubic ft) of neat, Type I
			Portland cement (average grout weight of 13.0 lbs/gal) into the
			borehole.
	1453	1516	Pull out tremie pipe (liquid cement coats the bottom 5 ft of the
			tremie). Clean up. Pull out conductor casing, lower mast, and pull
			drill rig away from the borehole. Depart site.
2-29-96	1435	1454	At 1096 site. Tag cement level at 32.0 ft BGS. Cement has
			obviously filtered down through partial clay cuttings obstruction to
			unknown depth. Calculate a borehole volume to 4.0 ft BGS of
			10.9 cubic ft, equivalent to 9.3 sacks of Type I cement. Run
			1.5-in. OD PVC tremie pie into borehole to 29.0 ft BGS.
	1454	1539	Mix and pump-tremie 10 sacks (11.8 cubic ft) of neat, Type I
			Portland cement (average weight of 13.1 lbs/gal) into the borehole
			to approximately 1 ft BGS.
	1539	1546	Pull out tremie pipe. Clean up. Depart.
3-1-96	0954	1010	At 1096 site. Tag cement level at 5.0 ft BGS. Mix 1 sack of Type I
			cement and pour into borehole. Liquid cement fills the borehole
			to 0.5 ft BGS. Depart site.
3-4-96	0918	0923	At 1096 site. Tag cement level at 1.3 ft BGS. Cap remaining
			borehole with clay soil. Depart.
			P&A of well 1096 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. 56-4C

WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT

LOCATION: Y-12 Plant Area

FOREMAN: H. Hall - Highland Drilling Co.

HELPER: G. Shillings - Highland Drilling Co.

DRILL: NA

DATE: START: 1-24-96

FINISH: 1-25-96

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
1-24-96	0934	0940	Arrive at 56-4C site. Oversight gives site-specific Health and
			Safety briefing to the crew.
	0940	0948	Well 56-4C is to be decommissioned because of damage to the
			wellhead: the casing stick-up had been snapped off flush with the
			ground surface. Background radiological scan of the location:
			alpha = 0 cpm, beta/gamma = 40 cpm. Measure organic vapors
			in breathing zone around well: 0.0 ppm, inside casing headspace:
			0.0 ppm. Well consists of 3-in. inside diameter (ID), 3 1/2-in.
			outside diameter (OD) PVC casing in what appears to be an
			approximately 7-in. diameter borehole. Measure water level at
			7.8 ft below ground surface (BGS). Tag bottom of well (solid) at
			73.4 ft BGS. Note: The subsurface data base (Y/TS-881/R3)
			reports the total depth of well 56-4C at 76.3 ft.
	0948	1007	Slowly pour 4, 50-lb sacks of 3/8-in. bentonite aggregate into the
			well. The water level rises to approximately 1 ft BGS. The
			bentonite is at 32.7 ft BGS. K. Jago-HSEA had directed that no
			water was to circulate out of the well onto the ground.
	1007	1037	Wait for water level to drop. Discover that the well is actually
			constructed of 4-in. ID PVC casing, but has a 3.1-ft section of the
			3-in. casing at the top.
	1037	1040	Water level is at approximately 5 ft BGS. Slowly pour about 1/2
			of a 50-lb sack of 3/8 in. bentonite aggregate into the well until the

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 56-4C
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
1-24-96			water level returns to 1.0 ft BGS. Bentonite level is now at 27.5 ft
(cont.)			BGS.
	1040	1131	Wait again for water level to drop. Water level remains at 1.0 ft
			BGS. Bentonite level remains at 27.5 ft BGS. Cover wellhead and
			depart.
			Report status to K. Jago (HSEA) who directs to let well sit
			overnight for water level to drop.
1-25-96	0730	0736	At 56-4C site. Water level in well remains at 1.0 ft BGS, and
			bentonite level remains at 27.5 ft BGS. Depart site.
			Report status to K. Jago (HSEA) who directs to pump water out
			of the well and dispose of in purge water drum at 55-6A site.
			Continue decommissioning 56-4C as planned.
	0913	0926	Return to 56-4C site with crew. Begin bailing water out of the well.
			Bail 5 gallons of water out of the well.
	0926	0930	Slowly pour 1, 50-lb sack of 3/8-in. bentonite aggregate into the
			well.
	0930	0937	Bail another 5 gallons of water out of the well.
	0937	0940	Pour approximately 1/2 of a 50-lb sack of 3/8-in. bentonite
			aggregate into the well. Bentonite level is at 11.5 ft BGS.
	0940	0952	Bail 3 more gallons of water out of the well. Calculate a well
			volume from 11.5 ft to the ground surface of 1.0 cubic ft.,
			equivalent to 0.9 sacks of Type I cement.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. 56-4C
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
1-25-96	0952	1004	Mix and pour 1 sack (1.2 cubic ft) of neat, Type I Portland cement
(cont.)			into the well. Cement fills the well to the ground surface.
	1004	1007	Clean up, secure site, and depart.
			P&A of well 56-4C is complete.
			Note: No intrusive work was performed in the decommissioning
			of this well hence no Cuttings Field Screening/Disposal Sheet or
			Equipment Decontamination Summary was required.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. B-1
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 2

LOCATION: Urea Pile (East Chestnut Ridge)

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: R. Phillips/G. Shillings/J. Gallaher - Highland Drilling Co.

DRILL: Ingersoll-Rand T4W

DATE: START: 9-22-95

FINISH: 9-22-95

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-22-95	0754	0857	Arrive at B-1 site. Drill rig already on location, positioned over the
			piezometer. Piezometer consists of 2-in. inside diameter (ID)
			PVC casing (stick-up of 0.6 ft) in a grouted, apparently 8-in.
			diameter borehole. Measure water level; none, piezometer is dry.
			Tag bottom of piezometer at 21.2 ft below ground surface (BGS).
			Note: The original well log indicates that the piezometer (with a
			total depth of 21.0 ft) was installed in a borehole that had been
			drilled to 53.2 ft. Background radiological scan of location: Beta/
			gamma = 40 cpm (no alpha - wet). Crew arrives and conducts pre-
			work equipment inspections.
	0857	0913	Start drilling rig, raise mast. Wrap a canvas strap around the
			piezometer casing stick-up, and attempt to pull out; unsuccessful.
	0913	0917	Cut PVC casing off flush with the ground surface. Rig up with an
			8 3/4-in. diameter tricone bit on a subadapter; total length = 4.3 ft,
			table height = 3.1 ft.
	0917	0955	Commence drilling up the PVC casing/screen while reaming the
			wellbore using compressed air only. Drill/ream from 0.0 ft to
			54.3 ft BGS. Stop after penetrating asphalt (0.5 ft BGS) to
			measure trapped gases, lower explosive limit (LEL) reading: <1%
			(5.6 ppm), background = 4.8 ppm. Breathing zone analysis (BZA)
			at 4.0 ft BGS = 0.2 ppm (very strong ammonia odor). Cuttings from
			0.0 ft to 6.2 ft BGS consist predominantly of light gray (N7) cement
			fragments, along with medium dark gray (N4) asphalt (which

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. B-1
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 2

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-22-95			stops at 0.5 ft BGS), and white (N9) PVC fragments. Lose
(cont.)			circulation at 16.2 ft BGS. Cuttings from 6.2 ft to 16.2 ft BGS are
			almost exclusively medium-grained, "dirty" quartz sand; sand is
			dirtied with fragments of blackened shale, slag, cinders, etc. Still
			observe PVC fragments in the returns. BZA at 23.2 ft BGS =
			0.0 ppm (slight, lingering ammonia odor). Slightly ratty drilling at
			35.5 ft, 42.0 ft, 46.5 ft, and 48.2 ft BGS, otherwise bit essentially
			free-falls to 51.2 ft BGS. Encounter rock at 53.1 ft BGS (bottom
			of wellbore); tools are bouncing. BZA at 53.5 ft BGS = 0.4 ppm
			(lingering ammonia odor). No circulation since 16.2 ft BGS.
	0955	1036	At 54.3 ft BGS. Clean out borehole briefly; loose, "dirty" sand may
			be sloughing in and may stick the tools. Trip out tools. Tag bottom
			of borehole at 16.0 ft BGS (38.3 ft of fills); will not try to clean
			borehole anymore to avoid getting tools stuck. Report status to
			K. Jago (HSEA) who directs to grout borehole as is.
	1036	1054	Lower mast and move drill rig off site. Calculate a borehole
			volume to the ground surface of 6.7 cubic ft, equivalent to
			5.7 sacks of Type I cement.
	1054	1130	Mix and pour 9 sacks (10.6 cubic ft) of neat, Type I Portland
			cement (with an average grout wt of 13.7 lbs/gal) directly into the
			borehole. Liquid cement fills the borehole to the ground surface.
	1130	1147	Clean up, demobilize drill rig and other drilling equipment. Depart
			site.
	1330	1331	Return to B-1 site. Cement plug remains at the ground surface
			and has begun to set up.
			P&A of Piezometer B-1 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. B-3

WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT

PAGE 1 of 3

LOCATION: Urea Pile (East Chestnut Ridge)

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: R. Phillips/G. Shillings/J. Gallaher

DRILL: Ingersoll-Rand T4W

DATE: START: 9-21-95

FINISH: 9-22-95

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-21-95	0954	1015	Arrive at piezometer B-3 site. Piezometer consists of 2-in. inside
			diameter (ID) PVC casing. Casing stick-up is 1.9 ft. The
			piezometer has been grouted to the surface, and the original
			borehole appears to have been 8-in. in diameter. Uncap the
			piezometer; organic vapors in casing headspace = 0.0 ppm. Tag
			bottom of the well at 35.8 ft below ground surface (BGS). No water
			level, piezometer is dry. Position drill rig over the well. Background
			radiological scan of location: beta/gamma = 40-50 cpm (no alpha
			reading, ground is wet).
	1015	1021	Raise the mast. Cut off casing stick-up flush with the ground
			surface. Rig up with an 8 3/4-in. diameter tricone bit on a
			subadapter; total length = 4.3 ft, table height = 2.8 ft.
	1021	1110	Commence drilling up the casing/reaming the wellbore using
			compressed air only. Drill/ream from 0.0 ft to 37.5 ft BGS.
			Cuttings from 0.0 ft to 0.5 ft BGS are dark gray (N3) asphalt/
			aggregate; greenish-black (5GY 2/1) to brownish-black (5YR 2/1)
			cement fragments; white (N9) PVC fragments; and wood. Interrupt
			drilling after passing through asphalt to monitor borehole; lower
			explosive level (LEL) reading: <1% (6.0 ppm). Breathing Zone
			Analysis (BZA) at 3.0 ft BGS = 0.1 ppm. Dust abates at 5.5 ft BGS,
			suspect bentonite annular seal. Cuttings from 0.5 ft to 5.5 ft are
			a continuation of the cement and PVC fragments of above.
			Bentonite (dark greenish-gray: 5GY 4/1) continues to 6.5 ft BGS
			when sand (filter pack) is observed in the returns. BZA at 10.5 ft

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. B-3
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-21-95			BGS = 0.0 ppm. Slowly losing circulation, completely lost by
(cont.)			16.0 ft BGS. Cuttings from 6.5 ft to 16.0 ft consist predominantly
			of medium-grained quartz sand, asphalt fragments, slag and
			cinder fragments, and black-stained shale fragments (trash).
			BZA at 33.5 ft BGS = 0.0 ppm. Hard drilling at 33.0 ft BGS, tools
			bouncing. Circulation restored fully at 35.5 ft BGS. Observe a
			rotten egg odor at 36.0 ft BGS; BZA = 0.2 ppm. Cuttings from
			35.5 ft to 37.5 ft continue to be sand and trash from above, along
			with light brown (5YR 5/6) moist clay. Radiological scan of the
			cuttings read: alpha = 0 cpm, beta/gamma = 40 cpm for the entire
			interval.
	1110	1127	At 37.5 ft BGS. Clean out borehole. Trip out tools. Tag bottom
			of borehole at 35.2 ft BGS (2.3 ft of fill). Rig down, lower mast.
			Calculate a borehole volume to the ground surface (plan to grout
			to ground surface because piezometer penetrated asphalt road
			apron) of 14.8 cubic ft, equivalent to 12.5 sacks of Type I cement.
	1127	1230	Move drill rig off location. Break for lunch.
	1230	1314	Run 1.5-in. outside diameter (OD) PVC tremie pipe into borehole
			to 29.0 ft BGS. Mix and pump-tremie (using grout plant) 15 sacks
			(17.7 cubic ft) of neat, Type I Portland cement (grout weight of
			14.8 lbs/gal). Liquid cement fills the borehole to 9.5 ft BGS.
	1314	1349	Pull out tremie pipe. Clean up. Secure site and depart.
9-22-95	0845	0857	Arrive at B-3 site. Tag cement at 9.7 ft BGS. Calculate a borehole
			volume to ground surface of 4.1 cubic ft, equivalent to 3.5 sacks
			of Type I cement.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. B-3
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-22-95	0857	1036	Mix and pour 6 sacks (7.1 cubic ft) of neat, Type I Portland cement
(cont.)			(average grout weight of 14.7 lbs/gal.) directly into borehole.
			Liquid grout fills the borehole to the ground surface. Clean up and
			depart.
	1330	1331	Return to B-3 site to check on grout. Cement remains at the
			ground surface and has begun to set up.
			P&A of piezometer B-3 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-002
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 5

LOCATION: Oil Landfarm

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: J. Gallaher/J. Monger - Highland Drilling Co.

DRILL: Ingersoll-Rand XL-750

DATE: START: 9-28-95

FINISH: 10-2-95

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-28-95	0857	0905	Arrive at GW-002 site. The drill rig is on site, positioned over the
			well. Well consists of 2 3/8-in. outside diameter (OD) stainless
			steel casing (stick-up = 3.4 ft) inside 5 1/2-in. OD steel conductor
			casing (stick-up = 1.2 ft, 1.9 ft had already been removed by the
			crew). Well also has a bailer stuck inside due to the well casing
			being pinched from 0.4 ft to 1.4 ft below top of casing (BTOC).
	0905	0918	Uncap well, measure organic vapors in well headspace: 0.0 ppm
			(background = 0.0 ppm); lower explosive limit (LEL) reading:
			<1% (5.9 ppm). Measure water level at 13.1 ft below ground
			surface (BGS). Cut off 1.6 ft of the well casing stick-up. Extract
			the bailer from the well. Tag bottom (solid) at 59.8 ft BGS. Note:
			the Subsurface Data Base (Y/TS-881/R3) reports the total depth
			of GW-002 to be 60.0 ft. Background radiological scan of
			location: alpha = 0 cpm, beta/gamma = 70 cpm.
	0918	0937	Dig around the wellhead, break up the pad, and remove the
			pieces. The steel conductor casing extends into approximately
			6-in. OD PVC surface casing at approximately 2 ft BGS. Chip the
			annular cement out of the conductor casing and burn 2 lifting
			holes in it.
	0937	1020	Start the drill rig and raise the mast. Thread clevis into drillhead,
			attach chain to casing, and pull out conductor casing along with
			some well casing. Extract 3.1 ft of 5 1/2-in. OD steel conductor
			casing (plus 1.9 ft removed earlier, making a total of 5.0 ft of

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-002
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-28-95			conductor casing); 15.7 ft of 6 5/8-in. OD PVC surface casing
(cont.)			(which had broken); and 15.8 ft of 2 3/8-in. OD stainless steel well
			casing (appears to have broken off at a connection).
	1020	1044	Rig up with washover pipe; length = 14.9 ft (16.7 ft including
			subadapter), cutting shoe dimensions: 5-in inside diameter (ID),
			6 1/2-in OD, table height = 2.6 ft. Run into borehole. Add a second
			section of washover pipe.
	1044	1121	Connection made, commence over wash using compressed air
			only. Over wash casing from 15.9 ft to 38.8 ft BGS. Encounter
			water at 18.5 ft BGS. LEL reading at 22.5 ft BGS <1% (4.9 ppm).
			Additional moisture at 23.8 ft BGS. Hard drilling at 26.0 ft BGS.
			Cuttings from 15.9 ft to 26.0 ft BGS consist predominantly of white
			(N9) to very light gray (N8) cement fragments (high cal-seal
			content); white (N9) PVC shavings; light olive brown (5Y 5/6) to
			light brown (5YR 5/6), thinly laminated, weathered shale; and dark
			yellowish-brown (10YR 4/2), moist clay. Breathing Zone Analysis
			(BZA) at 28.5 ft BGS = 0.0 ppm. LEL reading at 32.8 ft BGS <1%
			(7.4 ppm). Fresh bedrock at 35.5 ft BGS. Cuttings from 26.0 ft to
			35.5 BGS are moderate yellowish-brown (10YR 5/4) to light olive
			gray (5Y 5/2), thinly laminated, weathered shale; white (N9), very
			light gray (N8), and medium gray (N5) cement; and PVC fragments.
			Additional moisture at 36.8 ft BGS. BZA at 37.3 ft BGS = 0.0 ppm.
			Cuttings from 35.5 ft to 38.8 ft BGS are grayish-red purple
			(5RP 4/2) and dark greenish-gray (5G 4/1), thinly laminated shale;
			and black (N1) to olive black (5Y 2/1), massive micrite. Only minor
			PVC and cement observed from this interval.
	1121	1132	At 38.8 ft BGS. Clean out borehole. Break subadapter loose from
			washover pipe.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-002
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-28-95	1132	1214	Break for lunch.
(cont.)			
	1214	1338	Continue over wash using compressed air only. Over wash
			casing/screen from 38.8 ft to 62.2 ft BGS. Borehole had
			accumulated significant water during the lunch break; it is
			cleaning up nicely. BZA at 43.3 ft BGS = 0.0 ppm. Tools seem to
			free-fall: 46.3 ft to 48.0 ft BGS; very hard drilling at 48.0 ft BGS.
			Cuttings from 38.8 ft to 48.0 ft BGS continue to be the shale,
			cement, and PVC of above, along with medium-grained quartz
			sand (filter pack). Drilling rate appears to increase at 50.8 ft BGS.
			Begin to see water issuing from both the inside and outside of the
			well casing of GW-001 (9 ft to the west) with the bit at 52.5 ft BGS.
			BZA at 54.5 ft BGS = 0.0 ppm. Bottom of wellbore at 60.5 ft BGS.
			Cuttings from 48.0 ft to 62.2 ft BGS are the same as above with
			the addition of stainless steel screen wires.
	1338	1532	At 62.2 ft BGS. Clean out the borehole. Trip washover pipe out
			of the hole. The well casing/screen is jammed up inside the
			washover pipe; unknown amount recovered (assume all of it).
			Tag bottom of borehole at 53.0 ft BGS (9.2 ft of fill).
	1532	1602	Clean up. Report status to K. Jago (HSEA) who suggests reaming
			entire borehole with an 8 3/4-in. bit, rather than only the portion
			cased with the PVC. Secure site, and depart.
9-29-95	0826	0922	Arrive at GW-002 site. Crew arrives and conducts pre-work
			equipment inspections.
	0922	0930	Rig up with an 8 3/4-in. diameter tricone roller bit on a subadapter;
			total length = 4.3 ft, table height = 2.6 ft.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-002
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 4 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-29-95	0930	1028	Commence reaming using compressed air only. Ream borehole
(cont.)			from 0.0 ft to 62.2 ft BGS. BZA at 4.3 ft BGS = 0.0 ppm. Top of
			weathered rock at 5.0 ft BGS. Cuttings from 0.0 ft to 5.0 ft BGS are
			moderate yellowish-brown (10YR 5/4) to dark yellowish-brown
			(10YR 4/2), moist silty clay. BZA at 12.7 ft and 18.5 ft BGS both
			read 0.0 ppm. LEL reading at 24.3 ft BGS <1% (4.1 ppm). BZA
			at 34.7 ft BGS = 0.0 ppm. Top of fresh rock at 35.5 ft BGS. Cuttings
			from 5.0 ft to 35.5 ft BGS consist of blackish-red (5R 2/2) and pale
			olive (10Y 6/2), thinly laminated, weathered shale; plus minor PVC
			fragments and very light gray (N8) cement fragments. BZA at
			44.7 ft BGS = 0.0 ppm. Very ratty drilling; lots of chatter from
			47.3 ft to 54.7 ft BGS. BZA at 56.0 ft BGS = 0.0 ppm. Ratty drilling
			59.2 ft to 62.2 ft BGS. Cuttings from 35.5 ft to 62.2 ft BGS consist
			of medium dark gray (N4) to dark gray (N3), thinly laminated shale;
			olive black (5Y 2/1), massive micrite; and PVC and cement (which
			disappear toward end of interval). Beta/gamma scan of cuttings
			range from 50 to 60 cpm for entire interval.
	1028	1034	At 62.2 ft BGS. Clean out borehole. Pull bit 15 ft off bottom.
	1034	1102	Shut off drill rig, wait for water to accumulate in the borehole to aid
			cleaning.
	1102	1108	Drill rig on; clean out borehole.
	1108	1134	Drill rig off; wait for water to accumulate in borehole to aid cleaning.
	1134	1204	Drill rig on; clean out borehole. Trip out tools. Tag bottom of
			borehole at 61.6 ft BGS (0.6 ft of fill). Calculate a borehole volume
			to 4.0 ft BGS of 24.1 cubic ft, equivalent to 20.4 sacks of Type I
			cement. Secure rods in carousel and lower mast.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-002
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 5 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-29-95	1204	1244	Break for lunch.
(cont.)			
	1244	1255	Move drill rig off location. Run 1.5-in. OD PVC tremie pipe into
			borehole to 60.0 ft BGS.
	1255	1424	Mix and pump-tremie (using grout plant) 25 sacks (29.5 cubic ft)
			of neat, Type I Portland cement (grout wt = 14.7 lbs/gal) into the
			borehole. Circulate water.
	1424	1450	Begin clean up. Attempt to pull out tremie pipe; it is stuck in the
			hardening cement. Only 1 section of tremie pipe recovered.
			Secure site and depart.
10-2-95	0802	0810	At GW-002 site. Tag cement level at 9.0 ft BGS. Calculate a
			borehole volume to 4.0 ft BGS of 2.1 cubic ft, equivalent to
			1.8 sacks of Type I cement. Depart site.
	0836	0904	Return to GW-002 site. Mix and pour 3 sacks (3.5 cubic ft) of neat,
			Type I Portland cement (grout wt = 14.2 lbs/gal.) directly into
			borehole. Liquid cement fills the borehole to the ground surface.
	0904	1034	Begin cleaning up site. Move drill rig off of the drill site. Part of
			crew to remain and reclaim site. Note: borehole was capped with
			clay soil while site was being reclaimed. Estimate cement had
			settled to approximately 1 ft BGS.
			P&A of GW-002 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-007
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 4

LOCATION: Oil Landfarm

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: R. Phillips/J. Gallaher - Highland Drilling Co.

DRILL: Ingersoll-Rand T4W

DATE: START: 9-19-95

FINISH: 9-21-95

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-19-95	1026	1040	Arrive at GW-007 site. Well has a Well Wizard™ sampling device
			in it. Pull off cap, measure organic vapors in casing headspace:
			0.0 ppm. The top of the well casing is approximately 0.5 ft below
			ground surface (BGS). Measure water level at 9.0 ft BGS.
			Radiological scan of location: alpha = 0 cpm, beta/gamma =
			40 cpm.
	1040	1053	Cut off the lone protective post. Try removing the Well Wizard™
			pump from the well, but it is stuck at the well collar. Cut off tubing,
			and push pump back down into the well (plan to recover it later
			when the casing is removed. Unable to make a pre-P&A tag of
			well bottom. Subsurface Data Base (Y/TS-881/R2) reports the
			depth of GW-007 to be 16.5 ft.
	1053	1107	Dig around the wellhead exposing the casing. Burn a lifting hole
			in the casing.
	1107	1133	Move drill rig onto location and position over the well. Set up site.
			Raise the mast.
	1133	1143	Thread a clevis into the drill head. Attach a chain to the casing,
			and attempt to pull out; casing does not move. Plan to over wash
			the casing.
	1143	1302	Break for lunch. Crew also to mobilize washover pipe.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-007
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 4

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-19-95	1302	1314	Crew returns. Thread subadapter into washover pipe, and rig up.
(cont.)			Total length (including subadapter) = 16.7 ft, table height = 3.4 ft;
			washover bit dimensions: 5-in. inside diameter (ID), 6-1/2-in.
			outside diameter (OD).
	1314	1316	Commence over wash using compressed air only. Over wash
			casing from 0.5 ft to 1.0 ft BGS.
	1316	1327	Stop; washover pipe encounters a piece of 6-5/8-in. OD steel
			conductor casing at 1.0 ft BGS. Will have to use larger washover
			pipe. Oversight departs, crew to rig up with the larger washover
			pipe.
9-20-95	0849	0859	Arrive at GW-007 site. Crew has rigged up with 8-in. ID, 9 1/4-in.
			OD washover pipe; total length (including subadapter) = 25.5 ft,
			table height remains at 3.4 ft. Crew conducts pre-work equipment
			inspections.
	0859	0920	Commence over wash using compressed air only. Over wash
			casing from 1.0 ft to 9.3 ft BGS. Breathing zone analysis (BZA) at
			2.1 ft BGS = 0.0 ppm. Cuttings from 1.0 ft to 3.5 ft BGS consist of
			moderate brown (5YR 4/4) to moderate reddish-brown (10R 4/6),
			moist clay with pale yellowish-orange (10YR 8/6) chert fragments.
			BZA monitoring from 7.5 to 9.3 ft BGS detects organic vapors in
			concentrations of 1 ppm to 28 ppm, and consistently above
			10 ppm. Had encountered a small amount of moisture at 8.0 ft
			BGS. Cuttings from 3.5 ft to 8.0 ft consist generally of dark
			yellowish-orange (10YR 6/6), dry clay with very light gray (N8)
			cement fragments. Below 8.0 ft (and to 9.3 ft BGS) the cuttings are
			moderate brown (5YR 3/4), moist clay.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-007
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 4

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-20-95	0920	0952	Shut off drill rig. Clear work area. Notify W. Thedford (HSEA), who
(cont.)			directs to notify K. Jago. Unable to reach K. Jago by phone. Page,
			waiting for response. Cuttings on ground surface read 4 ppm;
			reading inside borehole is up to 200 ppm.
	0952	0958	Contact W. Thedford again who instructs crew to trip out washover
			pipe, and attempt to pull out casing if breathing zone vapors have
			dissipated. There is to be no more intrusive work until K. Jago has
			been informed of the situation. BZA = 0.0 ppm.
	0958	1009	Trip out washover pipe and rig down. OVA reading inside
			borehole is still at 200 ppm.
	1009	1015	Attach a chain to the well casing and easily pull out the well
			assembly. Extract 4.1 ft of 6 5/8-in. OD steel conductor casing
			attached to 19.6 ft of a slightly twisted stainless steel well assembly
			(which includes a 2.3-ft section of screen and a 2.2-ft silt trap.
	1015	1128	W. Thedford on site. Crew to be on standby until a decision can
			be made regarding further P&A of the well. Tag bottom of borehole
			at 9.3 ft BGS. The hole left by the extracted well assembly has
			collapsed/filled in. OVA reading inside borehole is now at 6 ppm.
			Beta/gamma scan of extracted well assembly = 40-50 cpm.
	1128	1212	Break for lunch. During lunch HSEA directed to grout the borehole
			as is. Calculate a borehole volume to 4.0 ft BGS of 2.5 cubic ft,
			equivalent to 2.1 sacks of Type I cement.
	1212	1245	Mix and pour 4 sacks (4.7 cubic ft) of neat, Type I Portland cement
			(with an average grout weight of 14.5 lbs/gal.) directly into the
			borehole. Liquid cement fills the borehole to approximately 1 ft
			BGS.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-007
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 4 of 4

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-20-95	1245	1303	Clean up. Demobilize drill rig. Secure site and depart.
(cont.)			
9-21-95	0908	0918	At GW-007 site. Tag cement level at 2.4 ft BGS. Cap remaining
			borehole with clay soil/cuttings.
			P&A of well GW-007 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 20

LOCATION: Chestnut Ridge Waste Pile
DRILLERS: R. Phillips/H. Hall - Highland Drilling Co.
HELPERS: J. Gallaher/J. Gallaher - Highland Drilling Co.
DRILL: Ingersoll-Rand T4W

DATE: START: 6-22-95
FINISH: 9-20-95
METHOD: A
LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
6-22-95	0912	0925	Arrive at GW-295 site. Crew on site; have removed the concrete
			pad and cut off the well casing stick-up. New casing stick-up =
			0.6 ft (stick-up of surface casing = 0.4 ft). Measure water level at
			140.7 ft below ground surface (BGS). Tag bottom of well (solid)
			at 146.7 ft BGS. Note: the Subsurface Data Base (Y/TS-881/R3)
			reports the TD of well GW-295 to be 146.0 ft. Background
			radiological scan of location: alpha = 0 cpm, beta/gamma =
			40 cpm.
	0925	1030	Move drill rig onto location, and position over the well. Set up the
			site. Start drill rig. Raise the mast.
	1030	1047	Rig up with the leading section of washover pipe; total length
			(including subadapter) = 24.0 ft, table height = 3.7 ft. Cutting shoe
			dimensions: 5-in. inside diameter (ID), 6 1/2-in. outside diameter
			(OD).
	1047	1120	Commence over wash of the well casing using compressed air
			only. Over wash the casing from 0.0 ft to 16.0 ft BGS. Cuttings
			from 0.0 ft to 0.5 ft BGS are very light gray (N8) and medium gray
			(N5) concrete (and aggregate) fragments. Cuttings from 0.5 ft to
			1.5 ft BGS are fragments of limestone gravel that had been used
			to back-fill the casing annulus: brownish-black (5YR 2/1), massive
			pelletal micrite. Breathing zone analysis (BZA) at 2.8 ft BGS =
			0.1 ppm. Lower explosive limit (LEL) reading at 7.3 ft BGS <1%
			(7.4 ppm). BZA at 15.3 ft BGS = 0.0 ppm. Cuttings from 1.5 ft to

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
6-22-95			16.0 ft BGS consist predominantly of pale yellowish-brown (10YR
(cont.)			6/2), soft cement (may contain high bentonite content); plus rare
			metal slivers.
	1120	1200	Break for lunch.
	1200	1348	Continue over wash of well casing. Over wash casing from 16.0 ft
			to 60.7 ft BGS. BZA at 25.5 ft BGS = 0.0 ppm. LEL reading at
			32.4 ft BGS <1% (9.0 ppm). BZA at 35.5 ft, 46.0 ft, and 55.5 ft BGS
			all read 0.0 ppm. Observe numerous ratty drilling spots and
			locations where washover pipe vibrates in this interval. Cuttings
			from 16.0 ft to 60.7 ft BGS are a continuation of the high-bentonite
			cement from 1.5 ft to 16.0 ft BGS. Beta/gamma scan of cuttings
			measure 40 cpm for the entire interval.
	1348	1405	At 60.7 ft BGS, out of washover pipe. Break subadapter loose
			from washover pipe. Shut off drill rig; wait for more washover pipe
			to be brought to site.
	1405	1422	Additional washover pipe on site. Add another section to the
			string.
	1422	1529	Connection made, continue over wash of well casing. Over wash
			casing from 60.7 ft to 101.1 ft BGS. BZA at 65.9 ft, 76.1 ft, 86.2 ft,
			and 96.0 ft BGS read 0.0 ppm, 0.4 ppm, 0.0 ppm, and 0.2 ppm,
			respectively. Cuttings from 60.7 ft to 101.1 ft BGS are a continuation
			of above, with the amount of metal shards increasing with depth.
			Beta/gamma scan of cuttings is 40 cpm for this interval.
	1529	1543	At 101.1 ft BGS. Clean out borehole. Secure washover pipe at
			borehole collar. Depart site.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
6-23-95	0830	0853	Arrive at GW-295 site. Crew conducts pre-work equipment inspections. Add another section of washover pipe to the string.
	0853	0950	Connection made, commence over wash of the well casing. Over wash casing from 101.1 ft to 122.5 ft BGS. BZA at 106.4 ft and 116.4 ft BGS read 0.0 ppm and 0.2 ppm, respectively. Cuttings from 101.1 ft to 122.5 ft BGS are a continuation of above. Cuttings continue to measure 40 cpm (beta/gamma).
	0950	1025	At 122.5 ft BGS. Clean out borehole. Break subadapter loose from washover pipe.
	1025	1115	Attach a chain to the casing and attempt to pull out; casing comes out easily. Extract only 96.4 ft of 4.5-in. OD stainless steel casing.
	1115	1145	Break for lunch.
	1145	1159	Tag well casing inside washover pipe at 103.8 ft BGS. Add a 25-ft drill rod to string. Will continue over wash to well TD, trying to jam remaining casing/screen in end of washover pipe.
	1159	1213	Continue over wash of well casing. Over wash casing from 122.5 ft to 143.4 ft BGS. Rate of advance increases considerably at 125.0 ft BGS (suspect bentonite seal), then lose circulation temporarily. Circulation restored before reaching well TD, return fine- to medium-grained, angular quartz sand (filter pack); and some brownish-black (5YR 2/1), massive dolostone.
	1213	1302	At 143.4 ft BGS. Clean out borehole. Secure washover pipe at borehole surface using a casing clamp.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 4 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
6-23-95	1302	1318	Break subadapter loose from washover pipe. Tag top of casing
(cont.)			inside washover pipe at approximately 83 ft BGS. Tag the bottom
			of the casing at 125.0 ft BGS (assume that casing/screen are
			wedged in washover pipe.
	1318	1600	Begin tripping washover pipe out of the borehole. Extract another
			10.0 ft of 4.5-in OD stainless steel casing. Secure site and depart.
6-26-95	0850	1155	Arrive at GW-295 site. Crew conducts pre-work equipment
			inspections. Continue tripping washover pipe out of the borehole.
			Extract another 40.4 ft of 4.5-in. OD stainless steel casing and
			screen from the borehole. A total of 146.8 ft of 4.5-in OD stainless
			steel well components removed from well GW-295.
	1155	1256	Break for lunch.
	1256	1306	Rig up with a 9 7/8-in. diameter tricone bit on a stabilizer; total
			length = 20.3 ft, table height = 3.9 ft. Shut off rig.
	1306	1421	Waiting on fuel. Fuel drill rig.
	1421	1525	Commence reaming the wellbore using compressed air only.
			Ream well bore from 0.0 ft to 116.4 ft BGS. BZA at 6.0 ft, 31.4 ft,
			51.4 ft, 81.4 ft, and 106.4 ft BGS all read 0.0 ppm. Cuttings from
			0.0 ft to 116.4 ft BGS are predominantly pale yellowish-brown
			(10YR 6/2) cement, with minor metal shards.
	1525	1549	At 116.4 ft BGS. Clean out borehole. Pull bit up to last connection.
			Secure site and depart.
6-27-95	0843	0901	Arrive at GW-295 site. Crew conducts pre-work equipment
			inspections. Trip back into borehole.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 5 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
6-27-95	0901	0929	Commence reaming wellbore using compressed air only. Ream
(cont.)			wellbore from 116.4 ft to 148.4 ft BGS. BZA at 121.4 ft BGS =
			0.1 ppm. Dust abates and drilling rate increases at 124.4 ft BGS
			(suspect bentonite seal). Cuttings from 116.4 ft to 124.4 ft BGS are
			a continuation of above. Cuttings from 124.4 ft to 130.4 ft BGS are
			yellowish-gray (5Y 7/2) and light olive gray (5Y 5/2) bentonite. BZA
			at 132.0 ft BGS = 0.0 ppm. Bottom of wellbore at 146.0 ft BGS.
			BZA at 143.4 ft BGS = 0.0 ppm. Cuttings from 130.4 ft to 148.4 ft
			BGS consist of medium light gray (N6) to grayish-black (N2),
			massive dolostone and fine- to medium-grained quartz sand (filter
			pack). Beta/gamma scan of cuttings range from 40 to 50 cpm for
			the entire interval.
	0929	0950	At 148.4 ft BGS. Cleaning borehole (spotty circulation). Begin
			tripping out of the borehole, having to rotate rods because of
			debris.
	0950	1135	Main hydraulic hose bursts behind control panel. Spill control
			measures taken: plastic sheeting spread on ground around
			borehole collar, oil absorbant pads on pooling hydraulic oil, majority
			of oil caught in buckets. Remove damaged hydraulic hose.
			Supervisor departs to have a new hose made. Crew shovelling
			contaminated soil into a lined open-top drum.
	1135	1215	Supervisor returns with new hydraulic hose. Break for lunch.
	1215	1342	Spill control completed. Replace hydraulic hose. Fill hydraulic
			tank, adjust needle pressure valve, and reassemble control panel.
	1342	1421	Add rods to string, trip back to bottom of borehole. Add water,
			clean out borehole.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 6 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
6-27-95	1421	1459	Trip out tools. Tag bottom of borehole at 140.3 ft BGS (8.1 ft of fill).
(cont.)			Calculate a borehole volume to 100.0 ft BGS (assumed depth of
			surface casing) of 21.4 cubic ft, equivalent to 18.1 sacks of Type I
			cement.
	1459	1530	Run 1.5-in. OD PVC tremie pipe into borehole to 136.0 ft BGS.
			Secure site, and depart.
6-28-95	0832	1010	Arrive at GW-295 site. Mix and pump-tremie 33 sacks (38.9
			cubic ft) of neat, Type I Portland cement (average grout weight of
			14.2 lbs/gallon) into the borehole. Tag liquid cement level at
			approximately 115 ft BGS.
	1010	1150	Pull out tremie pipe, and clean up. Load small washover pipe and
			stainless steel well materials onto float to remove from site.
			Secure site, and depart.
6-29-95	0827	0841	Arrive at GW-295 site. Tag cement level at 112.1 ft BGS. Crew
			conducts pre-work equipment inspections. Have already rigged
			up the leading section of big washover pipe; total length = 26.2 ft
			(includes subadapter), table height = 3.5 ft. Cutting shoe
			dimensions: 12-in. ID, 13 3/4-in. OD.
	0841	1130	Commence over wash of surface casing using compressed air
			only. Over wash casing from 0.0 ft to 19.9 ft BGS. BZA at 2.7 ft
			BGS = 0.1 ppm. Cuttings from 0.0 ft to 6.5 ft BGS consist
			predominantly of pale yellowish-brown (10YR 6/2) cement
			fragments; dark gray (N3) limestone gravel; and light brown
			5YR 5/6 to moderate brown (5YR 4/4), silty clay. BZA at 9.7 ft
			BGS = 0.0 ppm. LEL reading at 16.5 ft BGS <1% (12.5 ppm).
			Cuttings from 6.5 ft to 19.9 ft BGS are light gray (N7) and medium
			light gray (N6) cement fragments and moderate reddish-brown

