



Environment

Prepared for:
CNA Holdings LLC
Dallas, TX

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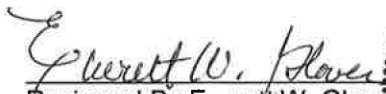
Auriga Spartanburg Voluntary Cleanup Contract 13-5841-RP Progress Report May 2013



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1.0 Introduction

The purpose of this document is to provide to the South Carolina Department of Health and Environmental Control (DHEC) an update of activities at the Auriga facility in Spartanburg, South Carolina (SC) (site) under Voluntary Cleanup Contract 13-5841-RP (VCC) signed March 12, 2013. Activity to be completed at the site was defined in the VCC work plan submitted April 26, 2013. This progress report covers the period of March 12, 2013 through April 30, 2013.

2.0 Actions Completed during Reporting Period

The VCC requires submittal of this first progress report within 60 days of signing. Therefore, a period of approximately seven weeks is included in this first reporting cycle. The work completed between March 12 and April 30 was mostly associated with planning and reporting. The proposed schedule as presented in the VCC work plan is attached as Figure 1 of this report.

2.1 Reporting

Several documents were submitted to DHEC during this reporting period.

The report of December 2012 groundwater monitoring results was submitted on March 21, 2013. Future groundwater monitoring reports will be included within the VCC progress reports. The groundwater analytical summary table presented in the March 21 report is included as Table 1 of this progress report. The surface water analytical summary table presented in the March 21 report is included as Table 2 of this progress report.

The report including the results of the DMT area investigation and a proposal for injection activities in this area was submitted to DHEC on March 25, 2013.

A letter updating the short-term schedule of deliverables based on the VCC signature date was submitted to DHEC on March 25, 2013.

The VCC work plan was submitted to DHEC on April 26, 2013.

In addition, the VCC health and safety plan (HASP) was submitted to DHEC on April 26, 2013.

2.2 Monitoring

No monitoring activity was completed during this reporting period.

Monitoring well MW-40R was installed on April 2, 2013. Well MW-40 was previously found to have a breached casing. As a result, MW-40 was abandoned and MW-40R was installed as a replacement. The location and dimensions of MW-40R are comparable to MW-40. The construction details for MW-40R are shown on Figure 2.

2.3 Remediation

No new remediation work was initiated during this reporting period.

Cyclic recovery of DowTherm A™ phase material from well MW-07 continued during the period. The recovery tank was drained on April 17, 2013. Approximately 375 gallons of water and 1.5 gallons of product were removed from the tank. The water was discharged to the facility treatment system. The product was combined with waste oil disposal from the facility.

3.0 Actions Scheduled for Next Reporting Period

The next reporting period will extend from May 1, 2013 through August 31, 2013. The VCC requires semiannual progress reports, therefore the second reporting period will be four months long to align the progress report schedule with ongoing monitoring and reporting. Activities expected to be completed during the second period are presented in the schedule on Figure 1.

3.1 Reporting

The VCC work plan submitted during the current period is expected to be in DHEC review for the first half of the next period. Response to comments of submittal of the final work plan is expected to occur in the next period.

A report presenting the results of late 2012 investigations near Bruckner Road is scheduled for submittal to DHEC by May 15, 2013. This report will include proposals for supplemental investigation and remediation activities.

The progress report covering the upcoming period will be submitted by September 30, 2013. This progress report will include the results of the annual sampling event and will also provide an update of the remedial effectiveness report, as required by the VCC.

3.2 Monitoring

The annual sampling event is scheduled for June 2013. The plan for the June 2013 annual sampling event is presented in the VCC work plan. The proposed monitoring plan is presented in Table 3 and the monitoring locations are presented on Figure 3 of this report.

3.3 Remediation

Several remediation activities are scheduled for the May through August 2013 period. The proposed schedule is presented on Figure 1. Approval of the VCC work plan is the first step in proceeding with the remedial actions. Because the approval is pending, the schedule of remedial actions is approximate.

