

**APPENDIX C – SUMMARY OF THE RESOURCE CONSERVATION AND
RECOVERY ACT FACILITY INVESTIGATION OF SOLID WASTE
MANAGEMENT UNITS**

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Table C-1. Resource Conservation and Recovery Act Facility Investigation Summary

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
5	Outdoor Drum Storage Area No. 1, Drum Storage ca. 1975 to 1992	PCB, lead, beryllium, arsenic	HHRA found contaminants in soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
6	Abandoned Rail Cars, Container Unknown to 1991	Waste stored in rail cars	All rail cars that contained waste were eliminated. TVA recommended no further action in the RFI Report. ADEM approved 9/11/98.	RFI
7	Furnace Building, Drum Storage Unknown to 1992	PCBs, antimony, lead, thallium, PAH	HHRA found contaminants on the floor and in soil to be below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
8	Dumpster, Container Unknown to 1992	Unknown materials	There is no evidence of a release from this SWMU, and the contents of the dumpster contained no hazardous constituents. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
9	Tank Car Wash Pit, Sump ca. 1977 to 1991	Beryllium	HHRA found contaminants in pit and soil below levels of concern and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
10	Tank Car Wash Sumps, Sump ca. 1977 to 1991	Beryllium, thallium, PAH	In the RFI, the sumps were empty and free of contaminants. HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
42	Phosphate Fertilizer Storage Building, Drum Storage Unknown to 1991	Unknown materials	Drums and contaminants removed during an interim measure with SWMU 43. The HHRA found contaminants on floor and in soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
43	Sulfur Cake Storage Area, Waste Pile Unknown to 1991	Vanadium, beryllium, lead, thallium, and PAH	Contaminants removed during an interim measure. The HHRA found contaminants on floor and in soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1

