

**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
UNDERGROUND STORAGE TANKS &
SOLID WASTE DISPOSAL CONTROL BOARD**

IN THE MATTER OF :

ACC, LLC,

Petitioner,

vs.

**TENNESSEE DEPARTMENT OF
ENVIRONMENT AND CONSERVATION,**

Respondent.

**CASE NOS. SWM 11-0006
WPC 11-0024
DOR 16-0010**

PETITION FOR DECLARATORY ORDER

I. INTRODUCTION

Petitioner brings this action, pursuant to Tenn. Code Ann. § 68-212-117 (2013) and Tenn. Code Ann. § 4-5-223 (2011), as an affected person seeking a contested case hearing before the Underground Storage Tanks & Solid Waste Control Board (the “Board”) to determine whether the Commissioner of the Tennessee Department of Environment and Conservation (“TDEC”) exceeded her delegated authority by failing to comply with this Board’s Final Order of August 7, 2012, APD Docket NO. 04.27-116746A (“Board’s 2012 Order”) (Exhibit 1); and the subsequent November 23, 2016 Consent Order, Case No. DOR 16-0010 (“2016 Consent Order”) (Exhibit 2) when the Commissioner failed to provide ACC, LLC (“ACC” or “Petitioner”), with notice of any alleged noncompliance, failed to invoice ACC for alleged missed deadlines pursuant to the 2016 Consent Order, and failed to afford ACC its appeal rights outlined in the 2016 Consent Order

pursuant to the Tennessee Uniform Administrative Procedures Act (“TUAPA”) Tenn. Code Ann. § 4-5-101 *et. seq.*

Petitioner seeks a Declaratory Order from the Board declaring the Commissioner exceeded her delegated authority when she repeatedly denied Petitioner’s proposed corrective action plans, certified by a professional engineer, which stated the plans were designed to eventually achieve compliance with this 2016 Consent Order (2016 Consent Order, Ex. 2, Pg. 10, ¶ XX(B)(2)) at the former ACC Landfill (“Site”). Petitioner requests the Board convene a contested case hearing and make an expedited ruling as to the Commissioner’s interpretation and compliance with this Board’s 2012 Order, 2016 Consent Order, applicable statutes, Rules and Regulations including Petitioner’s appeal rights as outlined in the 2016 Consent Order.

Petitioner seeks a Declaratory Order from the Board opining the Commissioner exceeded her delegated authority when she failed to comply with this Board’s 2012 Order, the 2016 Consent Order, the Act, and the Rules and Regulations.

II. FACTS

1. ACC, LLC (“ACC” or “Petitioner”), is a limited liability company organized and existing under the laws of the State of Tennessee with its principal office located at 400 Arrow Mines Road, Mt. Pleasant, Maury County, Tennessee.

2. ACC owns and operates a closed Class II industrial solid waste disposal facility known as the “ACC Landfill.” In June of 2011, TDEC and ACC entered into a Consent Order to remediate environmental problems with the ACC Landfill. Shortly after the 2011 Consent Order was filed in Davidson County Chancery Court, a neighboring landowner, Starlink Logistics, Inc. (Starlink), was allowed to intervene in the action. On November 11, 2011 the Chancery Court remanded the matter Tennessee Solid Waste Disposal Control Board for a contested case accordance with Tenn. Code Ann. § 4-5-301, *et seq.* The contested case hearing was held before the Tennessee

Solid Waste Disposal Board on August 7, 2012 with an Administrative Law Judge presiding. This Board entered its Order on August 9, 2012. (Board's 2012 Order, Ex.1).

3. The Board's 2012 Order required a "removal action". Since remediation activities were initiated in 2012, approximately 555,500 cubic yards of impacted wastes and soil from the former landfill have been excavated and relocated to a lined waste disposal area on the site. These activities, including the construction of a synthetic cover over the relocated wastes, were conducted over 5 phases encompassing 5 years of construction activity. Since waste relocation, the monitored constituent concentrations of ammonia, chlorides, and total dissolved solids (TDS) have resulted in more than a 95 percent reduction in constituent concentrations within the surface water at the road crossing. (Aff. Nancy Sullivan, Exhibit 3, ¶ 4).

4. The Board's 2012 Order expressly provided that "[t]reatment, transport or disposal of water is not required pursuant to this Order until the TDEC approved CAP has been completed." (Board's 2012 Order, Ex. 1, Pg 17, ¶ XXVI(B)(3)) Specific post-closure care and ground water corrective action requirements are to be established by the landfill operator in the Post-Closure Care Plan and the Ground Water Corrective Action Plans. ACC has also not received approval of its Post-Closure Care Plan or submitted to the TDEC. (Aff. Nancy Sullivan, Ex. 3, ¶ 11).

5. The 2012 Board Order contained a reservation of rights section wherein the Commissioner reserved the right to require further or supplemental corrective action due to impacts from the discharges from the ACC Landfill, or based on changes of conditions or new information, to assess civil penalties for all violations of the law, and to assess all damage in the 2012 Amended Consent Order. (Ex 1.)

6. On September 16, 2016 Evan Spann sent a letter to ACC directing ACC to submit a plan by October 31, 2016 for abandonment and replacement of two monitoring wells at the site, wells MW-4 and MW-6 in response to the June 2016 groundwater monitoring report submitted pursuant to this Board's Order. (Aff. Christopher Scott, Ex. 4, ¶ 5).

7. On November 23, 2016, TDEC exercised its reserved right and entered into a supplemental Consent Order with ACC "to cause the remediation of hazardous substances, solid waste, or other pollutants that are impacting portions of Sugar Creek and an unnamed tributary of Sugar Creek ("hereinafter referred to as the "2016 Consent Order") (2016 Consent Order, Ex. 2; Pg. 1). The 2016 Consent Order stated the primary goal was "to reduce the loading of contaminants discharging from the Site via surface water."

8. On April 19, 2017, TriAD, on behalf of ACC, submitted the written plan requested by TDEC for changes to the groundwater monitoring network. The plan included abandonment and replacement of MW-6 and the addition of two new monitoring wells. The plan also included a detailed explanation of why abandonment of MW-4 was not needed. (Aff. Christopher Scott, Ex. 4, ¶ 9).

9. On July 28, 2017, Mr. Spann sent a letter to ACC regarding the report of the routine June 2017 groundwater monitoring event in which he again required abandonment and replacement of MW-4 and MW-6. TriAD on behalf of ACC, replied the same day, asking if Mr. Spann had reviewed the April 19 plan. On August 2, 2017, Mr. Spann replied via email that he had probably received the plan but could not find it. He asked that it be resubmitted. TriAD on behalf of ACC, emailed the plan to Mr. Spann on that date. (Aff. Christopher Scott, Ex. 4, ¶ 10).