The investigation and remediation activities for chloroform in and near the DMT area as described in the March 2013 work plan are scheduled to start in June 2013. Similar investigation and injection activities will start at the Bruckner Road area in July 2013. The Bruckner Road work will be subsequent to both the approval of the work plan for that area as well as completion of the DMT area work.

The investigation of phase DowTherm A™ is targeted to begin in late August 2013. The details of this plan are included in the VCC work plan.

4.0 Environmental Data Generated during Reporting Period

No new environmental data were generated during this period.

5.0 Problems Encountered and Responses

No problems were encountered during this period.

Tables

Table 1
 Summary of Groundwater Analytical Results
 December 2012
 Auriga Spartanburg Facility
 AECOM Project No. 60280417

Parameter	Unit	EW-31 12/05/2012	EW-37 12/06/2012	EW-41 12/05/2012	EW-41 Dup 12/05/2012	EW-49 12/05/2012	EW-52 12/06/2012	EW-53 12/06/2012	MW-52 12/05/2012	MW-99 12/06/2012	MW-103 12/06/2012
Volatile Organics											
chloroform	mg/L	<0.005	<0.005	0.0778	0.079	<0.005	<0.005	<0.005	<0.005	0.00744	<0.005
cis-1,2-dichloroethene	mg/L	<0.005	<0.005	<0.005	<0.005	0.00651	0.0441	<0.005	<0.005	0.094	<0.005
tetrachloroethene	mg/L	<0.005	0.00664	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.163	<0.005
trichloroethene	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0316	<0.005
Field and Natural Attenuation Parameters											
alkalinity	mg/L	120	26.7	33.3	34.3	91.2	52.3	62.5	NA	3.59	3.59
chloride	mg/L	8	12.1	3.74	3.81	2.17	3.09	10.5	NA	1.87	2.99
dissolved oxygen	mg/L	0.43	0.22	0.38	0.38	0.6	0.37	0.21	4.11	2.11	6.82
ferrous iron	mg/L	1.2	0.2	1.2	1.2	0.0	4.2	4.6	NA	<0.1	<0.1
groundwater elevation	feet MSL	669.18	718.11	669.05	669.05	725.05	721.48	694.24	687.67	730.01	689.05
manganese (dissolved)	mg/L	1.56	0.917	0.896	0.884	0.057	0.201	1.45	NA	0.035	0.043
ORP	mV	-105.8	151.3	44	44	-189.4	-71.9	-22	153.4	277.5	345.3
pH	su	6.92	5.74	5.82	5.82	8.14	6.45	6.18	6.44	5.21	4.61
specific conductance	umhos/cm	269	125	103	103	209	154	171	149	30	53
temperature	degrees C	16.55	18.34	17.45	17.45	18.55	14.63	18.85	18.51	18.69	16.64
total organic carbon	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
turbidity	NTU	4.3	7.2	60.7	60.7	2.2	40.5	18.9	650	8.2	5.8

NA - Not Analyzed
 degrees C - degrees Celsius
 feet MSL - feet above mean sea level
 mg/L - milligrams per liter
 mV - millivolts
 NTU - nephelometric turbidity units
 su - standard units
 umhos/cm - micromhos/cm

Table 1
 Summary of Groundwater Analytical Results
 December 2012
 Auriga Spartanburg Facility
 AECOM Project No. 60280417

