July 12, 2016

REMEDIAL INVESTIGATION / FEASIBILITY STUDY

PROGRESS REPORT #4

JUNE 2016

Prepared for

COLUMBIA FALLS ALUMINUM COMPANY, LLC
2000 Aluminum Drive, Columbia Falls
Flathead County, Montana

ROUX ASSOCIATES, INC.

Environmental Consulting & Management

ROUX

209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600

2476.0001Y002.138/CV

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 WORK COMPLETED 2
- 2.1 SAP Addendum 2
- 2.2 Phase I Site Characterization Drilling Scope of Work 2
  - 2.2.1 Monitoring Well Installation 2
  - 2.2.2 Soil Borings 4
  - 2.2.3 Operational Grid Soil Sampling 4
  - 2.2.4 Soil Sampling 4
- 2.3 Soil Gas Screening 4
- 2.4 Surface Water Sampling 5
- 2.5 Field Modifications 5
- 2.6 Weekly Reporting and Project Conference Calls 6

3.0 WORK PLANNED FOR NEXT REPORTING PERIOD 7
- 3.1 Ongoing Phase I Site Characterization Drilling and Soil Sampling Scope of Work 7
- 3.2 Monitoring Well Surveying 7
- 3.3 Monitoring Well Development 7
- 3.4 Geophysical Survey 7

4.0 DATABASE UPDATES 8

5.0 SCOPE/SCHEDULE REVISIONS 9

TABLES

1. Monitoring Wells Completed in June 2016 (embedded)
2. Phase I Site Characterization Soil Samples Collected in June 2016

APPENDIX

A. Project Schedule

ED_002345B_00009696-00002

1.0 INTRODUCTION

This Progress Report (Report) presents a summary of activities completed during the period of June 2016, on behalf of Columbia Falls Aluminum Company, LLC (CFAC), for the Remedial Investigation / Feasibility Study (RI/FS) being performed at the Anaconda Aluminum Co. Columbia Falls Reduction Plant (a/k/a Columbia Falls Aluminum Plant) generally located near Columbia Falls in Flathead County, Montana ("Site"). The RI/FS is being conducted pursuant to the Administrative Settlement Agreement and Order on Consent (AOC) dated November 30, 2015 between CFAC and the United States Environmental Protection Agency (USEPA) (CERCLA Docket No. 08-2016-0002).

This Report provides a description of the actions that have been taken to comply with the AOC during the reporting period and describes work planned for the upcoming reporting period, including an updated project schedule as Appendix A. This report also provides updates regarding the availability of any new, validated sampling data received by CFAC during the reporting period. Lastly, this Report provides an update on any scope revisions and/or project delays encountered and solutions implemented to address any changes.

2.0 WORK COMPLETED

This Section provides a summary of activities completed or ongoing in June 2016.

2.1 SAP Addendum

Roux Associates submitted the Site Characterization Sampling and Analysis Plan (SAP) Addendum to the USEPA on June 8, 2016. The purpose of the SAP Addendum is to document the results of Site reconnaissance activities completed in April and early May 2016, to provide a summary of the proposed modifications to the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) provided in the Phase I Site Characterization SAP, and to update project information. Roux received comments from USEPA on June 30, 2016 and is currently preparing a response.

2.2 Phase I Site Characterization Drilling Scope of Work

Drilling of soil borings, installation of monitoring wells, and soil sampling activities associated with the Phase I Site Characterization scope of work continued throughout June. The remainder of this section summarizes the drilling and sampling work completed between June 1, 2015 and June 30, 2016. All drilling locations, sample intervals and selected analyses were in accordance with the RI/FS Work Plan, Phase I Sampling and Analysis Plan, and the Phase I Sampling and Analysis Plan Addendum.

2.2.1 Monitoring Well Installation

Sixteen (16) monitoring well locations were drilled by Cascade Drilling and fifteen (15) monitoring wells were installed by Cascade Drilling during June 2016. Table 1 below summarizes the monitoring wells completed in June 2016.