10. Eight months after ACC submitted its proposed CAWP, on December 7, 2017, TDEC finally responded to the April 19, 2017 plan stating it would require the submittal of a

revised Corrective Action Work Plan (CAWP), to include revisions to the groundwater monitoring network, and extended the due date for the revised CAWP to January 31, 2018. The December 7, 2017 letter included extensive written comments in response to the draft CAWP. The letter provided, purpose of these comments was "to establish performance standards and a timetable for [Defendant] ... to achieve Tennessee Water Quality Criteria for the designated surface water uses at the Site." (Aff. Christopher Scott, Ex. 4, ¶ 11). TDEC's comments stated WQC were selected by the Division of Water Resources independent of site-specific studies and/or without input from ACC in direct conflict, the explicit terms of this Board's 2012 Order and the regulations. The letter rejected use of the interim standards that were proposed to be used during the time needed to complete site-specific studies and stated a date-certain of April 15, 2018 wherein ACC should cease discharging surface water from the site in excess of the WQC set by TDEC. (Aff. Christopher Scott, Ex. 4, ¶ 24).

11. On January 31, 2018, TriAD on behalf of ACC submitted the revised CAWP, which included the previously submitted April 2017 proposed changes to the groundwater monitoring network in the revised groundwater monitoring plan, an appendix to the revised CAWP. This was the third time that TriAD, on behalf of ACC, submitted to Mr. Spann the proposed changes to the groundwater monitoring network Mr. Spann had previously requested. (Aff. Christopher Scott, Ex. 4, ¶ 12).

12. The January 31, 2018, revised CAWP was submitted to TDEC incorporated the TDEC comments to the extent that ACC and TriAD judged those comments to be technically practicable along with an accompanying letter wherein the licensed Professional Engineer explained some of TDEC's comments were not technically practicable in her professional opinion and therefore she could not include in plans stamped by a Professional Engineer. The

ACC proposed CAWP included the use of interim standards (lower than those proposed in previous versions of the CAWP) to be used only during the time required for the studies needed to set site-specific WQC, which were, as understood by ACC and TriAD, allowed consistent with the regulations and the Orders. (Aff. Sullivan, Ex. 3, ¶ 6-8); (Aff. Christopher Scott, Ex. 4, ¶ 25).

13. On March 5, 2018, Mr. Spann once again responded to the routine December 2017 groundwater monitoring report with a letter again requiring abandonment and replacement of MW-4 and MW-6, with a plan for such work due by March 30. (Aff. Christopher Scott, Ex. 4, ¶ 13).

14. On March 14, 2018, Mr. Tom Grosko of ACC sent a letter to Mr. Spann in response to the March 5, 2018 letter, presenting the timeline of the requests, meetings, and submittals regarding the proposed changes to the groundwater monitoring network at the site. (Aff. Grosko, Exhibit 5, ¶ 12); (Aff. Christopher Scott, Ex. 4, ¶ 14).

15. On September 27, 2018, Mr. Spann sent a letter to Mr. Grosko, approving the plan submitted to TDEC on April 19, 2017, with the exception that TDEC asked why MW-4 was not proposed for replacement and requesting again that it be replaced. (Aff. Christopher Scott, Ex. 4, ¶ 15).

16. On August 8, 2018, TDEC, in a letter from Mr. Spann, rejected the revised CAWP and the accompanying explanations-again attempting to direct a licensed Professional Engineer to include items in a plan in violation of the Rules of State Board of Architectural and Engineering Examiners, Chapter 0120-02 Rules of Professional Conduct. TDEC further stated ACC it should somehow stop all surface water from leaving the ACC site in excess of the WQC

by November 1, 2018 pursuant to an “approved plan”- ACC had not received an approved plan. (Aff. Christopher Scott, Ex. 4, ¶ 26)

17. In a subsequent meeting with TDEC representatives including Mr. Spann and Mr. Gregory M. Denton on September 24, 2018, TDEC explained to ACC’s consultants it would not comply with this Board’s 2012 Order and instead would set its own WQC and would use the US EPA ecological screening level for chloride (230 mg/L) as a WQC rather than as guidance for developing WQC. (Aff. Christopher Scott, Ex. 4, ¶ 26).

18. TDEC also explained that it planned to use the U.S. EPA ecological screening level for chloride (230 mg/L) as a WQC rather than as guidance for developing WQC as intended by U.S. EPA. The text accompanying the U.S. EPA screening levels includes the following: “Since these numbers are based on conservative endpoints and sensitive ecological effects data, they represent a preliminary screening of site chemical concentrations to determine the need to conduct further investigations at the site. ESVs are not recommended for use as remediation levels.” (Aff. Christopher Scott, Ex. 4, ¶ 26).

19. On October 1, 2018, ACC submitted a revised written CAWP to TDEC. (Aff. Christopher Scott, Ex. 4, ¶ 27)

20. TDEC responded in writing to ACC on October 19, 2018, rejecting ACC's revised CAWP, TDEC “suggested “in this letter that Defendant consider pumping and hauling the accumulated surface water in excess of the WQC set by TDEC as an interim measure, in an effort to comply with the arbitrary November 1, 2018 deadline. (Aff. Grosko, Ex. 5, ¶ 13).

21. There are numerous corrective actions that could be implemented at the site to further reduce constituent concentrations in surface water. To determine the most effective corrective action(s) that would achieve the specified water quality criteria, a site investigation is

required to delineate the horizontal and vertical impact to site soils and their associated relationship to site waters. After numerous Corrective Action Work Plans (“CAWP”) submittals to the TDEC, approval of this first step has not been granted by TDEC since completion of the waste relocation activities. Without this site-specific information, the development of engineering details, establishment of base flow conditions, and relation to storm events cannot accurately be developed. In addition, implementation of corrective actions without this site-specific information could result in unnecessary expenditures and/or the construction of ineffective actions that would later require removal and replacement of previously constructed measures with alternate measures. For example, in the event ACC put a cap on the remaining in-place soils, it is likely ACC and/or TDEC may later determine, after completion of additional site studies and continuing surface water monitoring, that the underlying soils require removal or in-situ stabilization to prevent leaching of contaminants in which case the previously constructed cap could require removal, disposal, and a new cap all at an additional cost prior to implementation of the next phase of the corrective action. (Aff. Nancy Sullivan, Ex. 3, ¶ 5).

22. On December 14, 2018 the Commissioner and the Tennessee Attorney General & Reporter filed a Verified Complaint and Motion for Temporary and Permanent Injunction in the Davidson County Chancery Court seeking:

(1) an order and judgment declaring ACC to be in violation of the final 2016 Consent Order and the WQCA by asserting ACC failed to perform such corrective actions at its closed industrial landfill in Maury County, Tennessee, as required under Section XX. B. 2. of the 2016 Consent Order, and TDEC's comments thereto, to achieve prompt surface water compliance with the Tennessee Water Quality Criteria; (2) an order and judgment requiring Defendant to pay contingent civil penalties assessed under the final 2016 Consent Order until such time as ACC achieves surface water compliance with the Tennessee Water Quality Criteria; and (3) a permanent injunction enforcing the terms of the parties' 2016 final administrative Consent Order by requiring ACC to incorporate and comply with the written comments submitted by TDEC to ACC's corrective action work plan for its closed industrial landfill in order for ACC to achieve prompt surface water compliance with the Tennessee Water Quality Criteria.