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 7 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
6-29-95			(10R 4/6) clay with pale yellowish-orange (10YR 8/6) chert
(cont.)			fragments. Beta/gamma scan of cuttings measure 40 cpm for the
			interval.
	1130	1213	Break for lunch.
	1213	1256	Break subadapter loose from washover pipe. Add another section
			of washover pipe to string.
	1256	1358	Connection made, continue over wash of surface casing using
			compressed air only. Over wash casing from 19.9 ft to 27.0 ft
			BGS. BZA at 23.0 ft BGS = 0.0 ppm. Cuttings from 19.9 ft to 27.0 ft
			BGS are a continuation of the 6.5-ft to 19.9-ft interval. Beta/
			gamma scan of cuttings measure 50 cpm for the interval.
	1358	1419	At 27.0 ft BGS. Clean out borehole. Secure site and depart.
6-30-95	0831	1004	Arrive at GW-295 site. Crew conducts pre-work equipment
			inspections. Crew performs minor maintenance on the rig.
	1004	1133	Commence over wash of the surface casing using compressed air
			and water. Over wash casing from 27.0 ft to 37.0 ft BGS. BZA at
			32.5 ft BGS = 0.0 ppm. Cuttings from 27.0 ft to 37.0 ft BGS are a
			continuation of above.
	1133	1235	Break for lunch.
	1235	1455	Continue over wash of surface casing. Over wash casing from
			37.0 ft to 39.7 ft BGS. BZA at 37.7 ft BGS = 0.0 ppm. Beta/gamma
			scan of the cuttings range from 40 to 50 cpm for the entire interval.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 8 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
6-30-95	1455	1514	At 39.7 ft BGS. Clean out borehole. Clean up, secure site, and
(cont.)			depart.
7-11-95	0950	1029	Technical oversight by V. R. Harness - SAIC. Arrive at GW-295
			site. Start drilling. Rotate tools, clean out borehole again.
	1029	1129	Begin breaking out topmost section of washover pipe.
	1129	1226	Unable to break connection, break for lunch.
	1226	1547	Resume work. Break connection, and trip out washover pipe.
			Remove washover shoe (to be taken in for reconditioning). Secure
			site, and depart.
7-13-95	0833	0953	Technical oversight by D. M. Hollon - SAIC. Arrive at GW-295 site.
			Thread reconditioned cutting shoe onto washover pipe, and trip
			tools back into borehole.
	0953	1129	Commence overwash of surface casing. Over wash casing from
			39.7 ft to 47.4 ft BGS. BZA at 40.2 ft BGS = 0.0 ppm. LEL reading
			at 42.4 ft BGS <1%. BZA at 44.9 ft BGS = 0.0 ppm. Cuttings from
			39.7 ft to 47.4 ft BGS continue to be the cement and clay with chert
			as above.
	1129	1210	Break for lunch.
	1210	1503	Continue over wash of surface casing. Over wash casing from
			47.4 ft to 53.0 ft BGS. BZA at 52.0 ft BGS = 0.0 ppm. BZA at 53.0 ft
			BGS = 0.0 ppm. Cuttings continue as above.
	1503	1540	Clean up, secure site, and depart.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 9 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-14-95	0843	0900	Arrive at GW-295 site. Crew performs light maintenance on the drill rig. Will try over wash with compressed air only to clean the borehole better.
	0900	1040	Commence over wash of surface casing. Over wash casing from 53.0 ft to 60.0 ft BGS. BZA and LEL reading at 56.0 ft BGS = 0.0 ppm and <1%, respectively. BZA and LEL reading at 59.5 ft BGS = 0.0 ppm and <1%, respectively. Cuttings from 53.0 ft to 60.0 ft BGS consist of light gray (N7) to medium light gray (N6) cement fragments, brownish-gray (5YR 4/1) to medium gray (N5) dolostone (occasionally oolitic), banded chert, and metal slivers.
	1040	1140	At 60.0 ft BGS. Report slow advance and borehole cleaning problems to K. Jago (HSEA) who approves use of alcohol-based drilling soap to lubricate the tools and raise the cutting, and an excavation of a pit to catch the effluent. Crew excavates a cuttings pit.
	1140	1215	Break for lunch.
	1215	1313	Technical oversight by S.L. Abston - SAIC. Break subadapter loose from washover pipe. Add another section of washover pipe to string.
	1313	1431	Connection made, continue over wash of surface casing. Over wash casing from 60.0 ft to 65.0 ft BGS. Cuttings are a continuation of the 53 ft to 60 ft interval.
	1431	1456	At 65.0 ft BGS, out of water. Secure site and depart.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 10 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-17-95	0847	0908	Arrive at GW-295 site. Crew conducts pre-work equipment
(cont.)			inspections.
	0908	1143	Commence over wash of surface casing using compressed air,
			water, and soap. Over wash casing from 65.0 ft BGS to 73.0 ft
			BGS. BZA and LEL reading at 67.0 ft BGS = 0.0 ppm and <1%
			(9.0 ppm), respectively. BZA and LEL reading at 70.0 ft BGS =
			0.0 ppm and <1% (9.0 ppm), respectively. Cuttings continue to be
			same as above, metal fragments appear to increase in this
			interval.
	1143	1240	Break for lunch.
	1240	1411	Continue over wash of surface casing. Over wash casing from
			73.0 ft BGS to 82.0 ft BGS. Cuttings are the same as above, with
			abundant chert fragments in this interval.
	1411	1527	At 82.0 ft BGS (end of washover pipe). Break out subadapter, and
			add another section of washover pipe to string. Secure site and
			depart.
7-18-95	0842	0859	Arrive at GW-295 site. Crew conducts pre-work equipment
			inspections.
	0859	1110	Commence over wash of surface casing using compressed air,
			water, and "soap." Over wash the casing from 82.0 ft to 89.0 ft
			BGS. BZA and LEL reading at 82.5 ft BGS = 0.0 ppm and <1% (9.0
			ppm), respectively. BZA and LEL reading at 86.0 ft BGS = 0.0 ppm
			and <1% (9.0 ppm), respectively. BZA and LEL reading at 89.0 ft
			BGS = 0.0 ppm and <1% (9.0 ppm), respectively.
	1110	1204	Break for lunch.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 11 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-18-95	1204	1459	Continue over wash of surface casing. Over wash casing from
(cont.)			89.0 ft to 99.0 ft BGS. Interrupt over wash briefly to replace an "O"
			ring gasket in leaking hydraulic connection. BZA and LEL reading
			at 96.0 ft BGS = 0.0 ppm and <1% (9.0 ppm), respectively.
			Cuttings continue from above, but chert and dolostone fragments
			are increasing with depth. Find out from original well log for
			GW-295 that surface casing extends to 123.0 ft BGS.
	1459	1600	At 99.0 ft BGS. Break subadapter loose from washover pipe.
			Attach a chain to the surface casing, and attempt to pull out;
			unsuccessful. Secure site and depart.
7-19-95	0850	0920	Arrive at GW-295 site. Reconnect subadapter.
	0920	1012	Technical oversight resumed by T.J. Coffey - SAIC. Commence
			over wash of surface casing using compressed air, water, and
			"soap." Over wash casing from 99.0 ft to 101.5 ft BGS. BZA at 99.6
			ft BGS = 0.3 ppm. Cuttings as above.
	1012	1100	Inside of subadapter is rubbing on casing, depth is 101.5 ft BGS.
			Break subadapter loose from washover pipe.
7-19-95	1100	1210	Weld a collar onto the surface casing to use a lifting bell to try and
			pull casing out.
	1210	1238	Break for lunch.
	1238	1251	Technical oversight resumed by S.L. Abston - SAIC. Thread lifting
			bell onto surface casing, and attempt to pull out; unsuccessful.
	1251	1353	Rig up with a 9 7/8-in. diameter tricone bit on a stabilizer; total
			length = 20.3 ft, table height remains at 3.5 ft. Trip into casing.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 12 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-19-95	1353	1421	Drilling through cement from 112.1 ft to 131.0 ft BGS.
(cont.)			
	1421	1502	At 131.0 ft BGS. Clean out borehole. Trip out tools.
	1502	1521	Attempt to pull out surface casing; again, unsuccessful. Will need
			to continue over wash. Secure site and depart.
7-20-95	0831	0954	Arrive at GW-295 site. Crew conducts pre-work equipment
			inspections. Crew has brought 2 more sections of washover pipe:
			7.2 ft and 10.0 ft in length.
	0954	1024	Rig up with the 7.2-ft section of washover pipe. Having trouble
			getting new washover pipe to thread onto other washover pipe.
	1024	1145	Commence over wash. Over wash the surface casing from
			101.5 ft to 103.5 ft BGS. BZA at 101.6 ft BGS = 0.0 ppm; LEL <1%
			(9.0 ppm). Cuttings from 101.5 ft to 103.0 ft BGS are predominantly
			the chert and dolostone of above.
	1145	1230	Break for lunch.
7-20-95	1230	1538	Resume over wash of surface casing. Over wash casing from
			103.0 ft to 104.0 ft BGS. Washover pipe is rubbing on surface
			casing. BZA at 103.0 ft BGS = 0.0 ppm; LEL <1% (9.0 ppm).
			Cuttings are a continuation of above.
	1538	1622	Clean up, secure site, and depart.
7-21-95	0845	0849	Arrive at GW-295 site. Crew on site performing pre-work equipment
			inspections.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 13 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-21-95	0849	0950	Start drill rig and commence over wash of surface casing. Over
(cont.)			wash casing from 104.0 ft to 104.2 ft BGS. Plan to trip out to
			recondition bit.
	0950	1049	Remove the 7.2-ft section of washover pipe from the string.
	1049	1132	Burn off collar used to try and pull the casing.
	1132	1151	Re-thread the 7.2-ft section of washover pipe onto the string.
	1151	1220	Break for lunch.
	1220	1258	Continue over wash of surface casing (wanted to see if removal of
			collar would help in washover advance by reducing rubbing
			friction; it does not).
	1258	1530	Begin tripping out washover pipe. Remove 2 sections. Depart site.
7-24-95	0835	1152	Technical oversight resumed by T.J. Coffey (SAIC). Arrive at
			GW-295 site. Continue tripping washover pipe out of the borehole.
7-24-95	1152	1254	All of the washover pipe is out of the hole, and the shoe has been
			unthreaded from the leading section. Break for lunch. Crew takes
			shoe to shop to be reconditioned. Secure site and depart.
7-25-95	0840	0925	Arrive at GW-295 site. Crew begins cleaning out the cuttings pit;
			prepare to weld a collar back onto surface casing.
	0925	1032	Weld collar to surface casing. Thread lifting bell into collar.
			Attempt to pull surface casing; unsuccessful, used 53,000 lbs hold-
			back pressure.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 14 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-25-95	1032	1044	Rig back up with the lead section of washover pipe.
(cont.)			
	1044	1330	Shut off drill rig. Waiting for shoe.
	1330	1544	The reconditioned shoe arrives. Thread onto lead section of
			washover pipe. Begin running washover pipe back into borehole.
			Stop with bit at 68.8 ft BGS. Secure site and depart.
7-26-95	0844	1031	Arrive at GW-295 site. Continue running washover pipe back into
			borehole; hole is getting tight, will have to be rotating washover
			pipe from here to bottom.
	1031	1145	Washover pipe to bottom of borehole. Commence over wash of
			surface casing. Over wash casing using compressed air, water,
			and soap from 104.2 ft to 105.7 ft BGS. Cuttings from 104.2 ft to
			105.7 ft consist of pale brown (5YR 5/2) to medium gray (N5)
			cement fragments, metal slivers, and possibly some dolostone
			fragments.
	1145	1238	Break for lunch.
7-26-95	1238	1536	Continue over wash. Over wash surface casing from 105.7 ft to
			108.2 ft BGS. Lost circulation immediately; no cuttings 105.7 ft to
			107.5 ft BGS. BZA at 106.3 ft BGS = 0.3 ppm. Circulation restored
			at 107.5 ft BGS. Cuttings from 107.5 ft to 108.2 ft BGS are the
			same as above.
	1536	1549	At 108.2 ft BGS. Clean up, secure site, and depart.
7-27-95	0827	0912	Arrive at GW-295 site. Crew conducts pre-work equipment
			inspections.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 15 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-27-95	0912	0930	Break subadapter loose from drill head and washover pipe, and
(cont.)			remove. Attempt to pull out surface casing; unsuccessful.
	0930	0957	Add the 10.0-ft section of washover pipe to tools.
	0957	1135	Connection made. Commence over wash using compressed air,
			water, and "soap." Over wash casing from 108.2 ft to 110.0 ft BGS.
			Circulation is spotty. BZA at 109.6 ft BGS = 0.0 ppm. Cuttings are
			a continuation of above, but are all very fine grained as if being
			reground.
	1135	1216	Stop at 110.0 ft BGS. Break for lunch.
	1216	1315	Continue over wash.
	1315	1401	Cease over wash; out of water. Waiting for water truck.
	1401	1545	Water truck returns. Continue over wash. Over wash surface
			casing to 111.2 ft BGS. Circulation is spotty, but improves toward
			end of the interval. Cuttings are a continuation of above.
7-27-95	1545	1607	Clean up, secure site, and depart.
7-28-95	0820	0852	Arrive at GW-295 site. Crew conducts pre-work equipment
			inspections.
	0852	1025	Commence over wash using compressed air, water, and "soap."
			Over wash surface casing from 111.2 ft to 111.6 ft BGS. Cuttings
			appear to be continuation of above. Too few fragments returned
			to screen for disposal.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 16 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-28-95	1025	1108	Cease over wash at 111.6 ft BGS; out of water. Waiting for water
(cont)			truck.
	1108	1138	Water truck returns. Break for lunch.
	1138	1205	Crew brings an auxiliary air compressor to location; move into
			position. Will use auxiliary compressor to try and clean borehole
			better.
	1205	1326	Connect auxiliary compressor to drill rig air system.
	1326	1524	Continue over wash using auxiliary compressor. Auxiliary
			compressor appears to be cleaning the hole well, but is not
			improving the advance rate. Shut off auxiliary compressor at 1348
			hours. Over wash surface casing from 111.6 ft to 111.9 ft BGS.
			BZA at 111.8 ft BGS = 0.0 ppm.
	1524	1530	Cease over wash at 111.9 ft BGS. Secure site and depart.
7-31-95	0820	0920	Arrive at GW-295 site. Discuss options because over wash has
			become so slow. K. Jago (HSEA) approves using a casing cutter
			to cut off casing, then continue with P&A. It will take approximately
			1 week for cutter to arrive.
	0920	1135	Begin tripping washover pipe out of the borehole.
	1135	1220	Break for lunch.
	1220	1430	Continue tripping washover pipe out of the borehole.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 17 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-31-95	1430	1458	All of the washover pipe is out of the borehole. The bottom of the
(cont.)			shoe has been worn flat. Thread lifting bell onto casing, and
			attempt to pull out; unsuccessful.
	1458	1518	Shut off drill rig. Clean up site. Oversight departs, crew to remain
			and begin demobilization. P&A to resume when casing cutter is
			delivered.
9-13-95	1315	1400	Technical oversight by S.L. Abston (SAIC). Arrive at GW-295 site.
			Crew making a practice cut near casing collar to understand how
			the tool works.
	1400	1416	Lower cutting tool into casing to approximately 110 ft BGS.
	1416	1426	Rotate tool/cut the surface casing.
	1426	1458	Remove casing cutter from casing. Rig up; ready to pull casing.
	1458	1526	Pull casing. Extract 18.9 ft of 10-in. ID, 10 3/4-in. OD steel casing.
			Heavy rain and thunder storm force crew and oversight to abandon
			site. Depart.
9-14-95	0854	0931	Technical oversight resumed by T.J. Coffey (SAIC). Arrive at
			GW-295 site (arrival delayed waiting for guard to open bar gate).
			Conduct pre-work equipment inspections.
	0931	1030	Continue pulling casing out of the borehole. Extract 91.5 ft of
			10-in. ID, 10 3/4-in. OD steel casing (plus 18.9 ft recovered
			yesterday for a total of 110.4 ft of casing). Tag bottom of borehole
			at 109.5 ft BGS (annulus, unable to "find" inside of casing).

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 18 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-14-95	1030	1120	Push in a (2.9-ft section of 19 1/4-in. ID, 20-in. OD steel conductor
(cont.)			casing. Casing stick-up = 0.7 ft.
	1120	1200	Break for lunch.
	1200	1220	Rig up with a 15-in. diameter hole opener on a stabilizer; length to
			reaming cones = 18.6 ft, total length = 20.1 ft, table height = 3.6 ft.
			Run into borehole; hole opener easily slides into wallowed out
			borehole.
	1220	1308	Hole opener meets resistance at 37.0 ft BGS; commence reaming
			the borehole using compressed air, water, and "soap." Ream
			borehole from 37.0 ft to 107.5 ft BGS. Very few cuttings ever made
			it to the surface, mostly just "soap" foam. Of the few cuttings to
			make it to the surface, medium light gray (N6) and light brown
			(5YR 5/6) clay predominate. Ratty drilling (chert lens) at 47.0 ft
			BGS. Bit free-falls: 62.0 ft to 68.0 ft BGS. BZA at 92.0 ft BGS =
			0.3 ppm (steady), 1.1 ppm (max). Hard drilling (bedrock) at 93.0 ft
			BGS. Bit falling again 97.0 ft to 107.0 ft BGS.
	1308	1345	At 107.5 ft BGS, pilot bit in end of hole opener is close to the cut
			off casing top. Stop reaming. Clean out borehole, still few
			returns. Trip out tools, rig down hole opener/stabilizer. Tag
			bottom of borehole at 64.1 ft BGS (43.4 ft of mud fill). Calculate
			a borehole volume to 4.0 ft BGS of 73.6 cubic ft = 2.7 cubic yards.
			Cement delivery of 4.0 cubic yards scheduled for 1100 hrs
			tomorrow. Oversight departs; crew to remain and cleanup.
9-15-95	0918	0942	At GW-295 site. Pull out conductor casing, lower mast.
	0942	1125	Move drill rig off site, and back to pipeyard. Clean up location.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 19 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-15-95	1125	1300	Cement truck arrives. Pour entire 4 cubic yards of cement directly
(cont.)			into borehole. (Danger of bridging in such a large diameter hole
			remote.) Tag cement level at 102.5 ft BGS; cement and fill/
			collapse have been squeezed into the formation. W. Thedford
			(HSEA) approves use of bentonite to bridge voids in bedrock.
	1300	1332	Crew departs for bentonite.
	1332	1355	Crew returns, pour 34, 50-lb sacks of 3/8-in. bentonite aggregate
			into the borehole. Unhydrated bentonite level at 88.0 ft BGS. Pour
			50 gals of potable water on top of the bentonite to hydrate.
			Calculate a borehole volume of 4.0 cubic yds. K. Jago (HSEA)
			approves use of concrete for borehole plug. Concrete delivery of
			4.0 cubic yds scheduled for 0930 hrs tomorrow. Depart site.
9-18-95	0953	1000	At GW-295 site. Tag hydrated bentonite at 87.0 ft BGS (bentonite
			swelled 1.0 ft).
9-18-95	1000	1105	Concrete truck arrives. Pour entire 4 yds of concrete directly into
			the borehole. Concrete fills the borehole to 39.5 ft BGS. Clean up,
			cover open borehole, and depart.
9-19-95	0900	0906	At GW-295 site. Tag concrete level at 39.7 ft BGS. Calculate a
			borehole volume to 4.0 ft BGS of 1.6 cubic yrds. Concrete order
			of 2 1/2 yds scheduled for 1330 hrs.
	1353	1415	Escort cement truck to GW-295 site. Pour 2 1/2 cubic yds of
			concrete into the borehole. Concrete level to approximately 15 ft
			BGS. Clean up truck; truck departs, will return with 1 1/2 cubic yds
			of concrete.
	1415	1458	Waiting for truck to return.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-295
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 20 of 20

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-19-95	1458	1507	Truck returns, pours 1 1/2 cubic yds of concrete into borehole.
(cont.)			Concrete to 1.0 ft BGS. Clean up truck and depart.
9-20-95	0900	1000	Crew caps borehole with clay soil, then reclaims the site.
			P&A of GW-295 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-297

WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT

LOCATION: Chestnut Ridge Waste Pile

DRILLERS: R. Phillips/H. Hall - Highland Drilling Co.

HELPERS: J. Gallaher/J. Monger - Highland Drilling Co.

DRILL: Ingersoll-Rand T4W

DATE: START: 8-4-95

FINISH: 8-25-95

METHOD: A

LOGGED BY: Timothy Coffey/ Victor Harness - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-4-95	0750	0845	Arrive at GW-297 site. Drill rig and miscellaneous equipment on
			location. Uncap well: measure organic vapors in casing headspace
			= 0.0 ppm. Measure water level: well is dry. Tag bottom of well at
			120.7 ft below ground surface (BGS). Note: The Subsurface Data
			Base (Y/TS-881/R2) reports the TD of GW-297 to be 120.0 ft.
			Crew arrives.
	0845	0904	W. Thedford and K. Jago (both of HSEA) on site. Examine
			distance of powerline to proposed mast position: 12 ft (falls within
			the required 15 ft stand-off distance). W. Thedford and K. Jago
			depart to consult with electrical authorities.
	0904	0953	Cut off protective posts surrounding well. Cut off 1.2 ft of the well
			casing stick-up, and burn lifting holes in the remaining stick-up.
			Background radiological scan of location: alpha = 0 cpm, beta/
			gamma = 50 cpm. Position drill rig over the well.
	0953	1035	W. Thedford returns with D. Neubauer (Energy Systems) who
			examines the drill rig set-up regarding the power lines. Plan to
			install insulating sleeves over wire closest to proposed mast
			position. Drill crew on standby until this is complete. Revise site-
			specific health & safety checklist to include this potential electrical
			hazard.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-4-95	1035	1044	Line crew on site. Install 2 insulating sleeves on wire closest to
(cont.)			well near closest point to the proposed mast position.
	1044	1053	Oversight conducts short briefing of site electrical hazards: pay
			attention to location of winch cables when picking up stabilizers,
			washover pipe, etc.
	1053	1125	Start rig, raise mast. Rig up with first section of washover pipe;
			length = 15.8 ft (includes subadapter), add cutting shoe/bit (1.0 ft),
			total length = 16.8 ft, table height = 3.0 ft. Dimensions of washover
			bit: 4 1/2-in. inside diameter (ID), 6 1/2-in. outside diameter (OD).
	1125	1132	Commence over wash of well casing (with concrete pad in place)
			using compressed air only. Over wash casing from 0.0 ft to 1.5 ft
			BGS. Cuttings from 0.0 ft to 0.7 ft BGS are medium light gray (N6)
			concrete pad fragments with medium dark gray (N4) aggregate.
			Cuttings from 0.7 ft to 1.5 ft BGS consist of medium gray (N5) to
			olive gray (5Y 4/1) cement fragments with abundant metal shards.
	1132	1208	Stop at 1.5 ft BGS. Break for lunch.
	1208	1526	Continue over wash of casing. Additional sections of washover
			pipe added as required. Over wash casing from 1.5 ft to 38.0 ft
			BGS. Breathing zone analysis (BZA) at 3.8 ft BGS = 0.0 ppm. Add
			water at 9.2 ft BGS. Lower explosive limit (LEL) reading at 15.0 ft
			BGS <1% (8.0 ppm). BZA at 23.8 ft and 33.3 ft BGS both read
			0.0 ppm. Cuttings from 1.5 ft to 38.0 ft BGS are a continuation of
			the cement fragments and metal shards of above. Beta/gamma
			scan of cuttings range from 50 to 70 cpm for the entire interval.
	1526	1544	At 38.0 ft BGS. Clean out borehole. Clean up location. Secure
			site, and depart.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-7-95	0902	0946	Arrive at GW-297 site. Crew conducts pre-work equipment inspections. Rig up equipment and prepare for drilling.
	0946	1203	Commence over wash using compressed air and water. Over wash casing from 38.0 ft to 68.4 ft BGS. BZA at 39.7 ft and 60.5 ft BGS both read 0.0 ppm. LEL reading at 50.0 ft BGS <1% (8.8 ppm). Lost circulation momentarily at 65.5 ft BGS. Cuttings from 38.0 ft to 68.4 ft BGS are a continuation of the cement fragments and metal shards of above.
	1203	1238	Break for lunch.
	1238	1255	Disconnect subadapter from washover pipe. Well casing has not moved.
	1255	1305	Pull on well casing with drill rig winch; casing does not move. Re-connect washover pipe.
	1305	1413	Continue over wash using compressed air, water, and soap (with HSEA approval). Unable to restore circulation. Crew believes circulation is being lost down the well casing. Disconnect washover pipe connection again.
	1413	1443	Pour 2, 50 lb sacks of 3/8-in. bentonite aggregate into the well (with HSEA approval). Tag unhydrated bentonite level at 104.0 ft BGS (top of screen is reported at 109.8 ft BGS, should be adequate bentonite plug). Pour 10 gallons of potable water into well to start bentonite hydration. Reconnect washover pipe connection.
	1443	1448	Continue over wash (circulation restored immediately), then stop as air pressure control shaft breaks.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 4 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-7-95	1448	1543	Remove broken pieces. Facilitate repairs. Re-install the repaired
(cont.)			shaft. Clean up, secure site, and depart.
8-8-95	0830	0859	Arrive at GW-297 site. Crew conducts pre-work equipment
			inspections. Install rubber gaskets on washover pipe to keep the
			overspray to a minimum.
	0859	1123	Commence over wash using compressed air and water. Over
			wash casing from 68.4 ft to 112.4 ft BGS. BZA at 72.9 ft and at
			94.6 ft BGS both read 0.0 ppm. Drill rods begin dropping at
			101.0 ft BGS, suspect bentonite seal. Cuttings from 68.4 ft to
			101.0 ft BGS are a continuation of cement fragments and metal
			shards of above. Some obvious stainless steel centralizer
			fragments observed. Cuttings from 101.0 ft to 106.6 ft BGS
			consist predominantly of yellowish-gray (5Y 7/2) to light olive gray
			(5Y 5/2), hydrated bentonite agglomerations. Cuttings from 106.6 ft
			to 112.4 ft BGS are dark yellowish-orange (10YR 6/6), fine- to
			medium-grained sand (filter pack). Circulation begins to diminish
			at 106.6 ft, then is lost completely by 112.4 ft BGS.
	1123	1130	At 112.4 ft BGS. Pick washover pipe up off of the bottom, and
			secure.
	1130	1205	Break for lunch.
	1205	1351	Break subadapter loose from washover pipe. Attach a chain to the
			casing and pull it out fairly easily. Extract 110.9 ft of 4.5-in. OD
			stainless steel casing (plus 1.2 ft removed prior to P&A = 112.1 ft
			of casing recovered) and 10.7 ft of 4.5-in. OD stainless steel
			screen and cap. Total well materials recovered from well GW-297
			= 122.8 ft.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 5 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-8-95	1351	1502	Trip washover pipe out of the borehole.
(cont.)			
	1502	1515	Rig up with a 9 7/8-in. diameter tricone bit on a stabilizer; total
			length = 20.2 ft, table height remains at 3.0 ft.
	1515	1538	Clean up, secure site, and depart.
8-9-95	0906	0919	Technical oversight assumed by V.R. Harness (SAIC). Arrive at
			GW-297 site. Crew conducts pre-work equipment inspections.
	0919	1138	Commence reaming wellbore using compressed air only. Ream
			wellbore from 0.0 ft to 42.0 ft BGS. Cement fragments in returns.
	1138	1226	Break for lunch.
	1226	1335	Continue reaming wellbore. Ream from 42.0 ft to 121.0 ft BGS.
			BZA at 92.2 ft BGS = 0.0 ppm, LEL <1%. Cement continues to
			101.0 ft BGS. Below 101.0 ft BGS, cuttings consist of bentonite
			and sand (filter pack). Lose circulation at 114.0 ft BGS. Encounter
			rock (hard drilling) at 120.0 ft, still no circulation. BZA at 120.0 ft
			BGS = 0.0 ppm, LEL <1%.
	1335	1415	At 121.0 ft BGS. Try to clean out borehole (no returns). Trip out
			tools. Tag bottom of borehole; loose mud at 90.0 ft BGS, heavy
			mud/fill at 111.0 ft BGS.
	1415	1447	Run 1.5-in. OD PVC tremie into the borehole through mud to
			117.0 ft BGS. Calculate a borehole volume from 117.0 ft to
			assumed base of surface casing at 101.0 ft of 8.5 cubic ft,
			equivalent to 7.2 sacks of Type I cement.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 6 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-9-95	1447	1547	Mix and pump-tremie 12 sacks (14.2 cubic ft) of neat, Type I
(cont.)			Portland cement (average grout weight of 15.4 lbs/gal) into the
			borehole.
	1547	1600	Pull out tremie pipe. Clean up. Secure site and depart.
8-10-95	0830	1145	Arrive at GW-297 site. Tag cement level at 113.0 ft BGS. HSEA
			approves using bentonite to plug remaining borehole to surface
			casing. Crew departs the site to get bentonite.
	1145	1247	Crew returns. Break for lunch.
	1247	1303	Pour 10, 50-lb sacks of 3/8-in. bentonite aggregate into the
			borehole. Unhydrated bentonite level at 95.0 ft BGS. Pour
			10 gallons of potable water into the borehole to hydrate the
			bentonite. Secure site and depart.
8-11-95	0900	0923	Technical oversight resumed by T. Coffey (SAIC). Arrive at
			GW-297 site. Tag hydrated bentonite at 94.7 ft BGS (bentonite
			swelled 0.3 ft).
	0923	0946	Rig up with first section of washover pipe; total length = 26.3 ft
			(includes subadapter and cutting shoe), table height = 2.7 ft.
			Dimensions of washover bit: 11 7/8-in. ID, 13 3/4-in. OD.
	0946	1025	Commence over wash of surface casing using compressed air
			only. Overwash casing from 0.0 ft to 22.6 ft BGS. BZA at 4.8 ft and
			18.5 ft BGS both read 0.0 ppm. Cuttings from 0.0 ft to 22.6 ft BGS
			consist of dark gray (N3) to medium dark gray (N4) cement
			fragments; light brown (5YR 5/6), moist clay with moderate
			yellowish-brown (10YR 5/4) chert fragments; and metal shavings