Parameter	Unit	MW-105 12/05/2012	MW-106 12/05/2012	MW-107 12/06/2012	MW-109 12/05/2012	RW-29 12/05/2012	RW-48 12/05/2012	RW-65 12/06/2012	RW-108 12/05/2012
Volatile Organics									
chloroform	mg/L	0.117	0.218	0.0468	0.586	<0.005	<0.005	<0.005	<0.005
cis-1,2-dichloroethene	mg/L	0.0165	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005
tetrachloroethene	mg/L	<0.005	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005
trichloroethene	mg/L	<0.005	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005
Field and Natural Attenuation Parameters									
alkalinity	mg/L	9.74	<1	25.1	16.4	65.8	62.4	107	186
chloride	mg/L	6.22	11.2	2.16	3.62	1.48	3.23	12.7	4.94
dissolved oxygen	mg/L	4.39	6.55	7.36	9.21	0.21	0.24	0.55	0.41
ferrous iron	mg/L	<0.1	<0.1	<0.1	0.14	0.0	1.6	0.4	0.16
groundwater elevation	feet MSL	715.59	716.04	685.08	674	770.99	704.91	682.84	673.3
manganese (dissolved)	mg/L	<0.01	0.021	<0.01	<0.01	0.014	2.65	1.8	0.169
ORP	mV	226.8	292.9	197.6	184.1	-240.7	-175.9	-86.5	-86.11
pH	su	5.37	4.95	5.63	5.82	8.13	6.84	7.37	7.81
specific conductance	umhos/cm	69	63	67	56	152	208	258	326
temperature	degrees C	18.67	18.95	17.0	17.91	17.75	18.25	16.77	17.79
total organic carbon	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
turbidity	NTU	2.2	3.4	0.6	281.6	6.9	75.8	1.8	15

NA - Not Analyzed
 degrees C - degrees Celsius
 feet MSL - feet above mean sea level
 mg/L - milligrams per liter
 mV - millivolts
 NTU - nephelometric turbidity units
 su - standard units
 umhos/cm - micromhos/cm

Table 2
Summary of Surface Water Analytical Results
December 2012
Auriga Spartanburg Facility
AECOM Project No. 60280417

Parameter	Unit	SW-12 12/05/2012
Volatile Organics		
chloroform	mg/L	0.0187
Field and Natural Attenuation Parameters		
alkalinity	mg/L	<1
dissolved oxygen	mg/L	8.07
ferrous iron	mg/L	<0.01
manganese (dissolved)	mg/L	<0.01
ORP	mV	157.6
pH	su	6.11
specific conductance	umhos/cm	0.103
temperature	degrees C	14.24
total organic carbon	mg/L	<1
turbidity	NTU	10.91

degrees C - degrees Celsius
feet MSL - feet above mean sea level
mg/L - milligrams per liter
mV - millivolts
NTU - nephelometric turbidity units
su - standard units
umhos/cm - micromhos/cm

Table 3
June 2013 Monitoring Plan
Auriga Spartanburg Facility
AECOM Project No. 60240817