23. As of January 4, 2019, ACC has not received approval from the TDEC of any proposed CAWP and as a result has not completed construction of an approved CAWP. (Grosko Affidavit Exhibit 5.)

III. APPLICABLE LAW

24. ACC, LLC, is "Person" pursuant to Tenn. Code Ann. § 68-212-104 (13), 69-3-103(20) and 68-211-103(6).

25. The Commissioner is authorized under Tenn. Code Ann. § 68-212-224 to enter into a Consent Order to accomplish clean-up.

26. Tennessee Solid Waste Management Rule 0400-11-01-.04(8)(d) establishes a 30-year period of post-closure care for Class II (industrial) landfills, and Rule 0400-11-01-.04(8)(e) establishes the minimum activities that the landfill operator must perform during that post-closure care period. Specific post-closure care and ground water corrective action requirements are to be established by the landfill operator in the Post-Closure Care Plan and the Ground Water Corrective Action Plan as detailed in the regulations. Pursuant to Tenn. Code Ann. § 68-211-107, the Department is authorized to exercise general supervision over the operation and maintenance of solid waste processing facilities and disposal facilities or sites.

27. The Solid Waste Disposal Act ("SWDA") and the Water Quality Control Act ("WQCA") expressly authorize the Commissioner of TDEC to issue "orders for correction" to responsible persons when provisions of either Act are not being carried out. Tenn. Code Ann. § 68-211-112 (2013) and Tenn. Code Ann. § 69-3-109(a) (2008). *Id.* The Hazardous Waste Management Act ("HWMA") specifically authorizes the Commissioner to issue orders for clean-up and remediation of inactive hazardous substance sites. Tenn. Code Ann. § 68-212-206 (2011). *Id.*

28. The Commissioner of TDEC is authorized to issue “orders for correction” to responsible persons. Tenn. Code Ann. § 68-211-112, § 68-212-206, and § 69-3-109(a). The HWMA authorizes the Commissioner to enter into consent orders for clean-up and remediation of inactive sites. Tenn. Code Ann. § 68-212-224 (2011).

IV. DECLARATORY ORDER

29. Petitioner asks the Board to commence a contested case hearing to review TDEC’s failure to comply with this Board’s 2012 Order, the 2016 Consent Order, the Act, and the Rules and Regulations.

30. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her delegated authority by violating ACC’s due process appeal rights when she failed to issue comply with the terms contained in the 2016 Consent Order and afford ACC its appeal rights pursuant to the UAPA in compliance with the 2016 Consent Order.

31. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her delegated authority and violated this Board’s 2012 Order by failing to approve ACC’s plans for corrective action at the Site as certified by a Professional Engineer who opined the plan submitted was designed to achieve the goal of surface water meeting site specific standards for ammonia, chlorides, and total dissolved solids pursuant to the Acts.

32. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her delegated authority when it denied ACC’s request to pump surface water onto an adjoining property it controls in direct conflict with the Commissioner’s prior approval authorizing a neighbor to pump the same water onto an adjoining golf course.

33. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her delegated authority by violating the 2016 Consent Order by failing to approve

ACC's corrective action work plan certified by a Professional Engineer. (Aff. Nancy Sullivan, Ex. 3, ¶5-9).

34. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her delegated authority by instructing a licensed Professional Engineer to stamp a report in violation of State Board of Architectural and Engineering Examiners, Chapter 0120-02, Rules of Professional Conduct. (Aff. Nancy Sullivan, Ex. 3, ¶ 6-8).

35. Petitioner asks the Board to issue an Order proclaiming the Commissioner lacked the authority to issue the mandatory and arbitrary deadlines contained in its December 7, 2017 letter.

36. Petitioner asks the Board to issue an Order proclaiming the Commissioner lacked the delegated authority to issue the mandatory and arbitrary deadlines to ACC contained in its August 8, 2018 letter. (Aff. Nancy Sullivan, Ex. 3, ¶5-6).

37. Petitioner asks the Board to issue an Order proclaiming the Commissioner lacks the authority to suggest and or to order a "person" to implement technically impracticable remedies by a mandatory date, based upon inadequate data. (Aff. Nancy Sullivan, Ex. 3, ¶5-6).

38. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her authority and the Act by denying ACC's Corrective Action plan in direct conflict with this Board's 2012 Order.

39. Petitioner asks the Board to issue an Order proclaiming the TDEC exceeded its delegated authority when it failed to consider Rule 0400-40-03-.02(9).

40. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her delegated authority when it failed to comply with this Board's 2012 Order when

she denied the landfill operator's post-closure care and ground water monitoring plans. (Aff. Nancy Sullivan, Ex. 3, ¶11).

41. Petitioner asks the Board to issue an Order proclaiming the Commissioner lacks the authority to seek appeal of this Board's final 2012 Order pursuant to Tenn. Code Ann. § 69-3-111 (2013).

42. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her delegated authority by using the US EPA ecological screening level for chloride (230 mg/L) as a WQC rather than as guidance for developing WQC at the ACC site. (Aff. Christopher Scott, Ex. 4, ¶ 26).

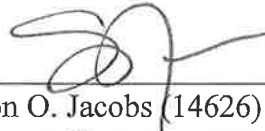
43. Petitioner asks the Board to issue an Order proclaiming the Commissioner exceeded her delegated authority when she rejected ACC's proposed CAP including the Ground Water Monitoring Plan and Surface Monitoring Plan included therein as the 2012 Order states "the results of testing shall be used to develop the appropriate standards and methods for future annual testing and shall be included in the Water Monitoring Plan submitted with the CAP. A revised Ground Water Monitoring Plan will also be prepared in conjunction with the Surface Monitoring Plan and included as part of the CAP". (Exhibit 1.)

44. The Commissioner exceeded her delegated authority when she failed to comply with the terms contained the 2016 Consent Order and denied ACC of its appeal rights pursuant to the 2016 Consent Order.

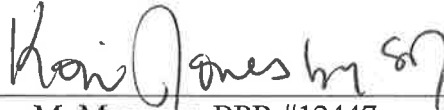
45. The Petitioner asks the Board to Order the Commissioner to pay ACC' attorney fees and all associated litigation costs including expert fees pursuant to Tenn. Code Ann. §§ 29-37-104, 4-5-325.