Table 1. Monitoring Wells Completed in June 2016

Well Type	Well ID	Closest Site Feature	Date Started	Date Completed	Boring Depth (ft)	Well Depth (ft)	Well Screen Top (ft-bls)	Well Screen Bottom (ft-bls)
Water Table Monitoring Well	CFMW-002	Drum Storage Area	6/13/2016	6/14/2016	80	80	70	80
Deep Monitoring Well	CFMW-008a	Sanitary Landfill	6/13/2016	6/17/2016	300	98	88	98
Deep Monitoring Well	CFMW-011a	North-West Percolation Pond	6/25/2016	6/29/2016	300	166	156	166

Well Type	Well ID	Closest Site Feature	Date Started	Date Completed	Boring Depth (ft)	Well Depth (ft)	Well Screen Top (ft-bls)	Well Screen Bottom (ft-bls)
Deep Monitoring Well	CFMW-016a	Center Landfill	6/21/2016	6/24/2016	300	126	121	126
Water Table Monitoring Well	CFMW-022	East Landfill	6/2/2016	6/3/2016	85	80	70	80
Deep Monitoring Well	CFMW-023a	South Leachate Pond	6/17/2016	6/20/2016	196	0	0	0
Water Table Monitoring Well	CFMW-026	North-West Percolation Pond	6/14/2016	6/15/2016	50	45	35	45
Water Table Monitoring Well	CFMW-035	Main Plant Area	6/1/2016	6/2/2016	70	70	60	70
Water Table Monitoring Well	CFMW-037	Main Plant Area	6/24/2016	6/25/2016	100	100	90	100
Water Table Monitoring Well	CFMW-038	Rectifier Yards	6/25/2016	6/27/2016	105	105	95	105
Water Table Monitoring Well	CFMW-040	Rectifier Yards	6/28/2016	6/29/2016	90	90	80	90
Water Table Monitoring Well	CFMW-042	Main Plant Area	6/16/2016	6/18/2016	60	60	50	60
Water Table Monitoring Well	CFMW-043	Western Percolation Pond	6/15/2016	6/16/2016	60	60	50	60
Water Table Monitoring Well	CFMW-047	Rectifier Yards	6/21/2016	6/22/2016	120	120	110	120
Water Table Monitoring Well	CFMW-050	Main Plant Area	6/22/2016	6/24/2016	120	120	110	120
Water Table Monitoring Well	CFMW-054	Rod Mill	6/20/2016	6/21/2016	85	85	75	85

* *Note that proposed monitoring well CFMW-023a was not installed due to encountering shallow bedrock (~148 feet below land surface) and the presence of an existing monitoring well screened in the unconsolidated deposits above the bedrock (CFMW-023). The change was summarized in Field Modification #2 dated June 20, 2016.*

Each monitoring well was installed utilizing rotosonic drilling methods to advance casing and collect core samples for geologic logging and laboratory analysis. In the process of sonic coring, the holes were temporarily cased with a 6-inch nominal, inner diameter casing. In deep monitoring well locations, where unique geological layers that could serve as potential confining units were encountered beneath the water table during drilling, double-casing was used to hydraulically isolate monitoring wells screened within different layers, thereby minimizing any potential for cross contamination.

Monitoring well riser and screen were placed down the open hole and a sand filter pack was placed around the screen. The annulus above the filter pack was sealed with a bentonite seal.

Monitoring well casings were constructed of 2-inch diameter Schedule 40 polyvinyl chloride (PVC). Monitoring well screens were constructed of 2-inch diameter, machine slot schedule 40 PVC, with screen slot size of 0.020 and were flush-threaded onto the casings. Surface completion of each well consisted of a protective stick-up enclosure, a locking J-plug and an exterior lockable metal cover. Final boring logs for each monitoring well will be included in the Phase I Site Characterization Summary Report.