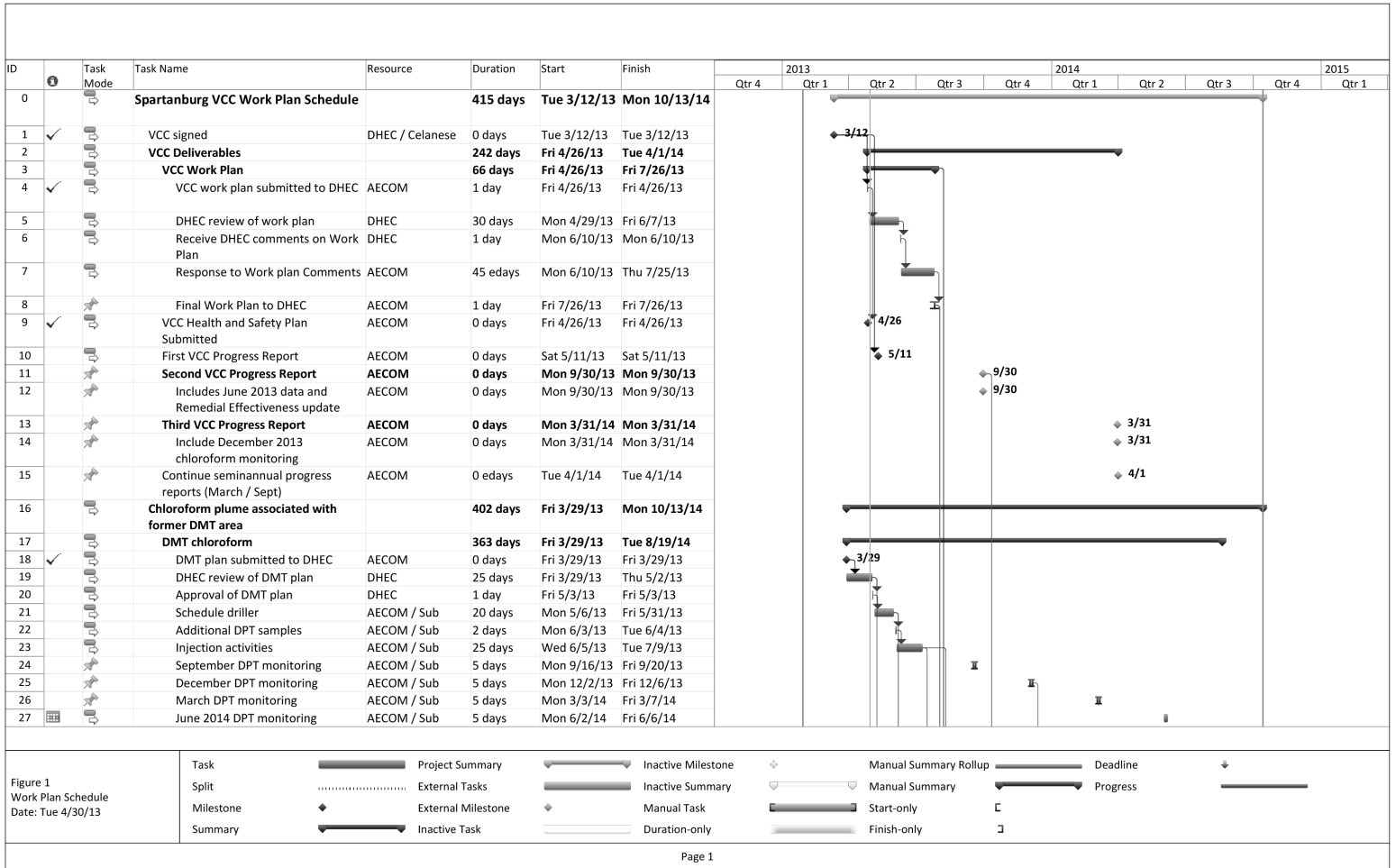
Sample Location	VOCs (8260)	1,4-Dioxane	DowTherm A™	Natural Attenuation Parameters
Groundwater				
EW-01		X	X	
EW-02		X	X	
EW-07		X		
EW-14	X	X	X	
EW-15		X		
EW-16		X	X	
EW-17		X	X	
EW-20	X	X		
EW-22		X	X	
EW-26		X	X	
EW-27		X	X	
EW-28		X	X	
EW-30	X			X
EW-31		X		X
EW-32		X	X	
EW-36	X			X
EW-37	X	X		X
EW-38	X	X		
EW-39	X			X
EW-40	X			X
EW-41	X	X		X
EW-43		X	X	
EW-47	X	X		
EW-49	X	X	X	X
EW-50	X			X
EW-52	X	X	X	X
EW-53	X	X	X	X
MW-03	X	X		
MW-05		X	X	
MW-07		X	X	
MW-09A		X		
MW-26		X		
MW-39		X	X	
MW-40R		X	X	
MW-41		X		
MW-42		X	X	
MW-45	X			X
MW-46	X			X
MW-53		X	X	
MW-57		X		
MW-81		X	X	
MW-96		X	X	
MW-97		X	X	

Table 3
June 2013 Monitoring Plan
Auriga Spartanburg Facility
AECOM Project No. 60240817