46. The Petitioner asks the Board to Order all other relief it deems appropriate.

Respectfully submitted,



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Counsel for Defendant ACC, LLC

CERTIFICATE OF SERVICE

A true and correct copy of the foregoing document has been mailed by U.S. First-Class Mail, postage prepaid, and/or hand-delivery to the following on January 4, 2019:

Patrick J. Flood, P.E., Technical Secretary
Underground Storage Tank & Solid Waste Disposal Board
William R. Snodgrass Tennessee Tower
312 Rosa L Parks Ave, 14th Floor
Nashville, TN 37243

Administrative Hearings Division
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Ave., 8th Floor
Nashville, TN 37243

Office of General Counsel
Tennessee Department of Environment and Conservation
William R. Snodgrass Tennessee Tower
312 Rosa L Parks Ave, 2nd Floor
Nashville, TN 37243



Sharon O. Jacobs ✓

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
BEFORE THE TENNESSEE SOLID WASTE DISPOSAL CONTROL BOARD

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SECRETARY OF STATE

IN THE MATTER OF:)
ACC, LLC) APD DOCKET NUMBER
RESPONDENT) 04.27-116746A

BOARD APPROVAL OF AMENDED AND RESTATED CONSENT ORDER

This matter came before the Tennessee Solid Waste Disposal Control Board ("Board"). After consideration the Board made the following findings of fact and conclusions of law:

FINDINGS OF FACT AND CONCLUSIONS OF LAW

1. Robert J. Martineau, Jr., is the duly appointed Commissioner of the Department of Environment and Conservation ("TDEC").
2. ACC, LLC ("ACC") is a limited liability company organized under and existing by virtue of the laws of the State of Tennessee.
3. In June of 2011, the TDEC and ACC entered into a Consent Order, (Nos. SWM11-0006 and WPC11-0024) (Exhibit A).



4. ACC filed the June 2011 Consent Order in Chancery Court pursuant to applicable provisions of both the Hazardous Waste Management Act and the Water Pollution Control Act.
5. When an administrative Consent Order is filed in Chancery Court pursuant to these provisions it can be converted into a Court Order if it is approved by the Court. However, before the Court acts, public notice is given and interested parties may intervene.
6. A neighbor of the ACC Landfill, StarLink Logistics, Inc. (StarLink) intervened in the Chancery Court Case and objected to the June 2011 Consent Order being approved by the Court.
7. After StarLink intervened in the Chancery Court case, the parties in the Chancery Court case (ACC, TDEC and StarLink) engaged in extensive settlement discussions in an attempt to revise the June 2011 Consent Order in a manner that would make it acceptable to all three parties. Although the parties did agree in principle on the nature of the remedial actions that are needed at the old landfill, the parties could not agree on all of the details. In particular agreement could not be reached on the schedule for implementation.
8. Because all of the parties in the Chancery Court Case could not reach agreement, the Court remanded the matter to the Board (Exhibit C) to determine if the June of 2011 Consent Order should be adopted as a Final Order of the Board or if a modified Order should be issued by the Board.

9. TDEC and ACC continued to attempt to reach agreement after the three party negotiations failed. That resulted in the development of the proposed Amended and Restated Consent Order (Exhibit B). TDEC and ACC jointly recommended that the Board approve this modification of the June 2011 Order.
10. StarLink requested and was granted the right to intervene in the Board hearing so that StarLink would have the opportunity to address the Board concerning the proposed Amended and Restated Consent Order.
11. ACC is the owner and operator of a closed industrial landfill. This closed landfill, known as the "ACC Landfill" is the subject of the Amended and Restated Consent Order.
12. The ACC Landfill is located immediately east of Arrow Mines Road south of the City of Mt. Pleasant in Maury County, Tennessee.
13. The ACC Landfill encompasses approximately 14 acres and was used for the disposal of aluminum recycling wastes from the Smelter Service Corporation ("SSC") secondary aluminum smelting plant located at 400 Arrow Mines Road in Mt. Pleasant, Tennessee.
14. Surface water and ground water at the Landfill drain westward toward Arrow Mines Road and Sugar Creek, into the Arrow Lake impoundment which is located immediately west of Arrow Mines Road.

15. The ACC Landfill was constructed and operated pursuant to a "registration" or "permit" initially issued to Respondent by the TDEC (then the Department of Public Health) on July 1, 1981.

16. The Respondent started disposing of wastes at the Landfill on or about August 1981, and continued doing so until September 1, 1993. The Respondent then performed final closure of the Landfill in accordance with Closure/Post-closure Care and Corrective Action Plans approved by the Department.

17. Within a very few years of beginning operation, it appeared to the Respondent and the Department that unacceptably high levels of chlorides and ammonia were leaching out of the wastes and into the underlying ground water and down-gradient surface water that drained into Sugar Creek and Arrow Lake. That condition was not resolved by the final closure of the Landfill and continues today. Over the years as regulations and technologies have evolved, the Respondent has worked with TDEC – both voluntarily and in response to TDEC enforcement actions – to identify why this leaching was occurring and try to stop it.

18. While resulting in a greater understanding of contaminant migration at the Landfill, these investigations failed to achieve the desired goal of yielding information leading to the development of feasible alternatives for the preferred remedial option of intercepting or diverting ground water away from the buried waste deposits.

19. The Amended and Restated Consent Order recognizes that it is now apparent that the only way to stop this Landfill from continuing to impact ground water and surface water is to remove all waste that has the potential to be in contact with water. The removed waste must be placed in a new cell that meets current landfill design requirements.

20. The Board and the Commissioner have only the authority and power granted in the Tennessee Solid Waste Disposal Act. Neither the Board nor the Commissioner have the authority to redress StarLink's private nuisance claims. *Wayne County v The Tennessee Solid Waste Disposal Control Bd*, 756 S.W.2d 274, 1988.

ORDER

WHEREFORE, PREMISES CONSIDERED:

1. The Board adopts the Amended and Restated Consent Order (Exhibit B) and Orders the Respondent to fully comply with all of its terms and conditions.
2. The Amended and Restated Consent Order supersedes the June 2011 Administrative Consent Order, Nos. SWM11-0006 and WPC11-0024.

REASONS FOR DECISIONS

The above Findings of Facts and Conclusions of Law, and the Orders were made in an effort to provide a coordinated system of control and management of solid waste, hazardous waste and hazardous substances in Tennessee. The Board finds that remediation of the ACC Landfill in the manner specified in the Amended and Restated Consent Order is necessary to

protect the health, safety and welfare of the public. Neither the Board nor the Commissioner have the authority to redress StarLink's private nuisance claims. *Wayne County v The Tennessee Solid Waste Disposal Control Bd*, 756 S.W.2d 274, 1988. Further, the Board encourages settling cases so that limited resources are expended on remediation of the environmental impacts rather than prolonged litigation.

Adopted and approved by a majority of the Board, a quorum being present, this 7th day of August, 2012.

**FOR THE SOLID WASTE DISPOSAL
CONTROL BOARD**


Chairman

Filed in the Administrative Procedures Division, Office of the Secretary of State, on this 9th day of August, 2012.


Administrative Procedures Division 

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of this document has been served upon all interested parties or their counsel of record by delivering copy of same to their offices or by placing a true and correct copy of same in the United States mail, postage prepaid. This 9th day of August, 2012.



E. Joseph Sanders, BPR#6691
General Counsel
Department of Environment and Conservation

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JUN - 8 2011

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DEPT OF ENVIRONMENT AND CONSERVATION
OFFICE OF GENERAL COUNSEL

IN THE MATTER OF:)
ACC, LLC) CASE NO: SWM11-0006
RESPONDENT) WPC11-0024

CONSENT ORDER

This Consent Order is made and entered into by and between the Tennessee Department of Environment and Conservation (hereinafter "Department") and ACC, LLC a Tennessee Limited Liability Company.