2.2.2 Soil Borings

In June 2016, Cascade Drilling completed 18 soil borings to approximately 12 to 15 feet below land surface utilizing the geoprobe drilling technique. Cascade Drilling also completed two (2) soil borings within the location identified as the Former Cathode Soaking Pits utilizing the sonic drilling technique. The final boring logs for each soil boring will be included in the Phase I Site Characterization Summary Report. A list of the borings completed and sampling associated with the completion of each boring is provided in Table 2.

2.2.3 Operational Grid Soil Sampling

Cascade Drilling completed collection of soil samples within 27 decision units using incremental sampling methods (ISM) in June 2016. All ISM soil samples were completed utilizing the geoprobe drilling technique. In each decision unit, surface and shallow subsurface ISM soil samples were collected. A list of the samples collected is provided in Table 2.

2.2.4 Soil Sampling

In June 2016, 195 soil samples were collected by Roux Associates field personnel from soil boring locations, operational area grid ISM sampling locations, and monitoring well drilling locations. Sample intervals and selected analyses were in accordance with the RI/FS Work Plan, Phase I Sampling and Analysis Plan, and the Phase I Sampling and Analysis Plan Addendum. Table 2 provides a summary of the samples collected.

2.3 Soil Gas Screening

As described in the May 2016 progress report and the SAP Addendum, soil gas locations within the industrial landfill, sanitary landfill, and west landfill were not screened in April due to Roux Associates' field personnel being unable to manually install a soil gas probe as a result of

subsurface conditions at approximately 1 to 2 feet below land surface. As described in the SAP Addendum, soil gas screening at these locations were conducted in June 2016 utilizing the Geoprobe to advance the soil gas screening holes in the landfills to five (5) feet below land surface prior to screening. Screening was conducted at 22 landfill locations to evaluate the potential for methane and volatile organic compounds (VOCs). This work was in accordance with the RI/FS Work Plan and summarized in the SAP Addendum.

2.4 Surface Water Sampling

In June 2016, ten (10) surface water samples were collected from surface water bodies present at the Site to evaluate surface water quality. The original schedule called for the surface water sampling to be performed in September 2016, in conjunction with the first round of groundwater sampling. Surface water samples were collected earlier than scheduled at the 10 locations sampled in June because it was anticipated that several of these surface water areas may dry out over the summer months. These locations include three locations in the South Percolation Ponds, five locations in the Cedar Creek Reservoir Overflow Drainage Ditch, and two locations in the northern area of the Site where surface water was observed. Results of the surface water sampling will be summarized in the Phase I Summary Report.

2.5 Field Modifications

Three field modifications were submitted to USEPA in June 2016 summarizing changes to the SAP and SAP Addendum. Prior to implementation, each of the field modifications were discussed with and verbally approved by the USEPA. The three field modifications include:

1. Modification #1 (June 14, 2016) – The incremental soil samples collected from the 0.5 to 2 feet depth intervals will not be analyzed for volatile organic compounds (VOCs) because the compositing and processing of the sample would result in loss of any VOCs, if present.

2. Modification #2 (June 20, 2016) – Deep monitoring Well CFMW-023a will not be installed due to bedrock being encountered during drilling at a depth of 148 feet below land surface and the presence of existing monitoring well CFMW-023 (located approximately 15 feet from the borehole for CFMW-023a) which is screened from approximately 137.5 to 143.5 feet below land surface.

3. Modification #3 (June 23, 2016) – Deep Monitoring Well CFMW-016a will be constructed with a five foot screen length from 121 to 126 feet below land surface, in lieu of a 10 foot screen length, to ensure ample separation from the shallow monitoring well, CFMW-016, which will be installed with a 10 foot screen length from 85 to 95 feet below land surface.

Formal written approval of the three field modifications is pending.

2.6 Weekly Reporting and Project Conference Calls

Roux Associates submitted a weekly report to the USEPA for each week in June 2016. The weekly reports include a summary of work completed for the prior week, work upcoming for the next week, health and safety, and any additional notable items.

Conference calls were also held with the project team on June 2, 2016, June 16, 2016 and June 30, 2016. Representatives from USEPA, MDEQ, CFAC, Roux Associates, and CDM Smith were present for the calls. During each call, topics discussed included work progress, schedule and field modifications.