Sample Location	VOCs (8260)	1,4-Dioxane	DowTherm A™	Natural Attenuation Parameters
MW-98	X	X		
MW-99	X	X	X	X
MW-102		X	X	
MW-103	X	X	X	X
MW-105	X	X	X	X
MW-106	X	X	X	X
MW-107	X	X	X	X
MW-109	X	X	X	X
RW-08		X	X	
RW-24		X	X	
RW-29	X	X	X	X
RW-43		X	X	
RW-47	X			X
RW-48	X	X	X	X
RW-56		X		
RW-65	X	X	X	X
RW-79		X	X	
RW-80		X	X	
RW-82		X	X	
RW-83A		X	X	
RW-84		X	X	
RW-85		X	X	
RW-86		X	X	
RW-87		X	X	
RW-91		X	X	
RW-92		X	X	
RW-108	X	X	X	X
RW-110	X	X		
RW-111	X	X		
Surface Water *				
SW-01	X	X	X	
SW-02	X	X	X	
SW-03	X	X	X	
SW-04	X	X	X	
SW-05	X	X	X	
SW-06	X	X	X	
SW-07	X	X	X	
SW-08	X	X	X	
SW-09	X	X	X	
SW-10	X	X	X	
SW-11	X	X	X	
SW-12	X	X	X	
SW-13	X	X		
SW-14	X	X		

NA Parameters - Temperature, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), ortho phosphate, sulfate, sulfide, alkalinity, chloride, nitrate, nitrite, dissolved ferrous iron, dissolved manganese, and total organic carbon (TOC).