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 7 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-11-95			(especially from near the bottom of the interval). Beta/gamma
(cont.)			scan of cuttings = 40 cpm for the entire interval.
	1025	1033	At 22.6 ft BGS. Trip out washover pipe and rig down.
	1033	1126	Push in an 8.0-ft section of 15 3/8-in. ID, 16-in. OD steel conductor
			casing to maintain the integrity of the borehole collar. Casing
			stick-up = 2.5 ft. Cut off 1.5 ft of the stick-up. New stick-up = 1.0 ft.
			Burn lifting holes in the surface casing.
	1126	1146	Rig back up with the lead section of washover pipe, and trip in to
			borehole. Table height remains at 2.7 ft.
	1146	1230	Break for lunch.
	1230	1424	Add another section of washover pipe to string and continue over
			wash. Over wash casing from 22.6 ft to 32.3 ft BGS. BZA at 32.0
			ft BGS = 0.0 ppm. Cuttings from 22.6 ft to 32.3 ft BGS are a
			continuation of above.
	1424	1430	At 32.3 ft BGS. Clean out borehole. Shut off drill rig. Crew to
			remain and clean up location, oversight departs.
8-14-95	0835	0843	Arrive at GW-297 site. Crew conducts pre-work equipment
			inspection.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 8 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-14-95	0843	1136	Commence over wash. Over wash surface casing from 32.3 ft to
(cont.)			44.0 ft BGS. Making a lot of mud and water from approximately
			35 ft BGS (suspect a perched water zone). Called K. Jago (HSEA)
			to report mud production, Kevin states a cuttings pit is not
			recommended, divert mud to ditch nearby and keep an eye on it.
			BZA at 38.3 ft BGS = 0.0 ppm. Cuttings from 32.3 ft to 44.0 ft BGS
			are a continuation of above.
	1136	1221	At 44.0 ft BGS. Break for lunch.
	1221	1251	Continue over wash. Over wash casing from 44.0 ft to 46.2 ft BGS.
			Cuttings continue as above.
	1251	1344	Out of water. Pull bit off bottom. Water truck departs for on-site
			water supply. Oversight departs.
8-15-95	0805	0842	Arrive at GW-297 site. Check on mud run-off: has just reached
			fence line below gravel haul road. Plan to have crew place straw
			bales along the fence as a filter/dam.
	0842	0852	Crew arrives, conducts pre-work equipment inspection.
	0852	1102	Commence over wash. Over wash surface casing from 46.2 ft to
			61.2 ft BGS. BZA at 48.0 ft BGS and 60.6 ft BGS both read
			0.0 ppm. Cuttings from 46.2 ft to 61.2 ft BGS are a continuation
			of above: clay content appears to be increasing while the amount
			of cement decreases.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 9 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-15-95	1102	1143	At 61.2 ft BGS. Break subadapter loose from washover pipe.
(cont.)			Oversight departs to check on mud flow; mud is ponding in a small
			embayment 10-20 ft beyond the straw bale dam, and does not
			appear to be a threat to any surface water. Return to site.
	1143	1221	Break for lunch.
	1221	1422	Rig up and continue over wash. Over wash casing from 61.2 ft to
			81.2 ft BGS. Lose circulation at approximately 64 ft BGS. BZA at
			73.2 ft BGS = 0.5 ppm (steady), 23 ppm (maximum). Crew had
			been using a lot of alcohol-based soap with the drilling water,
			even on the outside of the washover pipe (suspected source of
			high breathing zone readings). Cuttings (none collected due to
			lost circulation) assumed to be continuation of above.
	1422	1454	At 81.2 ft BGS. Break subadapter loose from washover pipe, and
			from drill head. Thread clevis into drill head. Attach a chain to
			surface casing and attempt to pull out; casing does not budge.
	1454	1515	Clean up, secure site, and depart.
8-16-95	0916	1059	Arrive at GW-297 site. Rig up and commence over wash. Over
			wash casing from 81.2 ft to 101.2 ft BGS. BZA at 92.0 ft BGS =
			0.0 ppm. Drilling rate increases at 92.5 ft BGS, then decreases at
			99.0 ft BGS. No circulation for entire interval.
	1059	1132	At 101.2 ft BGS. Attempt to pull out casing; casing does not
			budge.
	1132	1225	Break for lunch.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 10 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-16-95	1225	1244	Attempt to pull casing again; casing still does not move, chain slips
(cont.)			out of lifting hole.
	1244	1340	Crew fixing a leak in the drill rig exhaust system.
	1340	1357	Make yet another attempt to pull out casing using a bigger,
			stronger chain; also unsuccessful. Crew to perform additional
			maintenance on drill rig. Oversight departs.
8-17-95	0838	0910	Arrive at GW-297 site. Add another section of washover pipe to
			tools.
	0910	0938	Connection made, commence over wash. Over wash casing from
			101.4 ft to 105.0 ft BGS. Still no circulation. Drilling rate increases
			briefly at 104.0 ft BGS, then becomes slow and ratty. BZA at
			104.8 ft BGS = 0.0 ppm.
	0938	1010	At 105.0 ft BGS. Pull washover pipe up to last connection. Break
			out washover pipe and rig down. Remove subadapter from drill
			head.
	1010	1155	Thread clevis into drill head. Attach a chain to surface casing, and
			begin pulling out; casing comes out fairly easily.
	1155	1229	Break for lunch.
	1229	1420	Continue pulling out casing. Extract 106.1 ft of 10-in. ID,
			10 3/4-in. OD steel casing.
	1420	1430	Clean up, secure site, and depart.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 11 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-18-95	0818	0831	Arrive at GW-297 site. Crew conducts pre-work equipment inspections.
	0831	1137	Trip washover pipe out of the borehole. Tag bottom of hole at 77.0 ft BGS (28.0 ft of fill).
	1137	1250	Break for lunch.
	1250	1309	Rig up with the 9 7/8-in. diameter bit/subadapter assembly, and remove the bit.
	1309	1330	Crew departs to get the hole opener bit.
	1330	1344	Crew returns with hole opener; thread onto stabilizer. Bit diameter = 15 in., total length = 22.2 ft, length to reaming cones = 20.7 ft. Table height = 2.8 ft. Secure site and depart.
8-21-95	0816	0826	Arrive at GW-297 site. Crew conducts pre-work equipment inspections.
	0826	0908	Start drill rig. Commence reaming borehole. Hole opener will not fit inside conductor casing (diameter appears to be more like 16 in.).
	0908	0928	Burn lifting holes in conductor casing, and pull it out of the ground.
	0928	0942	Push in a 2.9-ft long section of 19 1/2-in. ID, 20 1/8-in. OD steel conductor casing; stick-up = 0.9 ft. Table height remains at 2.8 ft.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 12 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-21-95	0942	1009	Commence reaming borehole using compressed air and water.
(cont.)			Ream borehole from 0.0 ft to 67.9 ft BGS. Ratty drilling at
			25.5 ft BGS, and at 65.0 ft BGS. Hard, slow drilling at 65.6 ft BGS.
			No returns to surface during entire interval.
	1009	1025	At 67.9 ft BGS. Trip out 1 rod. Drillers are concerned about getting
			stuck. Trip back in, have to re-drill the last 10 ft.
	1025	1052	Trip out tools. Tag bottom of borehole at 44.1 ft BGS (23.8 ft of fill).
			Report status to K. Jago (HSEA) who directs to stop reaming,
			make a bentonite aggregate plug a few feet thick, then grout the
			borehole.
	1052	1130	Crew departs for bentonite.
	1130	1142	Pour 10, 50-lb sacks of 3/8-in. bentonite aggregate into the
			borehole. Unhydrated bentonite at 41.8 ft BGS (2.3-ft thick plug).
			Add 10 gallons of potable water to borehole to hydrate the
			bentonite. Calculate a borehole volume to 4.0 ft BGS of 52.9 cubic
			ft = 2.0 cubic yds. Secure site and depart. Grout delivery scheduled
			for 1100 hrs tomorrow.
8-22-95	1013	1045	Arrive at GW-297 site. Tag bentonite level at 41.8 ft BGS (no
			upward swell of bentonite).
	1045	1158	At Portal 13, waiting to escort grout truck to well site.
	1158	1218	Return to GW-297 site with grout truck. Pour 2 cubic yds of neat
			cement into borehole (approval to pour grout directly into hole by
			K. Jago - HSEA). Liquid cement level to approximately 20 ft BGS.
			Order another yd to top-off hole.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 13 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-22-95	1218	1223	Clean up. Cement truck departs.
(cont.)			
	1223	1256	Wait on second cement truck.
	1256	1305	Second cement truck on site. Pour 1 cubic yd of neat cement
			directly into the borehole. Liquid cement level remains at
			approximately 20 ft BGS.
	1305	1317	Clean up, secure site, and depart.
8-23-95	0742	0813	At GW-297 site. Tag cement level at 21.4 ft BGS. Calculate a
			borehole volume to 4.0 ft BGS of 24.4 cubic ft = 0.9 cubic yds.
			Highland Drilling Co. supervisor orders 1 cubic yd of cement for
			immediate delivery.
	0813	0849	At Portal 13, waiting for cement truck.
	0849	0907	Cement truck at GW-297 site; pour 1 cubic yd of neat cement into
			borehole. Liquid cement to approximately 11 ft BGS.
	0907	0916	Clean up, secure site, and depart.
8-24-95	0755	0848	At GW-297 site. Tag cement level at 12.0 ft BGS. Calculate a
			borehole volume to 4.0 ft BGS of 11.2 cubic ft, equivalent to
			9.5 sacks of cement.
	0848	0922	Mix and pour 9 sacks (10.6 cubic ft) of neat, Type I Portland
			cement (grout weight of 13.6 lbs/gal) into the borehole. Out of
			water. Liquid cement level is at approximately 7 ft BGS.
	0922	0938	Clean up, secure site, and depart.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-297
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 14 of 14

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-24-95	1349	1435	Return to GW-297 site. Mix and pour another 8 sacks (9.4 cubic
(cont.)			ft) of neat, Type I Portland cement into the borehole. Liquid
			cement to 1 ft BGS.
	1435	1448	Clean up, secure site, and depart.
8-25-95	0855	0912	At GW-297 site. Tag cement level at 2.9 ft BGS. Cap borehole to
			0.8 ft BGS with 3/8-in. bentonite aggregate (due to large borehole
			volume, and lack of clay cuttings remaining at site). Cap remaining
			borehole with clay soil.
			P&A of well GW-297 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-320

WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT

LOCATION: Ash Disposal Basin

FOREMAN: G. Shillings - Highland Drilling Co.

HELPERS: D. Williford, H. Hall, J. Gallaher

DRILL: NA

DATE: START: 7-16-96

FINISH: 7-18-96

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-16-96	1014	1024	Arrive at GW-320 site. Uncap well: organic vapors in casing
			headspace = 0.0 ppm. Measure water level at 16.5 ft below
			ground surface (BGS). Tag bottom of well (solid) at 110.3 ft BGS.
			Note: The Subsurface Data Base (Y/TS-881/R3) reports the
			total depth of well GW-320 to be 110.0 ft. Due to the proximity of
			the well directly uphill of a wetlands area, and personnel health
			and safety concerns, HSEA has granted a deviation from the
			plugging and abandonment procedure. This well will be grouted
			with casing remaining in the borehole.
	1024	1030	Slowly pour 2, 50-lb sacks of 3/8-in. bentonite aggregate into the
			well. Unhydrated bentonite level is at 96.8 ft BGS. Bentonite to
			hydrate approximately 4 hours. Depart site.
	1410	1442	Return to GW-320 site. Tag hydrated bentonite level at 91.6 ft
			BGS (bentonite swelled 5.2 ft). Calculate a casing volume of
			9.4 cubic ft, equivalent to 8.0 sacks of Type I Portland cement.
	1442	1557	Run 1.0-in. inside diameter (ID) PVC tremie pipe into well casing
			to 87.0 ft BGS. Mix and pump-tremie approximately 8 sacks
			(9.4 cubic ft) of neat, Type I Portland cement (with average grout
			weight of 13.1 lbs/gal) into the well. Circulate water, then 100%
			cement.
	1557	1629	Pull out tremie pipe. Clean up. Depart site.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-320
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 2

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-17-96	0857	0902	At GW-320 site. Tag cement level in well at 1.0 ft below top of
			casing (BTOC). The cement is above the ground surface so no
			more will be added. Plan to cut off the casing tomorrow. Depart
			site.
7-18-96	0746	0823	At GW-320 site. Crew breaks up the concrete pad and removes
			the fragments from the wellhead. No evidence of surface casing
			below the pad. Oversight departs.
	1500	1558	Oversight returns to GW-320 site. Crew first cuts protective
			casing, then cuts well casing off flush with the ground surface.
			P&A of GW-320 is complete.
			Note: No intrusive work was performed in the decommissioning
			of this well, hence no Cuttings Field Screening/Disposal sheet or
			Equipment Decontamination Summary was required.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-321
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 3

LOCATION: Ash Disposal Basin

FOREMAN: G. Shillings - Highland Drilling Co.

HELPERS: D. Williford, H. Hall, J. Gallaher

DRILL: NA

DATE: START: 7-16-96

FINISH: 7-18-96

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-16-96	1000	1009	Arrive at GW-321 site. Uncap well; organic vapors in casing headspace = 0.0 ppm. Measure water level at 17.2 ft below ground surface (BGS). Tag bottom of well (solid) at 98.4 ft BGS. Note: The Subsurface Data Base (Y/TS-881/R3) reports the total depth of well GW-321 to be 98.0 ft. Due to the proximity of the well directly uphill of a wetlands area, and personnel health and safety concerns, HSEA has granted a deviation from the plugging and abandonment procedure. This well will be grouted with casing remaining in the borehole.
	1009	1012	Begin pouring 3/8-in. bentonite aggregate into the well. The bentonite bridges off at approximately 20 ft BGS after 1.5, 50-lb sacks of bentonite. Depart to get tremie pipe.
	1054	1116	Return to GW-321 site with tremie pipe. Run tremie pipe into well, and push through the bridged bentonite. There appears to be another plug of bentonite beginning at approximately 50 ft BGS. Do not have enough tremie pipe to reach the second bentonite plug. Depart site.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-321
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-16-96	1557	1607	At GW-321 site. Run additional tremie pipe into well. Able to push
(cont.)			through the second bentonite plug. Tag bentonite level at 86.7 ft
			BGS (0.6 ft above the top of the screen). Calculate a casing
			volume to the top of the casing of 8.9 cubic ft, equivalent to 7.5
			sacks of Type I cement.
	1607	1618	Pump approximately 4 sacks (4.7 cubic ft) of neat Type I Portland
			cement (grout weight of 13.6 lbs/gal) left over from a batch mixed
			for GW-320 into the well casing. Circulate water.
	1618	1629	Out of cement. Pull out tremie pipe. Clean up, depart site.
7-17-96	0857	0902	At. GW-321 site. Tag cement level at 20.3 ft below top of casing
			(BTOC). Calculate a casing volume to the top of 2.0 cubic ft,
			equivalent to 1.7 sacks of Type I cement.
	0902	0903	Run 1-in. inside diameter (ID) PVC tremie pipe into the casing to
			19.0 ft BTOC.
	0903	0923	Mix and pump-tremie 2 sacks (2.4 cubic ft) of neat, Type I Portland
			cement (grout weight = 13.8 lbs/gal) into the well. Circulate water,
			then 100% cement. Liquid cement fills the well casing to the top.
	0923	0948	Pull out tremie pipe. Clean up. Depart site.
7-18-96	0746	0823	At GW-321 site. Cement still fills the casing to the top. Break up
			the concrete pad and remove the fragments from around the
			wellhead. No evidence of surface casing beneath the pad. Crew
			will cut off the protective casing and well casing flush with the
			ground surface. Oversight departs.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-321
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-18-96	1500	1505	Oversight returns to GW-321 site. Both the protective casing and
(cont.)			well casing have been cut off flush with the ground surface.
			P&A of well GW-321 is complete.
			Note: No intrusive work was performed in the decommissioning of
			this well hence no Cuttings Field Screening/Disposal Sheet or
			Equipment Decontamination Summary was required.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-448
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 3

LOCATION: Gum Branch Road Area

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: R. Phillips/J. Gallaher - Highland Drilling Co.

DRILL: Ingersoll-Rand XL-750

DATE: START: 8-28-95

FINISH: 8-30-95

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-28-95	1400	1443	Arrive at GW-448 site. Uncap well: organic vapors in casing
			headspace = 0.0 ppm, lower explosive limit (LEL) reading <1%
			(5.6 ppm). Background radiological scan of location: alpha =
			0 cpm, beta/gamma = 70 cpm. Measure water level at 7.7 ft
			below ground surface (BGS). Tag bottom of well (solid) at
			44.6 ft BGS. Note: The subsurface data base (Y/TS-881/R2)
			reports the depth of well GW-448 to be 44.5 ft.
	1443	1521	Move drill rig onto the site and position over the well. Set up site
			and prepare to drill tomorrow. Depart site.
8-29-95	0858	0908	Arrive at GW-448 site. Start drill rig, raise the mast.
	0908	0920	Wrap a chain around the conductor casing, and extract 2.3 ft of
			6 5/8-in. outside diameter (OD) steel casing. Cut off the 2 3/8-in.
			OD PVC well casing stick-up flush with ground surface, remove
			1.6 ft of the casing. Rig up with an 8 3/4-in. diameter tricone bit on
			a subadapter; total length = 4.3 ft, table height = 3.0 ft.
	0920	1036	Commence drilling up the casing/reaming the wellbore using
			compressed air only. Drill/ream from 0.0 ft to 45.6 ft BGS.
			Cuttings from 0.0 ft to 4.0 ft BGS are predominantly medium gray
			(N5) cement fragments with light brown (5 YR 5/6), dry, stiff clay;
			and white (N9) PVC. Breathing zone analysis (BZA) at 2.0 ft BGS
			= 0.0 ppm. Encounter moisture and weathered rock at 4.0 ft BGS.
			BZA at 4.0 ft BGS = 0.0 ppm. Encounter small amounts of

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-448
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-29-95			moisture at 11.6 ft and 14.7 ft BGS. BZA at 14.5 ft BGS = 0.0 ppm.
(cont.)			Encounter fresh rock at 17.3 ft BGS. Cuttings from 4.0 ft to
			17.3 ft BGS consist of light olive gray (5Y 5/2) to moderate
			yellowish-brown (10YR 5/4), weathered and stained, thinly
			laminated shale with light gray (N7) cement fragments and white
			(N9) PVC fragments. BZA at 22.3 ft BGS = 0.0 ppm. Encounter
			water at 27.0 ft BGS. BZA at 30.0 ft and 40.3 ft BGS both read
			0.0 ppm. Possible void from 30.0 ft to 31.3 ft BGS as the bit
			appears to free-fall. Cuttings from 17.3 ft to 45.6 ft BGS are:
			grayish-black (N2) to dusky blue (5PB 3/2), massive, pelletal
			micrite; brownish-gray (5YR 4/1), massive intra-micrite; dark gray
			(N3), thinly laminated shale; very pale orange (10YR 8/2) cement
			fragments; and white (N9) PVC fragments. No obvious sand filter
			pack was observed. Beta/gamma scan of cuttings range 60-80 cpm
			for the entire interval.
	1036	1045	At 45.6 ft BGS. Borehole is making a little water now. Trip out 1
			rod. Shut off drill rig.
	1045	1105	Wait for water to accumulate in borehole to aid in cleaning out
			debris.
	1105	1152	Clean out borehole. Trip out tools. Tag bottom of borehole at
			45.4 ft BGS (0.2 ft of fill). Calculate a borehole volume to
			4.0 ft BGS of 17.4 cubic ft, equivalent to 14.7 sacks of Type I
			cement. Lower mast, and move drill rig off the location.
	1152	1234	Break for lunch.
	1234	1238	Run 1.5-in. OD PVC tremie pipe into the borehole to 38.0 ft BGS.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-448
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-29-95	1238	1353	Mix and pump-tremie 13 sacks (15.3 cubic ft) of neat, Type I
(cont.)			Portland cement (average grout weight of 12.7 lbs/gal) into the
			borehole. Circulate water, then 100% cement.
	1353	1415	Pull out tremie pipe. Clean up. Secure site, and depart.
8-30-95	0830	0851	At GW-448 site. Tag cement level at 4.0 ft BGS. Cap remaining
			borehole with clay soil.
			P&A of well GW-448 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-452
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 2

LOCATION: Gum Branch Road Area
DRILLER: H. Hall - Highland Drilling Co.
HELPERS: R. Phillips/J. Gallaher - Highland Drilling Co.
DRILL: Ingersoll-Rand XL-750

DATE: START: 8-28-95
FINISH: 8-29-95
METHOD: C
LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-28-95	1020	1039	Arrive at GW-452 site. Position the drill rig over the well. Set up
			site. Uncap well: organic vapors in casing headspace = 0.0 ppm,
			lower explosive limit (LEL) reading <1% (3.3 ppm). Background
			radiological scan of location: alpha = 0 cpm, beta/gamma = 60
			cpm. Measure water level at 11.5 ft below ground surface (BGS).
			Tag bottom of well (solid) at 18.6 ft BGS.
	1039	1100	Pull out the conductor casing. Extract 3.0 ft of 6 5/8-in. outside
			diameter (OD) steel casing along with 2.0 ft of 2 3/8-in. OD PVC
			well casing (well casing came apart at a connection).
	1100	1126	Raise the mast. Rig up with an 8 3/4-in. diameter tricone bit on a
			subadapter; total length = 4.3 ft, table height = 2.0 ft.
	1126	1219	Break for lunch.
	1219	1235	Commence drilling up the casing while reaming the wellbore.
			Drill/ream from 0.0 ft to 20.0 ft BGS using compressed air only.
			Cuttings from 0.0 ft to 6.0 ft BGS are: moderate yellowish-brown
			(10YR 5/4), dry clay; medium gray (N5) cement fragments; and
			white (N9) PVC fragments. Breathing zone analysis (BZA) at 3.5
			ft BGS = 0.0 ppm. Encounter moisture at 6.0 ft BGS. Begin to see
			filter sand in returns at 7.5 ft BGS. BZA at 12.0 ft BGS = 0.0 ppm.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-452
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 2

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-28-95			Encounter weathered rock at 13.3 ft BGS. Cuttings from 6.0 ft to
(cont.)			13.3 ft BGS consist of: dark yellowish-brown (10YR 4/2), moist
			clay; very pale orange (10YR 8/2), fine- to medium-grained quartz
			sand (filter pack); and white (N9) PVC fragments. Encounter fresh
			rock at 19.0 ft BGS. Cuttings from 13.3 ft to 19.0 ft BGS are: light
			olive gray (5Y 5/2) to moderate yellowish-brown (10YR 5/4),
			weathered and stained, thinly laminated shale; filter sand and
			PVC fragments as above. Cuttings from 19.0 ft to 20.0 ft BGS are:
			medium dark gray (N4) and grayish-red (5R 4/2), thinly laminated
			shale. Beta/gamma scan of cuttings range 70-80 cpm for the
			entire interval.
	1235	1325	At 20.0 ft BGS. Clean out borehole. Trip out tools. Tag bottom of
			borehole at 19.5 ft BGS (0.5 ft of fill). Lower mast, and move drill
			rig off the location. Calculate a borehole volume to 4.0 ft BGS of
			6.5 cubic ft, equivalent to 5.5 sacks of Type I cement.
	1325	1346	Mix and pour 7 sacks (8.3 cubic ft) of neat, Type I Portland cement
			(grout weight of 12.8 lbs/gallon) directly into the borehole. Liquid
			cement fills the borehole to the ground surface.
	1346	1352	Clean up. Secure site and depart.
8-29-95	0836	0847	At GW-452 site. Tag cement level at 3.0 ft BGS. Cap remaining
			borehole with clay soil.
			P&A of well GW-452 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-660
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 3

LOCATION: East Fork Poplar Creek

OPERATOR: J. Gallaher - Highland Drilling Co.

HELPER: G. Shillings - Highland Drilling Co.

DRILL: Altec Auger Truck

DATE: START: 4-29-96

FINISH: 4-29-96

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
4-29-96	0938	0954	Arrive at GW-660 site. S. Jones (HSEA) conducts site-specific
			Health & Safety briefing. Notable items include: no sediment,
			cuttings, or water discharges to the creek; well site adjacent to
			active construction site.
	0954	1018	Move drill rig onto location, and begin setting up the site. Uncap
			the well: organic vapors in the casing headspace = 0.0 ppm,
			mercury vapors in the casing headspace = 0.0 mg/m³. Measure
			water level at 3.7 ft below ground surface (BGS). Tag bottom of
			well (solid) at 11.6 ft BGS. Note: The Subsurface Data Base
			(Y/TS-881/R3) reports the total depth of the well to be 10.4 ft BGS.
			Background radiological scan of the location: alpha = 0 cpm,
			beta/gamma - 60-80 cpm.
	1018	1030	Break up concrete pad, and remove fragments from wellhead.
	1030	1039	Rig up with 12-in. outside diameter (OD), 8 1/4-in. inside diameter
			(ID) hollow-stem augers; lead flyte is 5.3 ft long (subsequent flytes
			are 5.0 ft long). Crew discovers they do not have the correct auger
			bolts with them.
	1039	1123	Crew off getting bolts for the augers.
	1123	1128	Crew returns; finish rigging up lead auger flyte.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-660
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
4-29-96	1128	1156	Commence augering around the well. Auger from 0.0 ft to 7.3 ft
(cont.)			BGS. Breathing zone analysis at 0.5 ft BGS = 0.0 ppm. Cuttings
			from 0.0 to 0.8 ft BGS are: dark reddish-brown (10R 3/4) to
			moderate brown (5YR 3/4), moist, clayey soil with medium light
			gray (N6) concrete fragments. Cuttings from 0.8 ft to 1.5 ft BGS
			consist of: dark yellowish-brown (10YR 4/2) to grayish-brown
			(5YR 3/2), moist, silty clay with fragments of moderate yellowish-
			brown (10YR 5/4), weathered shale and sandy shale. Mercury
			vapor of cuttings at 2.8 ft BGS = 0.0 mg/m³. BZA at 4.0 ft BGS =
			0.0 ppm. Cuttings become very moist at 5.0 ft BGS; a humic odor
			is noted. Cuttings from 1.5 ft to 7.3 ft BGS are: greenish-black (5G
			2/1), moist, silty clay.
	1156	1230	At 7.3 ft BGS. The well casing along with the protective casing has
			dropped down inside the augers. Trip augers out of the borehole:
			casings are stuck inside the augers. Working to extricate the
			casings and/or separate auger flytes. Auger flytes finally separate,
			and casing removed from lead auger flyte. Recover 7.0 ft of
			6 5/8-in. OD steel casing and 6.2 ft of 2 3/8-in. OD stainless steel
			well casing still cemented inside the protective casing. Bottom of
			well casing is distorted where it twisted off, the rest of the well
			casing and screen are still in the borehole.
	1230	1305	Break for lunch.
	1305	1310	Rig auger string back up; trip back into borehole.
	1310	1326	Continue augering. Auger the wellbore from 7.3 ft to 11.6 ft BGS.
			BZA at 8.8 ft BGS = 0.0 ppm. Very hard drilling at 11.6 ft BGS
			(bottom of wellbore). Cuttings from 7.3 ft to 11.6 ft BGS are:
			greenish-black (5G 2/1), moist silty clay with minor sand (filter
			pack).

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-660
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
4-29-96	1326	1347	Auger refusal at 11.6 ft BGS. Trip out augers. Tag bottom of
(cont.)			borehole at 8.3 ft BGS (3.3 ft of fill). Water level at 3.6 ft BGS.
			Unable to recover any more well casing or screen. Calculate a
			borehole volume to 4.0 ft BGS of 3.4 cubic ft, equivalent to 4.9
			sacks of bentonite aggregate.
	1347	1354	Pour 7, 50-lb sacks of 3/8-in. bentonite aggregate into the borehole.
			Unhydrated bentonite fills the borehole to 1.3 ft BGS.
	1354	1411	Pull the four protective posts out of the ground.
	1411	1430	Fill in remaining borehole and post holes with clay soil. Rig down
			auger truck.
	1430	1515	Crew off-site getting cutting torches and reclamation supplies.
	1515	1558	Crew returns, beginning cutting up extracted casing to be screened.
	1558	1619	Clean up site. Collect solid wastes to be screened, and stage
			adjacent to well site. Spread seed and straw over well site. Depart
			site.
			P&A of well GW-660 is complete.
			NOTE: Headspace analyses of cuttings composites exceeded
			the disposal limits, even after re-sealing and re-sampling after a
			1-hr incubation period. A headspace analysis of cuttings after
			allowing 24-hr aeration measured within the disposal limits.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-669

WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT

LOCATION: East Fork Poplar Creek

OPERATOR: H. Hall - Highland Drilling Co.

HELPER: G. Shillings - Highland Drilling Co.

DRILL: Altec Auger Truck

DATE: START: 4-30-96

FINISH: 4-30-96

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
4-30-96	1035	1104	Arrive at GW-669 site. Drill rig is already on site. S. Jones (HSEA)
			conducts site-specific Health & Safety briefing. Notable items
			include: possible mercury contamination, although this is unlikely
			since soil and water sample data from the area yielded "clean"
			results.
	1104	1116	Uncap well: organic vapors in casing headspace = 0.0 ppm,
			mercury vapors in casing headspace = 0.0 mg/m^3. Measure water
			level at 4.4 ft below ground surface (BGS). Tag bottom of well
			(solid) at 7.3 ft BGS. Note: The Subsurface Data Base
			(Y/TS-881/R3) reports the total depth of well GW-669 to be 6.7 ft,
			and the depth of the wellbore to be 9.4 ft BGS. Background
			radiological scan of the location: alpha = 0 cpm, beta/gamma = 50-
			60 cpm.
	1116	1122	Break up concrete pad, and remove fragments from wellhead.
	1122	1127	Wrap a cable around the stick-up of the protective casing, and
			attempt to pull out the well: the well (in entirety) comes out fairly
			easily. Extract a total of: 1.7 ft of 12-in. outside diameter (OD)
			PVC surface casing, 6.8 ft of 6 5/8-in. OD steel protective casing,
			and a 10.4-ft length of stainless steel well assembly which
			includes 8.5 ft of 2 3/8-in. OD casing and 1.9 ft of 2 3/8-in. screen
			(with pointed end).

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-669
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
4-30-96	1127	1130	Rig up with 12-in. OD, 8 1/4-in. inside diameter (ID) hollow-stem
(cont.)			augers; lead flyte is 5.3 ft long, subsequent flytes are 5.0 ft long.
	1130	1149	Commence augering. Ream the wellbore from 0.0 ft to 9.7 ft BGS.
			Breathing zone analysis (BZA) at 3.2 ft BGS = 0.0 ppm. Cuttings
			from 0.0 ft to 3.2 ft BGS consist of: dark yellowish-brown
			(10YR 4/2) to grayish-brown (5YR 3/2), moist, clayey, silty soil
			with fragments of medium gray (N5) to medium dark gray (N4)
			cement and concrete. Mercury vapor of cuttings at 4.5 ft BGS =
			0.0 mg/m^3. Cuttings from 3.2 ft to 5.0 ft BGS are: grayish-brown
			(5YR3/2) to dusky yellowish-brown (10YR 2/2), moist, silty clay
			with minor cement fragments. BZA at 6.3 ft BGS = 0.0 ppm. Hard
			drilling at 8.0 ft BGS (a rock fragment). Mercury vapors of cuttings
			at 8.3 ft BGS = 0.0 mg/m^3. Hard drilling at 9.4 ft BGS (bottom of
			borehole). Cuttings from 5.0 ft to 9.7 ft BGS are: dark yellowish-
			orange (10YR6/6) to moderate yellowish-brown (10YR 5/4) moist
			clay, with common sand (filter pack).
	1149	1152	Auger refusal at 9.7 ft BGS. Trip out augers. Tag bottom of
			borehole at 9.6 ft BGS (0.1 ft of fill). Calculate a borehole volume
			to 4.0 ft BGS of 4.4 cubic ft, equivalent to 6.4 sacks of bentonite
			aggregate.
	1152	1200	Pour 6, 50-lb sacks of 3/8-in. bentonite aggregate into the borehole.
			Unhydrated bentonite fills the borehole to 2.7 ft BGS. Add 10
			gallons of water to hydrate the bentonite.
	1200	1233	Break for lunch.
	1233	1248	Clean off augers, and cap remaining borehole with clay soil.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-669
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
4-30-96	1248	1336	Pull the four protective posts out of the ground. Refill the post holes
(cont.)			with clay soil.
	1336	1458	Cut up extracted casings and split lengthwise for screening.
			Collect solid wastes (concrete fragments and casings) and stage
			adjacent to well site for screening. Clean up site, depart.
			P&A of well GW-669 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-670
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 5

LOCATION: East Fork Poplar Creek

OPERATOR: J. Young - Highland Drilling Co.

HELPERS: G. Shillings/J. Gallaher - Highland Drilling Co.

DRILL: Ingersoll-Rand XL-750

DATE: START: 5-2-96

FINISH: 5-7-96

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
5-2-96	1148	1210	Arrive at GW-670 site. Crew is positioning the drill rig over the well.
			Begin setting up the site. Uncap the well: organic vapors in casing
			headspace = 0.0 ppm; mercury vapors in casing headspace =
			0.0 mg/m³. Measure water level at 5.1 ft below ground surface
			(BGS). Tag bottom of well (solid) at 19.8 ft BGS. Note: The
			Subsurface Data Base (Y-T/S-881/R3) reports the total depth of
			well GW-670 at 20.0 ft. Background radiological scan of location:
			alpha = 0 cpm, beta/gamma = 40 cpm.
	1210	1217	S. Jones (HSEA) repeats site-specific briefing for new Highland
			Drilling Co. personnel.
	1217	1229	Cut off 2.2 ft of the casing stick-up; burn a lifting hole in the
			remaining stick-up. Raise the mast.
	1229	1338	Begin rigging up with 6-in. outside diameter (OD), 5 1/4-in. inside
			diameter (ID) washover pipe. Having difficulty threading
			subadapter to the washover pile. Discover that the subadapter
			has incompatible threads. Crew leaves to find some arrangement
			of washover pipe/cutting shoe/subadapter with compatible threads
			(will likely take the rest of the day). Oversight departs.
5-3-96	0812	0859	Arrive at GW-670 site. Crew on site with another washover pipe
			assembly. Start drill rig. Rig up with 9-in. OD, 8-in. ID washover
			pipe with hard-surface, non-tungsten carbide cutting bit; total
			length = 22.1 ft, table height = 2.4 ft.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-670
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
5-3-96	0859	0905	Commence overwash of well casing using compressed air only.
(cont.)			
	0905	0922	Stop overwash: bit has barely scratched the surface of the pad.
			Break up the concrete pad, and remove the fragments. Confirm
			the presence of surface casing, 11-in. ID steel casing (of unknown
			depth).
	0922	0930	Continue overwash of well casing using compressed air only.
	0930	0952	Stop overwash again: bit still not cutting. Apparently, concrete
			fills some of the casing annulus. Rig up on an 8 3/4-in. diameter
			bit to drill a pilot bore.
	0952	1015	Commence drilling using compressed air only. Drill up casing and
			concrete/annular cement from 0.0 ft to 0.8 ft BGS. Cuttings
			consist of dark gray (N3) concrete fragments; very pale orange
			(10YR8/2) cement/Cal-seal™ fragments; and stainless steel
			slivers.
	1015	1027	At 0.8 ft BGS, have apparently drilled through the concrete. Rig
	..		down the bit, rig the washover pipe back up.
	1027	1112	Connection made, continue overwash of casing. Overwash
			casing from 0.8 ft to 19.8 ft BGS. Dusty drilling. Breathing zone
			analysis (BZA) at 1.8 ft BGS = 0.4 ppm (acrid dust). Dust quits at
		—	7.5 ft BGS. Cuttings from 0.8 ft to 7.5 ft BGS consist of the very
			pale orange (10YR8/2) cement/Cal-seal™ fragments of above.
			Encounter water at 8.8 ft BGS. BZA at 9.8 ft BGS = 0.0 ppm. BZA
			at 16.8 ft BGS = 0.0 ppm. Cuttings from 7.5 ft to 19.9 ft BGS
			consist predominantly of grayish-orange (10YR7/4), fine-grained,
			quartz sand (filter pack) with minor cement fragments as above.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-670
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
5/3/96	1112	1203	At 19.8 ft BGS. Clean out the borehole. Break connection, and trip
(cont.)			washover pipe out of the borehole. The well casing and screen are
			wedged inside the washover pipe. Rig up a 9 7/8-in. diameter bit
			with a subadapter; length = 6.2 ft, table height = 2.3 ft.
	1203	1250	Break for lunch.
	1250	1312	Commence reaming the borehole. Ream from 0.0 ft to 22.9 ft BGS
			using compressed air only. Water at 5.7 ft BGS. Top of weathered
			rock at 7.6 ft BGS. BZA at 10.5 ft BGS = 0.0 ppm. Mercury vapors
			at 13.9 ft BGS = 0.0 mg/m³. BZA at 18.9 ft BGS = 0.0 ppm. Hard
			drilling at 21.9 ft BGS (bottom of wellbore). Cuttings from 0.0 ft to
			22.9 ft BGS are: very pale orange (10YR8/2) to medium light gray
			(N6) cement fragments; grayish-orange (10YR7/4), fine-grained
			quartz sand; minor moderate yellowish-brown (10YR5/4)
			weathered limestone; and dark gray (N3), massive, very finely-
			crystalline micrite with white to pink calcile veinlets.
	1312	1338	At 22.9 ft BGS. Clean out borehole. Trip out tools. Tag bottom
			of borehole at 22.9 ft BGS (clean hole). Calculate a borehole
			volume to 7 ft BGS (estimated bottom of surface casing) of 8.4
			cubic ft, equivalent to 7.2 sacks of cement.
	1338	1442	Crew departs for grouting supplies/equipment.
	1442	1452	Crew returns, run 1.5-in. OD PVC tremie pipe into the borehole to
			19.0 ft BGS.
	1452	1536	Mix and pump-tremie 7 sacks (8.3 cubic ft) of neat, Type I Portland
			cement (grout weight = 12.6 lbs./gal) into the borehole. Circulate
			water.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-670
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 4 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
5-3-96	1536	1542	Pull out tremie pipe. Clean up. Secure site, and depart.
(cont.)			
5-6-96	0806	0949	Arrive at GW-670 site. Tag cement level inside of surface casing
			at 5.2 ft BGS. Driller arrives. Crew is at the pipeyard collecting
			the washover pipe for overwashing the surface casing.
	0949	1055	Crew arrives; steam cleans the "big" washover pipe, and the hole
			opener. Washover pipe cutting shoe is 13 1/4-in. OD, 12-in. ID.
			Thread pieces together and rig up. Total length of tools - 13.4 ft,
			table height = 2.3 ft.
	1055	1200	Commence overwash. Overwash surface casing from 0.0 ft to
			8.0 ft BGS using compressed air only. Dusty drilling. BZA at
			1.5 ft BGS = 0.0 ppm. Dust diminishes at 6.5 ft BGS. BZA at 7.5
			ft BGS = 0.0 ppm. Encounter water at 8.0 ft BGS. Cuttings from
			0.0 ft to 8.0 ft BGS consist of: brownish-gray (5YR4/1) cement
			fragments; metal slivers and wires; and rare, dark yellowish-
			orange (10YR6/6) clay.
	1200	1240	At 8.0 ft BGS. Trip out washover pipe, surface casing is loose in
			the borehole. Attach a jawed clamp to the casing and pull out.
			Extract 7.3 ft of 11-in. ID steel casing. Break subadapter loose
			and rig down the washover pipe. Rig up a 16-in. diameter hole
			opener on a subadapter; length to reaming cones = 6.7 ft, total
			length = 8.2 ft, table height = 2.4 ft.
	1240	1252	Commence reaming cased portion of the hole. Ream from 0.0 ft
			to 8.3 ft using compressed air only. Mercury vapors at 5.3 ft BGS
			= 0.0 mg/m³. BZA at 6.7 ft BGS = 0.2 ppm. Cuttings from 0.0 ft
			to 8.3 ft BGS consist of: dark yellowish-orange (10YR6/6), moist
			clay; and brownish-gray (5YR4/1) to medium, dark gray (N4) to
			greenish-black (5GY2/1) cement fragments.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-670
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 5 of 5

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
5-6-96	1252	1345	At 8.3 ft BGS. Clean out borehole. Trip out tools. Tag bottom of
(cont.)			borehole at 8.3 ft BGS (clean hole). Calculate a borehole volume
			to 4.0 ft BGS of 6.0 cubic ft, equivalent to 5.1 sacks of cement.
			Secure rods in the carousel. Lower the mast.
	1345	1437	Crew goes for lunch, and to get grouting supplies.
	1437	1454	Crew returns. Mix and pour 5 sacks (5.9 cubic ft) of neat, Type
			I Portland cement (grout weight = 14.3 lbs./gal) directly into the
			borehole. Liquid grout/water level is at 2.0 ft BGS.
	1454	1535	An unexpected close lightning strike chases crew and oversight
			into trucks to wait out the storm. Up to this time no lightning had
			been observed. Heavy rains begin to fall after personnel got into
			vehicles.
	1535	1557	While storm conditions continue, with lightning still close by,
			oversight suspends operations for the day. Clean up. Secure
			site, and depart.
5-7-96	- 0717	0755	Arrive at GW-670 site. Tag cement level at 3.6 ft BGS. Borehole
			is ready to be capped. G. Shillings (Highland) begins steam
			cleaning the drill rig.
	0755	0839	G. Shillings departs to get torches.
	0839	1042	G. Shillings returns, begins cutting up extracted casings to be
			scanned. Cap remaining borehole with clay soil. P&A of well
			GW-670 is complete. Oversight acting as fire-watch during
			cutting operations. Depart site.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-671
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 2

LOCATION: East Fork Poplar Creek

OPERATOR: D. Key - Highland Drilling Co.