Muscle Shoals Reservation Redevelopment

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
53	Carpenter Shop Outdoor Drum Storage Area, Drum Storage Unknown to 1991	Beryllium, thallium, PAH	Drums were removed in RFI. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
59	Phosphate Development Works Service Pits, Sumps 1953 to Present	PAH	An interim measure cleaned the pits with six pits remaining active in the RFI. The HHRA found contaminants in the pits and soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
60	Phosphate Development Works Step Zero Clarifier, Sump 1953 to 1998	Selenium	An interim measure was performed to remove the material, clean, and backfill the clarifier. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
65	Phosphate Development Works Fuel Oil Storage Tanks, Tank 1953 to 1992	Fuel Oil	The tanks' contents were properly disposed. Since there was no evidence of a release from the tanks, TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
76	Phosphate Development Works Area 309 Drum Storage Area, Drum Storage Unknown to 1992	Unknown materials	The drums have been disposed. No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
83	Phosphate Development Works Area 307 Drum Storage Area, Drum Storage Unknown to ca. 1992	Unknown materials	Drums were removed in the RFI. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
84	Phosphate Development Works Surface Drainage Ditch, Ditch 1953 to Present	Beryllium, PAHs, and PCBs	The HHRA found contaminants in the soil in and around the ditch below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
85	Phosphate Development Works Storm Water Pond, Impoundment 1953 to ca. 1976	Beryllium and PAH	No hazardous materials were detected in the environment above local background levels. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
86	Phosphate Development Works Lagoons, Impoundment 1953 to 1996	Unknown materials	In 1996, an interim measure eliminated water retention in the lagoons. No hazardous materials were detected above screening levels. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
91	Ammonia From Coal Gasifier Blow Down Sump, Sump 1980 to 1985	PAH	The sump contents have been removed, and there was no evidence of release. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
92	Ammonia From Coal Drum Storage Area #2, Drum Storage 1985 to Present	Beryllium, PAH, pesticides	Drums were removed in RFI. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
93	Ammonia From Coal Drum Storage Area #3, Drum Storage 1985 to 1993	Unknown materials	The drums have been disposed. No hazardous materials were detected in the environment after an interim measure in 1995. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
97	Ammonia From Coal Conditioner Tank, Sump 1980 to 1992	Selenium, thallium	The water in the tank was disposed. No hazardous materials were detected in the environment outside the tank. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
100	Ammonia From Coal Equalization Basin, Impoundment 1980 to Present	Unknown materials (former wastewater treatment unit)	The HHRA found contaminants in the soil in and around the basin below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
104*	Ash Settling Pond, Impoundment 1936 to Present	Elemental phosphorus	Corrective measures were implemented due to the presence of elemental phosphorus in the sediment. Maintenance was performed on the existing water/ash covering and its containment berm to minimize the threat to human health and the environment. A groundwater and surface water monitoring program was implemented along with other institutional controls (fence, signs, and deed restrictions). The CMI Final Report was submitted to ADEM on 9/22/03, and TVA recommended no further corrective measures. ADEM approved the report and issued a Certification of Remedy Completion on 12/12/03.	CMI With Post-Closure Monitoring
105	Plant Drainage Ditch, Ditch 1980 to Present	PAH and PCBs	The HHRA found contaminants in the soil in and around the ditch below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
106	Central Ditch, Ditch ca. 1935 to Present	Beryllium, PAH	The HHRA found contaminants in the soil in and around the ditch below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
107	Scrap Yard, Waste Pile 1955 to Present	Arsenic, beryllium, lead, PAH	The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
108*	Phosphate Development Works Landfill, Landfill 1953 to Present	Elemental phosphorus, phosphorus compounds, organic solvents, and unknown materials	Due to contamination of soil and groundwater with organic compounds, corrective measures were implemented for this site. Shot crete was added to the existing cap to stabilize the steep banks, improve water runoff, and minimize the threat to human health and environment from landfill contaminants. A groundwater and surface water monitoring program was implemented along with other institutional controls (fence, signs, and deed restrictions). The CMI Final Report was submitted to ADEM on 9/22/03, and TVA recommended no further corrective measures. ADEM approved the report and issued a Certification of Remedy Completion on 12/12/03.	CMI With Post-Closure Monitoring
109	Northeast End Drum Storage Area, Drum Storage/UST Unknown to 1993	TPH	The UST drums were removed in 1988 and the soil remediated in 1993. No hazardous materials were detected in the environment after the UST remediation. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
110	Coal Pile Runoff Ditch, Ditch Dates Unknown	Arsenic, beryllium, lead and thallium	The potential source of contamination, the coal pile, was removed before the RFA in 1989. The HHRA found contaminants in the soil in and around the ditch below levels of concern and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
112*	Precipitator Dust, Waste Pile 1940 to Present	Radionuclides, elemental phosphorus, beryllium, lead, thallium, cadmium	Due to the presence of radionuclides in the groundwater, metals in the precipitator dust and soil, and elemental phosphorus in the precipitator dust, a RCRA cap was installed to minimize the threat to human health and the environment. The cap consisted of 2 feet of soil followed by a flexible membrane liner, a 1-foot layer of sand, 18 inches of clay and topsoil. Institutional controls (fence, signs, and deed restrictions) were implemented at the site, and TVA recommended no further action in the CMI Final Report (9/22/03). ADEM approved the report and issued a Certification of Remedy Completion on 12/12/03.	CMI With Post-Closure Monitoring
115	Coal Slag Landfill, Landfill 1980 to Present	Beryllium and thallium	No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
117	Old Ammonia Plant, Drum Storage Unknown to Present	PAH, copper, lead, thallium, PCBs, and Zinc	An interim measure (work plan approved by ADEM 3/21/2000) was performed to remove and properly dispose of contaminated debris on the main floor and basement area. HHRA found remaining contamination on basement floor below levels of concern. TVA recommended no further action in an Interim Measure Report submitted to ADEM on 11/06/2000. ADEM approved report on 11/15/2000.	CMS Phase 1
122	Building 321 Outdoor Drum Storage Area, Drum Storage Unknown to 1988	Arsenic	Drums were removed in RFI. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
123	Building 321 Storage Area, Container Storage 1980 to 1989	Unknown materials	The drums have been disposed. No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
128	Building 404 Outdoor Drum Storage Area, Drum Storage Unknown to 1991	PAH, beryllium, lead, and thallium	Drums were removed in RFI. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
130	Waste Oil Containment Area, Tank Containment/ Drum Storage 1985 to 1990	Unknown materials	The waste oil and other materials were disposed. No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
131	Waste Oil Storage Area, Drum Storage 1985 to 1988	Arsenic	The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
137	Building 407 Outdoor Drum Storage Area, Drum Storage Unknown to ca. 1992	Unknown materials	Drums were removed in the RFI. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
140	Building 508 Sulfur Cake Storage Area, Waste Pile 1983 to 1985	Sulfur cake	All materials in area have been disposed and the area decontaminated. No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
141	Building 509 Drum Storage Area, Drum Storage/Waste Pile Unknown to 1994	Beryllium, lead, PAH, and PCB	Drums of tar and spilled tar were removed in the RFI. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
150	Ammonia Plant Compressor Blow Down Sump, Sump Unknown to Present	Arsenic	No hazardous constituents of concern were detected in the sump, and the contents have been removed. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
151	Ammonia Plant Oil/Water Separator, Tank Unknown to ca. 1992	Arsenic	The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
152	Ammonia Plant Oil Accumulation Area, Container Unknown to ca. 1992	Arsenic	No hazardous constituents were detected above screening levels in air and soil samples. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
153	Ammonia Plant Compressor Oil Area, Container Unknown to ca. 1992	Arsenic	No hazardous constituents were detected above screening levels in soil and air samples. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
164	Urea Plant Waste Oil Accumulation Area #1, Container Unknown to ca. 1992	Petroleum	No hazardous constituents were detected above screening levels in soil and air samples. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
165	Urea Plant Waste Oil Accumulation Area #2, Container Unknown to ca. 1991	TPH and PCBs	Drums were removed in the RFI. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
166	Urea Plant Waste Oil Catch Basin, Container 1973 to ca. 1991	TPH and lead	The drum was removed during the decommissioning of the urea plant. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
168	Urea Plant Oil and Ammonia Sump, Sump 1973 to ca. 1991	TPH and lead	The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
169	Urea Plant Waste Oil Accumulation Area, Container Unknown to ca. 1991	Arsenic, lead, thallium, and TPH	The drum was removed during the decommissioning of the Urea Plant. The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
170	Urea Plant Ditch, Ditch Unknown to Present	Unknown materials	No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
173	Urea Plant Overflow Sump, Sump 1973 to Present	Pesticides and mercury	No hazardous materials were detected in the environment. Contents of the sump were removed by an interim measure on 8/14/98. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
189	Phosphate Development Works Chemical Sewer, Sewer 1953 to Present	Unknown materials	No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
194*	Trestle Drum Storage Area, Drum Storage Unknown to 1992	Unknown	No hazardous materials were detected in the environment. Because of SWMU 194's close location to SWMU 112, this site was capped during the corrective measure implementation for SWMU 112. TVA recommended no further action in the CMI Final Report (9/22/03). ADEM approved the report and issued a Certification of Remedy Completion on 12/12/03.	CMI Included with SWMU 112 Post-Closure Monitoring
195	Phosphate Development Works UST, UST 1953 to 1993	TPH	The UST was removed on 2/24/93 under ADEM UST rules. No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
196	Ammonia Pumping Station, Oil Spill Unknown to Present	PCBs, beryllium, and PAH	An interim measure was performed to remove areas of elevated PCBs and approved by ADEM on 7/26/99. The HHRA then found PCBs in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
197	Shop No. 2 West Wall, Oil Spill Unknown to Present	Cadmium, lead, and TPH	The HHRA found contaminants in the soil below levels of concern, and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase1