Figures



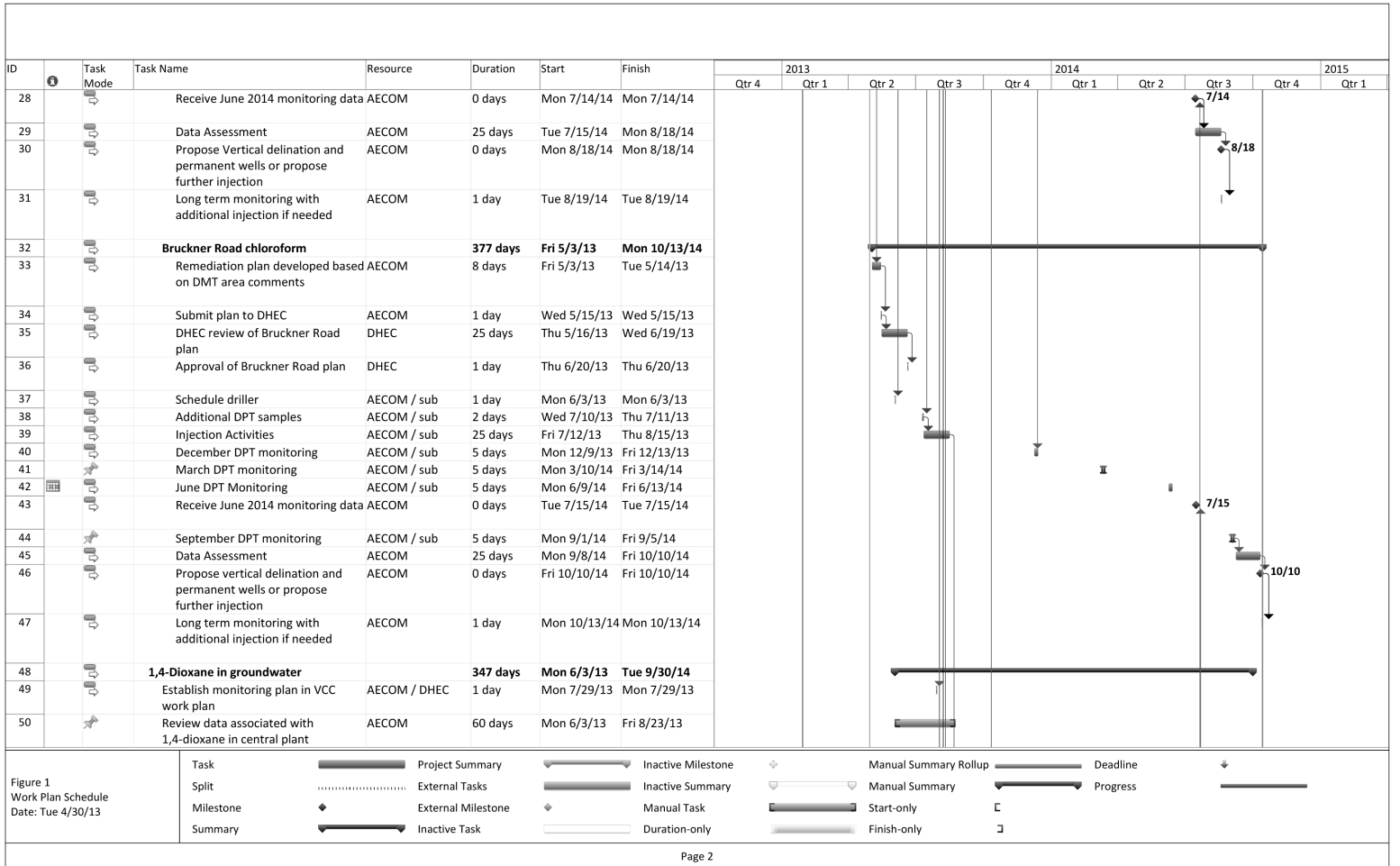