PARTIES

I.

Robert J. Martineau, Jr., is the duly appointed Commissioner of the Department.

II.

ACC, LLC. (hereinafter the "Respondent" or "Consenting Party") is a limited liability company organized under and existing by virtue of the laws of the State of Tennessee. Service of process may be made on the Respondent through Mr. Thomas W. Hardin, Registered Agent, at 102 West 7th Street, Columbia, Tennessee 38401. Consenting Party is the owner and operator of a closed, Department-permitted industrial landfill that is releasing waste constituents to

Exhibit
A

groundwater and surface water. That closed landfill, known as the "ACC Landfill" is the subject of this Consent Order.

JURISDICTION

III.

Whenever the Commissioner has reason to believe that a violation of the Tennessee Water Quality Control Act (the "WPC Act"), Tennessee Code Annotated (T.C.A.) §69-3-101 et seq. has occurred or is about to occur, the Commissioner may issue a complaint to the violator and the Commissioner may order corrective action be taken pursuant to T.C.A. §69-3-109(a) of the WPC Act. Further, the Commissioner has authority to assess civil penalties against any violator of the WPC Act, pursuant to T.C.A. §69-3-115 of the Act; and has authority to assess damages incurred by the state resulting from the violation, pursuant to T.C.A. §69-3-116 of the WPC Act.

IV.

When the Commissioner finds that provisions of the Tennessee Solid Waste Disposal Act, (hereinafter the "SWD Act"), T.C.A. §68-211-101 et seq. are not being complied with, he is authorized by T.C.A. §68-211-112 to issue orders for correction to the responsible person. Further, T.C.A. §68-211-117 gives the Commissioner, or his authorized representative, the authority to assess damages and civil penalties against any person who violates any provision of the SWD Act or any rule, regulation, or standard adopted pursuant to said SWD Act. Notwithstanding any law to the contrary, except chapter 213 of Title 211 of the Tennessee Code Annotated, the approval of the commissioner of a solid waste processing facility or disposal

facility or site shall be final and not subject to review by any administrative board, commission or other administrative office or body. T.C.A. §68-211-113(d).

V.

Pursuant to T.C.A. §68-211-107 the Department is authorized to exercise general supervision over the operation and maintenance of solid waste processing facilities and disposal facilities or sites. Such general supervision shall apply to all features of operation or maintenance which do or may affect the public health and safety or the quality of the environment and which do or may affect the proper processing and disposal of solid wastes.

VI.

Pursuant to T.C.A. §68-212-224 of the Hazardous Waste Management Act of 1983, as amended, the Commissioner is authorized to enter into a CONSENT ORDER with a party who is willing and able to conduct an investigation and remediation of a hazardous substance site or Brownfields Project. The Commissioner has the discretion and is authorized to establish and apportion liability consistent with T.C.A. §68-212-207(b) in a CONSENT ORDER.

VII.

Department rules governing general water quality criteria and use classifications for surface waters have been promulgated pursuant to T.C.A. §69-3-105 and are effective as the Official Compilation Rules and Regulations of the State of Tennessee, Chapters 1200-4-3 and 1200-4-4

VIII.

Sugar Creek, described herein, is "waters of the state" as defined by T.C.A. §69-3-103(33). Pursuant to T.C.A. §69-3-105(a)(1), all waters of the state have been classified by the Tennessee Water Quality Control Board for suitable uses as set forth in Tennessee Rule Chapter 1200-4-4, Use Classifications for Surface Waters. Accordingly, the impacted portion of Sugar Creek is classified for the following uses: domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife. Additionally, Sugar Creek is listed as impaired for salinity/total dissolved solids/chlorides from landfills, loss of biological integrity due to siltation, and other habitat alterations due to urbanized high density area impacts.

IX.

Tennessee Rule 1200-1-7-.04(8)(d) establishes a 30-year period of post-closure care for Class II (industrial) landfills, and Rule 1200-1-7-.04(8)(e) establishes the minimum activities that the landfill operator must perform during that post-closure care period. Specific post-closure care and ground water corrective action requirements are to be established by the landfill operator in the Post-Closure Care Plan and the Ground Water Corrective Action Plan as detailed in the regulations, and must be approved by the Commissioner.

X.

For the purposes of this CONSENT ORDER only, a Brownfield project may be a site contaminated by hazardous substances, solid waste, or any other pollutant.

XI.

As required by T.C.A. §68-212-224, a summary description of all known existing environmental investigations, studies, reports or documents concerning the Site's environmental condition has been submitted to the Department by the Consenting Party. As of the date of entering into this CONSENT ORDER, the Site is not listed or been proposed for listing on the federal National Priorities List.

XII.

The Respondent is a "person" and/or a "potentially liable party" as defined by T.C.A. §§ 69-3-103(20); 68-211-103(6); 68-212-206; as herein described.

FACTS

XIII.

The Respondent is the current owner of a 48.02-acre parcel of land (hereinafter the "Site") located immediately east of Arrow Mines Road south of the City of Mt. Pleasant in Maury County, Tennessee. Located on that parcel of land, and also currently owned and operated by Respondent, is the closed Class II (industrial) solid waste disposal facility known as the "ACC Landfill" (hereinafter the "Facility"). The Facility encompasses approximately 14 acres and was used solely for the disposal of aluminum recycling wastes from the Smelter Service Corporation (hereinafter "SSC") secondary aluminum smelting plant located at 400 Arrow Mines Road in Mt. Pleasant, Tennessee. The disposed wastes consist wholly, or almost wholly, of the "salt cake" slag and bag-house dusts from SSC's aluminum smelting operations.

Salt cake constitutes by far the greatest bulk of the wastes disposed in the Facility, and it contains high concentrations of highly soluble salts sodium chloride and potassium chloride.

XIV.

Surface water and ground water at the Site drain westward toward Arrow Mines Road and Sugar Creek, the Arrow Lake impoundment of which is located immediately west of Arrow Mines Road.

XV.

The Facility was constructed and operated pursuant to a "registration" or "permit" initially issued to Respondent (in its original corporate form of Associated Commodities Corporation) by the Department (then the Department of Public Health) on July 1, 1981. Under the regulations in effect at the time, the Department actually performed the hydrogeologic evaluation of proposed landfill sites and either approved, with conditions, or disapproved such sites (or portions thereof) for use as a landfill. The Department's conditional hydrogeologic approval of the Facility for landfill use was issued by the Department on February 23, 1981. Subsequent to such approval, and in accordance with the then-applicable regulations, Respondent submitted plans for construction and operation of the landfill which were approved by the Department with the issuance of the registration (permit). The Facility is identified by the Department-assigned number IDL 60-0032.

XVI.