3.0 WORK PLANNED FOR NEXT REPORTING PERIOD

This section summarizes the work planned for July 2016.

3.1 Ongoing Phase I Site Characterization Drilling and Soil Sampling Scope of Work

Drilling of soil borings, installation of monitoring wells, and soil sampling activities associated with the Phase I Site Characterization scope of work will continue in July 2016. The drilling and sampling work will continue in accordance with procedures described in the RI/FS Work Plan, Phase I SAP, the Phase I SAP Addendum, and any subsequent field modification authorizations. The drilling work will continue to be completed by Cascade Drilling with the support of Roux Associates field personnel. Future progress reports will discuss progress of the drilling scope of work, including a review of locations completed, a summary of samples collected, schedule, and any deviations from the Phase I SAP and the SAP Addendum.

3.2 Monitoring Well Surveying

During July 2016, Sands Surveying will be onsite to collect horizontal and vertical survey coordinates of the new monitoring wells. In accordance with the SAP Addendum, monitoring well survey data will be used to evaluate groundwater elevations and groundwater flow across the site.

3.3 Monitoring Well Development

During July 2016, Cascade Drilling will begin developing newly-constructed monitoring wells. The development will be completed using a surge block and submersible pump. In accordance with the QAPP, temperature, pH, specific conductance and turbidity readings will be monitored during development and pumping will proceed until the discharge water meets a field turbidity value to 10 formazin nephelometric units/nephelometric turbidity units (FNU/NTU) or less or until the field turbidity does not improve for a period of two hours during active development.

3.4 Geophysical Survey

As noted in previous progress reports, Spectrum Geophysics, subcontractor to Roux Associates, was onsite from April 18, 2016 through April 22, 2016 to complete an electrical resistivity (ER) / induced polarization (IP) geophysical survey. The scope of work for the geophysical survey was described Geophysical Work Plan prepared by Spectrum Geophysics and dated March 23, 2016 and was also described in the SAP Addendum. Spectrum Geophysics is continuing to process the data collected in April and a summary report will be submitted to the USEPA in July 2016.

4.0 DATABASE UPDATES

There were no updates to the database during June 2016. Following the receipt of validated laboratory data, data will be imported into the project database and managed in accordance with the data management procedures outlined in Section 7.10 of the QAPP.

5.0 SCOPE/SCHEDULE REVISIONS

The schedule was updated to reflect the progress as a result of the activities completed in June 2016. No changes to the overall schedule are expected at this time. The current Phase I Site Characterization schedule is attached to this Progress Report.

On behalf of CFAC, Roux Associates will continue to pursue the overall objectives described in the AOC and the RI/FS Work Plan. Roux Associates will continue to inform the USEPA of completed and upcoming activities pursuant to the requirements of the AOC in future progress reports.

Respectfully submitted,

ROUX ASSOCIATES, INC.

Michael Ritorto
Senior Hydrogeologist /
RI Project Manager

Andrew Baris
Vice President /
Principal Hydrogeologist
RI/FS Project Manager

Table 2. Samples Collected in June 2016
Phase I Site Characterization, Columbia Falls Aluminum Company, Columbia Falls, MT