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
198	North End Storm Sewer, Sewer ca. 1935 to Present	Elemental phosphorus	Due to the lack of sediment in the north-to-south section of the sewer, TVA recommended no further action for this section of the sewer in the RFI Report. ADEM approved 9/11/98. The remainder of the sewer was classified as no quantifiable risk in the HHRA, and TVA recommended no further action on this section. ADEM approved on 10/14/99.	CMS Phase 1
199	Boiler Fuel Area, Tank Containment Unknown to 1994	No. 2 Fuel Oil	No hazardous materials were detected in the environment. TVA recommended no further action in the RFI Report. ADEM approved on 9/11/98.	RFI
201	Ammonia From Coal Drum Storage Area #4 1995	TPH	Drums were removed in RFI. The HHRA found contaminants in the soil below levels of concern and TVA recommended no further action. ADEM approved on 10/14/99.	CMS Phase 1
203	Paint Shop Wastewater Sump, Sump 1970 to Present	Paint and Solvents	ADEM was notified of a new SWMU (203) on 6/15/99. SAR was submitted on 9/1/99. Sampling showed no hazardous constituents in the sump above residential screening levels. Soil near the sump was slightly higher than the ERC background levels for arsenic. An interim measure was conducted to remove contents and clean the sump. ADEM approved interim measure on 9/18/00 with no further action.	CMS Phase I
204	Catalyzer No. 4 Laboratory Holding Tank, Tank 1960 to Present	Radioactive Isotopes	ADEM was notified of a new SWMU (204) on 9/13/99. SAR was submitted on 10/14/99. Sampling showed no radioactive isotopes in the tank and only background radiation levels in tank and surrounding soil. No hazardous constituents were detected above residential screening levels other than a low level of vanadium. An interim measure was approved on 12/27/00 by ADEM with no further action required.	CMS Phase I

SWMU Number	SWMU Name, Unit Type, and Dates of Operation	Suspected Contaminants	Findings and Recommendations	RCRA Closure Phase
205	Firing Range, Waste Pile ca. 1950 to 1996	Lead	ADEM was notified of a new SWMU (205) on 3/05/02. SAR was submitted on 04/29/02. ADEM recommended confirmatory sampling or interim measure to continue with permitted corrective actions at the ERC site. Interim Measure Work Plan submitted to ADEM on 09/05/02 to remove and dispose of contaminated soil. Confirmatory sampling and HHRA showed that lead remaining at the site did not pose a significant risk to human health or the environment. ADEM approved the interim measure on 01/05/04 with no further action required.	CMI

* Require post-closure monitoring

Acronyms/Abbreviations:

ADEM	=	Alabama Department of Environmental Management
ca.	=	Circa, meaning "approximate date"
CMI	=	Corrective measures implementation
CMS	=	Corrective measures study
ERC	=	Environmental Research Center
HHRA	=	Human health risk assessment
PAH	=	Polyaromatic hydrocarbon; a class of hydrocarbon compounds
PCB	=	Polychlorinated biphenyl
RCRA	=	Resource Conservation and Recovery Act
RFA	=	RCRA facility assessment
RFI	=	RCRA facility investigation
SAR	=	Subterranean arsenic removal
SWMU	=	Solid waste management unit
TPH	=	Total petroleum hydrocarbons
TVA	=	Tennessee Valley Authority
UST	=	Underground storage tank

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