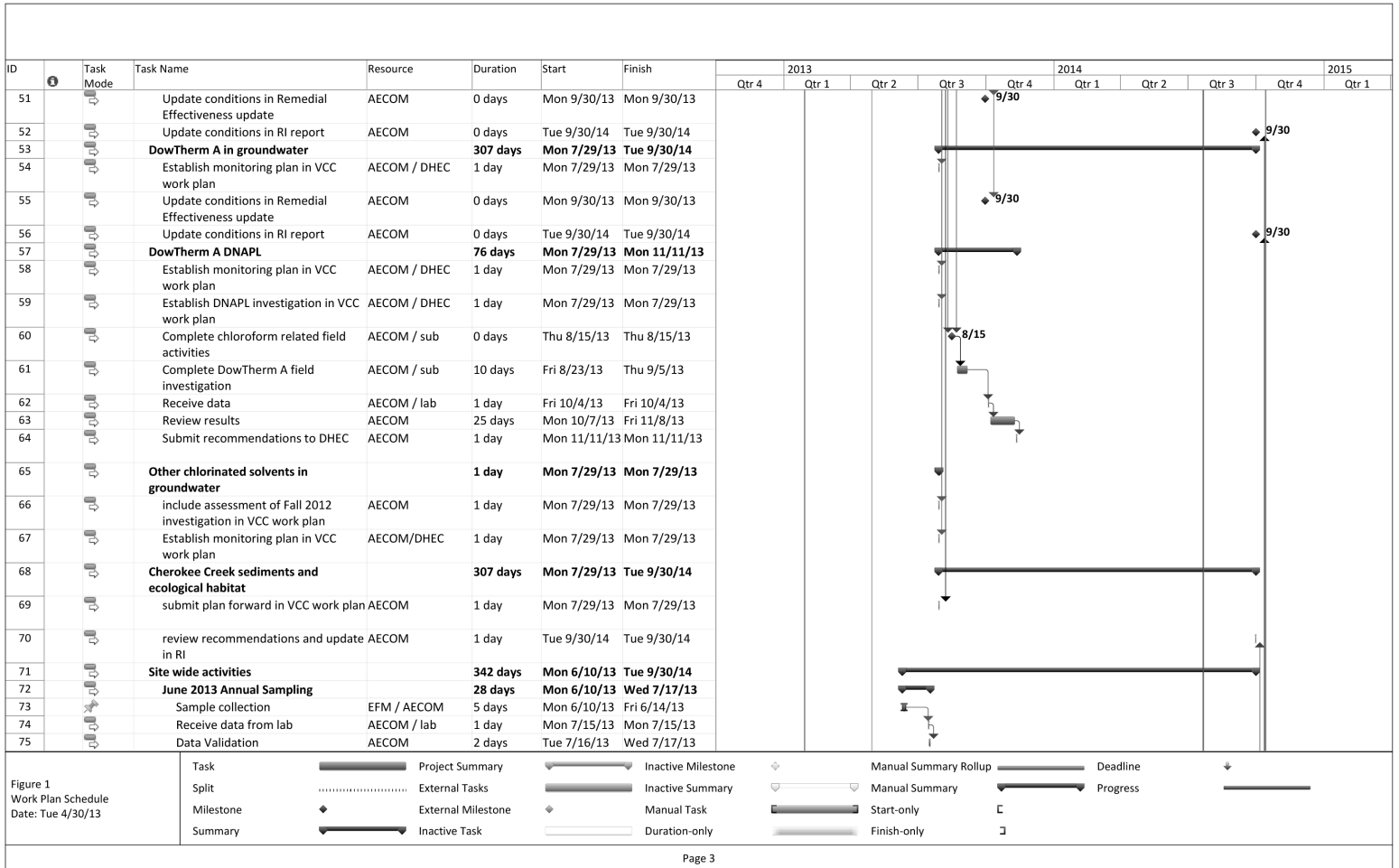