Location ID	Date	Surface (0-0.5 ft bls)	Shallow (0.5-2 ft bls)	Vadose (10-12 ft bls)	Below Water Table (Interval TBD)	Surface (Lead Only)	Grain Size	Notes
CFMW-035	6/1/2016	X	X	X				
CFSB-073	6/1/2016	X	X	X				
CFSB-074	6/1/2016	X	X	X				
CFSB-075	6/1/2016	X	X	X				
CFSB-079	6/1/2016	X	X	X				
CFSB-080	6/1/2016	X	X	X				
CFSB-082	6/1/2016	X	X	X				
CFMW-003a	6/2/2016				X			Below Water Table collected 23-28 ft bls
CFMW-022	6/2/2016	X	X	X		X		
CFSB-014	6/2/2016	X	X	X				
CFSB-016	6/2/2016	X	X	X				
CFSB-062	6/2/2016	X	X	X				
CFSB-065	6/2/2016	X	X	X				
CFSB-064	6/3/2016	X	X	X				
CFSB-132	6/3/2016	X	X	X				
CFSB-133	6/3/2016	X	X	X				
CFSB-019	6/4/2016	X	X					
CFMW-002	6/13/2016	X	X	X				
CFMW-008a	6/13/2016	X	X	X	X	X		Below Water Table collected 88-93 ft bls
CFSB-019	6/13/2016			X				
CFSB-025	6/13/2016	X	X	X				
CFSB-026	6/13/2016	X	X	X				
CFSB-027	6/13/2016	X	X	X				
CFSB-030	6/13/2016	X	X	X				
CFISS-001	6/14/2016	X	X					
CFISS-002	6/14/2016	X	X					
CFMW-008a	6/14/2016						X	
CFMW-026	6/14/2016	X	X	X		X		
CFISS-003	6/15/2016	X	X					
CFISS-004	6/15/2016	X	X			X		
CFMW-043	6/15/2016	X	X	X				
CFISS-005	6/16/2016	X	X			X		
CFMW-042	6/16/2016	X	X	X				
CFISS-006	6/17/2016	X	X					
CFISS-007	6/17/2016	X	X					
CFMW-023a	6/17/2016	X	X	X		X		
CFSB-130	6/17/2016		X	X				Inside Main Plant. No surface sample collected - concrete from 0-0.5
CFSB-131	6/17/2016		X	X				Inside Main Plant. No surface sample collected - concrete from 0-0.5. Two additional samples collected as oppurtunity samples due to visual contamination. 18-20 as most impacted interval. 22-23 as below impacts.
CFISS-008	6/18/2016	X	X					
CFISS-015	6/18/2016	X	X					
CFMW-023a	6/18/2016				X		X	Below Water Table collected 123-128 ft bls
CFISS-013	6/20/2016	X	X			X		
CFISS-014	6/20/2016	X	X					
CFMW-054	6/20/2016	X	X	X				
CFISS-011	6/21/2016	X	X			X		
CFISS-012	6/21/2016	X	X					
CFMW-016a	6/21/2016	X	X	X	X	X	X	Below Water Table collected 79-84 ft bls
CFMW-047	6/21/2016					X		
CFMW-047	6/21/2016	X	X	X				
CFISS-009	6/22/2016	X	X					
CFISS-010	6/22/2016	X	X					
CFMW-050	6/22/2016	X	X	X		X		
CFISS-016	6/23/2016	X	X					
CFISS-017	6/23/2016	X	X					
CFISS-018	6/24/2016	X	X					

Table 2. Samples Collected in June 2016
Phase I Site Characterization, Columbia Falls Aluminum Company, Columbia Falls, MT