The Respondent started disposing of SSC's wastes at the Facility on or about August 1981, and continued doing so until September 1, 1993. The Respondent then performed final closure of the Facility in accordance with Closure/Post-closure Care and Corrective Action Plans approved by the Department. This involved principally establishing a final soil cover system over the waste deposits that met the requirements of Tennessee Rule 1200-1-7-.04(8)(c)3 [at the time], with surface water controls as necessary to minimize and control erosion and sedimentation. Following subsequent improvements to the final cover and reconstruction of the perimeter surface water drainage ditches around the landfill, Respondent on July 18, 1995, submitted to the Department a certification of completion of closure. On April 8, 1996, the Respondent was issued an Acceptance of Closure by the Department.

XVII.

Within a very few years of beginning operation, it appeared to the Respondent and the Department that unacceptably high levels of chlorides was leaching out of the wastes and into the underlying ground water and down-gradient surface water that drained into Arrow Lake. That condition was not resolved by the final closure of the Facility and continues today. Over the years as regulations and technologies have evolved, the Respondent has worked with the Department -- both voluntarily and in response to Department enforcement actions -- to identify why this leaching was occurring and try to stop it. Various investigative and corrective action efforts have been performed by Respondent, including, but not limited to, the following:

- Application of daily cover material to divert rainfall from the wastes;
- Construction of lengthy ditches to re-route surface water around the landfill;

- Construction of multiple settling ponds and associated drainage control ditches;
- Attempted sealing of springs and seeps;
- Installation, development, and maintenance of a system of ground-water monitoring wells to delineate the nature and extent of groundwater contamination;
- Collection and analysis of surface water and ground water samples at multiple locations, including routine periodic monitoring at selected locations, in accordance with plans approved by the Department;
- Soil boring / rock coring with installation of piezometers along the landfill perimeter, and test pit/trench excavations within the landfill to evaluate ground-water flow into the landfill ;
- Two separate Dye Tracer Studies to try to define groundwater flow and Karst impacts in the vicinity of the landfill;
- Investigation of landfill vicinity for Karst conditions that may control groundwater flow;
- Electrical resistivity and microgravity surveys of the landfill to try to define groundwater flow paths beneath the landfill; and
- Geoprobe / rotary auger investigations to evaluate depth to bedrock and groundwater conditions.

While resulting in a greater understanding of contaminant migration at the Facility, these investigations failed to achieve the desired goal of yielding information leading to the development of feasible alternatives for the preferred remedial option of intercepting or diverting groundwater away from the buried waste deposits.

XVIII.

In a letter dated June 27, 2003, the Department (1) recognized that the final closure of the landfill had not significantly reduced the release of contaminated leachate from the wastes, (2) acknowledged the extensive hydrogeologic investigations Respondent had performed at the Site to identify the nature of the leachate release (including the mechanism by which groundwater interacts with the waste) and the knowledge gained, and (3) called for the development and submission of the groundwater corrective action plan required by Tennessee Rule 1200-1-7-.04(7)7 and 8. Respondent submitted a Corrective Action Plan (hereinafter "CAP") meeting these requirements on December 30, 2003. In the CAP, Respondent presented a comprehensive evaluation of the available data, described how the site conditions limited the available options, and identified three remaining options for mitigating the release of contaminated leachate from the landfill: (1) Clean Closure / Waste Removal, (2) Leachate Collection/Treatment, and (3) Natural or Enhanced Site Attenuation. The CAP then presented an assessment of the feasibility and potential effectiveness of these options and concluded that "selection of a remedy that fulfills all the criteria established by Rule 1200-1-7-.04(7)(a)8(ii) in the next two or three years is technically and economically impractical." The CAP then recommended that a Wetlands Treatment Alternative to enhance attenuation of releases and impacts be pursued at the Site. Following a public meeting held by Respondent in January 2004 to obtain public comments on the CAP, the Department allowed Respondent to pursue this remedy pending the acquisition of the necessary Aquatic Resource Alteration Permit.

XIX.

On April 2, 2004, Respondent submitted to the Department a Remedial Plan for a Constructed Wetland System down-gradient of the landfill that would retain and buffer leachate and improve water quality and habitat. Salt-tolerant vegetation would be planted in both the wetland system and on soil impacted by salt. The constructed wetland system was to have the following benefits to the local environment: (1) reduce surges of salt concentration downstream of the site; (2) improve aesthetic values of the site by removal of stressed vegetation and planting of vegetation that will flourish; (3) improve wildlife habitat, particularly for wetland species (i.e., waterfowl, shorebirds, aquatic invertebrates and amphibians); and (4) improve water quality by the reduction of erosion and breakdown of nutrients and organic matter. On May 4, 2004, the Department's Division of Water Pollution Control issued public notice of their intent to issue an Aquatic Resource Alteration Permit to allow the wetland restoration effort to proceed. On June 2, 2004, the Department's Division of Solid Waste Management approved the Remedial Plan. The Constructed Wetlands System was subsequently built, but Site and drought conditions over the next several years hindered the full development of the vigorous communities of salt-tolerant vegetation that were planned.

XX.

Following a Compliance Review Meeting between Department and Respondent representatives on April 24, 2008, the Department sent a letter to the Respondent, dated June 12, 2008, that stated, in part:

The landfill is in the fourth year of implementation of a wetland designed to mitigate impacts of a release of leachate and contaminated ground water to Sugar Creek and Arrow Lake. The rate of release of contaminants is now increasing after an initial period of decreasing concentrations. The Tennessee Solid Waste

Rules (Rule 1200-1-7-.04(7)9.) require landfill owners to implement other methods or techniques when remedial objectives are not being met. The Division is therefore requiring Associated Commodities to submit modifications (improvements) to the original corrective action plan prepared on December, 2003.

The goal of the modified plan must be to restore the wetland system and to reduce the amount of contaminants reaching Sugar Creek so that those waters (below the wetland system) are no longer impaired.

XXI.

On August 15, 2008, Respondent submitted the required Modified Corrective Action Plan (hereinafter "MCAP") to the Department. In addition to describing ongoing wetland restoration and monitoring efforts, the MCAP described the very difficult leachate generation and release conditions that had resulted from the failure to accurately characterize the Site's complex hydrogeologic features in the initial permitting and development of the Facility. The MCAP also (1) described the revised corrective action goal established by the Department, (2) identified various potential corrective action options both for reducing chlorides releases from the landfill and for post-release contaminant removal, and (3) set forth a stepwise strategy and schedule for evaluating these options, for selecting from among them (or other options yet to be identified) one or more capable of achieving the revised corrective action goal, and for designing and implementing the final remedy utilizing such selected corrective action options. The MCAP identified the first step in this process to be the preliminary evaluation of the targeted corrective action options, which was to result in a report to the Department that identified those options that were determined not to be feasible and those determined to be at least potentially feasible, the additional information needed for a more complete evaluation of those potentially feasible alternatives, and a general description of the field investigations or other efforts needed to gather

that additional information. The MCAP was approved for implementation in a letter from the Department dated April 19, 2010.

XXII.