HELPERS: G. Shillings/J. Gallaher - Highland Drilling Co.

DRILL: Ford 555B Backhoe with McMillan Diggerhead Auger Motor

DATE: START: 5-7-96

FINISH: 5-7-96

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
5-7-96	1250	1255	Arrive at GW-671 site. Uncap well: organic vapors in casing headspace = 0.0 ppm, mercury vapors in casing headspace = 0.0 mg/m³. Measure water level at 2.2 ft below ground surface (BGS). Tag bottom of well (solid) at 7.5 ft BGS. Note: The Subsurface Data Base (Y/TS-881/R3) reports the total depth of the well to be 7.6 ft. Background radiological scan of the location: alpha = NA (wet), beta/gamma = 60-79 cpm.
	1255	1258	Attempt to break up the concrete pad: the pad won't break.
	1258	1306	Wrap a chain around the protective casing stick-up, and pull out the well assembly, the protective casing, and pad in one piece. Extract 4.8 ft of 6 5/8-in. outside diameter (OD) steel casing plus a 10.0 ft, 2 3/8-in. OD stainless steel well assembly (which includes a 2.9-ft screen section and 7.1 ft of casing).
	1306	1325	Attach auger motor to backhoe boom. Rig up with a 12-in. OD, 8 1/4-in. inside diameter (ID), hollow-stem auger; length = 5.3 ft (subsequent auger is 5.0 ft in length).
	1325	1335	Commence augering. Ream the wellbore from 0.0 ft to 8.8 ft BGS. Mercury vapors at 2.3 ft BGS = 0.0 mg/m³. Moisture at 3.5 ft BGS (clay begins to ball-up). Breathing zone analysis (BZA) at 6.5 ft BGS = 0.1 ppm. Water at 7.0 ft BGS. Mercury vapors at 7.5 ft BGS = 0.0 mg/m3. Cuttings from 0.0 ft to 8.8 ft BGS are: grayish-brown (5YR3/2) to dark yellowish-brown

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-671
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 2

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
5-7-96			(10YR4/2), moist to wet, silty clay with minor cement fragments.
(cont.)			Moisture content of cuttings increases with depth.
	1335	1344	Auger refusal at 8.8 ft BGS. Trip out augers. Tag bottom of
			borehole at 8.7 ft BGS (0.1 ft of fill). Water is quickly filling the
			borehole. Calculate a borehole volume to 4.0 ft BGS of 3.7 cubic
			ft, equivalent to 5.4 sacks of bentonite aggregate.
	1344	1350	Pour 6, 50-lb. sacks of 3/8-in. bentonite aggregate into the
			borehole. Unhydrated bentonite level at 3.4 ft BGS.
	1350	1400	Remove auger motor from backhoe boom, replace with bucket.
	1400	1410	Clean up site. Cap remaining borehole with clay soil. Load
			equipment and solid wastes (casing/screen sections, concrete
			fragments) onto backhoe, and depart site.
			P&A of well GW-671 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-672
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 2

LOCATION: Ash Disposal Basin

FOREMAN: G. Shillings - Highland Drilling Co.

HELPERS: D. Williford, H. Hall, J. Gallaher

DRILL: NA

DATE: START: 7-16-96

FINISH: 7-18-96

METHOD: A

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-16-96	1000	1014	Arrive at GW-672 site. Uncap the well; organic vapors in casing headspace = 0.0 ppm. Measure water level at 23.7 ft below ground surface (BGS). Tag bottom of the well (solid) at 28.3 ft BGS. Note: The Subsurface Data Base (Y/TS-881/R3) reports the total depth of well GW-672 to be 28.0 ft. Due to the proximity of the well directly uphill of a wetlands area, and personnel health and safety concerns, HSEA has granted a deviation from the plugging and abandonment procedure. This well will be grouted with casing remaining in the borehole.
	1014	1020	Slowly pour 2, 50-lb sacks of 3/8-in. bentonite aggregate into the well. Unhydrated bentonite level is at 13.1 ft BGS. Bentonite to hydrate approximately 4 hours. Depart site.
	1405	1442	Return to GW-672 site. Tag hydrated bentonite level at 13.1 ft BGS (no change, bentonite extended far above the water level). Calculate a casing volume of 1.5 cubic ft, equivalent to 1.3 sacks of Type I cement.
	1442	1500	Mix and pump approximately 2 sacks (2.4 cubic ft) of neat, Type I Portland cement (grout weight = 12.2 lbs/gal) into the well casing. Liquid cement fills the casing to the top. Depart site.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-672
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 2

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
7-17-96	0857	0902	At GW-672 site. The cement grout in the well has hardened, and
(cont.)			remains even with top of the casing. Plan to cut off casing
			tomorrow. Depart site.
7-18-96	0746	0823	At GW-672 site. Crew breaks up the concrete pad and removes
			the fragments from the wellhead. No evidence of surface casing
			below pad. Oversight departs.
	1500	1510	Oversight returns to GW-672 site. Crew has cut off well casing
			and protective casing flush with the ground surface.
			P&A of GW-672 is complete.
			Note: No intrusive work was performed in the decommissioning
			of this well, hence no Cuttings Field Screening/Disposal Sheet or
			Equipment Decontamination Summary was required.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-721
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 2

LOCATION: Water Treatment Plant (East Pine Ridge)
OPERATOR: G. Shillings - Highland Drilling Co.
HELPER: H. Hall - Highland Drilling Co.
DRILL: Ford 455 Backhoe

DATE: START: 9-18-95
FINISH: 9-19-95
METHOD: C
LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-18-95	1400	1414	Arrive at GW-721 site. The wellhead is open and consists of
			12 3/4-in. outside diameter (OD) PVC casing. Casing stick-up =
			1.5 ft. Measure water level at 4.3 ft below ground surface (BGS).
			Tag bottom of well (soft) at 5.5 ft BGS. Note: the Subsurface Data
			Base (Y/TS-881/R2) reports the total depth of well GW-721 to be
			6.0 ft. Background radiological scan of location: alpha = 0 cpm,
			beta/gamma = 60-90 cpm. Move backhoe onto location.
	1414	1439	Attach a jawed clamp to the casing, and pull it out fairly easily.
			Extract 4.5 ft of 12 3/4-in. OD PVC casing and 2.5 ft of 12 3/4-in.
			OD PVC screen (a total of 7.0 ft of well materials recovered from
			the well). The original well annulus had been back-filled with
			bentonite (the Subsurface Data Base reports the original wellbore
			to be 22-in. diameter). Tag bottom of borehole at 4.5 ft BGS.
			Calculate a borehole volume to 1.0 ft BGS of 3.1 cubic ft,
			equivalent to 4.5 sacks of Shur-Plug™ bentonite aggregate.
			Move backhoe off site.
	1439	1528	Crew departs to get Shur-Plug™ bentonite. Beta/gamma scan of
			extracted casing/screen = 50 cpm.
	1528	1537	Crew returns to GW-721 site. Pour 4, 50-lb sacks of 3/8-in.
			bentonite aggregate into the borehole unhydrated bentonite level
			at 1.3 ft BGS. Add 20 gallons of potable water to hydrate the
			bentonite. Secure site and depart.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. GW-721
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 2

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-19-95	0921	0923	At GW-721 site. Tag hydrated bentonite at 1.2 ft BGS (bentonite
			swelled 0.1 ft). Cap remaining borehole with clay soil.
			P&A of well GW-721 is complete.
			Note: No intrusive work was performed in the P&A of this well,
			hence no Cuttings Field Screening/Disposal Sheet or Equipment
			Decontamination Summary was required.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-06
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 3

LOCATION: Gum Branch Road Area
DRILLER: H. Hall - Highland Drilling Co.
HELPERS: R. Phillips/J. Gallaher - Highland Drilling Co.
DRILL: Ingersoll-Rand XL-750

DATE: START: 8-30-95
FINISH: 8-31-95
METHOD: C
LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-30-95	0820	0851	Arrive at LL/HAZ-06 site. The drill rig is on the location. Uncap
			well: organic vapors in casing headspace = 0.0 ppm. Measure
			water level at 16.2 ft below ground surface (BGS). Tag bottom of
			well (solid) at 27.7 ft BGS. Note: While preparing the location for
			the drill rig, the crew had to remove the concrete pad and
			excavate approximately 2 ft of soil to obtain a level site on which
			to set up drill rig. The Subsurface Data Base (Y/TS-881/R2)
			reports the depth of well LL/HAZ-06 to be 30.0 ft. Assume present
			tagged depth of 27.7 ft to be the same as 30.0 ft (pre-P&A). Target
			depth for wellbore reaming will be approximately 1 ft beyond the
			27.7 ft tagged depth. Background radiological scan of location:
			alpha = 0 cpm, beta/gamma = 70 cpm. Cut off 1.9 ft of the 6 5/
			8-in. outside diameter (OD) PVC casing stick-up.
	0851	0902	Position drill rig over the well, and raise the mast.
	0902	0938	Attach a jawed clamp to the casing collar, and attempt to pull out
			the casing; casing comes out of the ground a little, but breaks.
			Attempt to pull out casing using a chain wrapped around the
			casing, then with a canvas strap: both slip off after pulling casing
			out a little more.
	0938	0948	Cut off another 3.6 ft of 6 5/8-in. OD PVC casing. Rig up with an
			8 3/4-in. diameter tricone bit on a subadapter; total length = 4.3 ft,
			table height = 2.2 ft.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-06
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-30-95	0948	1024	Commence drilling up casing/reaming wellbore using compressed
(cont.)			air only. Drill/ream from 0.0 ft to 29.1 ft BGS (1.4 ft beyond tagged
			well TD). Cuttings from 0.0 ft to 1.0 ft BGS are: grayish-orange
			(10 YR 7/4), dry clay. Begin to see sand (filter pack) in returns at
			3.0 ft BGS. Encounter weathered rock at 8.0 ft BGS. Cuttings
			from 1.0 ft to 8.0 ft BGS are: light brown (5 YR 5/6) to moderate
			brown (5 YR 4/4), moist clay/ extremely weathered shale (relict
			bedding visible); white (N9) PVC fragments; and medium-grained,
			angular quartz sand. Breathing zone analysis (BZA) at 12.0 ft
			BGS = 0.0 ppm. Encounter moisture, then water at 14.5 ft BGS.
			BZA at 19.1 ft and 25.1 ft BGS both read 0.0 ppm. Cuttings from
			8.0 ft to 29.1 ft BGS consist of light olive gray (5 YR 5/2), pale
			brown (5 YR 5/2), and dark yellowish-brown (10 YR 4/2),
			weathered and stained, thinly laminated shale; Quartz sand; and
			white (N9) PVC fragments. Beta/gamma scan of cuttings range
			60-70 cpm for the entire interval.
	1024	1058	At 29.1 ft BGS. Clean out borehole. Trip out tools. Tag bottom
			of borehole at 28.2 ft BGS (0.9 ft of fill). Calculate a borehole
			volume to 4.0 ft BGS of 10.2 cubic ft, equivalent to 8.6 sacks of
			Type I cement. Secure rods in carousel, lower mast, and move
			drill rig off the location.
	1058	1135	Mix and gravity-tremie 9 sacks (10.6 cubic ft) of neat, Type I
			Portland cement (grout weight of 13.9 lbs/gal.) into the borehole.
			Liquid cement fills the borehole to the ground surface.
	1135	1220	Clean up, secure site, and depart.
8-31-95	0832	0842	At LL/HAZ-06 site. Tag cement level at 3.6 ft BGS. Cap
			remaining borehole with clay soil.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-06
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-31-95			P&A of well LL/HAZ-06 is complete.
(cont.)			

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-11
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 4

LOCATION: Gum Branch Road Area
DRILLER: R. Phillips - Highland Drilling Co.
HELPERS: H. Hall - Highland Drilling Co.
DRILL: Ingersoll-Rand XL-750

DATE: START: 2-21-96
FINISH: 3-4-96
METHOD: C
LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-21-96	1440	1518	Move drill rig onto LL/HAZ-11 site and position over the well. Set
			up the site. Uncap the well: organic vapors = 0.8 ppm. Measure
			the water level in well at 8.8 ft below ground surface (BGS). Tag
			bottom of the well (soft) at 32.6 ft BGS. Note: the Subsurface
			Data Base (Y/TS-881/R3) reports the total depth of well LL/HAZ-11
			to be 33.0 ft. Background radiological scan of the location:
			alpha = 0 cpm, beta/gamma = 60-80 cpm.
	1518	1610	Raise the mast. Attach a jawed clamp to the casing, and attempt
			to pull out; casing comes out approximately 0.3 ft then breaks.
			Repeated attempts fail to pull the casing any further. Plan to drill
			up the casing tomorrow. Depart site.
2-22-96	0840	0855	Arrive at LL/HAZ-11 site. Crew starts drill rig carrier. Checking
			drive train (heard "funny" noise in rear end of drill rig when moving
			onto side yesterday). Crew is uncertain as to the source of the
			noise, but it may have been a broken axle.
	0855	0916	Start drill rig. Add a 25-ft rod to the drill head. Rig up with a
			7 7/8-in. diameter bit on a subadapter; length = 1.9 ft, table
			height = 2.5 ft.
	0916	0948	Commence drilling up the PVC well casing while reaming the
			wellbore. Drill/ream from 0.0 to 1.0 ft BGS using compressed air
			only. Cuttings from 0.0 ft to 0.5 ft are medium light gray (N6)
			concrete and white (N9) PVC fragments. Cuttings from 0.5 ft to

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-11
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 4

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-22-96	0916	0948	1.0 ft BGS consist of dark yellowish-brown (10YR 4/2), moist,
(cont.)			clayey soil.
	0948	0957	At 1.0 ft BGS, the concrete pad is loose. Pry up pad, and remove
			from wellhead.
	0957	1022	Attach the jawed clamp to the casing and again attempt to pull out;
			the casing again comes out approximately 0.2 ft and stops.
	1022	1048	Continue drilling casing while reaming the wellbore. Drill/ream
			from 1.0 ft to 21.4 ft BGS. Breathing zone analysis (BZA) at
			4.4 ft BGS = 0.0 ppm. Begin to see sand in returns at 5.0 ft BGS.
			Top of weathered rock at 5.0 ft BGS. Cuttings from 1.0 ft to
			5.0 ft BGS consist of dark yellowish-brown (10YR 4/2) to moderate
			brown (5YR 4/4), moist, clayey soil; and white (N9) PVC fragments.
			Encounter water at 7.0 ft BGS. BZA at 10.6 ft BGS - 0.0 ppm.
			Borehole making water by 14.0 ft BGS. Cuttings from 5.0 ft to
			21.4 ft BGS are pale olive (10YR 6/2), dark yellowish-orange
			(10YR 6/6), and pale brown (5YR 5/2), weathered, thinly laminated
			shale; and abundant angular, fine- to medium-grained quartz
			sand.
	1048	1057	At 21.4 ft BGS. Trip out tools.
	1057	1112	Crew departs for a piece of conductor casing to keep the borehole
			collar open.
	1112	1120	Crew returns with a 4-ft section of 10 3/4-in. outside diameter
			(OD), 10-in. inside diameter (ID) steel casing. Push the casing
			into the ground, leaving a 0.2 ft stick-up.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-11
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 4

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-22-96	1120	1151	Remove the 7 7/8-in. bit, and replace with an 8 1/2-in. diameter bit;
(cont.)			length of new bit and subadapter = 2.0 ft, table height remains
			at 2.5 ft.
	1151	1221	Trip back into borehole, reaming with the new bit. No cuttings
			returned from 0.0 ft to 12.5 ft BGS. Continue drilling casing/
			reaming wellbore to 34.3 ft BGS using compressed air only. BZA
			at 23.2 ft BGS = 0.0 ppm. BZA at 29.8 ft BGS = 0.2 ppm. Some
			very hard drilling occurrences in this interval. Cuttings from 12.5
			ft to 34.3 ft BGS are generally moderate brown (5 YR 4/4) to light
			olive gray (5Y 5/2), weathered shale; grayish-brown (5YR 3/2)
			weathered micrite; quartz sand; and PVC fragments.
	1221	1225	At 34.3 ft BGS. Clean out borehole. Trip out 10 ft.
	1225	1305	Break for lunch.
	1305	1321	Rig back on. Clean out borehole using water that had accumulated
			in the hole. Trip out tools, remove bit/subadapter assembly. Tag
			bottom of borehole at 34.3 ft BGS (borehole is clean). Calculate
			a borehole volume to 4.0 ft BGS of 11.9 cubic ft, equivalent to
			10.1 sacks of Type I cement.
	1321	1430	Secure rods in carousel and lower mast. Screen cuttings composite.
			Highland Drilling Co. mechanic on site to examine drill rig drive
			train. Oversight departs.
2-23-96	0900	0922	Arrive at LL/HAZ-11 site. Move grouting equipment to site. Run
			1.5-in. OD PVC tremie pipe into the borehole to 29.0 ft BGS.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-11
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 4 of 4

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-23-96 (cont.)	0922	1018	Mix and pump-tremie 11 sacks (13.0 cubic ft) of neat, Type I Portland cement (average grout weight = 12.7 lbs/gal) into the borehole. Circulate water, then 50% cement.
	1018	1036	Pull out tremie pipe. Clean up. Secure site and depart.
3-1-96	0808	0817	At LL/HAZ-11 site. Tag cement level at 6.3 ft BGS. Calculate a borehole volume to 4.0 ft BGS of 0.9 cubic ft, equivalent to 0.8 sacks of Type I cement. Pull out conductor casing by hand.
	0817	0824	Mix and pour 2 sacks (2.4 cubic ft) of neat, Type I Portland cement directly into the borehole. Liquid cement fills the borehole to 0.5 ft BGS.
	0824	0830	Depart site.
3-4-96	0832	0838	At LL/HAZ-11 site. Tag cement level at 1.3 ft BGS. Cap remaining borehole to ground surface with clay soil. Depart.
			P&A of well LL/HAZ-11 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-12
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 3

LOCATION: Gum Branch Road Area
DRILLER: H. Hall - Highland Drilling Co.
HELPERS: R. Phillips/J. Gallaher - Highland Drilling Co.
DRILL: Ingersoll-Rand XL-750

DATE: START: 8-31-95
FINISH: 9-5-95
METHOD: C
LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-31-95	0843	0925	Arrive at LL/HAZ-12 site. Move drill rig onto location and position
			over the well. Set up site. Uncap well: organic vapors in casing
			headspace = 0.0 ppm. Measure water level at 22.3 ft below
			ground surface (BGS). Tag bottom of well at 30.8 ft BGS. Note:
			The Subsurface Data Base (Y/TS-881/RZ) reports the TD of well
			LL/HAZ-12 to be 35.0 ft. Background radiological scan of
			location: alpha = 0 cpm, beta/gamma = 60 cpm.
	0925	0953	Break up concrete pad and remove the fragments.
	0953	1015	Raise the mast. Attempt to pull out the casing using a jawed
			clamp, then a canvas strap both are unsuccessful as the casing
			does not budge. Cut off 1.6 ft of the casing stick-up.
	1015	1019	Rig up with an 8 3/4-in. diameter tricone bit on a subadapter; total
			length = 4.3 ft, table height = 3.0 ft.
	1019	1103	Commence drilling up the casing/reaming the wellbore using
			compressed air only. Drill/ream from 0.0 ft to 36.3 ft BGS.
			Encounter weathered rock at 1.0 ft BGS. Cuttings from 0.0 ft to
			1.0 ft BGS are grayish-orange (10YR 7/4), dry, clay (topsoil).
			Breathing zone analysis (BZA) at 4.0 ft BGS = 0.0 ppm. BZA at
			14.5 ft BGS = 0.0 ppm. Encounter moisture at 20.3 ft BGS, then
			water at 21.3 ft BGS. BZA at 22.3 ft BGS = 0.0 ppm. Encounter
			fresh rock at 35.3 ft BGS (at bottom of original wellbore). Cuttings
			from 1.0 ft to 35.3 ft BGS consist of light olive gray (5Y 5/2) to

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-12
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
8-31-95			moderate yellowish-brown (10YR 5/4), weathered and stained,
(cont.)			thinly laminated shale; dark yellowish-brown (10YR 4/2) to dusky
			yellowish-brown (10YR 2/2), weathered micrite; fine- to medium-
			grained quartz sand (filter pack); and white (N9) PVC fragments.
			Cuttings from 35.3 ft to 36.3 ft BGS are medium dark gray (N4) and
			blackish-red (5R 2/2), thinly laminated shale; and medium light
			gray (N6), massive, very finely crystalline micrite. Beta/gamma
			scan of cuttings range from 50 to 70 cpm for the entire interval.
	1103	1132	At 36.3 ft BGS. Clean out borehole. Trip out tools. Tag bottom
			of borehole at 27.5 ft BGS (8.8 ft of fill). Move water truck to
			location. Plan to clean borehole again using water to flush
			cuttings.
	1132	1218	Break for lunch.
	1218	1245	Trip tools back into bottom of borehole. Use compressed air and
			water to clean borehole.
	1245	1316	Trip out tools. Tag bottom of borehole at 31.0 ft BGS (5.3 ft of fill;
	..		unable to clean borehole any better). Calculate a borehole
			volume to 4.0 ft BGS of 11.3 cubic ft, equivalent to 9.6 sacks of
			Type I cement. Secure rods in carousel, lower mast, and move
			drill rig off location.
	1316	1352	Mix and gravity-tremie 11 sacks (13.0 cubic ft) of neat, Type I
			Portland cement (average grout weight of 12.9 lbs/gal) into the
			borehole. Liquid grout fills the borehole to approximately 3 ft BGS.
	1352	1400	Clean up, secure site, and depart.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-12
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
9-1-95	0820	0851	Arrive at LL/HAZ-12 site. Tag cement level at 15.2 ft BGS.
			Calculate a borehole volume to 4.0 ft BGS of 4.7 cubic ft,
			equivalent to 4.0 sacks of Type I cement.
	0851	0912	Mix and gravity-tremie 5 sacks (5.9 cubic ft) of neat, Type I
			Portland cement (grout weight of 12.8 lbs/gal) into the borehole.
			Liquid grout fills the borehole to the ground surface.
	0912	0922	Clean up, secure site, and depart.
9-5-95	0851	0856	At LL/HAZ-12 site. Tag cement level at 3.0 ft BGS. Cap remaining
			borehole with clay soil.
			P&A of well LL/HAZ-12 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-14
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 7

LOCATION: Gum Branch Road Area
DRILLER: H. Hall - Highland Drilling Co.
HELPERS: R. Phillips - Highland Drilling Co.
DRILL: Ingersoll-Rand XL-750

DATE: START: 2-15-96
FINISH: 3-1-96
METHOD: C
LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-15-96	0925	0942	Arrive at Gum Branch Road Area, waiting for drill bit to be brought
			to location.
	0942	0955	D. Key (Highland) brings a 6 3/4-in. diameter tricone bit to
			location; steam clean the bit.
	0955	1014	At LL/HAZ-14 site. The drill rig is on site, positioned over the well.
			The crew has already cut off 1.6 ft of the 6 5/8-in. outside diameter
			(OD) steel protective casing. Uncap well: organic vapors in
			casing headspace = 31 ppm. Measure water level in well at 38.6
			ft below ground surface (BGS). Unable to tag bottom of well;
			weighted tape is too short. Try with water level indicator but probe
			is too light to give conclusive measurement. The Subsurface
			Data Base (Y/TS-881/R3) reports the total depth of well LL/HAZ-14
			to be 349.0 ft.
	1014	1026	Start drill rig. Raise the mast. Background radiological scan of
			location: alpha = 0 cpm, beta/gamma = 70 cpm. The drill rig is
			not perfectly centered over the well.
	1026	1046	Lower the mast, and "walk" the rig sideways to center over the
			well. Raise the mast again.
	1046	1102	Burn lifting holes in the protective casing. Attempt to pull out
			protective casing; casing comes out easily with concrete pad
			attached. Recover another 1.5 ft of 6 5/8-in. OD steel casing (total

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-14
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 7

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-15-96			of 3.1 ft recovered). PVC well casing broke off, recover 2.9 ft of
(cont.)			2 3/8-in. OD PVC casing.
	1102	1121	Add a 25-ft drill rod to the drillhead; thread the 6 3/4-in. diameter
			bit onto the rod. Length of the bit is 0.6 ft, table height = 2.3 ft.
	1121	1135	Commence drilling up the well casing while reaming the well bore.
			Drill/ream from 0.0 ft to 5.3 ft BGS using compressed air only.
			Breathing zone analysis (BZA) at 4.0 ft BGS = 5.4 ppm (maximum),
			0.6 ppm (sustained). Cuttings from 0.0 ft to 5.3 ft are white (N9)
			PVC fragments; and moderate brown (5YR 4/4), moist clayey soil.
	1135	1143	At 5.3 ft BGS, wellbore is deviating out from under the bit. Trip out
			tools. Tilt the rig so that the bit will follow the wellbore.
	1143	1200	Adjustments are complete, continue drilling casing/reaming
			wellbore. Drill/ream from 5.3 ft to 9.6 ft BGS using compressed air
			only. BZA at 7.5 ft BGS = 0.0 ppm. Cuttings from 5.3 ft to 7.5 ft
			BGS are a continuation of the 0.0-ft to 5.3-ft interval. Cuttings from
			7.5 ft to 9.6 ft BGS consist predominantly of dark yellowish-orange
			(10YR 6/6), moist clay with occasional fragments of pale olive
			(10Y 6/2) weathered shale.
	1200	1233	At 9.6 ft BGS, bit is off the wellbore again. Shut off drill rig. Break
			for lunch.
	1233	1250	Secure rig carousel, lower mast again, and center rig over well
			again. Raise mast, table height remains at 2.3 ft.
	1250	1310	Re-drill borehole from 0.0 ft to 9.6 ft BGS.
	1310	1344	Shut off drill rig to repair a leaking "O" ring in the drill head. Leak

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-14
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 7

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-15-96			amounted to a few drops of hydraulic fluid on the drill head and
(cont.)			table; fluid wiped up.
	1344	1404	Push in a 3.5-ft section of 8-in. inside diameter (ID) steel conductor
			casing (to dry and keep the bit centered over the well).
	1404	1421	Continue drilling casing/reaming wellbore. Drill/ream from 9.6 ft to
			23.3 ft BGS using compressed air only. Encounter water at 13.0 ft
			BGS. BZA at 14.3 ft BGS = 0.7 ppm (sweet-pungent, aromatic
			odor noted). More moisture at 16.3 ft BGS. Top of weathered rock
			at 18.3 ft BGS. Cuttings from 9.6 ft to 18.3 ft BGS are predominantly
			moderate brown (5YR 4/4), moist clay soil with medium gray (N5)
			to grayish-orange pink (5YR 7/2) cement fragments plus occasional
			weathered shale fragments as noted above. Lower explosive limit
			(LEL) reading at 19.5 ft BGS <1% (2.7 ppm). Encounter additional
			moisture at 22.3 ft and 23.0 ft BGS. Cuttings from 18.3 ft to 23.3 ft
			BGS are moderate olive brown (5Y 4/4), light olive gray (5Y 5/2),
			and greenish-gray (5GY 6/1) weathered shale and grayish-orange
			(10YR 7/4) to moderate yellowish-brown (10YR 5/4), thinly bedded,
			banded, fine-grained sandy siltstone.
	1421	1456	At 23.3 ft BGS. Obviously off the well again. Trip out tools. Shut
			off drill rig. Clean up, secure site, and depart.
2-16-96	0902	0918	At Gum Branch Road area. Crew has brought a section of
			washover pipe; length = 25.5 ft (includes subadapter), bit
			dimensions are 9 1/2-in. OD, 8 1/4-in. ID. Steam clean washover
			pipe. Plan to over wash the wellbore to get a better start on the
			well.
	0918	0928	At LL/HAZ-14 site, unload the washover pipe.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-14
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 4 of 7

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-16-96	0928	0941	Remove bit from drill rod; rack the rod. Pull out the piece of
(cont.)			conductor casing.
	0941	0955	Rig up with the washover pipe.
	0955	1119	Commence over wash of well. Over wash well casing and annular
			grout column from approximately 3 ft to 23.7 ft BGS. BZA at
			9.5 ft BGS = 0.0 ppm. Encounter water at 11.2 ft BGS. Additional
			moisture at 13.5 ft BGS. Encounter more water (mud) at 15.0 ft BGS.
			BZA at 19.8 ft BGS = 0.0 ppm. Cuttings for entire interval consist
			predominantly of moist clay, with weathered rock evident near end
			of interval.
	1119	1135	At 23.7 ft BGS. Break subadapter loose from washover pipe.
			Radiological scan of cuttings: alpha = 0 cpm, beta/gamma =
			50-60 cpm.
	1135	1340	Crew departs for another section of washover pipe (plan to over
			wash well at least to competent bedrock). Break for lunch.
	1340	1407	Crew returns with a 20.7-ft section of washover pipe, steam cleans
			it, and brings it to the site.
	1407	1425	Rig up the second section of washover pipe, and thread onto lead
			washover pipe.
	1425	1600	Connection made, continue over wash of well. Over wash casing
			and annular grout column from 23.7 ft to 40.3 ft BGS. BZA at 28.2 ft
			and 34.2 ft BGS both read 0.0 ppm. Top of fresh rock at
			36.2 ft BGS. Cuttings from 23.7 ft to 36.2 ft BGS consist of light
			olive brown (5Y 5/6), light olive gray (5Y 5/2), and greenish-gray
			(5G 6/1) weathered shale with rare cement and PVC fragments.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-14
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 5 of 7

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-16-96			Interval also contains minor brownish-gray (5YR 4/1) to greenish-
(cont.)			black (5G 2/1), weathered, massive micrite (abundance of which
			increases with depth). Very hard drilling from 38.5 ft to 39.0 ft
			(limestone). BZA at 39.2 ft BGS = 0.1 ppm (slight sulfurous odor
			noted). Hard drilling again at 40.0 ft BGS. Cuttings from 36.2 ft
			to 40.3 ft BGS are medium bluish-gray (5B 5/1), thinly laminated
			shale and brownish-gray (5YR 4/1), massive micrite with sparite
			blebs. Carbonate fragments also contain granular calcite vein
			material. Scan of cutting reads: alpha = 0 cpm, beta/gamma = 70-
			80 cpm for the interval.
	1600	1612	At 40.3 ft BGS. Clean out borehole. Clean up, secure site, and
			depart.
2-19-96	0920	1000	Technical oversight by B. McMaster (HSEA/UT). Arrive at
			LL/HAZ-14 site. Prepare to advance washover pipe.
	1000	1100	Commence over wash of well. Over wash casing and annular
			grout column from 40.3 ft to 40.6 ft BGS. BZA is <8 ppm.
	1100	1130	Halt over wash. Making no significant progress. Discuss options
			with crew; decide to cut washover pipe, leave in the borehole as
			temporary casing, and continue drilling up the casing/reaming the
			wellbore with a tricone bit.
	1130	1215	Break for lunch.
	1215	1250	Cut off washover pipe, leaving approximately 0.5-ft stick-up.
			Thread a 7 7/8-in. diameter tricone bit on a subadapter onto a 25 ft
			drill rod; length of bit/subadapter = 1.9 ft, table height = 2.0 ft.
	1250	1440	Run bit inside the washover pipe. Commence drilling up the well

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-14
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 6 of 7

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-16-96			casing. Drill up the well casing from approximately 10 ft BGS to
(cont.)			74.9 ft BGS. Returns are predominantly white (N9) PVC fragments
			and medium gray (N5) cement fragments. Amount of both
			decreasing with depth. Rock cuttings consist of greenish-black
			(5G 2/1), thinly laminated shale and dark greenish-gray (5G 4/1),
			massive micrite with occasional blebs of sparite. Below 53.0 ft BGS,
			micrite is oolitic. Also noted scattered occurrences of pink,
			granular calcite.
	1440	1515	At 74.9 ft BGS. The bit has obviously moved off the well. Will stop
			here. Clean out borehole. Trip out tools. Secure site and depart.
2-20-96	0855	1027	Technical oversight resumed by T. Coffey (SAIC). Arrive at
			LL/HAZ-14 site. Will remove washover pipe before grouting the
			borehole. Tag bottom of borehole at 74.9 ft BGS. Prepare
			washover pipe for welding.
	1027	1117	Cut off a portion of the original washover pipe containing the
			subadapter.
	1117	1153	Break for lunch.
	1153	1232	Weld the two pieces of the washover pipe together.
	1232	1338	Start drill rig and raise the mast. Attempt to pull out the washover
			pipe using rotation and hold-back pressure; add compressed air to
			clear cuttings, but it disappears down the hole (no circulation to
			surface). Plan to use soap and water to clear cuttings.
	1338	1444	Crew departs to get soap and water. Soap is an alcohol-based
			foaming agent used to "float" cuttings.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. LL/HAZ-14
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 7 of 7

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
2-20-96	1444	1538	Crew returns. Pump soap and water through washover pipe; pipe
(cont.)			is turning freely, borehole is clean. Begin tripping washover pipe
			out.
	1538	1554	Lead washover pipe out of the borehole. Clean up, secure site,
			and depart.
2-21-96	0844	0925	Arrive at LL/HAZ-14 site, using a dozer to get everything on site.
			Tag bottom of borehole at 71.0 ft BGS (3.9 ft of fill). Calculate a
			borehole volume to 4.0 ft BGS of 28.2 cubic ft, equivalent to
			24.0 sacks of Type I cement.
	0925	0931	Run 1.5-in. OD PVC tremie pipe into the borehole to 67.0 ft BGS.
	0931	1156	Mix and pump-tremie 24 sacks (28.3 cubic ft) of neat, Type I
			Portland cement (average grout weight of 13.2 lbs/gal) into the
			borehole. Circulate water, then 50% cement.
	1156	1205	Pull out tremie pipe. Clean up. Secure site and depart.
2-23-96	0939	0949	At LL/HAZ-14 site. Tag cement level at 6.8 ft BGS. Calculate a
			borehole volume to 4.0 ft BGS of 1.4 cubic ft, equivalent to
			1.2 sacks of Type I cement.
	0940	1018	Mix and pour 2 sacks (2.4 cubic ft) of neat, Type I Portland cement
			directly into the borehole. Depart site.
3-1-96	0819	0824	At LL/HAZ-14 site. Tag cement level at 2.2 ft BGS. Cap borehole
			with clay soil.
			P&A of well LL/HAZ-14 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. P&A 1

WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT

LOCATION: Gum Branch Road Area

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: J. Monger/E. Lyons - Highland Drilling Co.