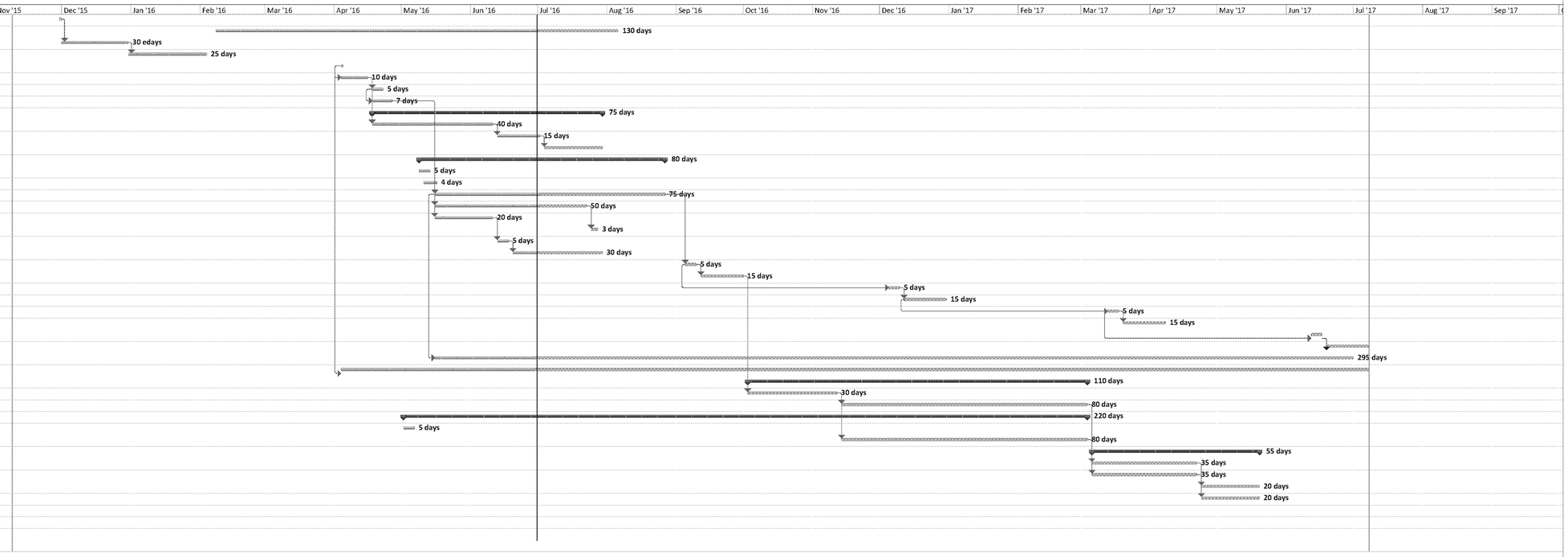
Location ID	Date	Surface (0-0.5 ft bls)	Shallow (0.5-2 ft bls)	Vadose (10-12 ft bls)	Below Water Table (Interval TBD)	Surface (Lead Only)	Grain Size	Notes
CFISS-019	6/24/2016	X	X					
CFMW-037	6/24/2016	X	X	X		X		
CFISS-020	6/25/2016	X	X					
CFISS-021	6/25/2016	X	X			X		
CFMW-038	6/25/2016	X	X	X		X		
CFMW-038	6/25/2016							
CFMW-11a	6/25/2016	X	X	X	X	X	X	Below Water Table collected 31-36 ft bls
CFISS-022	6/27/2016	X	X					
CFISS-023	6/27/2016	X	X					
CFISS-029	6/27/2016	X	X					
CFISS-016	6/28/2016		X					
CFMW-040	6/28/2016	X	X	X		X		
CFMW-040	6/28/2016							
CFISS-024	6/29/2016	X	X					
CFISS-025	6/30/2016	X	X					
CFISS-026	6/30/2016	X	X					
CFMW-027	6/30/2016	X	X	X		X		
CFMW-028a	6/30/2016	X	X	X	X	X		Below Water Table collected 48-53 ft bls. One additional sample collected from CMFW-28a from a zone of potential impact at 4.5-6' bgs