Pursuant to the approved MCAP, the Respondent submitted to the Department on August 24, 2010, a Report of Preliminary Evaluation of Corrective Action Alternatives (hereinafter "RPECAA"). Along with background and historical information, the RPECAA included (1) a description of certain investigative efforts that had been performed since the MCAP was approved, (2) a request for clarification of the corrective action goal by the Department and an explanation as to why such was needed, (3) a summary description of current site conditions, (4) Respondent's preliminary evaluation of identified corrective action alternatives (which includes the recommended elimination of several from further consideration), (5) a summary of planned additional data gathering efforts to fill in critical data gaps in the site characterization information necessary to enable a complete feasibility evaluation of the remaining alternatives, and (6) a description of the corrective action path forward. As anticipated in the Department-approved MCAP, the RPECAA noted that considerable additional efforts were required of the Department (to clarify the corrective action goal) and of the Respondent (to further characterize the migration of contaminants from the landfill to Arrow Lake). The RPECAA also recommended that a meeting be held between Department and Respondent representatives to discuss the prioritization and timing of the additional efforts needed and to establish the needed content and a schedule for the Respondent's submission to the Department of the Field Investigations Plan described in the MCAP.

XXIII.

On January 27, 2011, at the Department's request, a meeting was held between representatives of Respondent and the Department's Divisions of Solid Waste Management and Water Pollution Control to discuss in particular the Respondent's perceived need, as described in the RPECAA, for a clarification of the contaminant reductions needed in Sugar Creek to achieve the corrective action goal of such water no longer being considered impaired by contaminants released from the Facility. At this meeting, Respondent also described a potential new corrective action alternative involving removal and reclamation of the salt cake deposits in the Facility, and certain test excavations and waste testing that needed to be performed on the waste deposits to enable evaluation of the feasibility of such excavation and reclamation. Following this meeting, Respondent provided to the Department via e-mail and mailed correspondence additional information concerning water quality testing performed at and around the Site by Respondent, and additional information (including a request for the minor permit modification needed to allow it to occur) on the planned test excavations and waste testing to be performed by Respondent to evaluate the feasibility of reclamation.

XXIV.

On February 11, 2011, February 14, 2011, and February 17, 2011, Department personnel from the Columbia Environmental Field Office (hereinafter "CEFO") and from the Nashville Central Office (hereinafter "CO") conducted a reconnaissance of the Site along with surface water sampling and stream assessment inspections at points along Sugar Creek (and its Arrow Lake impoundment) upstream and downstream of the point at which the leachate-contaminated stream from the Site enters Sugar Creek. The sampling and analysis results confirmed that the

leachate-contaminated inflow from the Site was resulting in high levels of chlorides and dissolved solids in Sugar Creek downstream of the site.

VIOLATIONS

XXV.

By causing or allowing unauthorized discharges to waters of the state, as described herein, the Respondent has violated T.C.A. §69-3-108(a) and (b) and 69-3-114(b).

T.C.A. §69-3-108(a) provides:

- (a) Every person who is or is planning to carry on any of the activities outlined in subsection (b), other than a person who discharges into a publicly owned treatment works or who is a domestic discharger into a privately owned treatment work, or who is regulated under a general permit as described in subsection (j), shall file an application for a permit with the commissioner or, when necessary, for modification of such person's existing permit.

T.C.A. §69-3-108(b) provides:

- (b) It is unlawful for any person, other than a person who discharges into a publicly owned treatment works or a person who is a domestic discharger into a privately owned treatment works, to carry out any of the following activities, except in accordance with the conditions of a valid permit:
 - (2) The construction, installation, modification, or operation of any treatment works, or part thereof, or any extension or addition thereto;
 - (6) The discharge of sewage, industrial wastes or other wastes into waters, or a location from which it is likely that the discharged substance will move into waters;

T.C.A. §69-3-114(b) provides:

- (b) In addition, it is unlawful for any person to act in a manner or degree which is violative of any provision of this part or of any rule, regulation, or standard of water quality promulgated by the board or of any permits or orders issued pursuant to the provisions of this part; or fail or refuse to file and applications for a permit as required in §69-3-108; or to refuse to

furnish, or to falsify any records, information, plans, specifications, or other data required by the board or the Commissioner under this part.

XXVI.

By contributing to a condition of pollution in Sugar Creek, the Respondent has violated T.C.A. §69-3-114(a).

T.C.A. §69-3-114(a) provides:

- (a) It shall be unlawful for any person to discharge any substance into the water of the state or to place or cause any substance to be placed in any location where such substances, either by themselves or in combination with others, cause any of the damages as defined in §69-3-103(22), unless such discharge shall be due to an unavoidable accident or unless such action has been properly authorized. Any such action is declared to be a public nuisance.

XXVII.

By allowing the release of solid waste or solid waste constituents to the waters of the State, the Respondent has violated T.C.A. §§68-211-104(1), 68-211-104(3), and 68-211-104(4).

T.C.A. §68-211-104(1),(3) and (4) provide:

It is unlawful to:

- (1) Place or deposit any solid waste into the waters of the state except in a manner approved by the department or the Tennessee water quality control board;
- (3) Construct, alter, or operate a solid waste processing or disposal facility or site in violation of the rules, regulations, or orders of the commissioner or in such a manner as to create a public nuisance; or
- (4) Transport, process or dispose of solid waste in violation of this chapter, the rules and regulations established under the provisions of this chapter or in violation of the orders of the commissioner or board.

ORDER AND ASSESSMENT

XXVIII.

WHEREFORE, pursuant to the authority vested by T.C.A. §§69-3-109, 69-3-115, 69-2-116, 68-211-112, 68-211-117, 68-212-224, and 68-212-215, I, Robert J. Martineau, Jr., issue the following ORDERS AND ASSESSMENTS:

A. Respondent shall take the following actions to prevent, to the extent practicable, the unauthorized discharge of leachate contamination in surface water flowing from the Site into the Arrow Lake impoundment of Sugar Creek:

1. Within ninety (90) days of the receipt of this fully executed CONSENT ORDER, Respondent shall submit to the Commissioner for his review and comment or approval a Discharge Reduction Plan (hereinafter "DRP") to significantly reduce, particularly during periods of low area surface water flow, the amount of contamination that is currently flowing from the Site in surface water. Such plan shall include an aggressive schedule of implementation, beginning actual reductions in contaminant flow within one hundred fifty (150) days of Respondent's receipt of this fully executed CONSENT ORDER.
2. Upon receipt of written comments from the Commissioner, Respondent shall make any necessary modifications to the DRP to effectively address any deficiencies or questions identified by the Commissioner and shall submit the modified DRP to the Commissioner within thirty (30) days of the receipt of the Commissioner's comments.

3. Upon receipt of the Commissioner's written approval, Respondent shall implement the DRP in accordance with the schedule of implementation included and any conditions established in the Commissioner's approval.