DRILL: Ingersoll-Rand XL-750

DATE: START: 10-2-95

FINISH: 10-4-95

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
10-2-95	1334	1339	Arrive at P&A 1 site. Well consists of 6 5/8-in. outside diameter
			(OD) PVC casing (stick-up = 2.8 ft). There is no pad, nor obvious
			annular cement. Measure water level at 19.0 ft below ground
			surface (BGS). Tag bottom of well (solid) at 22.0 ft BGS.
			Background radiological scan of location: alpha = 0 cpm, beta/
			gamma = 40-50 cpm.
	1339	1420	Attach a jawed clamp to the casing, and, using a backhoe,
			attempt to pull the casing out; the casing begins to come out
			easily, then holds fast, presumably by the casing collars at depth.
			Cut the casing off flush with the ground surface. Recover 6.0 ft of
			6 5/8-in. OD, schedule 80 PVC casing.
	1420	1519	Grub and level the location for the drill rig. Depart site.
10-3-95	0930	1008	Arrive at P&A 1 site. It has been raining, and the location is slick.
			Shave the wet clay off the surface of the site with the backhoe.
	1008	1045	Move drill rig onto location, and position over the well. Set up site.
	1045	1053	Attach the jawed clamp to casing, and attempt to pull out using the
			drill rig; casing comes out a short distance, then stops tight.
	1053	1057	Rig up with an 8 3/4-in. bit on a subadapter; total length = 4.3 ft,
			table height = 2.6 ft.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. P&A 1
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
10-3-95	1057	1119	Commence drilling up the casing/reaming the wellbore using
(cont.)			compressed air only. Drill/ream from 0.0 ft to 23.7 ft BGS. Top of
			weathered rock at 4.0 ft BGS. Cuttings from 0.0 ft to 4.0 ft BGS are
			pale brown (5YR 5/2) to light brown (5YR 6/4), moist clay with
			weathered shale fragments. Breathing zone analysis (BZA) at
			4.3 ft BGS = 0.0 ppm. Encounter moisture at 11.3 ft BGS. BZA at
			13.7 ft BGS = 0.0 ppm. Water at 18.7 ft BGS. BZA at 19.7 ft BGS
			= 0.0 ppm. Fresh rock at 22.0 ft BGS (bottom of wellbore). Cuttings
			from 4.0 ft to 22.0 ft BGS are light olive brown (5Y 5/6) to dark
			yellowish-orange (10YR 6/6) and moderate brown (5YR 3/4) to
			light olive gray (5Y 5/2), thinly laminated, weathered shale; PVC
			fragments; and "pea" gravel (filter pack). Cuttings from 22.0 ft to
			23.7 ft BGS consist of very dusky red-purple (5RP 2/2) and dark
			greenish-gray (5GY 4/1), thinly laminated shale; brownish-black
			(5YR 2/1), massive biomicrite with sparite blebs; PVC; and pea
			gravel.
	1119	1137	At 23.7 ft BGS. Clean out borehole. Trip out tools. Tag bottom of
			borehole at 22.9 ft BGS (0.8 ft of fill). Calculate a borehole volume
			to 4.0 ft BGS of 7.9 cubic ft, equivalent to 6.7 sacks of Type I
			cement.
	1137	1206	Break for lunch.
	1206	1251	Crew departs for grouting supplies and equipment. Oversight
			departs for a new beta/gamma meter.
	1251	1339	All return. Mix and pour 8 sacks (9.4 cubic ft) of neat, Type I
			Portland cement (grout weight not measured, no scales available)
			directly into the borehole. Liquid grout fills the borehole to 1.0 ft
			BGS.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. P&A 1
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 3 of 3

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
10-3-95	1339	1450	Move drill rig off location; it becomes stuck in soft mud. Crew
(cont.)			awaiting a dozer. Oversight departs.
10-4-95	0854	0908	At P&A 1 site. Tag cement level at 2.0 ft BGS. Cap remaining
			borehole with clay soil.
			P&A of P&A 1 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. P&A 2
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 2

LOCATION: Gum Branch Road Area

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: R. Phillips/E. Lyons - Highland Drilling Co.

DRILL: Ingersoll-Rand XL-750

DATE: START: 10-4-95

FINISH: 10-9-95

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
10-4-95	0958	1023	Arrive at P&A 2 site. Well consists of 6 5/8-in. outside diameter
			(OD) PVC casing (stickup = 2.2 ft). Measure water level at 13.1
			ft below ground surface (BGS). Tag bottom of well (solid) at 23.9
			ft BGS. Cut off 2.0 ft of the casing stickup.
	1023	1105	Move drill rig onto location, and position over the well. Set up site.
			Background radiological scan of location: beta/gamma = 50 cpm
			(no alpha measurement made: wet ground). Raise the mast.
	1105	1109	Wrap a canvas strap around the casing, around a connector that
			is located just below the ground surface, and attempt to pull out:
			casing comes out approximately 0.5 ft, then holds fast.
	1109	1113	Rig up with an 8 3/4-in. diameter tricone bit on a subadapter; total
			length = 4.3 ft, table height = 1.9 ft.
	1113	1205	Break for lunch.
	1205	1222	Commence drilling up the PVC casing/screen and reaming
			wellbore using compressed air only. Drill/ream from 0.0 ft to
			25.4 ft BGS. Top of weathered rock at 4.4 ft BGS. Cuttings from
			0.0 ft to 4.4 ft BGS are: grayish-brown (5YR 3/2) to dark yellowish-
			brown (10YR 4/2), moist, clayey topsoil with "pea" gravel and
			PVC fragments. Breathing zone analysis (BZA) at 6.4 ft BGS =
			0.0 ppm. Top of fresh rock at 11.0 ft BGS. Cuttings from 4.4 ft to
			11.0 ft BGS consist of dark yellowish-brown (10YR 4/2) to

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. P&A 2
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 2

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
10-4-95			moderate brown (5YR 4/4), thinly laminated, weathered shale
(cont.)			and thinly bedded siltstone. The pea gravel and PVC fragments
			continue in this interval. Encounter water at 11.4 ft BGS. BZA at
			15.4 ft and 20.4 ft BGS read 0.2 ppm and 0.1 ppm, respectively.
			Cuttings from 11.0 ft to 25.4 ft BGS are: blackish-red (5R 2/2),
			thinly laminated shale; greenish-black (5R 2/2), thinly laminated
			shale; greenish-black (5GY 2/1), bedded and banded, sandy
			siltstone; pea gravel; and PVC fragments. Beta/gamma scan of
			cuttings range 50-60 cpm for the entire interval.
	1222	1248	At 25.4 ft BGS. Clean out borehole. Trip out tools. Tag bottom
			of the borehole at 23.3 ft BGS (2.1 ft of fill). Calculate a borehole
			volume to 4.0 ft BGS of 8.1 cubic ft, equivalent to 6.9 sacks of
			Type I cement. Lower mast.
	1248	1314	Move drill rig away from borehole, and prepare to grout borehole.
	1314	1345	Mix and pour 9 sacks (10.5 cubic ft) of neat, Type I Portland
			cement (grout weight = 15.0 lbs/gal) directly into the borehole.
			Liquid cement fills the borehole to 2.0 ft BGS.
	1345	1350	Clean up. Move drill rig to pipeyard. Depart.
10-9-95	0900	0915	At P&A 2 site. Tag cement level at 3.0 ft BGS. Cap remaining
			borehole with clay soil.
			P&A of well P&A 2 is complete.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. P&A 3
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT	PAGE 1 of 2

LOCATION: Gum Branch Road Area/Haul Road

DRILLER: H. Hall - Highland Drilling Co.

HELPERS: E. Lyons/J. Monger - Highland Drilling Co.

DRILL: Ingersoll-Rand XL-750

DATE: START: 10-6-95

FINISH: 10-11-95

METHOD: C

LOGGED BY: Timothy Coffey - SAIC

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
10-6-95	0850	0919	Arrive at P&A 3 site. Using dozer to prepare the site for the drill rig. Well consists of 6 5/8-in. outside diameter (OD) PVC casing (stickup = 2.8 ft). Measure water level at 24.4 ft below ground surface (BGS). Tag bottom of well (solid) at 35.8 ft BGS. Cut 2.8 ft off of casing stickup.
	0919	0947	Move drill rig onto location, and position over the well. Set up site. Background radiological scan of location: alpha = 0 cpm, beta/gamma = 60-70 cpm.
	0947	1014	Raise the mast. Rig up with an 8 3/4-in. diameter bit on a subadapter; total length = 4.3, table height = 2.4 ft.
	1014	1033	Commence drilling up PVC casing/reaming wellbore using compressed air only. Drill/ream from 0.0 ft to 36.9 ft BGS. Top of weathered rock at 1.2 ft BGS. Cuttings from 0.0 ft to 1.2 ft BGS are light brown (5YR 5/6) and moderate brown (5YR 4/4), moist, silty clay with dark yellowish-orange (10YR 6/6), weathered shale fragments; and PVC fragments. Breathing zone analysis (BZA) at 4.3 ft BGS = 0.0 ppm. Slight moisture at 8.3 ft BGS. BZA at 13.9 ft BGS = 0.0 ppm. Encounter water at 22.9 ft BGS. BZA at 24.9 ft and 30.9 ft BGS both read 0.0 ppm. Cuttings from 1.2 ft to 36.9 ft BGS consist primarily of light olive gray (5Y 5/2), thinly laminated, weathered shale with white (N9) PVC fragments. From 17.9 ft to end of interval, cuttings include quartz and

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM	WELL NO. P&A 3
WELL PLUGGING AND ABANDONMENT ACTIVITY/PROGRESS REPORT - continued	PAGE 2 of 2

DATE	TIME		ACTIVITY/COMMENTS
	START	FINISH	
10-6-95			feldspathic "pea" gravel (filter pack). Beta/gamma scan of cuttings
(cont.)			measure 50 cpm for the entire interval.
	1033	1101	At 36.9 ft BGS. Clean out borehole. Trip out tools. Tag bottom
			of borehole at 31.8 ft BGS (5.1 ft BGS of fill). Calculate a borehole
			volume to 4.0 ft BGS of 11.7 cubic ft, equivalent to 9.9 sacks of
			Type I cement. Secure rods in carousel. Lower mast.
	1101	1227	Crew departs to get cement and grouting equipment. Break for
			lunch.
	1227	1308	Technical oversight by S.L. Abston (SAIC). Mix and pour 9 sacks
			(10.6 cubic ft) of neat, Type I cement directly into the borehole.
			Liquid cement fills the borehole to the ground surface.
	1308	1400	Clean up. Move drill rig to pipeyard. Depart site.
10-10-95	0900	1000	At P&A 3 site. Tag cement level at 10.0 ft BGS. Mix and pour
			3 sacks (3.5 cubic ft) of neat, Type I Portland cement into
			borehole. Depart.
10-11-95	0900	0915	At P&A 3 site. Tag cement level at 2.0 ft BGS. Cap remaining
			borehole with clay soil.
			P&A of well P&A 3 is complete.

APPENDIX B
PLUGGING AND ABANDONMENT DIAGRAMS

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. 1004

LOCATION: S3 Ponds

COORDINATES: N29732 E50456

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 9-5-95

FINISH: 9-7-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company DRILL: Ingersoll-Rand XL-750

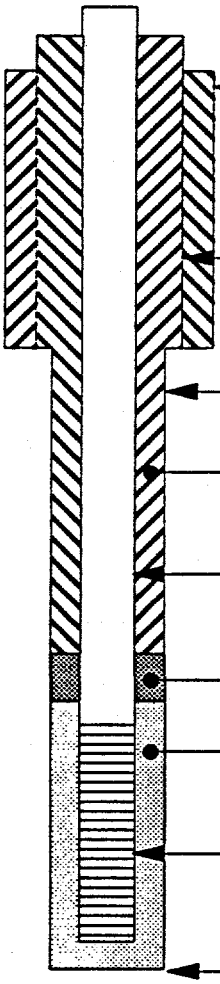
DRILLER: H. Hall HELPERS: R. Phillips/J. Gallaher

REASON FOR P&A: Obsolete well/substandard construction.

P&A METHOD: C DEVIATIONS FROM METHOD: Drill up casing/screen while reaming wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

Note: Some information in this section obtained from field observations.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: 8.0 in. TOP 0.0 ft BOTTOM 29.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: PVC/#40 DIA: 6.5-in. OD TOP +2.4 ft BOTTOM 19.0 ft

SEAL: -NA- TOP -NA- BOTTOM -NA-

FILTER PACK: Sand TOP 5.5 ft BOTTOM 29.0 ft

SCREEN TYPE: PVC/sl DIA: 6.5-in. OD TOP 19.0 ft BOTTOM 29.0 ft

TOTAL DEPTH: 29.0

*Information source: Subsurface Data Base (Y/TS-881/R2)
-NA-: Not Applicable/Not Available

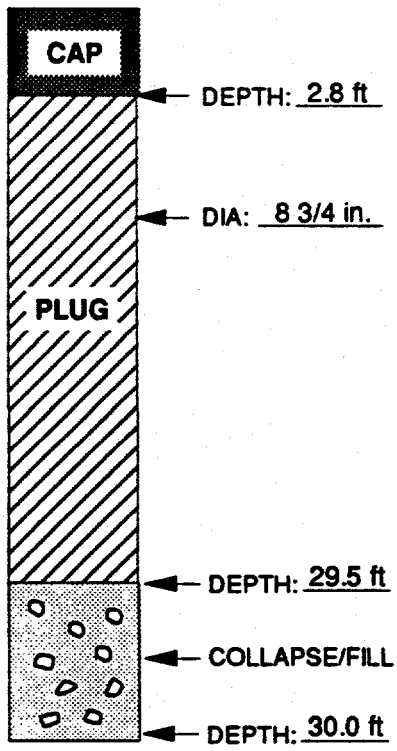
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 30.0 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. 1095

LOCATION: Sediment Disposal Basin

COORDINATES: N28088, E63601

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 2-28-96

FINISH: 3-5-96

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company DRILL: Ingersoll-Rand T4W

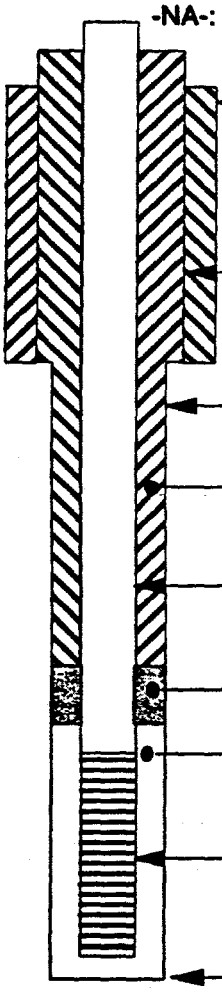
DRILLER: R. Phillips HELPER: H. Hall

REASON FOR P&A: Obsolete well/substandard construction.

P&A: METHOD: C DEVIATIONS FROM METHOD: Drill up casing while reaming wellbore in one pass; did not ream to 1 ft beyond TD; use of bentonite in plug, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

*Information source: Subsurface Data Base (Y/TS-881/R3).
-NA-: Not Applicable/Not Available.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: 8 in. TOP 0.0 ft BOTTOM 118.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: PVC/#40 DIA: 6.5-in. OD TOP +2.1 ft BOTTOM 108.0 ft

SEAL: -NA- TOP -NA- BOTTOM -NA-

FILTER PACK: -NA- TOP 117.0 ft BOTTOM 118.0 ft

SCREEN TYPE: PVC/sl. DIA: 6.5-in. OD TOP 108.0 ft BOTTOM 118.0 ft

TOTAL DEPTH: 118.0 ft

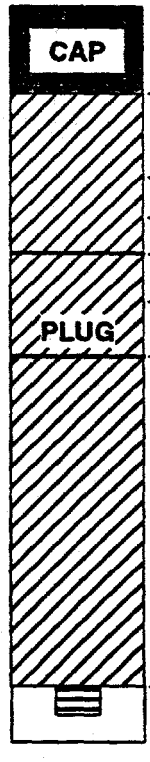
P&A SUMMARY

REAMED DIA: 8 1/2 in.

DRILLED/REAMED DEPTH: 117.0 ft

PLUG MATERIAL: Cement/ bentonite

CAP MATERIAL: Clay soil



DEPTH: 3.7 ft.

DIA: 8 1/2 in.

CEMENT

DEPTH: 26.0 ft

BENTONITE

DEPTH: 40.6 ft

Note: Cuttings left in borehole formed partial obstruction. Grout taken into cavities ended up at unknown depth.

DEPTH: 117.0 ft

DEPTH: 119.5 ft

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. 1096

LOCATION: Sediment Disposal Basin

COORDINATES: N 27430 E 63553

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 2-27-96

FINISH: 3-4-96

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand T4W

DRILLER: R. Phillips

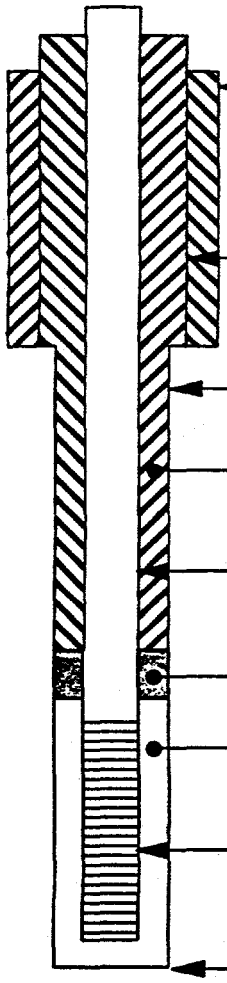
HELPERS: H. Hall

REASON FOR P&A: Obsolete well/substandard construction.

P&A METHOD: C

DEVIATIONS FROM METHOD: Drill up casing while reaming wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: 8 in. TOP 0.0 ft BOTTOM 68.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: PVC/#40 DIA: 6.5-in. OD TOP +1.8 ft BOTTOM 58.0 ft

SEAL: -NA- TOP -NA- BOTTOM 57.0 ft

FILTER PACK: -NA- TOP 57.0 ft BOTTOM 68.0 ft

SCREEN TYPE: PVC/sl. DIA: 6.5-in. OD TOP 58.0 ft BOTTOM 68.0 ft

TOTAL DEPTH: 68.0 ft

*Information Source: Subsurface Data Base (Y/TS-881/R3)

-NA-: Not Applicable/Not Available

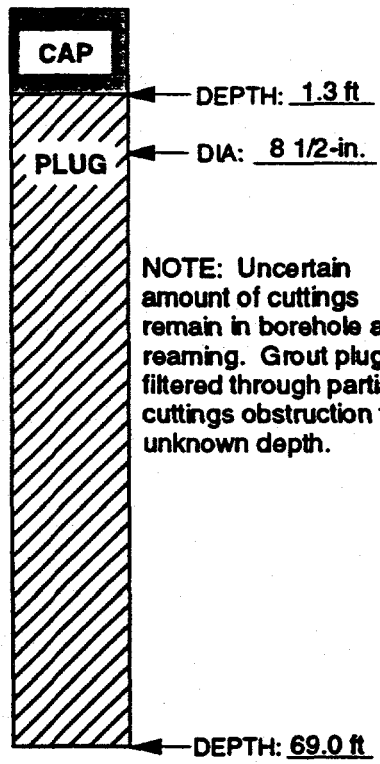
P&A SUMMARY

REAMED DIA: 8 1/2 in.

DRILLED/REAMED DEPTH: 69.0 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



NOTE: Uncertain amount of cuttings remain in borehole after reaming. Grout plug filtered through partial cuttings obstruction to unknown depth.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. 56-4C

LOCATION: Y-12 Plant Area

COORDINATES: N29815, E56804

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 1-24-96

FINISH: 1-25-96

PREPARED BY: Timothy Coffey - SAIC

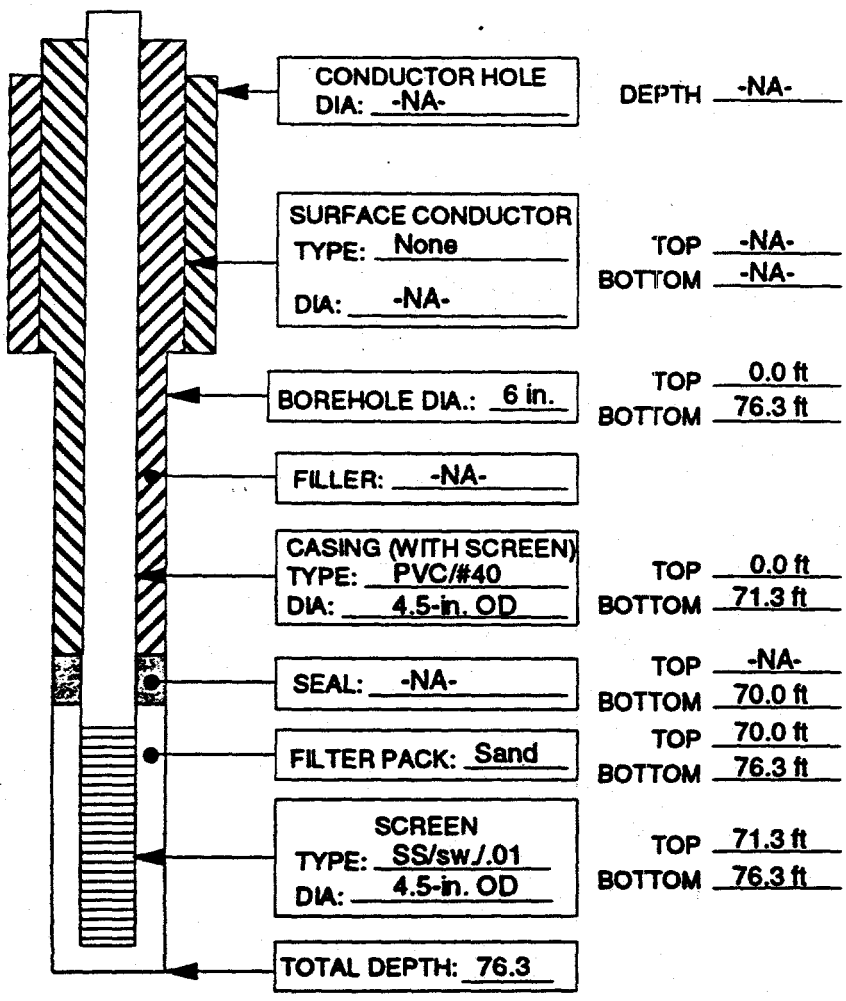
DRILLING COMPANY: Highland Drilling Company DRILL: NA

FOREMAN: H. Hall HELPER: G. Shillings

REASON FOR P&A: Damaged wellhead

P&A METHOD: C DEVIATIONS FROM METHOD: Well plugged in place: Use bentonite as plug, cap with cement to ground surface with HSEA approval.

WELL CONSTRUCTION SUMMARY*



*Information Source: Subsurface Data Base (Y/TS-881/R3)
-NA-: Not Applicable/Not Available

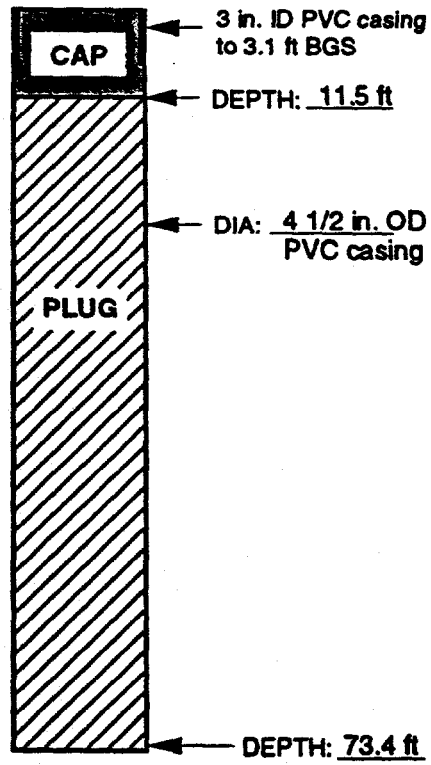
P&A SUMMARY

REAMED DIA: NA

DRILLED/REAMED DEPTH: NA

PLUG MATERIAL: Bentonite

CAP MATERIAL: Cement



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. B-1

LOCATION: Urea Pile

COORDINATES: N28499 E61702

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 9-22-95

FINISH: 9-22-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand T4W

DRILLER: H. Hall

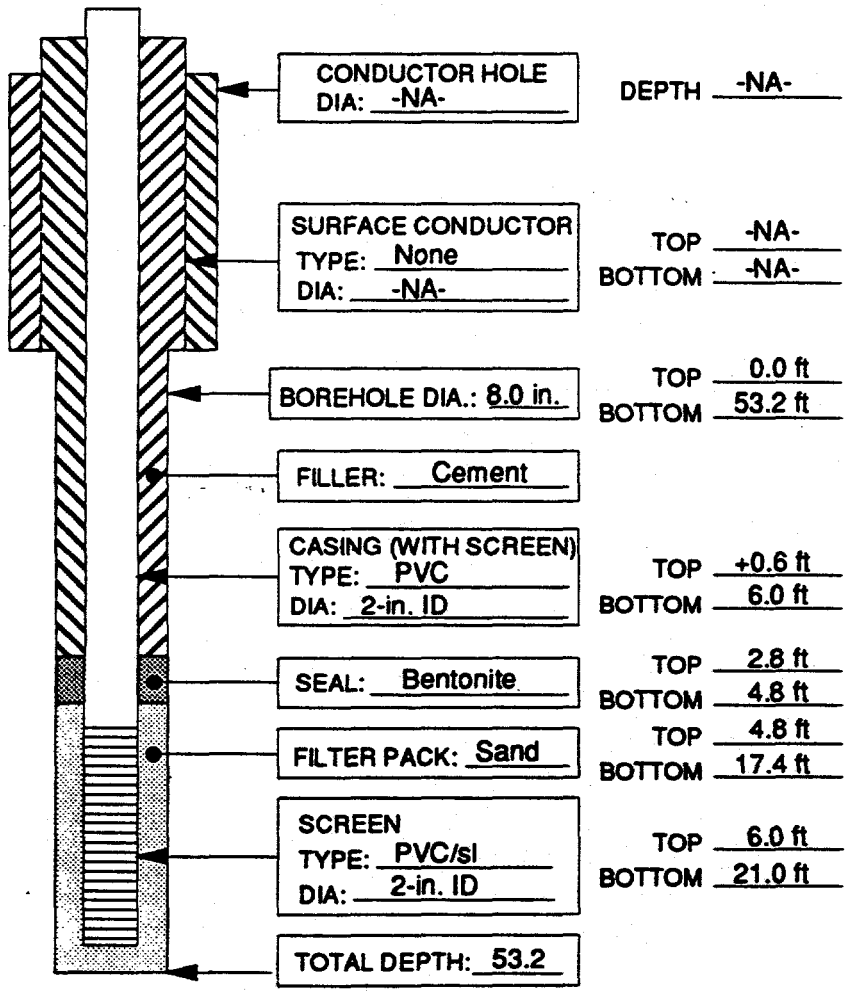
HELPERS: R. Phillips/G. Shillings/J. Gallaher

REASON FOR P&A: Obsolete well/substandard construction

P&A METHOD: C

DEVIATIONS FROM METHOD: Drill up PVC casing/screen while reaming wellbore in one pass; cement to ground surface, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



*Information source: Original boring/well installation log.
-NA-: Not Applicable/Not Available

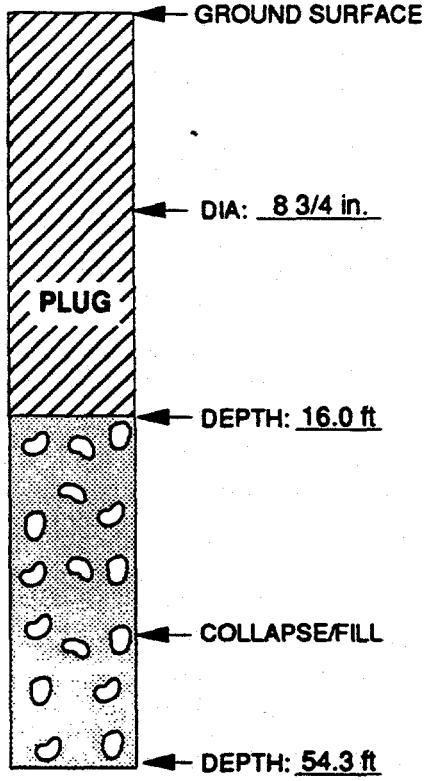
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 54.3 ft

PLUG MATERIAL: Cement

CAP MATERIAL: -NA-



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. B-3

LOCATION: Urea Pile (East Chestnut Ridge)

COORDINATES: N28519 E61760

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 9-21-95

FINISH: 9-22-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand T4W

DRILLER: H. Hall

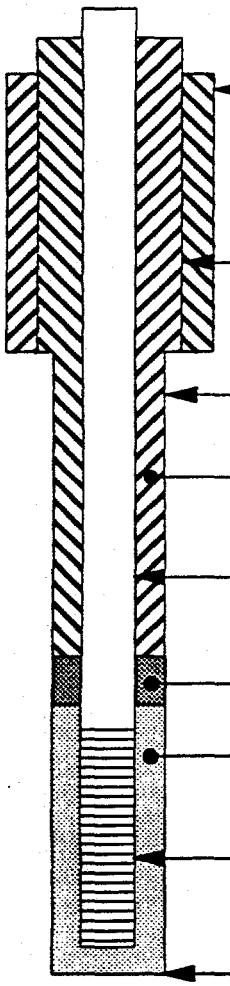
HELPERS: R. Phillips/G. Shillings/J. Gallaher

REASON FOR P&A: Obsolete well/substandard construction

P&A METHOD: C

DEVIATIONS FROM METHOD: Drill up PVC casing/screen while reaming wellbore in one pass; grout to ground surface, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: 8.0 in. TOP 0.0 ft BOTTOM 36.1 ft

FILLER: Cement TOP +1.9 ft BOTTOM 7.8 ft

CASING (WITH SCREEN) TYPE: PVC DIA: 2-in. ID TOP 17.8 ft BOTTOM 36.1 ft

SEAL: Bentonite TOP 5.0 ft BOTTOM 7.0 ft

FILTER PACK: Sand TOP 7.0 ft BOTTOM 18.2 ft

SCREEN TYPE: PVC/sl DIA: 2-in. ID TOP 7.8 ft BOTTOM 17.8 ft

TOTAL DEPTH: 36.1

*Information source: Original boring/well installation log.
-NA-: Not Applicable/Not Available

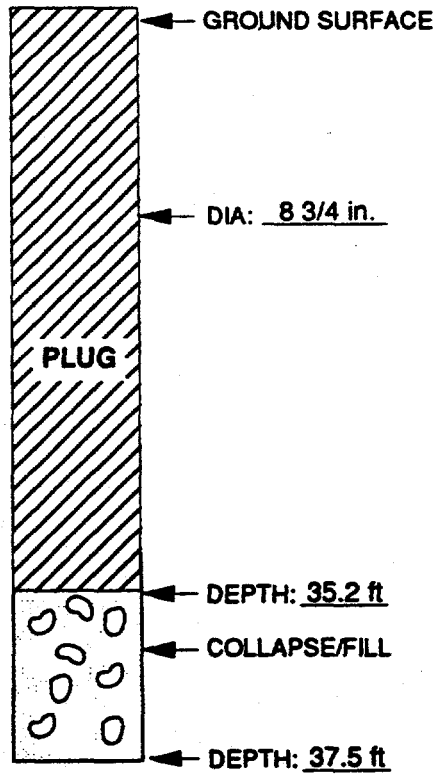
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 37.5 ft

PLUG MATERIAL: Cement

CAP MATERIAL: -NA-



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-002

LOCATION: Oil Landfarm

COORDINATES: N30294, E47547

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 9-28-95

FINISH: 10-2-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand XL-750

DRILLER: H. Hall

HELPERS: J. Gallaher/J. Monger

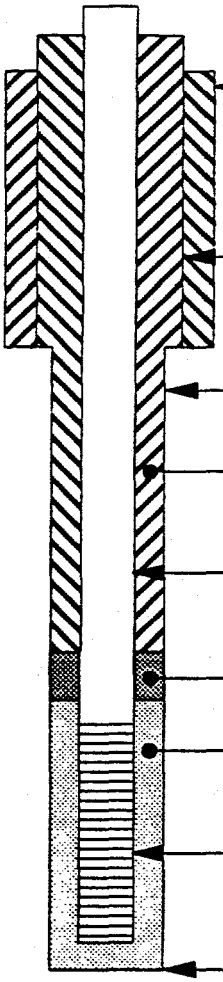
REASON FOR P&A: Damaged well

P&A METHOD: A

DEVIATIONS FROM METHOD: None.

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtained from field observations.



CONDUCTOR HOLE
DIA: -NA-
DEPTH -NA-

SURFACE CONDUCTOR
TYPE: Steel
DIA: 5 1/2-in. OD/ 6 5/8-in. OD
TOP +3.1/1.9
BOTTOM 1.9/NA

BOREHOLE DIA.: NA
TOP 0.0 ft
BOTTOM 60.0 ft

FILLER: Cement

CASING (WITH SCREEN)
TYPE: SS/#304
DIA: 2 3/8-in. OD
TOP +3.4 ft
BOTTOM 52.7 ft

SEAL: -NA-
TOP -NA-
BOTTOM 40.3 ft

FILTER PACK: Sand
TOP 40.3 ft
BOTTOM 60.0 ft

SCREEN
TYPE: SS/SW./.01
DIA: 2 3/8-in. OD
TOP 52.7 ft
BOTTOM 57.7 ft

TOTAL DEPTH: 60.0

*Information Source: Subsurface Data Base (Y/TS-881/R3)
-NA-: Not Applicable/Not Available

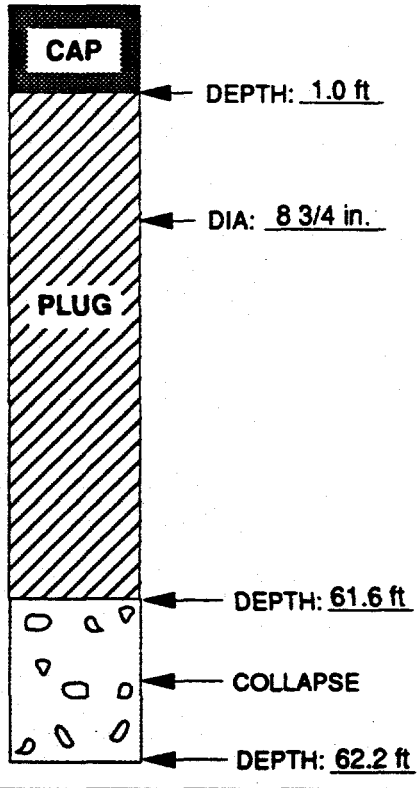
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 62.2 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-007

LOCATION: Oil Landfarm

COORDINATES: N29810 E47981

REFERENCE POINT FOR MEASUREMENTS: Present Ground Surface

DATE: START: 9-19-95

FINISH: 9-21-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand T4W

DRILLER: H. Hall

HELPERS: R. Phillips/J. Gallaher

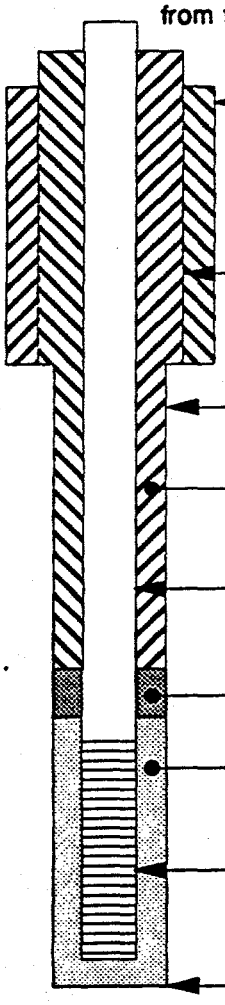
REASON FOR P&A: Obsolete well/substandard construction

P&A METHOD: A

DEVIATIONS FROM METHOD: Did not ream wellbore to fresh material to 1 ft beyond TD, with HSEA approval

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtained from field observations.