APPENDIX A

Project Schedule

Project Schedule Updated June 30, 2016

ID	Start	Finish	Company	Predecessors	Resource Names	% Complete
1	Mon 11/30/15	Mon 11/30/15	EPA/CFAC			100%
2	Mon 2/8/16	Fri 8/5/16	Roux		Lara Agnew,Amy Hoffmann,Sydne	80%
3	Mon 11/30/15	Wed 12/30/15	Roux	1	Mike Ritorto	100%
4	Thu 12/31/15	Wed 2/3/16	Roux	3	Mike Ritorto	100%
5	Mon 4/4/16	Mon 4/4/16				100%
6	Mon 4/4/16	Fri 4/15/16	Roux	5SS	Mike Ritorto,Amy Hoffmann,Sydn	100%
7	Mon 4/18/16	Fri 4/22/16	Roux	6	Amy Hoffmann,Sydney Ward	100%
8	Mon 4/18/16	Tue 4/26/16	Roux	7SS	Amy Hoffmann,Sydney Ward	100%
9	**Mon 4/18/16**	**Fri 7/29/16**	**Roux**		**Mike Ritorto**	**83%**
10	Mon 4/18/16	Fri 6/10/16	Roux	6	Mike Ritorto	100%
11	Mon 6/13/16	Fri 7/1/16	EPA	10	EPA	100%
12	Mon 7/4/16	Fri 7/29/16	Roux	11	Mike Ritorto	35%
13	**Mon 5/9/16**	**Fri 8/26/16**	**Roux/Hydrometrics**			**63%**
14	Mon 5/9/16	Fri 5/13/16	Roux		Sydney Ward	100%
15	Wed 5/11/16	Mon 5/16/16	Roux		Amy Hoffmann	80%
16	Mon 5/16/16	Fri 8/26/16	Roux	8FS+10 days	Sydney Ward	47%
17	Mon 5/16/16	Fri 7/22/16	Roux	8FS+10 days	Amy Hoffmann	70%
18	Mon 5/16/16	Fri 6/10/16	Hydrometrics	8FS+10 days	Hydrometrics	100%
19	Mon 7/25/16	Wed 7/27/16	Roux	17	Amy Hoffmann	0%
20	Mon 6/13/16	Fri 6/17/16	Hydrometrics	18	Hydrometrics	100%
21	Mon 6/20/16	Fri 7/29/16	Hydrometrics	20	Hydrometrics	32%
22	Mon 9/5/16	Fri 9/9/16	Roux/Hydrometrics	16FS+5 days	Amy Hoffmann[50%],Hydrometric	0%
23	Mon 9/12/16	Fri 9/30/16	Roux/Hydrometrics	22	Amy Hoffmann[25%],Hydrometric	0%
24	Mon 12/5/16	Fri 12/9/16	Roux/Hydrometrics	22SS+90 edays	Amy Hoffmann[50%],Hydrometric	0%
25	Mon 12/12/16	Fri 12/30/16	Roux/Hydrometrics	24	Amy Hoffmann[25%],Hydrometric	0%
26	Mon 3/13/17	Fri 3/17/17	Roux/Hydrometrics	25SS+90 edays	Amy Hoffmann[50%],Hydrometric	0%
27	Mon 3/20/17	Fri 4/7/17	Roux/Hydrometrics	26	Amy Hoffmann[25%],Hydrometric	0%
28	Mon 6/12/17	Fri 6/16/17	Roux/Hydrometrics	26SS+90 edays	Amy Hoffmann[50%],Hydrometric	0%
29	Mon 6/19/17	Fri 7/7/17	Roux/Hydrometrics	28	Amy Hoffmann[25%],Hydrometric	0%
30	Mon 5/16/16	Fri 6/30/17	Roux	16SS	Amy Hoffmann[25%],Hydrometric	11%
31	Mon 4/4/16	Fri 7/7/17	Roux	5SS		19%
32	**Mon 10/3/16**	**Fri 3/3/17**	**Roux**		**Mike Ritorto**	**0%**
33	Mon 10/3/16	Fri 11/11/16	Data Validator	23		0%
34	Mon 11/14/16	Fri 3/3/17	Roux	33	Amy Hoffmann[25%],Annelise Mu	0%
35	**Mon 5/2/16**	**Fri 3/3/17**	**Roux**			**6%**
36	Mon 5/2/16	Fri 5/6/16	Roux		Steve Michalanko	100%
37	Mon 11/14/16	Fri 3/3/17	Roux	33	Steve Michalanko	0%
38	**Mon 3/6/17**	**Fri 5/19/17**	**Roux**			**0%**
39	Mon 3/6/17	Fri 4/21/17	EPA	34		0%
40	Mon 3/6/17	Fri 4/21/17	EPA	37		0%
41	Mon 4/24/17	Fri 5/19/17	Roux	39	Mike Ritorto[90%],Drew Baris[10	0%
42	Mon 4/24/17	Fri 5/19/17	Roux	40		0%



Scheduled Task | Task Progress Complete | Summary