Figure 1
Work Plan Schedule
Date: Tue 4/30/13

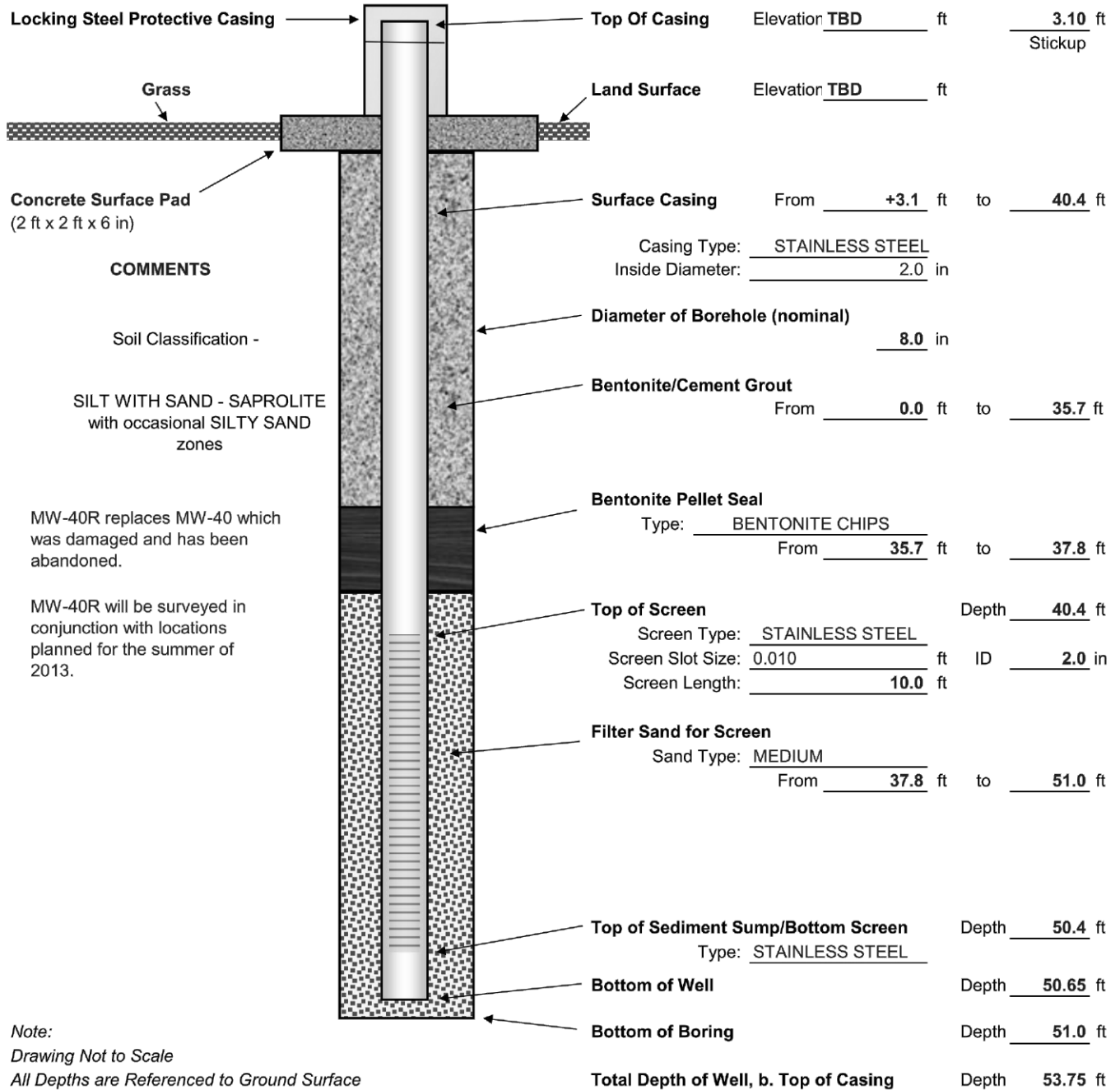


ID	Task Mode	Task Name	Resource	Duration	Start	Finish	2013				2014				2015		
							Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	
76		December 2013 Monitoring		28 days	Sat 12/7/13	Wed 1/15/14											
77		Sample collection	EFM / AECOM	2 days	Sat 12/7/13	Mon 12/9/13											
78		Receive Data	AECOM / lab	0 days	Mon 1/13/14	Mon 1/13/14											
79		Data Validation	AECOM	2 days	Tue 1/14/14	Wed 1/15/14											
80		June 2014 Annual Sampling		27 days	Mon 6/9/14	Tue 7/15/14											
81		Sample collection	EFM / AECOM	5 days	Mon 6/9/14	Fri 6/13/14											
82		Receive data from lab	AECOM / lab	1 day	Mon 7/14/14	Mon 7/14/14											
83		Data Validation	AECOM	1 day	Tue 7/15/14	Tue 7/15/14											
84		Remedial Investigation Report		55 days	Wed 7/16/14	Tue 9/30/14											
85		Complete work plan investigations (through June 2014 data)	AECOM / DHEC / subs	1 day	Wed 7/16/14	Wed 7/16/14											
86		draft RI	AECOM	40 days	Thu 7/17/14	Wed 9/10/14											
87		review RI	Celanese	8 days	Thu 9/11/14	Mon 9/22/14											
88		complete RI	AECOM	5 days	Tue 9/23/14	Mon 9/29/14											
89		Submit RI (with progress report 4)	AECOM	1 day	Tue 9/30/14	Tue 9/30/14											
90		Continue Monitoring as established in Work Plan	AECOM / EFM	1 eday	Tue 7/15/14	Wed 7/16/14											

Figure 1
Work Plan Schedule
Date: Tue 4/30/13

Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
Split		External Tasks		Inactive Summary		Manual Summary		Progress	
Milestone		External Milestone		Manual Task		Start-only			
Summary		Inactive Task		Duration-only		Finish-only			

Project Name: AURIGA **Drilling Co:** AE DRILLING SERVICES **Well Number:** MW-40R
Location: SPARTANBURG, SC **Driller:** ABEL MCGUIRE **Job Number:** 60280417
Client: CELANESE **Drilling Method:** HOLLOW STEM AUGER **Date Completed:** April 2, 2013
Geologist: MARK HARTFORD **Static Water Level:** 37.44 **b.TOC** **Survey Datum:** NAVD 88



3/1/2013

L:\Group\earth\ATLANTA Cadd Files\79748 Spartanburg\79748129 MW-40R Well Construction Details.dwg



FIGURE 2
MW-40R
CONSTRUCTION DETAILS

AURIGA SPARTANBURG FACILITY
SPARTANBURG, SOUTH CAROLINA