- CONDUCTOR HOLE DIA: -NA- — DEPTH -NA-
- SURFACE CONDUCTOR TYPE: Steel, DIA: 6 5/8-in. OD — TOP 1.0 ft, BOTTOM 5.1 ft
- BOREHOLE DIA.: 6.0 in. — TOP 0.0 ft, BOTTOM 16.5 ft
- FILLER: Cement
- CASING (WITH SCREEN) TYPE: SS/#304, DIA: 2.37-in. OD — TOP 0.5 ft, BOTTOM 12.3 ft
- SEAL: -NA- — TOP -NA-, BOTTOM -NA-
- FILTER PACK: Sand — TOP 8.7 ft, BOTTOM 16.5 ft
- SCREEN TYPE: SS/SW./.01, DIA: 2.37-in. OD — TOP 12.3 ft, BOTTOM 14.3 ft
- TOTAL DEPTH: 16.5

*Information Source: Subsurface Data Base (Y/TS-881/R2)
-NA-: Not Applicable/Not Available

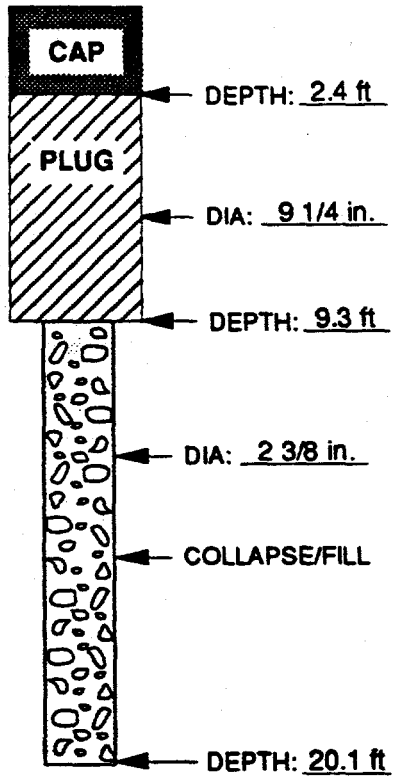
P&A SUMMARY

REAMED DIA: 9-1/4 in.

DRILLED/REAMED DEPTH: 9.3 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil/cuttings



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-295

LOCATION: Chestnut Ridge Waste Pile

COORDINATES: N27802 E62184

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 6-22-95

FINISH: 9-20-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand T4W

DRILLERS: R. Phillips/H. Hall

HELPERS: Jim Gallaher/Jerry Gallaher/G. Shillings/R. Jones

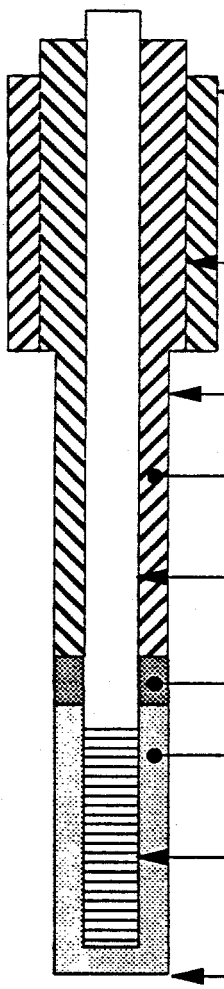
REASON FOR P&A: Well is dry for the majority of the year.

P&A METHOD: A

DEVIATIONS FROM METHOD: See activity log.

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtianed from field observations.



CONDUCTOR HOLE DIA: -NA-
DEPTH 123.0 ft

SURFACE CONDUCTOR
TYPE: Steel
DIA: 10 3/4-in. OD
TOP +0.4 ft
BOTTOM 123.0 ft

BOREHOLE DIA.: 10 in.
TOP 123.0 ft
BOTTOM 146.0 ft

FILLER: Cement

CASING (WITH SCREEN)
TYPE: SS/#304
DIA: 4.5-in. OD
TOP +2.3 ft
BOTTOM 135.9 ft

SEAL: Bentonite
TOP -NA-
BOTTOM 130.4 ft

FILTER PACK: Sand
TOP 130.4 ft
BOTTOM 146.0 ft

SCREEN
TYPE: SS/sw/.01
DIA: 4.5-in. OD
TOP 135.9 ft
BOTTOM 146.0 ft

TOTAL DEPTH: 146.0

*Information source: Subsurface Data Base (Y/TS-881/R3)
-NA-: Not Applicable/Not Available

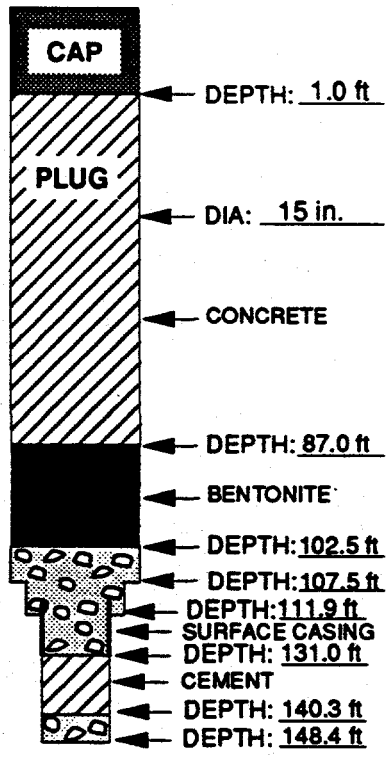
P&A SUMMARY

REAMED DIA: 9 7/8 in./13 3/4 in./15 in.

DRILLED/REAMED DEPTH: 148.4 ft/111.9 ft/107.5 ft

PLUG MATERIAL: Cement/Concrete

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-297

LOCATION: Chestnut Ridge Waste Pile

COORDINATES: N27885 E62057

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 8-4-95

FINISH: 8-25-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand XL-750

DRILLERS: R. Phillips/H. Hall

HELPERS: J. Gallaher/J. Monger

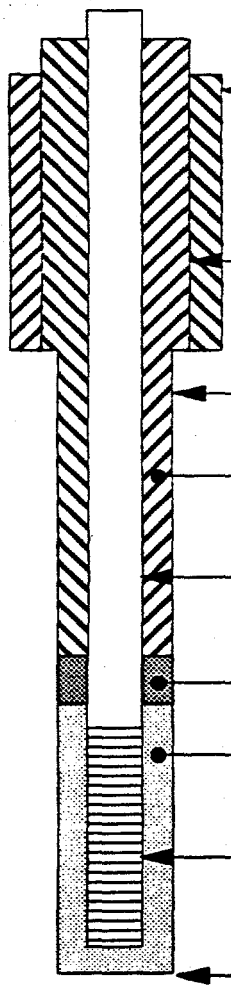
REASON FOR P&A: Well was dry.

P&A METHOD: A

DEVIATIONS FROM METHOD: Unable to ream to 1 ft beyond surface casing set-point due to borehole collapse risk; use of bentonite as plug material, and pouring of cement (no tremie), with HSEA approval.

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtained from field observations.



CONDUCTOR HOLE
DIA: -NA-
DEPTH -NA-

SURFACE CONDUCTOR
TYPE: Steel
DIA: 10 3/4-in. OD
TOP +0.5 ft
BOTTOM 105.6 ft

BOREHOLE DIA.: 10.0 in
TOP 105.6 ft
BOTTOM 120.0 ft

FILLER: Cement

CASING (WITH SCREEN)
TYPE: SS/#304
DIA: 4.5-in. OD
TOP +2.2 ft
BOTTOM 109.8 ft

SEAL: Bentonite
TOP 101.0 ft
BOTTOM 107.0 ft

FILTER PACK: Sand
TOP 107.0 ft
BOTTOM 120.0 ft

SCREEN
TYPE: SS/SW/.01
DIA: 4.5-in. OD
TOP 109.8 ft
BOTTOM 120.0 ft

TOTAL DEPTH: 120.0

*Information source: Subsurface Data Base (Y/TS-881/R2)
-NA-: Not Applicable/Not Available

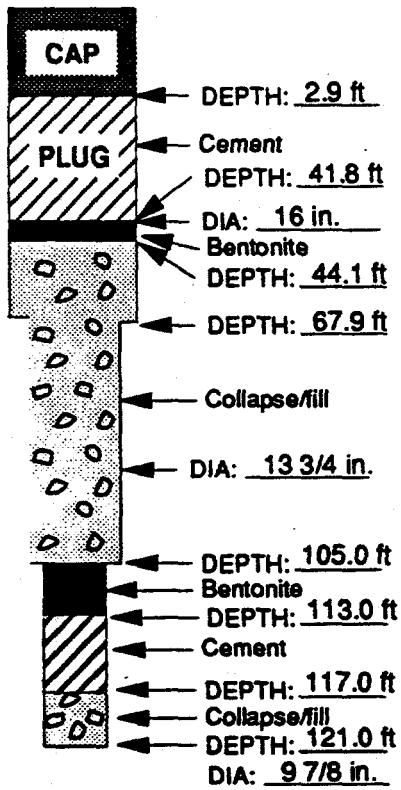
P&A SUMMARY

REAMED DIA: 9 7/8 in./16 in.

DRILLED/REAMED DEPTH: 121.0 ft/67.9 ft

PLUG MATERIAL: Cement/ bentonite

CAP MATERIAL: Bentonite/ Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-320

LOCATION: Ash Disposal Basin

COORDINATES: N26253.0 E 57084.0

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 7-16-96

FINISH: 7-18-96

PREPARED BY: Timothy Coffey - SAIC

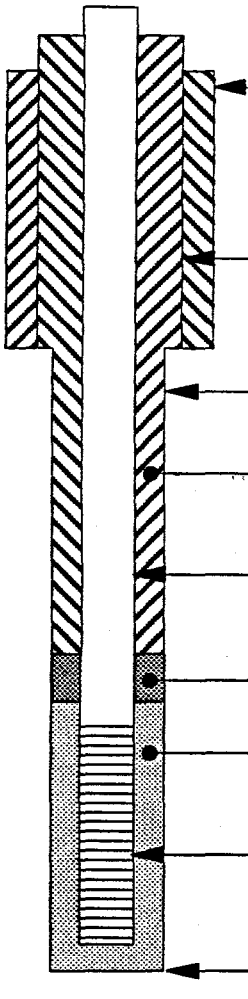
DRILLING COMPANY: Highland Drilling Company DRILL: NA

FOREMAN: G. Shillings HELPERS: D. Williford, H. Hall, J. Gallaher

REASON FOR P&A: Obstructing a construction project.

P&A METHOD: A DEVIATIONS FROM METHOD: Plug well in place; cut off casing stick-up flush with ground surface, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



CONDUCTOR HOLE DIA: NA — DEPTH NA

SURFACE CONDUCTOR TYPE: None DIA: NA — TOP NA, BOTTOM NA

BOREHOLE DIA.: 8 in. — TOP 0.0 ft, BOTTOM 200.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: SS/#304 DIA: 4 1/2-in. OD — TOP +2.9 ft, BOTTOM 100.0 ft

SEAL: Bentonite — TOP NA, BOTTOM 97.5 ft

FILTER PACK: Sand — TOP 97.5 ft, BOTTOM 115.0 ft

SCREEN TYPE: SS/sw/.01 DIA: 4 1/2-in. OD — TOP 100.0 ft, BOTTOM 110.0 ft

TOTAL DEPTH: 200.0 ft

*Information Source: Subsurface Data Base (Y/TS-881/R3)

-NA-: Not Applicable/Not Available

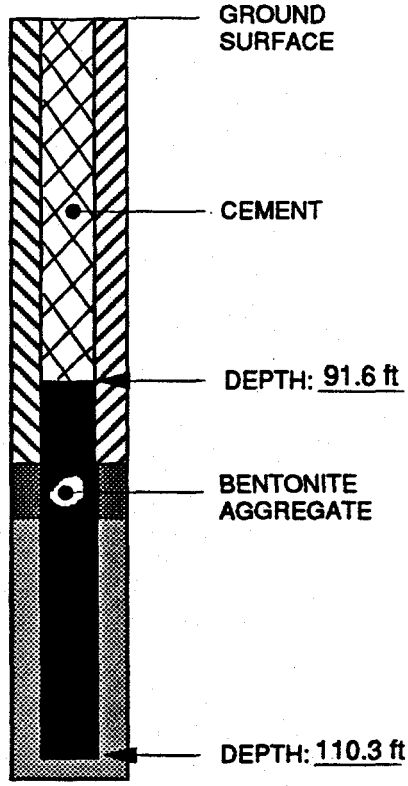
P&A SUMMARY

REAMED DIA: NA

DRILLED/REAMED DEPTH: NA

PLUG MATERIAL: Bentonite aggregate/ cement

CAP MATERIAL: NA



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-321

LOCATION: Ash Disposal Basin

COORDINATES: N26275.0 E 57026.0

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 7-16-96

FINISH: 7-18-96

PREPARED BY: Timothy Coffey - SAIC

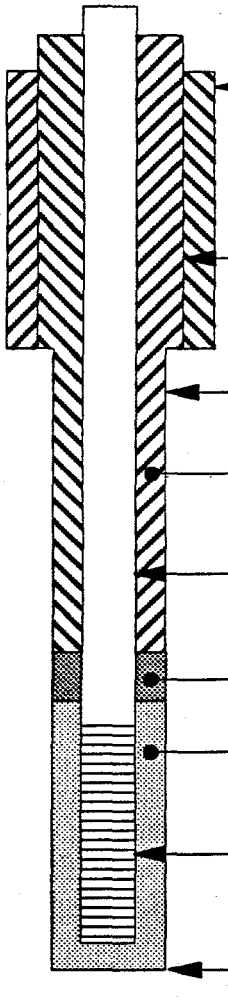
DRILLING COMPANY: Highland Drilling Company DRILL: NA

FOREMAN: G. Shillings HELPERS: D. Williford, H. Hall, J. Gallaher

REASON FOR P&A: Obstructing a construction project.

P&A METHOD: A DEVIATIONS FROM METHOD: Plug well in place; cut off casing stick-up flush with ground surface, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



CONDUCTOR HOLE DIA: NA — DEPTH NA

SURFACE CONDUCTOR TYPE: None DIA: NA — TOP NA, BOTTOM NA

BOREHOLE DIA.: 8 in. — TOP 0.0 ft, BOTTOM 98.6 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: SS/#304 DIA: 4 1/2-in. OD — TOP +2.5 ft, BOTTOM 87.3 ft

SEAL: Bentonite — TOP NA, BOTTOM 84.0 ft

FILTER PACK: Sand — TOP 84.0 ft, BOTTOM 98.6 ft

SCREEN TYPE: SS/sw/.01 DIA: 4 1/2-in. OD — TOP 87.3 ft, BOTTOM 98.0 ft

TOTAL DEPTH: 98.6 ft

*Information Source: Subsurface Data Base (Y/TS-881/R3)

-NA-: Not Applicable/Not Available

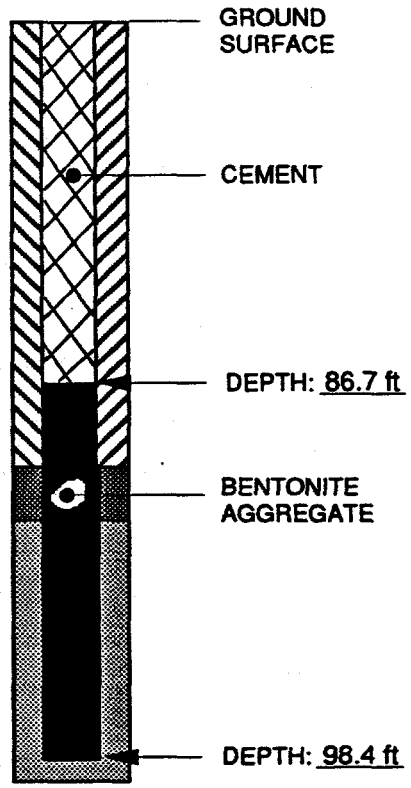
P&A SUMMARY

REAMED DIA: NA

DRILLED/REAMED DEPTH: NA

PLUG MATERIAL: Bentonite aggregate/ cement

CAP MATERIAL: NA



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-448

LOCATION: Gum Branch Road Area

COORDINATES: N29885 E31738

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 8-28-95

FINISH: 8-30-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand XL-750

DRILLER: H. Hall

HELPERS: R. Phillips/J. Gallaher

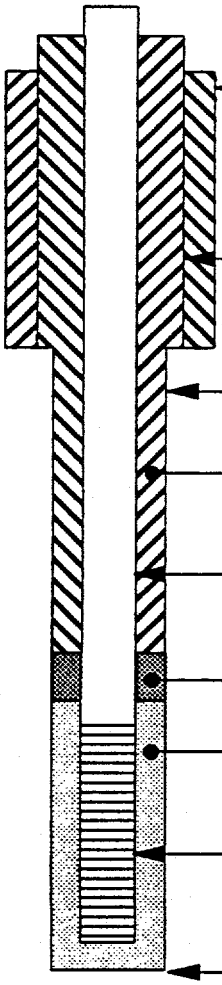
REASON FOR P&A: Obsolete well/substandard construction

P&A METHOD: C

DEVIATIONS FROM METHOD: Drill up well casing/ screen while reaming the wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtianed from field observations.



CONDUCTOR HOLE
DIA: -NA-
DEPTH -NA-

SURFACE CONDUCTOR
TYPE: Steel
DIA: 6 5/8-in. OD
TOP +1.8 ft
BOTTOM 0.5 ft

BOREHOLE DIA.: 6.13-in.
TOP 0.0 ft
BOTTOM 44.5 ft

FILLER: Cement

CASING (WITH SCREEN)
TYPE: PVC/#40
DIA: 2.37-in. OD
TOP +1.6 ft
BOTTOM 34.2 ft

SEAL: -NA-
TOP -NA-
BOTTOM -NA-

FILTER PACK: Sand
TOP 31.0 ft
BOTTOM 44.3 ft

SCREEN
TYPE: PVC/sl./.01
DIA: 2.37-in. OD
TOP 34.2 ft
BOTTOM 44.3 ft

TOTAL DEPTH: 44.5

*Information source: Subsurface Data Base (Y/TS-881/R2)
-NA-: Not Applicable/Not Available

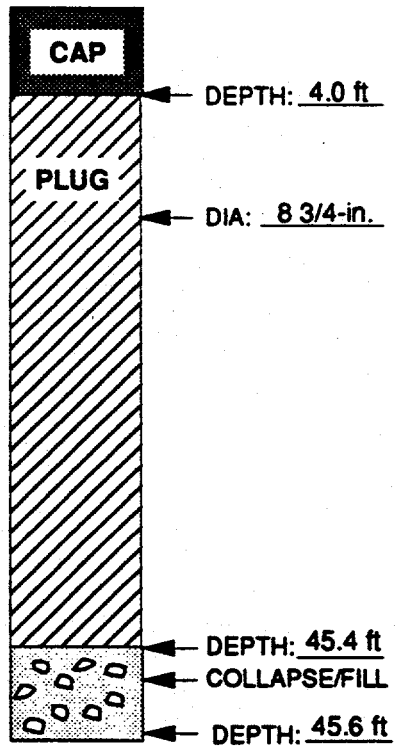
P&A SUMMARY

REAMED DIA: 8 3/4-in.

DRILLED/REAMED DEPTH: 45.6 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-452

LOCATION: Gum Branch Road Area

COORDINATES: N29768 E32591

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 8-28-95

FINISH: 8-29-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand XL-750

DRILLER: H. Hall

HELPERS: R. Phillips/J. Gallaher

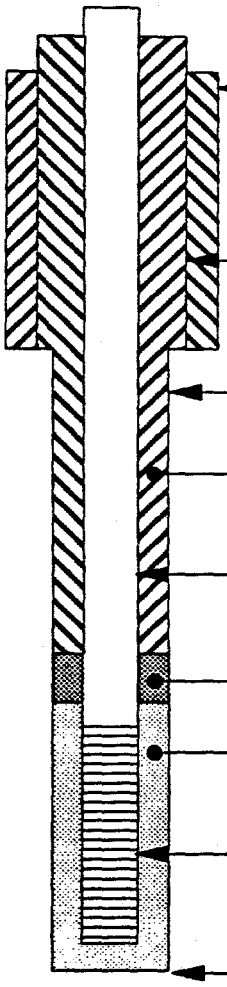
REASON FOR P&A: Obsolete well/substandard construction.

P&A METHOD: C

DEVIATIONS FROM METHOD: Drill up PVC casing / screen while reaming wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtained from field observations.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: Steel DIA: 6.5/8-in. OD TOP +2.2 ft BOTTOM 0.8 ft

BOREHOLE DIA.: 6.63 in TOP 0.0 ft BOTTOM 19.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: PVC/#40 DIA: 2.37-in. OD TOP +2.2 ft BOTTOM 8.7 ft

SEAL: -NA- TOP -NA- BOTTOM -NA-

FILTER PACK: Sand TOP 7.6 ft BOTTOM 18.6 ft

SCREEN TYPE: PVC/sl./.01 DIA: 2.37-in. OD TOP 8.7 ft BOTTOM 18.6 ft

TOTAL DEPTH: 19.0

*Information source: Subsurface Data Base (Y/TS-881/R2)
-NA-: Not Applicable/Not Available

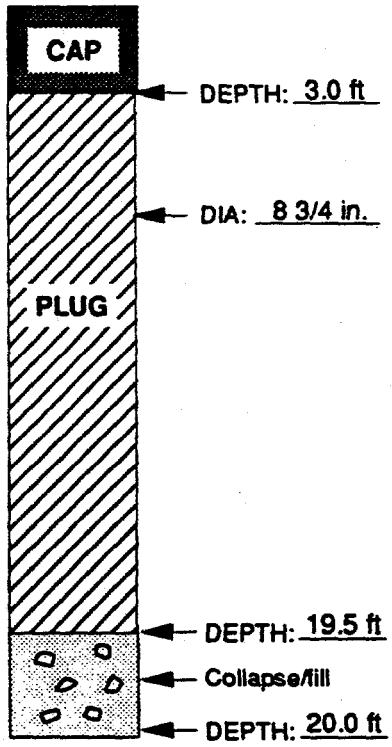
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 20.0 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-660

LOCATION: East Fork Poplar Creek

COORDINATES: N 32818.80 E 63543.11

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 4-29-96

FINISH: 4-29-96

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Altec Auger Truck

DRILLER: J. Gallaher

HELPER: G. Shillings

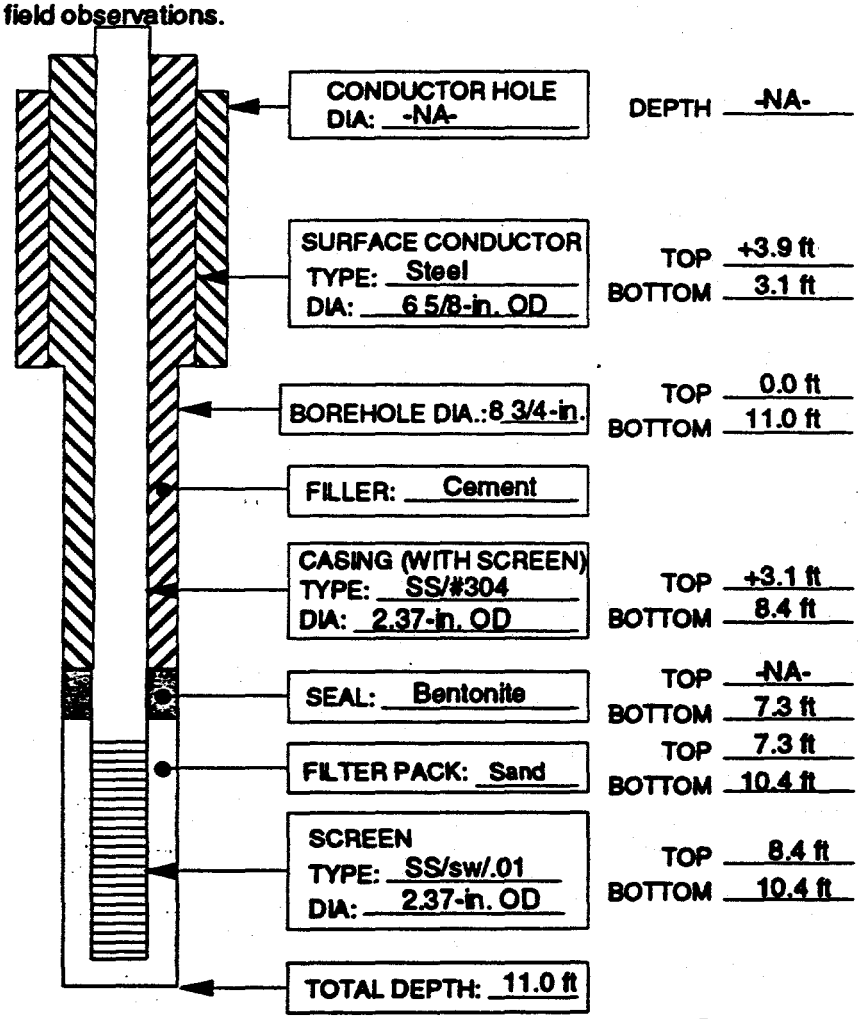
REASON FOR P&A: Obsolete well

P&A METHOD: A

DEVIATIONS FROM METHOD: Well casing over washed and wellbore reamed in one pass; use of bentonite aggregate as plug, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

NOTE: Some of the information in the following section obtained from field observations.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: Steel DIA: 6 5/8-in. OD TOP +3.9 ft BOTTOM 3.1 ft

BOREHOLE DIA.: 8 3/4-in. TOP 0.0 ft BOTTOM 11.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: SS/#304 DIA: 2.37-in. OD TOP +3.1 ft BOTTOM 8.4 ft

SEAL: Bentonite TOP -NA- BOTTOM 7.3 ft

FILTER PACK: Sand TOP 7.3 ft BOTTOM 10.4 ft

SCREEN TYPE: SS/sw/.01 DIA: 2.37-in. OD TOP 8.4 ft BOTTOM 10.4 ft

TOTAL DEPTH: 11.0 ft

*Information Source: Subsurface Data Base (Y/TS-881/R3)

-NA-: Not Applicable/Not Available

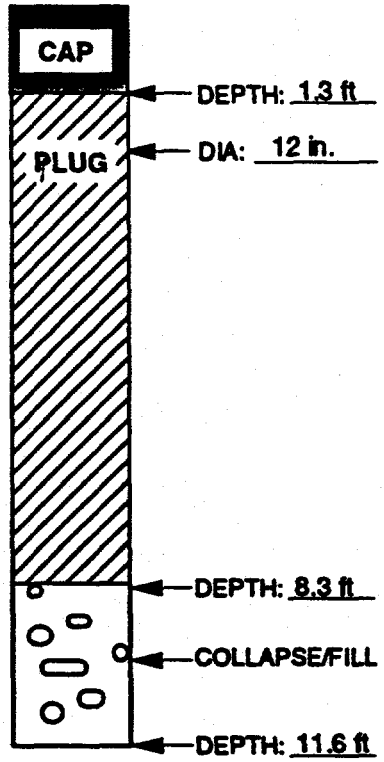
P&A SUMMARY

REAMED DIA: 12 in.

DRILLED/REAMED DEPTH: 11.6 ft

PLUG MATERIAL: Bentonite aggregate

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-669

LOCATION: East Fork Poplar Creek

COORDINATES: N 40249.42 E 50619.24

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 4-30-96

FINISH: 4-30-96

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company DRILL: Altec Auger Truck

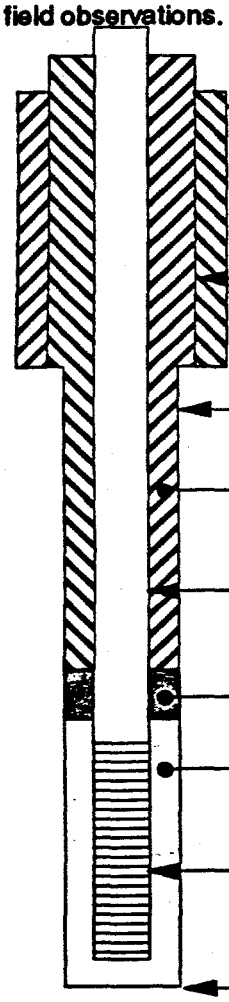
DRILLER: H. Hall HELPER: G. Shillings

REASON FOR P&A: Obsolete well

P&A METHOD: A DEVIATIONS FROM METHOD: Use of bentonite aggregate for plug, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

NOTE: Some of the information in the following section obtained from field observations.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: Steel DIA: 6 5/8-in. OD TOP +3.7 ft BOTTOM 3.1 ft

BOREHOLE DIA.: 8 3/4-in. TOP 0.0 ft BOTTOM 9.4 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: SS/#304 DIA: 2.37-in. OD TOP +3.1 ft BOTTOM 5.7 ft

SEAL: Bentonite TOP -NA- BOTTOM 4.8

FILTER PACK: Sand TOP 4.8 ft BOTTOM 6.8 ft

SCREEN TYPE: SS/sw/.01 DIA: 2.37-in. OD TOP 5.7 ft BOTTOM 6.7 ft

TOTAL DEPTH: 9.4 ft

*Information Source: Subsurface Data Base (Y/TS-881/R3)

-NA-: Not Applicable/Not Available

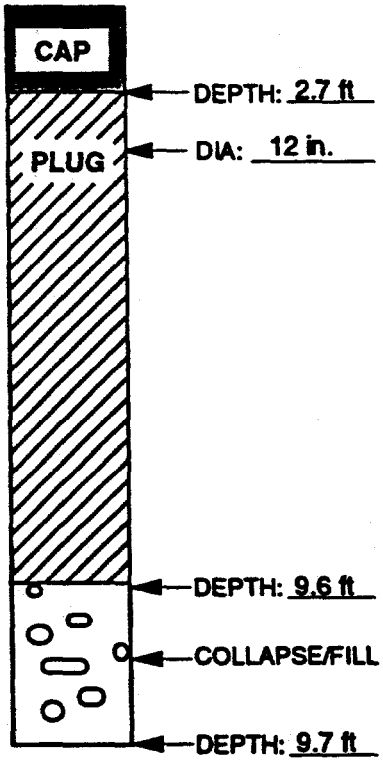
P&A SUMMARY

REAMED DIA: 12 in.

DRILLED/REAMED DEPTH: 9.7 ft

PLUG MATERIAL: Bentonite aggregate

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-670

LOCATION: East Fork Poplar Creek

COORDINATES: N 40236.83 E 50616.34

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 5-2-96

FINISH: 5-7-96

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand XL-750

DRILLER: J. Young

HELPER: G. Shillings/J. Gallaher

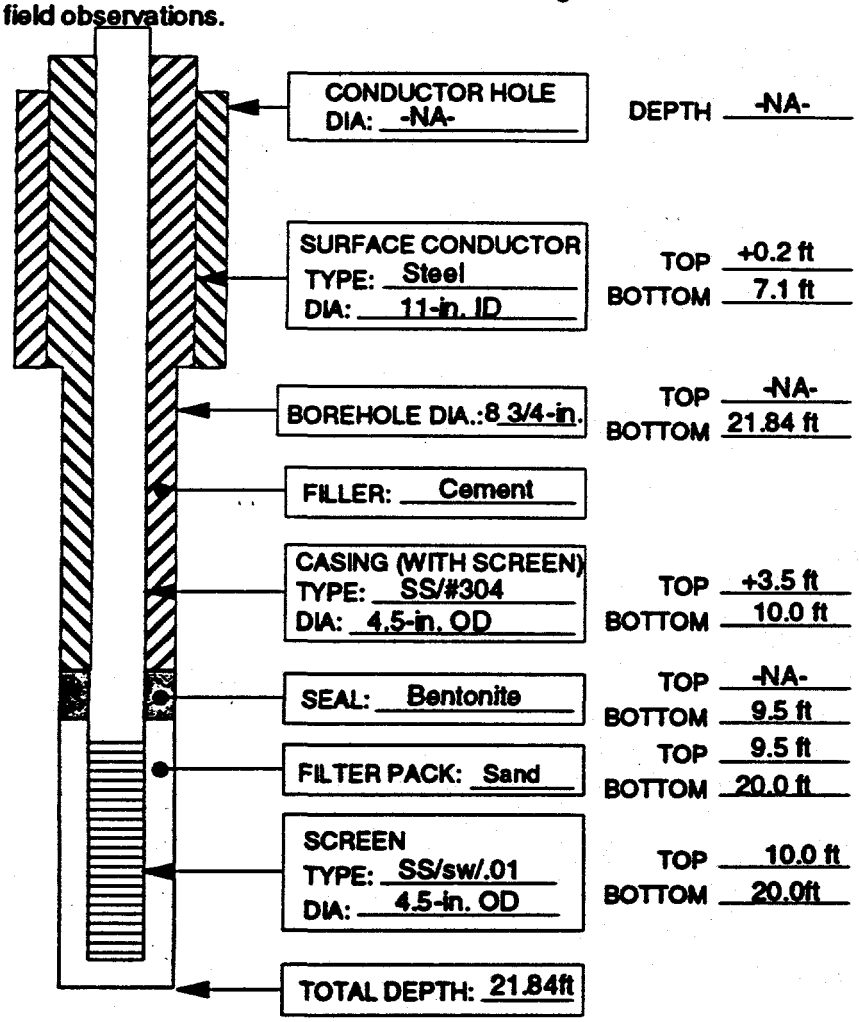
REASON FOR P&A: Obsolete well

P&A METHOD: A

DEVIATIONS FROM METHOD: None

WELL CONSTRUCTION SUMMARY*

NOTE: Some of the information in the following section obtained from field observations.



CONDUCTOR HOLE
DIA: -NA-
DEPTH -NA-

SURFACE CONDUCTOR
TYPE: Steel
DIA: 11-in. ID
TOP +0.2 ft
BOTTOM 7.1 ft

BOREHOLE DIA.: 8 3/4-in.
TOP -NA-
BOTTOM 21.84 ft

FILLER: Cement

CASING (WITH SCREEN)
TYPE: SS/#304
DIA: 4.5-in. OD
TOP +3.5 ft
BOTTOM 10.0 ft

SEAL: Bentonite
TOP -NA-
BOTTOM 9.5 ft

FILTER PACK: Sand
TOP 9.5 ft
BOTTOM 20.0 ft

SCREEN
TYPE: SS/sw/.01
DIA: 4.5-in. OD
TOP 10.0 ft
BOTTOM 20.0ft

TOTAL DEPTH: 21.84ft

*Information Source: Subsurface Data Base (Y/TS-881/R3)
-NA-: Not Applicable/Not Available

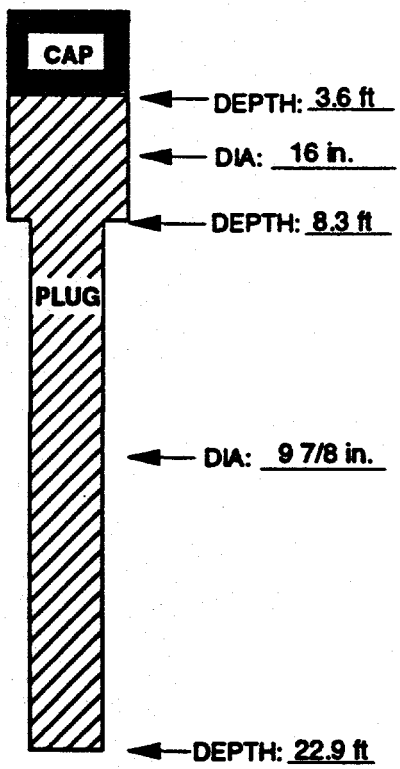
P&A SUMMARY

REAMED DIA: 9 7/8 in./16 in.

DRILLED/REAMED DEPTH: 22.9 ft/8.3 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-671

LOCATION: East Fork Poplar Creek

COORDINATES: N 40106.43 E 50605.00

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 5-7-96

FINISH: 5-7-96

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ford 555B Backhoe w/ McMillan Diggerhead

DRILLER: D. Key

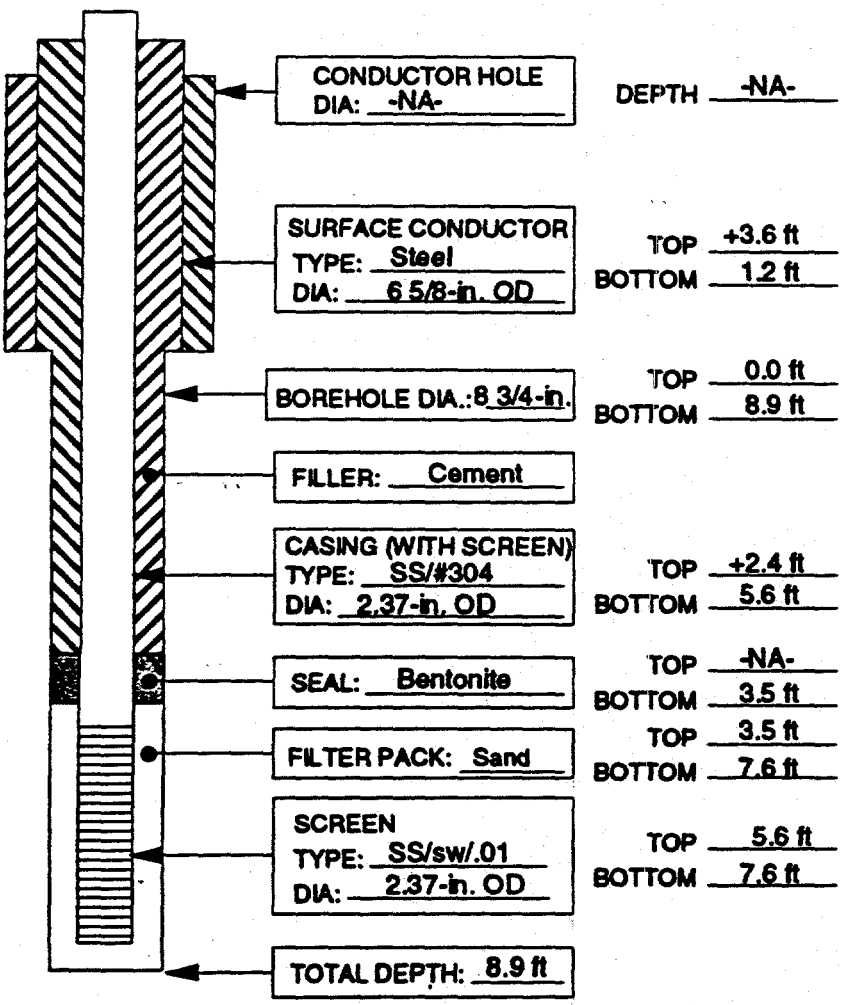
HELPER: G. Shillings/J. Gallaher

REASON FOR P&A: Obsolete well

P&A METHOD: A

DEVIATIONS FROM METHOD: Bentonite plug not hydrated for 4 hours, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



*Information Source: Subsurface Data Base (Y/TS-881/R3)

-NA-: Not Applicable/Not Available

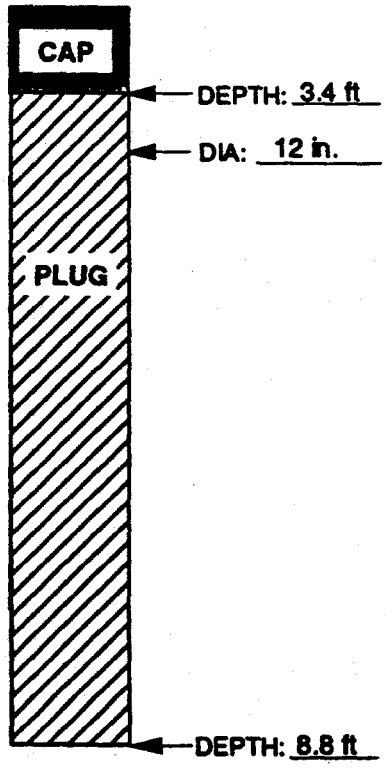
P&A SUMMARY

REAMED DIA: 12 in.

DRILLED/REAMED DEPTH: 8.8 ft

PLUG MATERIAL: Bentonite aggregate

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-672

LOCATION: Ash Disposal Basin

COORDINATES: N26269.06 E 57042.11

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 7-16-96

FINISH: 7-18-96

PREPARED BY: Timothy Coffey - SAIC

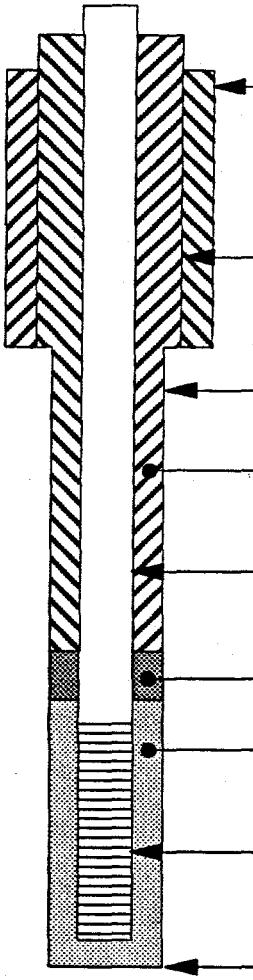
DRILLING COMPANY: Highland Drilling Company DRILL: NA

FOREMAN: G. Shillings HELPERS: D. Williford, H. Hall, J. Gallaher

REASON FOR P&A: Obstructing a construction project

P&A METHOD: A DEVIATIONS FROM METHOD: Plug well in place; cut off casing stick-up flush with ground surface, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



CONDUCTOR HOLE DIA: NA — DEPTH NA

SURFACE CONDUCTOR TYPE: None DIA: NA — TOP NA, BOTTOM NA

BOREHOLE DIA.: 8 in. — TOP 0.0 ft, BOTTOM 28.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: SS/#304 DIA: 4 1/2-in. OD — TOP +2.3 ft, BOTTOM 18.0 ft

SEAL: Bentonite — TOP NA, BOTTOM 16.0 ft

FILTER PACK: Sand — TOP 16.0 ft, BOTTOM 28.0 ft

SCREEN TYPE: SS/sw/.01 DIA: 4 1/2-in. OD — TOP 18.0 ft, BOTTOM 28.0 ft

TOTAL DEPTH: 28.0 ft

*Information Source: Subsurface Data Base (Y/TS-881/R3)

-NA-: Not Applicable/Not Available

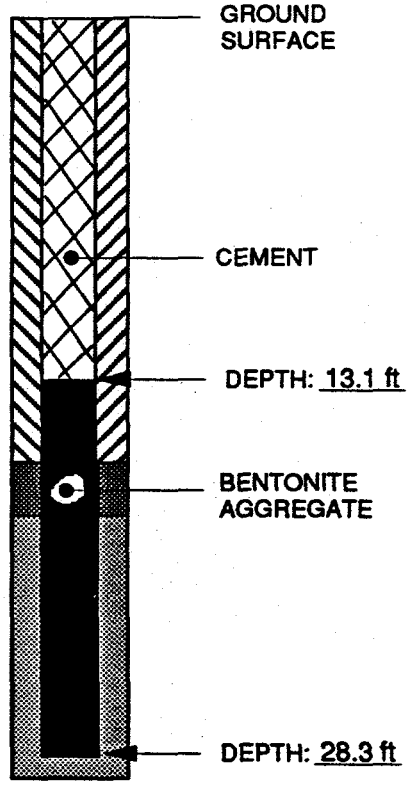
P&A SUMMARY

REAMED DIA: NA

DRILLED/REAMED DEPTH: NA

PLUG MATERIAL: Bentonite aggregate/ cement

CAP MATERIAL: NA



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. GW-721

LOCATION: Water Treatment Plant (East Pine Ridge)

COORDINATES: N31287 E63158

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 9-18-95

FINISH: 9-19-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company DRILL: Ford 455 Backhoe

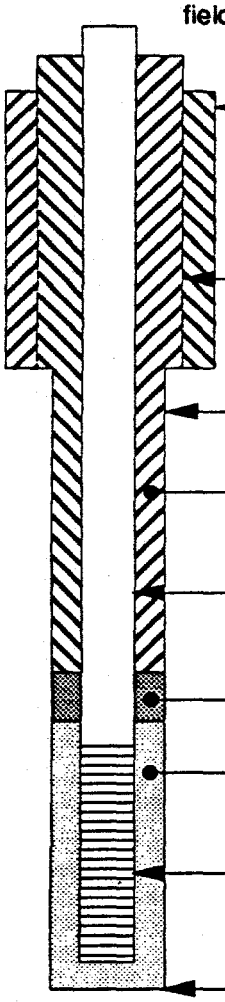
OPERATOR: G. Shillings HELPER: H. Hall

REASON FOR P&A: Obsolete well/substandard construction

P&A METHOD: C DEVIATIONS FROM METHOD: Did not ream to fresh material; plug constructed of bentonite aggregate, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtained from field observations.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: 22.0 in. TOP 0.0 ft BOTTOM 6.0 ft

FILLER: Bentonite

CASING (WITH SCREEN) TYPE: PVC/#40 DIA: 12 3/4-in. OD TOP +1.5 ft BOTTOM 4.0 ft

SEAL: -NA- TOP -NA- BOTTOM -NA-

FILTER PACK: Sand TOP 3.0 ft BOTTOM 6.0 ft

SCREEN TYPE: PVC/sl/.02 DIA: 12 3/4-in. OD TOP 4.0 ft BOTTOM 6.0 ft

TOTAL DEPTH: 6.0

*Information source: Subsurface Data Base (Y/TS-881/R2).
-NA-: Not Applicable/Not Available

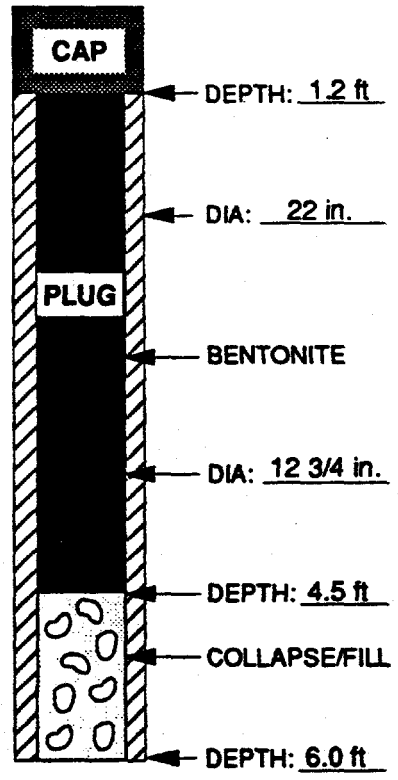
P&A SUMMARY

REAMED DIA: - NA -

DRILLED/REAMED DEPTH: - NA -

PLUG MATERIAL: Bentonite

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. LL/HAZ-06

LOCATION: Gum Branch Road Area

COORDINATES: N29781 E32123

REFERENCE POINT FOR MEASUREMENTS: Present Ground Surface

DATE: START: 8-30-95

FINISH: 8-31-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand XL-750

DRILLER: H. Hall

HELPERS: R. Phillips/J. Gallaher

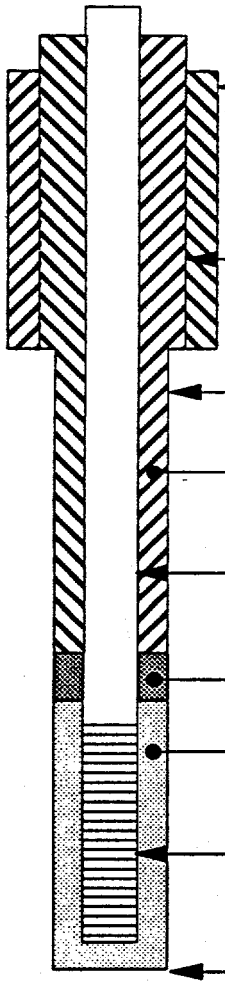
REASON FOR P&A: Obsolete well/substandard construction.

P&A METHOD: C

DEVIATIONS FROM METHOD: Drill up casing/screen while reaming the wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtained from field observations.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: 8.0-in. TOP 0.0 ft BOTTOM 30.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: PVC/#40 DIA: 6.5-in. OD TOP +2.2 ft BOTTOM 10.0 ft

SEAL: -NA- TOP -NA- BOTTOM -NA-

FILTER PACK: Sand TOP 1.0 ft BOTTOM 30.0 ft

SCREEN TYPE: PVC DIA: 6.5-in. OD TOP 10.0 ft BOTTOM 30.0 ft

TOTAL DEPTH: 30.0

*Information source: Subsurface Data Base (Y/TS-881/R2)
-NA-: Not Applicable/Not Available

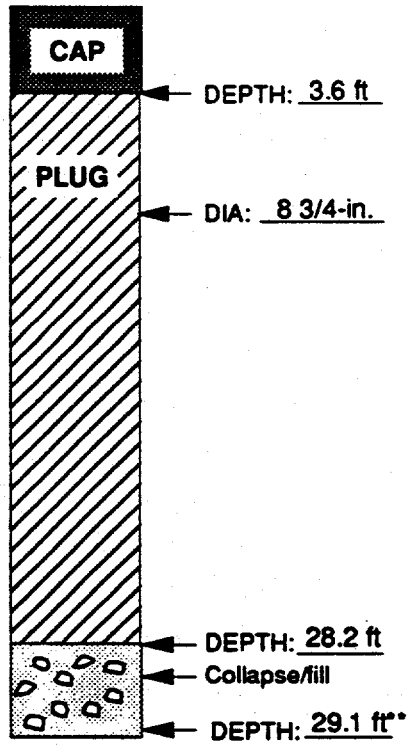
P&A SUMMARY

REAMED DIA: 8 3/4-in.

DRILLED/REAMED DEPTH: 29.1 ft**

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



**Depth is 1.4 ft beyond pre-P&A TD tag.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. LL/HAZ-11

LOCATION: Gum Branch Road Area

COORDINATES: N 30223.26 E 32138.38

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 2-21-96

FINISH: 3-4-96

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand XL-750

DRILLER: R. Phillips

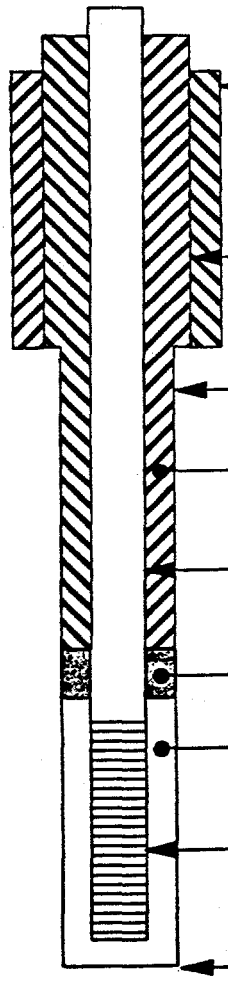
HELPERS: H. Hall

REASON FOR P&A: Obsolete well.

P&A METHOD: C

DEVIATIONS FROM METHOD: Drill up casing while reaming wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



CONDUCTOR HOLE
DIA: -NA-
DEPTH -NA-

SURFACE CONDUCTOR
TYPE: None
DIA: -NA-
TOP -NA-
BOTTOM -NA-

BOREHOLE DIA.: 8 in.
TOP 0.0 ft
BOTTOM 33.0 ft

FILLER: -NA-

CASING (WITH SCREEN)
TYPE: PVC/#40
DIA: 6.5-in. OD
TOP +1.2 ft
BOTTOM 13.0 ft

SEAL: -NA-
TOP -NA-
BOTTOM -NA-

FILTER PACK: Sand
TOP 1.0 ft
BOTTOM 33.0 ft

SCREEN
TYPE: PVC
DIA: 6.5-in. OD
TOP 13.0 ft
BOTTOM 33.0 ft

TOTAL DEPTH: 33.0 ft

*Information Source: Subsurface Data Base (Y/TS-881/R3)
-NA-: Not Applicable/Not Available

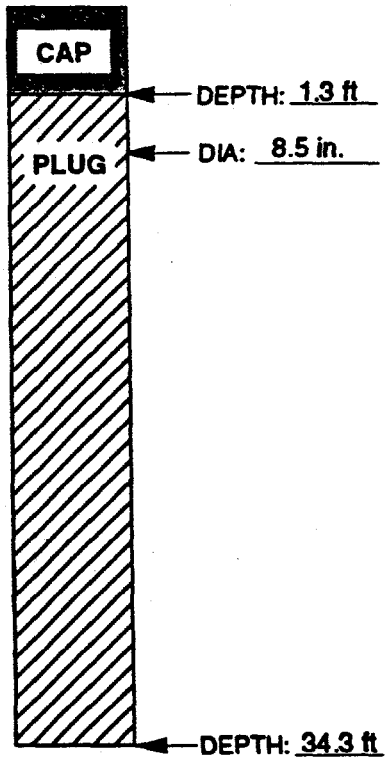
P&A SUMMARY

REAMED DIA: 8 1/2 in.

DRILLED/REAMED DEPTH: 34.3 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. LL/HAZ-12

LOCATION: Gum Branch Road Area

COORDINATES: N30089 E32123

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 8-31-95

FINISH: 9-5-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company DRILL: Ingersoll-Rand

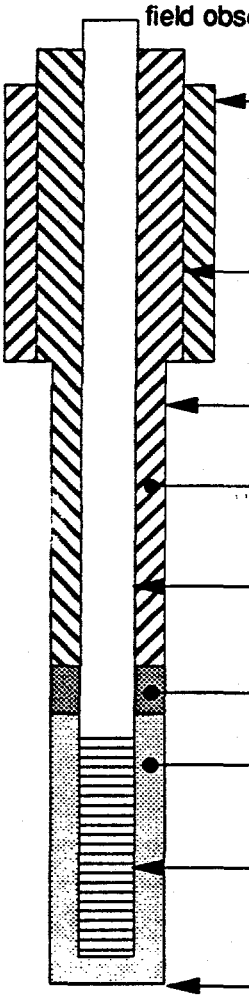
DRILLER: H. Hall HELPERS: R. Phillips/J. Gallaher

REASON FOR P&A: Obsolete well/substandard construction.

P&A METHOD: C DEVIATIONS FROM METHOD: Drill up casing/screen while reaming wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY*

Note: Some of the information in this section obtained from field observations.



CONDUCTOR HOLE
DIA: -NA-
DEPTH -NA-

SURFACE CONDUCTOR
TYPE: None
DIA: -NA-
TOP -NA-
BOTTOM -NA-

BOREHOLE DIA.: 8.0 in.
TOP 0.0 ft
BOTTOM 35.0 ft

FILLER: Cement

CASING (WITH SCREEN)
TYPE: PVC/#40
DIA: 6.5-in. OD
TOP +1.0 ft
BOTTOM 15.0 ft

SEAL: -NA-
TOP -NA-
BOTTOM -NA-

FILTER PACK: Sand
TOP 1.0 ft
BOTTOM 35.0 ft

SCREEN
TYPE: PVC
DIA: 6.5-in. OD
TOP 15.0 ft
BOTTOM 35.0 ft

TOTAL DEPTH: 35.0

*Information source: Subsurface Data Base (Y/TS-881/R2)
-NA-: Not Applicable/Not Available

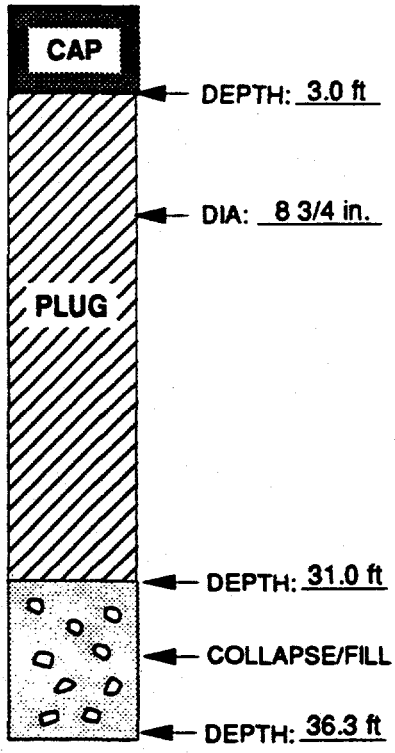
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 36.3 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. LL/HAZ-14

LOCATION: Gum Branch Road Area

COORDINATES: N 30236.57 E 32157.15

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 2-15-96

FINISH: 3-1-96

PREPARED BY: Timothy Coffey - SAIC

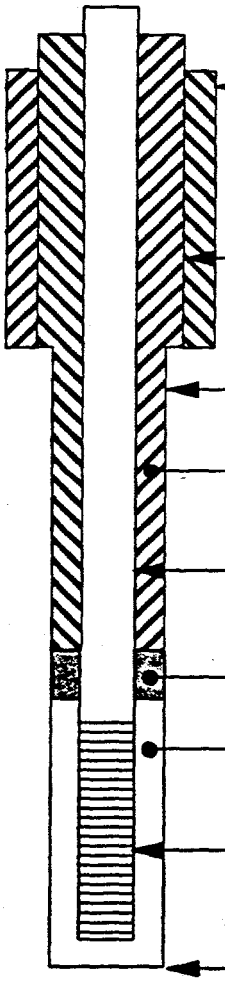
DRILLING COMPANY: Highland Drilling Company DRILL: Ingersoll-Rand XL-750

DRILLER: H. Hall HELPERS: R. Phillips

REASON FOR P&A: Obsolete well.

P&A METHOD: C DEVIATIONS FROM METHOD: Unable to drill up casing/ream wellbore to total depth due to drill bit deviation from the borehole, with HSEA approval.

WELL CONSTRUCTION SUMMARY*



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: 6.13 in TOP 0.0 ft BOTTOM 350.0 ft

FILLER: Cement

CASING (WITH SCREEN) TYPE: PVC/#40 DIA: 2.37-in. OD TOP +2.3 ft BOTTOM 339.0 ft

SEAL: -NA- TOP -NA- BOTTOM 338.0 ft

FILTER PACK: Sand TOP 338.0 ft BOTTOM 349.0 ft

SCREEN TYPE: PVC/sl/.01 DIA: 2.37-in. OD TOP 339.0 ft BOTTOM 349.0 ft

TOTAL DEPTH: 350.0

*Information Source: Subsurface Data Base (Y/TS-881/R3)
-NA-: Not Applicable/Not Available

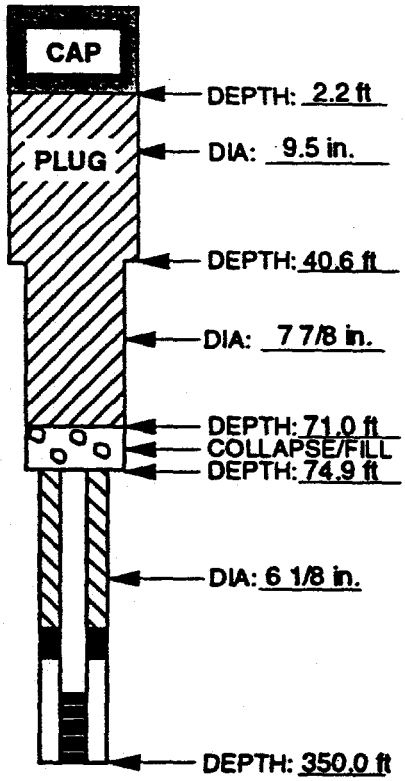
P&A SUMMARY

REAMED DIA: 9 1/2 in./7 7/8 in.

DRILLED/REAMED DEPTH: 40.6 ft/74.9 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. P&A 1

LOCATION: Gum Branch Road Area

COORDINATES: N 29,930 E 28, 630 (Estimated)

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 10-2-95

FINISH: 10-4-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company

DRILL: Ingersoll-Rand XL-750

DRILLER: H. Hall

HELPERS: J. Monger/E. Lyons

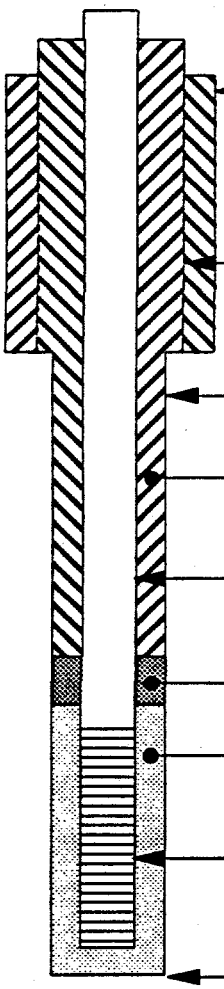
REASON FOR P&A: Obsolete well/substandard construction.

P&A METHOD: C

DEVIATIONS FROM METHOD: Drill up PVC casing/ screen while reaming wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY

Note: All of the information in this section obtained from field observations.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: -NA- TOP 0.0 ft BOTTOM -NA-

FILLER: None

CASING (WITH SCREEN) TYPE: PVC/#80 DIA: 6 5/8-in. OD TOP +2.8 ft BOTTOM -NA-

SEAL: -NA- TOP -NA- BOTTOM -NA-

FILTER PACK: Pea gravel TOP -NA- BOTTOM -NA-

SCREEN TYPE: PVC DIA: 6 5/8-in. OD TOP -NA- BOTTOM 22.0 ft

TOTAL DEPTH: -NA-

-NA-: Not Applicable/Not Available

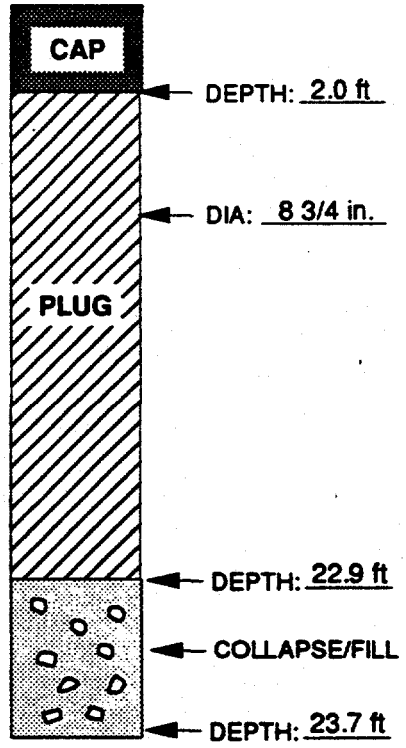
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 23.7 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. P&A 2

LOCATION: Gum Branch Road Area

COORDINATES: N 30,840 E 27,850 (Estimated)

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 10-4-95

FINISH: 10-9-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company DRILL: Ingersoll-Rand XL-750

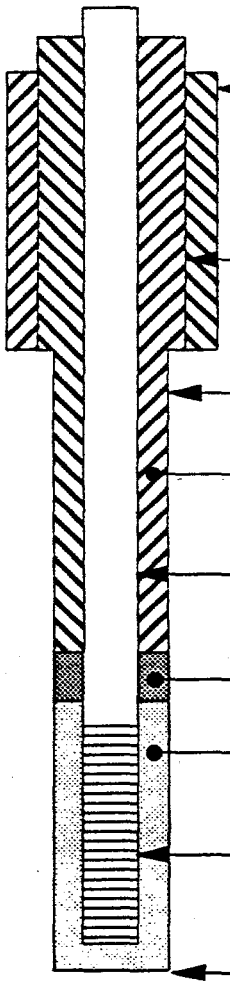
DRILLER: H. Hall HELPERS: R. Phillips/E. Lyons

REASON FOR P&A: Obsolete well/substandard construction.

P&A METHOD: C DEVIATIONS FROM METHOD: Drill up PVC casing/ screen while reaming wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY

Note: All of the information in this section obtained from field observations.



CONDUCTOR HOLE
DIA: -NA-
DEPTH -NA-

SURFACE CONDUCTOR
TYPE: None
DIA: -NA-
TOP -NA-
BOTTOM -NA-

BOREHOLE DIA.: -NA-
TOP 0.0 ft
BOTTOM -NA-

FILLER: -NA-

CASING (WITH SCREEN)
TYPE: PVC/#80
DIA: 6 5/8-in. OD
TOP +2.2 ft
BOTTOM -NA-

SEAL: -NA-
TOP -NA-
BOTTOM -NA-

FILTER PACK: Pea gravel
TOP -NA-
BOTTOM -NA-

SCREEN
TYPE: PVC/#80
DIA: 6 5/8-in. OD
TOP -NA-
BOTTOM 23.9 ft

TOTAL DEPTH: -NA-

-NA-: Not Applicable/Not Available

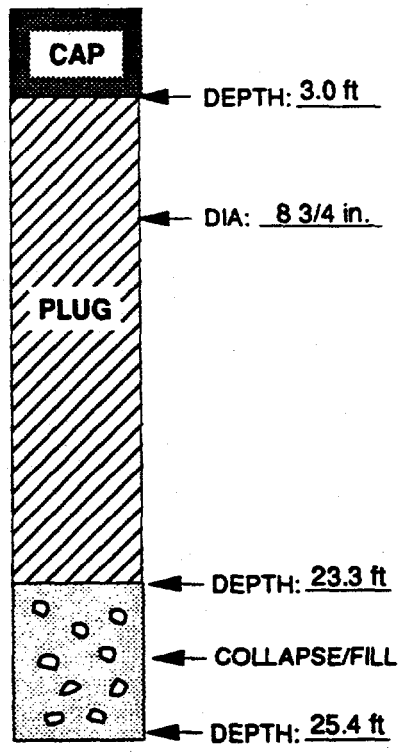
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 25.4 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay Soil



Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL PLUGGING AND ABANDONMENT DIAGRAM

WELL NO. P&A 3

LOCATION: Gum Branch Road Area/Haul Road

COORDINATES: N29,810 E36,790 (Estimated)

REFERENCE POINT FOR MEASUREMENTS: Ground Surface

DATE: START: 10-6-95

FINISH: 10-11-95

PREPARED BY: Timothy Coffey - SAIC

DRILLING COMPANY: Highland Drilling Company DRILL: Ingersoll-Rand XL-750

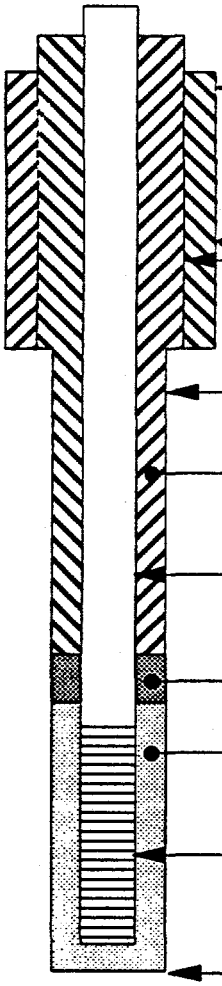
DRILLER: H. Hall HELPERS: E. Lyons/J. Monger

REASON FOR P&A: Obsolete well/substandard construction.

P&A METHOD: C DEVIATIONS FROM METHOD: Drill up PVC casing/ screen while reaming wellbore in one pass, with HSEA approval.

WELL CONSTRUCTION SUMMARY

Note: All of the information in this section obtained from field observations.



CONDUCTOR HOLE DIA: -NA- DEPTH -NA-

SURFACE CONDUCTOR TYPE: None DIA: -NA- TOP -NA- BOTTOM -NA-

BOREHOLE DIA.: -NA- TOP 0.0 ft BOTTOM -NA-

FILLER: -NA-

CASING (WITH SCREEN) TYPE: PVC/#80 DIA: 6 5/8-in. OD TOP +2.8 ft BOTTOM -NA-

SEAL: -NA- TOP -NA- BOTTOM -NA-

FILTER PACK: Pea gravel TOP -NA- BOTTOM -NA-

SCREEN TYPE: PVC DIA: 6 5/8-in. OD TOP -NA- BOTTOM 35.8 ft

TOTAL DEPTH: -NA-

-NA-: Not Applicable/Not Available

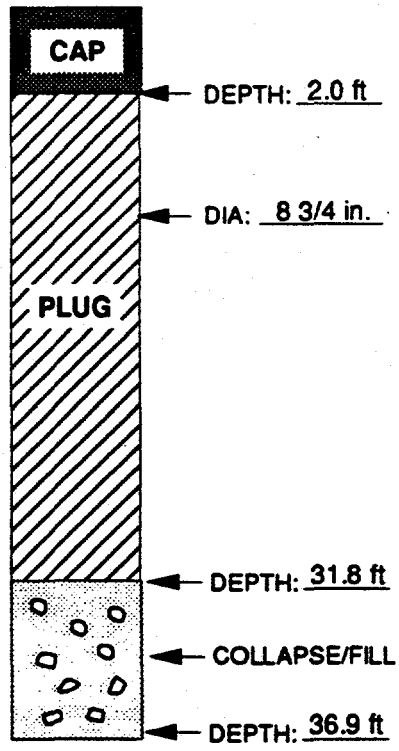
P&A SUMMARY

REAMED DIA: 8 3/4 in.

DRILLED/REAMED DEPTH: 36.9 ft

PLUG MATERIAL: Cement

CAP MATERIAL: Clay Soil



APPENDIX C
WASTE MANAGEMENT PLAN

C.1. INTRODUCTION

The ultimate objective of monitoring groundwater is gathering data to assess potential impacts to human health and the environment. It is also the objective of the Y-12 Groundwater Protection Program (GWPP) to handle drill cuttings from the installation of groundwater monitoring wells or borings in a manner that protects the environment. The Y-12 philosophy has been and continues to be consistent with the U.S. Environmental Protection Agency (EPA) and Lockheed Martin Energy Systems, Inc., (Energy Systems) guidance for managing well cuttings. Site-specific professional judgment is used to determine the potential for contamination prior to installation of each well. Factors considered in evaluating potential for site contamination include:

- previously collected sampling and analysis data,
- groundwater flow patterns,
- geologic and hydrogeologic setting, and
- purpose of well (contaminant plume assessment, background monitoring defining lines of compliance, etc.).

Based on the evaluation, one of two options is selected:

- stabilize material on site or
- collect for treatment or storage.

C.2. DRILL CUTTINGS DISPOSAL

There are two levels of drill cuttings management at the Y-12 Plant: (1) drill-site disposal and (2) containerization for waste disposal. Disposal of drill cuttings at the drill site following best management practices (BMP) is permitted if the cuttings do not exceed the field-screening criteria discussed below. If the field-screening criteria are exceeded, the cuttings must be containerized at the drill site, labeled, and handled according to Y-12 Plant waste disposal procedures. Sampling and field screening of the drill cuttings will be conducted in accordance with the procedures specified in the Energy Systems Environmental Surveillance Procedures Quality Control Program document (ESH/Sub/87/21706/1).

C.2.1 FIELD SCREENING

Field screening of drill cuttings will consist of measuring three parameters: radioactivity, volatile organics, and pH. The Energy Systems procedures specified in Table C.1 will be followed with some modification as described below.

Radioactivity will be measured using two separate meters: a survey meter with a pancake Geiger tube for determining beta and gamma activity and a scintillation counter with a zinc sulfide window for determining alpha activity. The meters will be passed over the surface area of the cuttings and the highest readings will be recorded.

Screening for organic vapors will be conducted on a composite sample from the cuttings generated at a single well. The sample will be collected with a hand trowel or similar tool to select cuttings from several depths. Enough cuttings will be placed in a clean 1-quart glass or metal container to half fill it. Aluminum foil will be placed over the mouth of the container to make an airtight seal. The sample will then be incubated for 1 h at 70°F or the ambient temperature, whichever is higher. Organic vapors in the headspace of the sample container will be measured by puncturing the aluminum foil and inserting the probe of an organic vapor analyzer. This instrument will have a photoionization detector with a 10.2 eV

lamp or a flame ionization detector and will be calibrated to isobutylene. The highest reading of the headspace vapors will be recorded.

Table C.1. Y-12 Plant field-screening criteria for drill cuttings and development water

Field analysis	Old Energy Systems Procedure No.	New Energy Systems Procedure No.	Limit
pH	ESP-307-2	ESP-307-1	4.0–10.5
Specific conductivity [a]	ESP-307-8	ESP-307-1	< 1000 µmhos/cm
Organic	ESP-307-6	Same	< 5 ppm
Radioactivity	ESP-307-7	Same	
beta/gamma			< 600 dpm/100 cm^2 (< 100 cpm)
alpha			< 1000 dpm/100 cm^2 (< 500 cpm)

[a] Not applicable to drill cuttings.

The pH of the cuttings will be estimated by adding one quart of deionized water to the composite sample used to determine the presence of organic vapors. The sample will be agitated until well mixed. The pH of the mixture will be determined by moistening a piece of pH paper (range 4-9 or similar) and checking the color of the paper against the color key. This pH will be recorded.

C.2.2 CONTAINERIZATION FOR WASTE DISPOSAL

If the cuttings from a borehole exceed any one of the field screening limits, they will be containerized at the drill site and appropriately labeled with the contents (drill cuttings), borehole number, and date. The cuttings will then be handled according to Y-12 Plant waste management procedures.

An exception to the above may be made if the cuttings exceed the organic vapor limits. Weather permitting, those cuttings may be passively treated by aeration at the drill site to reduce the organic vapor content. Such treatment shall not exceed 5 working days. If reanalysis following aeration indicates the cuttings continue to exceed the organic vapor limits, they must be containerized and handled as above. In the case well plugging and abandonment, grout cuttings generated during drilling activities may result in elevated pH levels falsely indicative of contamination. If grout cuttings are observed and no other indicator exceeds containerization limits, then cuttings may be disposed at the drill site.

C.2.3 BEST MANAGEMENT PRACTICES FOR DRILL SITE DISPOSAL

Drill cuttings that do not exceed the field-screening criteria will be disposed of at the drill site, if practicable. BMP dictate that the cuttings be disposed in such a way as to not be unsightly or cause erosion/sedimentation impacts on nearby surface water. The cuttings shall therefore be used as part of the

restoration of the drill site, to fill in low areas and tire tracks, or spread to conform to the natural topography. They will subsequently be seeded and mulched. If bedrock cuttings contain a liquid fraction, care shall be taken to ensure this liquid infiltrates or evaporates at the drill site and in no case runs off into surface waters, ephemeral drainages, or storm sewers. Drill cuttings that do not exceed the field-screening criteria but cannot be disposed of at the drill site due to its location (parking lot, yard, etc.) will be transported to a designated location and disposed of as clean fill, following BMP.

C.2.4 DOCUMENTATION

The results of all field-screening analyses and a description of the disposition of the drill cuttings from each borehole will be documented on a Drill Cuttings Field Screening/Disposal Sheet (Figures C.1 and C.2). These forms will be completed for each borehole by the on-site geologist who conducts the screening. A copy of each form will be provided to the Project Manager of the GWPP within 2 days of its completion.

3. DEVELOPMENT WATER DISPOSAL

There are two levels of development water management at the Y-12 Plant: (1) drill-site disposal and (2) containerization for waste disposal. Disposal of development water at the drill site following BMP is permitted if the water does not exceed the field-screening criteria discussed below. If the field-screening criteria are exceeded, the water must be containerized at the drill site, labeled, and handled according to Y-12 Plant waste disposal procedures. Sampling and field screening of development water will be conducted in accordance with the procedures specified in the Energy Systems Environmental Surveillance Procedures Quality Control Program document (ESH/Sub/87/21706/1).

C.3.1 FIELD SCREENING

Initial development water will be containerized until it has been screened. This is accomplished by pumping the water into drums or other suitable container(s). Screening will be conducted on grab samples taken approximately every hour after the first one-half hour of development. (An alternative to the hourly grab samples is to totally contain all the development water produced at a well, then analyze a composite sample.) If initial grab samples do not exceed the limits specified in Table C.1, development water may be pumped directly on the ground (following BMP) unless or until a subsequent grab sample exceeds the limits.

Field screening of development water will consist of measuring four parameters: radioactivity, volatile organics, specific conductivity, and pH. The Energy Systems procedures specified in Table C.1 will be followed with some modification, as described below.

Radioactivity will be measured using two separate meters: a survey meter with a pancake Geiger tube for determining beta and gamma activity and a scintillation counter with a zinc sulfide window for determining alpha activity. The meters will be passed over the surface area of the sample and the highest readings will be recorded.

Screening for organic vapors will be conducted by placing enough development water in a clean 1-quart glass or metal container to half fill it. Aluminum foil will be placed over the mouth of the container to make an airtight seal. The sample will then be incubated for 1 h at 70°F or the ambient temperature, whichever is higher. Organic vapors in the headspace of the sample container will be measured by puncturing the aluminum foil and inserting the probe of an organic vapor analyzer. This instrument will have a photoionization detector with a 10.2 eV lamp or a flame ionization detector and will be calibrated to isobutylene. The highest reading of the headspace vapors will be recorded.

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. _____ SITE: _____

APPROX. VOLUME OF CUTTINGS: _____

CALIBRATION OF INSTRUMENTS: Check those calibrated to manufacturer's specifications.

pH meter _____ (model) _____

Organic vapor meter _____ (model) _____

Beta/gamma meter _____ (model) _____

Alpha meter _____ (model) _____

FIELD SCREENING RESULTS (Highest Observed Values):

pH	_____	Date/Time	_____	(4.0-10.5)
Organic vapors	_____	Date/Time	_____	(<5 ppm)
Beta/Gamma	_____	Date/Time	_____	(<100 cpm)
Alpha	_____	Date/Time	_____	(<500 cpm)

N/A - Not analyzed

Weather: _____ Temp.: _____

DISPOSITION: Drill-site Disposal _____ Containerization _____
(Labeled?) y / n

Describe:

On-site Geologist (print): _____

Signature: _____ Date: _____

Figure C.1.

Y-12 PLANT GWPP DEVELOPMENT WATER FIELD SCREENING/DISPOSAL SHEET

WELL NO. _____ SITE: _____

APPROX. VOLUME OF DEVELOPMENT WATER: _____

CALIBRATION OF INSTRUMENTS: Check those calibrated to manufacturer's specifications.

pH meter	_____	(model)	_____
Sp. Cond. meter	_____	(model)	_____
Organic vapor meter	_____	(model)	_____
Beta/gamma meter	_____	(model)	_____
Alpha meter	_____	(model)	_____

FIELD SCREENING RESULTS:

Date	Time	pH	Sp. Cond.	Organic Vapors	Beta/ Gamma	Alpha
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
		(4.0-10.5)	(<1000 umhos/cm)	(<5 ppm)	(<100 cpm)	(<500 cpm)

Weather: _____ Temp.: _____

DISPOSITION: Drill-site Disposal _____ Containerization (Labeled?) y/n _____

On-site Geologist (print): _____

Signature: _____ Date: _____

95-035MS/093096

Figure C.2.

C.3.2 CONTAINERIZATION FOR WASTE DISPOSAL

If the development water from a well exceeds any one of the field screening limits, it will be containerized at the drill site and appropriately labeled with the contents (development water), well number, and date. The water will then be handled according to Y-12 Plant waste management procedures.

An exception to this may be made if the development water only exceeds the organic vapor limits. Weather permitting, the water may be passively treated at the drill site by leaving the containers open for aeration to reduce the organic vapor content. Such treatment shall not exceed 5 working days and shall not be conducted over weekends without supervision. If reanalysis following aeration indicates the development water continues to exceed the organic vapor limits, it must be containerized and handled as above.

C.3.3 BMP FOR DRILL-SITE DISPOSAL

Development water that does not exceed the field-screening criteria will be disposed of at the drill site if practicable. BMP dictates that the water be disposed in such a way as to not cause erosion or enter nearby surface water or storm sewers. Precautions shall therefore be taken to ensure that development water pumped onto the ground or released from containers at the drill site either infiltrates or evaporates at the site and in no case runs off into surface waters, ephemeral drainages, or storm sewers. Development water that does not exceed the field screening but cannot be disposed of at the drill site due to site limitations (i.e., within a drainage, near a storm sewer, etc.) will be transported to a designated location and disposed as clean water following BMP.

C. 3.4 DOCUMENTATION

The results of all field-screening analyses and a description of the disposition of the development water from each well will be documented on a Development Water Field Screening/Disposal Sheet, an example of which is attached. These forms will be completed for each well by the on-site geologist who conducts the screening. A copy of each form will be provided to the Project Manager of the GWPP within 2 days of its completion.

APPENDIX D
DISPOSAL AND SCREENING RECORDS

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. 1004 SITE: S3 Ponds

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum values):

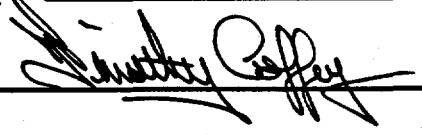
pH	10.3	Date/Time	9-5-95/1502	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.0 ppm	Date/Time	9-5-95/1500	(<5.0 ppm above background)
Beta/Gamma	40 cpm/60 cpm	Date/Time	9-5-95/1406	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	9-5-95/1404	(<500 cpm above background)

Weather: Clear to partly cloudy. Temp.: Upper 50s to upper 80s °F.

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 9-5-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. 1095 SITE: Sediment Disposal Basin

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (Background/Maximum Observed Values):

pH	10.3	Date/Time	2-28-96/1641	(4.0 - 10.5)
Organic vapors	0.0 ppm/2.2 ppm	Date/Time	2-28-96/1532	(<5.0 ppm above background)
Beta/Gamma	50 cpm/60 cpm	Date/Time	2-28-96/1431	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	All readings	(<500 cpm above background)

Weather: Cloudy, clearing mid-day, becoming cloudy again Temp.: Low 50s°F, falling into the 30s °F

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y / n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature: Timothy Coffey Date: 2-28-96

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. 1096 SITE: Sediment Disposal Basin

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	10.1	Date/Time	2-27-96/1301	(4.0 - 10.5)
Organic vapors	0.0 ppm/1.2 ppm	Date/Time	2-27-96/1259	(<5.0 ppm above background)
Beta/Gamma	40 cpm/50 cpm	Date/Time	2-27-96/1157	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	2-27-96/1155	(<500 cpm above background)

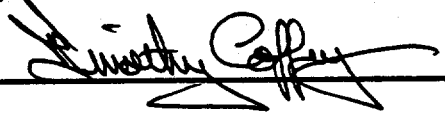
Weather: Partly to mostly cloudy Temp.: Upper-40s°F to low 70s °F

DISPOSITION: Drill-site Disposal X Containerization _____

(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 2-27-96

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. B-1 SITE: Urea Pile (East Chestnut Ridge)

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	11.5*	Date/Time	9-22-95/1144	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.3 ppm	Date/Time	9-22-95/1142	(<5.0 ppm above background)
Beta/Gamma	40 cpm/50 cpm	Date/Time	9-22-95/1047	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	9-22-95/1045	(<500 cpm above background)

*Elevated pH measurement due to cement fragments in cuttings composite.

Weather: Cloudy and rainy Temp.: Mid- to upper-60s °F

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature: Timothy Coffey Date: 9-22-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. B-3 SITE: Urea Pile (East Chestnut Ridge)

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	11.4*	Date/Time	9-21-95/1331	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.2 ppm	Date/Time	9-21-95/1329	(<5.0 ppm above background)
Beta/Gamma	40 cpm/40 cpm	Date/Time	9-21-95/1228	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	9-21-95/1226	(<500 cpm above background)

*Elevated pH reading due to cement fragments in cuttings composite.

Weather: Cloudy with scattered light rain Temp.: Mid-60's to low-80's

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 9-21-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-002 SITE: Oil Landfarm

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	11.1*	Date/Time	9-28-95/1457	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.0 ppm	Date/Time	9-28-95/1455 9-29-95/1240	(<5.0 ppm above background)
Beta/Gamma	40 cpm/60 cpm	Date/Time	9-29-95/1126	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	All Readings	(<500 cpm above background)

* Elevated pH reading due to cement fragments in cuttings composite.

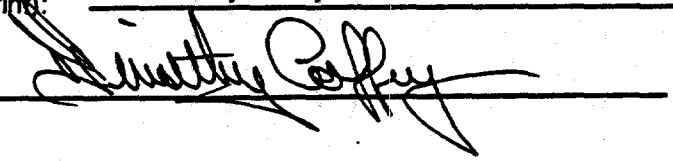
Weather: 9-28-95: Clear to partly cloudy; 9-29-95: Mostly clear

Temp.: 9-28-95: Low-50s to near 80 °F; 9-29-95: Low-50s to near 80 °F

Disposition: Drill-site Disposal X Containerization _____ (Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 9-29-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-007 SITE: Oil Landform

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum values):

pH	11.7*	Date/Time	9-20-95/1212	(4.0 - 10.5)
Organic vapors	0.0 ppm/7.5 ppm**	Date/Time	9-20-95/1103	(<5.0 ppm above background)
Beta/Gamma	40 cpm/50 cpm	Date/Time	9-20-95/1001	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	9-20-95/0959	(<500 cpm above background)

* Elevated pH reading due to cement fragments in cuttings composite.
** Initial headspace analysis above onsite disposal limits, sample re-sealed and measured after 1-hr incubation had following reading: 3.3 ppm.

Weather: Cloudy, clearing in p.m. Temp.: Upper 50s to low 80s °F.

Disposition: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings used to cap remaining borehole after grouting.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 9-20-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-295 SITE: Chestnut Ridge Waste Pile

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	11.8*	Date/Time	6-22-95/1538	(4.0 - 10.5)
Organic vapors	0.0 ppm/3.7 ppm	Date/Time	6-23-95/1245	(<5.0 ppm above background)
Beta/Gamma	50 cpm/70 cpm	Date/Time	7-20-95/1538	(<100 cpm above background)
Alpha	10 cpm/10 cpm	Date/Time	7-13-95/1420	(<500 cpm above background)

*Elevated pH reading due to cement fragments in cuttings composite.

Weather: Refer to field logbooks. Temp.: Refer to field logbooks.

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to cuttings pit on location.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 9-14-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-297 SITE: Chestnut Ridge Waste Pile

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum values):

pH	12.2*	Date/Time	8-4-95/1609	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.2 ppm	Date/Time	8-8-95/1316 8-15-95/1511	(<5.0 ppm above background)
Beta/Gamma	40 cpm/80 cpm	Date/Time	8-9-95/1540	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	All Readings	(<500 cpm above background)

*Elevated pH reading due to cement fragments in cuttings composite.

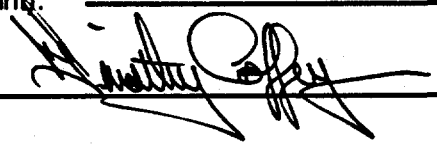
Weather: Refer to field logbook. Temp.: Refer to field logbook.

DISPOSITION: Drill-site Disposal X Containerization _____

(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey/Victor Harness - SAIC

Signature:  Date: 8-21-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-448 SITE: Gum Branch Road Area

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum values):

pH	11.2*	Date/Time	8-29-95/1155	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.1 ppm	Date/Time	8-29-95/1153	(<5.0 ppm above background)
Beta/gamma	60 cpm/60 cpm	Date/Time	8-29-95/1053	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	8-29-95/1051	(<500 cpm above background)

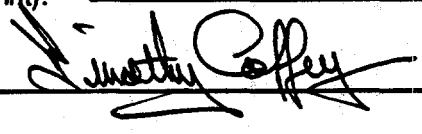
*Elevated pH reading due to cement fragments in cuttings composite.

Weather: Clear and hot. Temp.: Low-60s to mid-90s °F.

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 8-29-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-452 SITE: Gum Branch Road Area

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum values):

pH	10.9*	Date/Time	8-28-95/1412	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.0 ppm	Date/Time	8-28-95/1410	(<5.0 ppm above background)
Beta/Gamma	60 cpm/70 cpm	Date/Time	8-28-95/1312	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	8-28-95/1311	(<500 cpm above background)

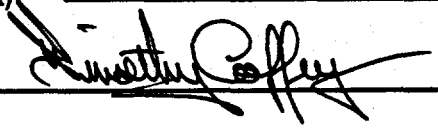
*Elevated pH reading due to cement fragments in cuttings composite.

Weather: Clear and hot Temp.: Mid-60s to low-90s °F.

DISPOSITION: Drill-site Disposal X Containerization (Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 8-28-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-660 SITE: East Fork Poplar Creek

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe
Mercury vapor meter	X	(model)	Jerome Model 411

FIELD SCREENING RESULTS (background/maximum observed values):

pH	10.3	Date/Time	4-29-96/1529	(4.0 - 10.5)
Organic vapors	0.0 ppm/54 ppm*	Date/Time	4-29-96/1510	(<5.0 ppm above background)
Beta/gamma	70 cpm/90 cpm	Date/Time	4-29-96/1304	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	All readings	(<500 cpm above background)
Mercury vapor	0 mg/m^3/0 mg/m^3	Date/Time	All readings	(<0.05 mg/m^3)

*Elevated headspace reading from unknown source. Cuttings allowed to aerate 24 hours, resampled and tested with the following results: 3.4 ppm.

Weather: Partly to mostly cloudy and breezy Temp.: Mid-60s to mid-80s °F

DISPOSITION: Drill-site Disposal X Containerization _____

(Labeled?) y/n

Describe: Cuttings discharged to ground surface. Steel and stainless steel casings and screen split lengthwise. Casing, screen, and concrete fragments staged near well site pending Health Physics screening. Clean concrete to be disposed of in the Landfill, clean steel to be sent to the New Salvage Yard.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 4-29-96

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-669 SITE: East Fork Poplar Creek

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe
Mercury vapor meter	X	(model)	Jerome Model 411

FIELD SCREENING RESULTS (background/maximum observed values):

pH	9.8	Date/Time	4-30-96/1405	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.0 ppm	Date/Time	4-30-96/1401	(<5.0 ppm above background)
Beta/gamma	40 cpm/50 cpm	Date/Time	4-30-96/1256	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	4-30-96/1254	(<500 cpm above background)
Mercury vapor	0 mg/m^3/0 mg/m^3	Date/Time	4-30-96/1403	(<0.05 mg/m^3)

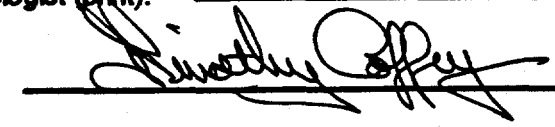
Weather: Mostly cloudy and breezy Temp.: Low- to upper-50s °F

DISPOSITION: Drill-site Disposal X Containerization _____

(Labeled?) y/n

Describe: Cuttings discharged to ground surface. Steel and stainless steel casings and screen split lengthwise. Casing, screen, and concrete fragments staged near well site pending Health Physics screening. Clean (uncontaminated) concrete to be disposed of in the Landfill, clean steel to be sent to the New Salvage Yard.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 4-30-96

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-670 SITE: East Fork Poplar Creek

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe
Mercury vapor meter	X	(model)	Jerome Model 411/Jerome Model 431-X

FIELD SCREENING RESULTS (background/maximum observed values):

pH	11.8*	Date/Time	5-3-96/1324	(4.0 - 10.5)
Organic vapors	0.0 ppm/4.8 ppm	Date/Time	5-3-96/1447	(<5.0 ppm above background)
Beta/gamma	40 cpm/60 cpm	Date/Time	5-3-96/1205	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	All readings	(<500 cpm above background)
Mercury vapor	0 mg/m^3/0 mg/m^3	Date/Time	All readings	(<0.05 mg/m^3)

*Elevated pH reading due to cement fragments in the cuttings composite.

Weather: Refer to field logbook Temp.: Refer to field logbook

DISPOSITION: Drill-site Disposal X Containerization _____

(Labeled?) y/n

Describe: Some cuttings used to cap borehole and fill post holes, remaining cuttings discharged and spread on ground surface at location. Steel and stainless steel casings and screen split lengthwise. Casing, screen, and concrete fragments staged near well site pending Health Physics screening. Clean (uncontaminated) concrete to be disposed of in the Landfill, clean steel to be sent to the New Salvage Yard.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature: Timothy Coffey Date: 5-6-96

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. GW-671 SITE: East Fork Poplar Creek

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe
Mercury vapor meter	X	(model)	Jerome Model 411

FIELD SCREENING RESULTS (background/maximum observed values):

pH	10.0	Date/Time	5-7-96/1536	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.0 ppm	Date/Time	5-7-96/1533	(<5.0 ppm above background)
Beta/gamma	40 cpm/50 cpm	Date/Time	5-7-96/1432	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	5-7-96/1431	(<500 cpm above background)
Mercury vapor	0 mg/m^3/0 mg/m^3	Date/Time	5-7-96/1534	(<0.05 mg/m^3)

Weather: Mostly cloudy; rain, sometimes heavy Temp.: Low-60's to low-70's°F.

DISPOSITION: Drill-site Disposal X Containerization _____

(Labeled?) y/n

Describe: Some cuttings used to cap borehole, remaining cuttings discharged to ground surface. Steel and stainless steel casings and screen split lengthwise. Casing, screen, and concrete fragments staged near GW-669/GW-670 well sites pending Health Physics screening. Clean (uncontaminated) concrete to be disposed of in the Landfill, clean steel to be sent to the New Salvage Yard.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature: [signature] Date: 5-7-96

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. LL/HAZ-06 SITE: Gum Branch Road Area

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum values):

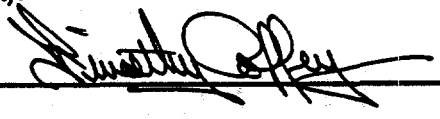
pH	8.1	Date/Time	8-30-95/1147	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.4 ppm	Date/Time	8-30-95/1145	(<5.0 ppm above background)
Beta/Gamma	40 cpm/40 cpm	Date/Time	8-30-95/1048	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	8-30-95/1046	(<500 cpm above background)

Weather: Clear to partly cloudy, hot. Temp.: Mid-60s to mid-90s °F.

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 8-30-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. LL/HAZ-11 SITE: Gum Branch Road Area

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	8.4	Date/Time	2-22-96/1426	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.5 ppm	Date/Time	2-22-96/1424	(<5.0 ppm above background)
Beta/gamma	50 cpm/70 cpm	Date/Time	2-22-96/1323	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	2-22-96/1321	(<500 cpm above background)

Weather: Cloudy Temp.: Mid-40s to low 50s °F

DISPOSITION: Drill-site Disposal X Containerization _____

(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 2-22-96

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. LL/HAZ-12 SITE: Gum Branch Road Area

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum values):

pH	8.6	Date/Time	8-31-95/1229	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.1 ppm	Date/Time	8-31-95/1227	(<5.0 ppm above background)
Beta/Gamma	60 cpm/80 cpm	Date/Time	8-31-95/1128	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	8-31-95/1126	(<500 cpm above background)

Weather: Clear, hot, and humid. Temp.: Mid-60s to near 90 °F.

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature: Timothy Coffey Date: 8-31-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. LL/HAZ-14 SITE: Gum Branch Road Area

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	11.1*	Date/Time	2-16-96/1653	(4.0 - 10.5)
Organic vapors	0.0 ppm/0.2 ppm	Date/Time	2-15-96/1330	(<5.0 ppm above background)
Beta/gamma	50 cpm/80 cpm	Date/Time	2-16-96/1609	(<100 cpm above background)
Alpha	0 cpm/30 cpm	Date/Time	2-19-96/1440	(<500 cpm above background)

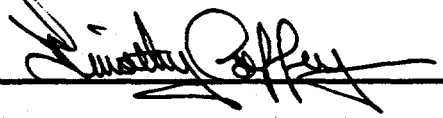
*Elevated pH reading due to cement fragments in cuttings composite.

Weather: Refer to field logbooks Temp.: Refer to field logbooks

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 2-20-96

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. P&A 1 SITE: Gum Branch Road Area

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

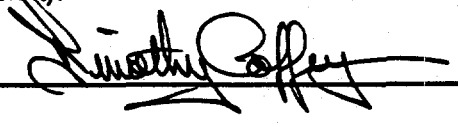
pH	8.7	Date/Time	10-3-95/1345	(4.0 - 10.5)
Organic vapors	0.0 ppm/2.7 ppm	Date/Time	10-3-95/1344	(<5.0 ppm above background)
Beta/Gamma	40 cpm/60 cpm	Date/Time	10-3-95/1245	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	10-3-95/1243	(<500 cpm above background)

Weather: Cloudy and rainy, sometimes heavy rain. Temp.: Low-60s to mid-70s °F

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 10-3-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. P&A 2 SITE: Gum Branch Road Area

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	8.9	Date/Time	10-4-95/1358	(4.0 - 10.5)
Organic vapors	0.0 ppm/2.9 ppm	Date/Time	10-4-95/1356	(<5.0 ppm above background)
Beta/Gamma	40 cpm/60 cpm	Date/Time	10-4-95/1308	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	10-4-95/1306	(<500 cpm above background)

Weather: Cloudy, light rain in a.m. Temp.: Low-60s to low-70s °F

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature:  Date: 10-4-95

Y-12 PLANT GWPP WELL CUTTINGS FIELD SCREENING/DISPOSAL SHEET

WELL/BOREHOLE NO. P&A 3 SITE: Gum Branch Road Area/Haul Road

APPROX. VOLUME OF CUTTINGS: -NA-

CALIBRATION OF INSTRUMENTS (check those instruments calibrated to manufacturer's specifications):

pH meter	X	(model)	Horiba Model U-7
Organic vapor meter	X	(model)	Century-Foxboro OVA Model 128
Beta/gamma meter	X	(model)	Ludlum Model 3 Survey Meter with G-M Pancake Probe
Alpha meter	X	(model)	Ludlum Model 12 Count Ratemeter with Scintillation Tube Probe

FIELD SCREENING RESULTS (background/maximum observed values):

pH	8.6	Date/Time	10-6-95/1213	(4.0 - 10.5)
Organic vapors	0.0 ppm/1.1 ppm	Date/Time	10-6-95/1211	(<5.0 ppm above background)
Beta/Gamma	40 cpm/60 cpm	Date/Time	10-6-95/1103	(<100 cpm above background)
Alpha	0 cpm/0 cpm	Date/Time	10-6-95/1101	(<500 cpm above background)

Weather: Partly to mostly cloudy Temp.: Upper 50s to low-70s °F

DISPOSITION: Drill-site Disposal X Containerization _____
(Labeled?) y/n

Describe: Cuttings discharged to ground surface.

Onsite Geologist (print): Timothy Coffey - SAIC

Signature: Timothy Coffey Date: 10-6-95

APPENDIX E
EQUIPMENT DECONTAMINATION SUMMARIES

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. 1004

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: S3 Ponds

DATE: START: 9-5-95

DECONTAMINATION CREW: H. Hall/J. Gallaher

FINISH: 9-7-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	9-1-95	9-5-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	9-1-95	9-5-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	9-1-95	9-5-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. 1095

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒

LOCATION: Sediment Disposal Basin

DATE: START: 2-28-96

DECONTAMINATION CREW: H. Hall

FINISH: 3-5-96

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand T4W (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	2-28-96	2-28-96	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	2-28-96	2-28-96	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	2-28-96	2-28-96	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
Conductor Casing: 10 3/4-in. OD, 10 18-in. ID, 3.7 ft	2-28-96	2-28-96	Pass	TJC

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. 1096

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Sediment Disposal Basin

DATE: START: 2-27-96

DECONTAMINATION CREW: H. Hall

FINISH: 3-4-96

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand T4W (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	2-26-96	2-27-96	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	2-26-96	2-27-96	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	2-26-96	2-27-96	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
Conductor casing: 10 3/4-in. OD, 10 1/8-in. ID, 3.7 ft	2-26-96	2-27-96	Pass	TJC

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. B-1

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Urea Pile (East Chestnut Ridge)

DATE: START: 9-22-95

DECONTAMINATION CREW: H. Hall/J. Gallaher

FINISH: 9-22-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand T4W (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	9-21-95	9-22-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	9-21-95	9-22-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	9-21-95	9-22-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. B-3

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒

LOCATION: Urea Pile (East Chestnut Ridge)

DATE: START: 9-21-95

DECONTAMINATION CREW: G. Shillings/J. Gallaher

FINISH: 9-22-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand T4W (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	9-21-95	9-21-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	9-21-95	9-21-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	9-21-95	9-21-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-002

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Oil Landfarm

DATE: START: 9-28-95

DECONTAMINATION CREW: H. Hall/J. Gallaher/J. Monger

FINISH: 10-2-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	9-22-95	9-28-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	9-22-95	9-28-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	See Below			
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
Washover Pipe: 5-in. ID, 6 1/4-in. OD	9-27-95	9-28-95	Pass	TJC
Bit/Subadapter: 8 3/4-in. dia., length = 4.3 ft.	9-28-95	9-28-95	Pass	TJC

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-007

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Oil Landfarm

DATE: START: 9-19-95

DECONTAMINATION CREW: R. Phillips/J. Gallaher

FINISH: 9-21-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand T4W (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	9-19-95	9-19-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	9-19-95	9-19-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	9-19-95*	9-19-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
Washover Pipe: 5-in. ID, 6 1/2-in. OD	9-19-95	9-19-95	Pass	TJC
Washover Pipe: 8-in. ID, 9 1/4-in. OD	9-19-95	9-20-95	Pass	TJC

COMMENTS: *Also utilized washover pipe (see Other Equipment or Re-inspection section above).

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-295

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Chestnut Ridge Waste Pile

DATE: START: 6-22-95

DECONTAMINATION CREW: Jim Gallaher/Jerry Gallaher

G. Shillings

FINISH: 9-20-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand T4W (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	6-21-95	6-22-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	6-21-95	6-22-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	See below			
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	See below			
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
Washover Pipe: 5-in. ID, 6 1/2-in. OD	6-21-95/ 6-22-95	6-22-95	Pass	TJC
Bit/stabilizer assembly: 9 7/8-in. diameter, length = 20.3 ft.	6-23-95	6-26-95	Pass	TJC
Washover Pipe: 12-in. ID, 13 3/4-in. OD	6-28-95/ 7-20-95	6-29-95/ 7-20-95	Pass	TJC/SLA
Hole opener/stabilizer: 15-in. dia., length = 20.1 ft.	9-14-95	9-14-95	Pass	TJC
Conductor casing used during reaming: 19 1/4-in. ID, 20-in. OD	9-14-95	9-14-95	Pass	TJC

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-297

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒

LOCATION: Chestnut Ridge Waste Pile

DATE: START: 8-4-95

DECONTAMINATION CREW: J. Gallaher/H. Hall
R. Phillips/J. Monger

FINISH: 8-25-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-T4W (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	8-2-95/ 8-3-95	8-4-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	8-3-95	8-4-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	See below	See below	See below	See below
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	8-11-95*	8-11-95	Pass	TJC
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
Washover Pipe: 4 1/2-in. ID, 6 1/2-in. OD	8-4-95/ 8-7-95/ 8-8-95	8-4-95/ 8-7-95/ 8-8-95	Pass	TJC
Bit/stabilizer assembly: 9 7/8-in. diameter	8-8-95	8-8-95	Pass	TJC
Washover Pipe: 11 7/8-in. ID, 13 3/4-in. OD	8-11-95/ 8-14-95 - 8-17-95	8-11-95/ 8-14-95 - 8-17-95	Pass	TJC
Hole opener: 16-in. diameter	8-18-95	8-18-95	Pass	TJC
Conductor casing:** 19 1/2-in. ID, 20 1/8-in. OD	8-21-95	8-21-95	Pass	TJC

COMMENTS: *Used a section of 15 3/8-in. ID, 16-in. OD steel conductor casing to hold open the borehole collar while over washing the surface casing.

**Used a section of 19 1/2-in. ID, 20 1/8-in. OD conductor casing when hole opener bit would not fit inside the 15 3/8-in. ID casing.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-448

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Gum Branch Road Area

DATE: START: 8-28-95

DECONTAMINATION CREW: H. Hall/J. Gallaher

FINISH: 8-30-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	8-28-95	8-28-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	8-28-95	8-28-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	8-29-95	8-29-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS: —

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-452

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Gum Branch Road Area

DATE: START: 8-28-95

DECONTAMINATION CREW: H. Hall

FINISH: 8-29-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	8-25-95	8-28-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	8-25-95	8-28-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	8-25-95	8-28-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-660

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒
REDEVELOPMENT ☐

LOCATION: East Fork Poplar Creek

DATE: START: 4-29-96

DECONTAMINATION CREW: G. Shillings/J. Gallaher

FINISH: 4-29-96

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Altec Auger Truck (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	4-29-96	4-29-96	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bails, Clevis, Chains, Etc.)	4-29-96	4-29-96	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	4-29-96	4-29-96	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-669

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒
REDEVELOPMENT ☐

LOCATION: East Fork Poplar Creek

DATE: START: 4-30-96

DECONTAMINATION CREW: G. Shillings/H. Hall

FINISH: 4-30-96

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Altec Auger Truck (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	4-29-96*	4-29-96	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	4-30-96	4-29-96	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	4-30-96	4-30-96	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS: *S. Jones (HSEA) approves steam cleaning of augers and other drilling tools only.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-670

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒
REDEVELOPMENT ☐

LOCATION: East Fork Poplar Creek

DATE: START: 5-2-96

DECONTAMINATION CREW: G. Shillings/J. Gallaher

FINISH: 5-7-96

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	5-2-96	5-2-96	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	5-2-96	5-2-96	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	5-2-96*	5-2-96*	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
*Washover pipe: 6-in. OD, 5 1/4-in. ID	5-2-96	5-2-96	Pass	TJC
*Washover pipe: 9-in. OD, 8-in. ID	5-2-96	5-3-96	Pass	TJC
*Washover pipe: 13 1/4-in. OD, 12-in. ID	5-6-96	5-6-96	Pass	TJC
Hole opener: 16-in. diameter	5-6-96	5-6-96	Pass	TJC

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. GW-671

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒
REDEVELOPMENT ☐

LOCATION: East Fork Poplar Creek

DATE: START: 5-7-96

DECONTAMINATION CREW: G. Shillings

FINISH: 5-7-96

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ford 555B Backhoe w/McMillan Digger. (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	NA*	—	—	—
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	5-7-96	5-7-96	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	5-7-96	5-7-96	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS: *Backhoe and auger motor decontaminated and "green-tagged" out of X-10 site on unknown date.

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. LL/HAZ-06

INSTALLATION ☐
P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Gum Branch Road Area

DATE: START: 8-30-95

DECONTAMINATION CREW: R. Phillips

FINISH: 8-31-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	8-29-95	8-30-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	8-29-95	8-30-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	8-29-95	8-30-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. LL/HAZ-11

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒

LOCATION: Gum Branch Road Area

DATE: START: 2-21-96

DECONTAMINATION CREW: R. Phillips/H. Hall

FINISH: 3-4-96

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	2-21-96	2-21-96	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	2-21-96	2-21-96	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	2-21-96	2-21-96	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
Bit: 8 1/2-in. diameter	2-22-96	2-22-96	Pass	TJC

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. LL/HAZ-12

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Gum Branch Road Area

DATE: START: 8-31-95

DECONTAMINATION CREW: H. Hall

FINISH: 9-5-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	8-30-95	8-31-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	8-30-95	8-31-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	8-30-95	8-31-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. LL/HAZ-14

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

INSTALLATION ☐
P&A ☒

LOCATION: Gum Branch Road Area

DATE: START: 2-15-95

DECONTAMINATION CREW: R. Phillips/H. Hall

FINISH: 3-1-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	2-14-96	2-15-96	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	2-14-96	2-15-96	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	2-14-96	2-15-96	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				
Washover Pipe: 8 1/4-in. ID, 9 1/2-in. OD	2-16-96	2-16-96	Pass	TJC

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. P&A 1

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Gum Branch Road Area

DATE: START: 10-2-95

DECONTAMINATION CREW: J. Monger

FINISH: 10-4-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	10-3-95	10-3-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	10-3-95	10-3-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	10-3-95	10-3-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. P&A 2

INSTALLATION ☐

P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Gum Branch Road Area

DATE: START: 10-4-95

DECONTAMINATION CREW: E. Lyons

FINISH: 10-9-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	10-4-95	10-4-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	10-4-95	10-4-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	10-4-95	10-4-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

Y-12 PLANT GROUNDWATER PROTECTION PROGRAM

WELL NO. P&A 3

INSTALLATION ☐
P&A ☒

EQUIPMENT DECONTAMINATION INSPECTION SUMMARY

LOCATION: Gum Branch Road Area/Haul Road

DATE: START: 10-6-95

DECONTAMINATION CREW: E. Lyons/H. Hall

FINISH: 10-11-95

EQUIPMENT	DECON DATE	INSPECTION DATE	INSPECTION (PASS/FAIL)	INSPECTOR'S INITIALS
DRILL RIG Ingersoll-Rand XL-750 (Mast, Chassis, Cables, Carousel, Hoses, Etc.)	10-4-95	10-6-95	Pass	TJC
DRILLING TOOLS (Pipe Wrenches, Hand Tools, Lifting Bells, Clevis, Chains, Etc.)	10-4-95	10-6-95	Pass	TJC
DOWN HOLE TOOLS (Drilling Rods, Stabilizers, Washover Pipe, Bits, Etc.)	10-6-95	10-6-95	Pass	TJC
WELL CONSTRUCTION MATERIALS (Casing, Screen, Centralizers, Etc.)	-NA-	—	—	—
WORKOVER RIG _____ (Mast, Chassis, Cables, Hoses, Etc.)	-NA-	—	—	—
DEVELOPMENT TOOLS (Tubing, Bailers, Pumps, Etc.)	-NA-	—	—	—
OTHER EQUIPMENT OR RE-INSPECTIONS (SPECIFY)				

COMMENTS:

APPENDIX F

WELL LOCATION MAPS