B. Respondent shall develop and implement a plan of corrective action(s) that will effectively and permanently prevent, to the extent practicable, the release of landfilled wastes or waste constituents to groundwater. This plan, which shall focus on actions (such as targeted waste removal) to isolate the landfilled wastes from contact with water (ground water and/or storm water), shall be developed and implemented as follows:

1. Within sixty (60) days of his receipt of this fully executed CONSENT ORDER, Respondent shall submit for the Commissioner's review and comment or approval a Field Investigations Plan (hereinafter "FIP") describing in detail the field investigations and other efforts that will be pursued to gather the additional information necessary for an effective assessment and design of potential corrective measures. The FIP will include a schedule of implementation (not to exceed 180 days from the date Respondent receives the Commissioner's approval) for performing the field investigations and other efforts described and submitting to the Commissioner a Field Investigations Report (hereinafter "FIR") describing the performance of and findings from these efforts.
2. Upon receipt of written comments from the Commissioner, Respondent shall make any necessary modifications to the FIP to effectively address any deficiencies or questions identified by the Commissioner and shall submit the modified FIP to the Commissioner within thirty (30) days of the receipt of the Commissioner's comments.

3. Upon receipt of the Commissioner's written approval, Respondent shall implement the FIP and submit the FIR in accordance with the schedule of implementation included and any conditions established in the Commissioner's approval.
4. Within ninety (90) days following submittal of the FIR, Respondent shall submit to the Commissioner for review and comment or approval a CAP describing the planned corrective actions to be taken and an aggressive schedule for implementing them. The schedule will establish reasonably achievable and measurable interim performance goals and require quarterly reports of the progress made toward achieving those goals. The CAP must also describe the actions that will be taken during implementation to prevent or minimize releases that might threaten public health and the environment, as well as monitoring programs that will be implemented to identify such releases and to measure the effectiveness of the corrective actions.
5. Within sixty (60) days of the receipt of written comments from the Commissioner or as may otherwise be specified in such comments, Respondent shall make any necessary modifications to the CAP to effectively address any deficiencies or questions identified by the Commissioner and shall submit the modified CAP to the Commissioner.
6. Upon receipt of the Commissioner's written approval, Respondent shall implement the approved CAP in accordance with its included schedule of implementation and any conditions established in the Commissioner's approval.

C. As new information becomes available, the plans developed and approved as described in subparagraphs A and B above may be modified upon written approval of both the Commissioner and Respondent.

D. Except as set forth below, as provided in the approved plans described in subparagraphs A, B, and C above, or as may otherwise be specifically approved in writing by the Commissioner, Respondent shall maintain compliance with the post-closure care requirements required by regulation and the Facility's approved Post-Closure Care Plan.

1. Upon the full execution of this CONSENT ORDER, Respondent shall no longer be required to maintain the Constructed Wetland System at the Site except that the lower dam and weir shall be maintained until alternative plans for managing the surface water have been approved by the Commissioner. Respondent and adjacent property owners shall also be relieved of any land use restrictions associated with the Constructed Wetland System remedy.
2. Upon the Commissioner's approval of the CAP described in subparagraph B above, the monitoring programs described in the CAP will be implemented in lieu of the currently established ground-water and surface-water monitoring program.

E. None of the actions described in this Consent Order, and none of the on-site actions set forth in the approved plans described in subparagraphs A, B, and C above, require modification of the permit for the Facility or a new permit pursuant to Tennessee Rule Chapter 1200-1-7.

F. The Commissioner may, for good cause shown, extend the compliance dates contained within this CONSENT ORDER and in plans developed and approved pursuant to this CONSENT ORDER. In order to be eligible for this time extension, the Respondent

shall submit a written request to be received in advance of the compliance date. The written request shall include sufficient detail to justify such an extension and include at a minimum the anticipated length of the delay, the precise cause or causes of the delay, and measures taken to minimize the delay.

G. Respondent is hereby assessed a CIVIL PENALTY in the amount of THREE HUNDRED EIGHTEEN THOUSAND THREE HUNDRED DOLLARS (\$318,300.00).

The Respondent shall pay the assessed penalties as follows:

1. NINETY THOUSAND DOLLARS (\$90,000.00) shall be paid to the Department within sixty (60) days of the receipt of this fully executed CONSENT ORDER.

a. In lieu of payment of this NINETY THOUSAND DOLLARS (\$90,000.00), the Respondent may propose Supplemental Environmental Projects (hereinafter "SEP(s)"). Any proposed SEP(s) must be submitted, in writing, to the Commissioner within 30 days of the receipt of this fully executed CONSENT ORDER.

b. The written proposal must include an estimate of the anticipated cost of the project(s). Before implementing any proposed SEP(s), the SEP(s) must be approved, in writing, by the Commissioner. In the event that one or more of the proposed SEP(s) are not approved, the Commissioner may extend the time in which to submit an alternative SEP(s) proposal. To receive credit against the CIVIL PENALTY for any approved SEP(s), the Respondent must provide documentation to the Commissioner of the actual costs to be expended on each SEP(s). The value credited against the civil penalty for any approved SEP(s) will be determined by the Commissioner. In the event that the Respondent fails to propose SEP(s) within 30 days of the receipt of this fully executed

CONSENT ORDER, or fails to carry out an approved SEP(s), the portion of the civil penalty allocated for such SEP(s) will become due and payable immediately.

2. The remaining TWO HUNDRED AND TWENTY EIGHT THOUSAND THREE HUNDRED DOLLARS (\$228,300.00) shall become due and payable or may be waived as provided below:

a. The Respondent, within ninety (90) days of the receipt of this fully executed CONSENT ORDER, shall have submitted the Discharge Reduction Plan (hereinafter "DRP") to the Department to significantly reduce the amount of contamination that is currently flowing from the Site in surface water. If the Respondent fails to submit the DRP within one hundred and twenty (120) days as described above, the Respondent shall pay THIRTY THOUSAND DOLLARS (\$30,000.00) to the Department within one hundred and eighty (180) days of the receipt of this CONSENT ORDER, unless the Commissioner has issued a written waiver to the Respondent to the effect that Respondent has presented good cause for being unable to meet this requirement.

b. The Respondent, within one hundred and fifty (150) days of this fully executed CONSENT ORDER, shall have commenced the approved DRP at the ACC Landfill. If the Respondent fails to begin the implementation of the DRP within one hundred and fifty (150) days, the Respondent shall pay FORTY-EIGHT THOUSAND THREE HUNDRED DOLLARS (\$48,300.00) to the Department within one hundred and eighty days of the receipt of this CONSENT ORDER, unless the Commissioner has issued a written waiver to the Respondent to the effect that Respondent has presented good cause for being unable to meet this requirement.

- c. The Respondent, within sixty (60) days of this fully executed CONSENT ORDER, shall submit the Commissioner's review and comment or approval a Field Investigations Plan (hereinafter "FIP") describing in detail the field investigations and other efforts that will be pursued to gather the additional information necessary for an effective assessment and design of potential corrective measures, the Respondent shall pay FIFTEEN THOUSAND DOLLARS (\$15,000.00) to the Department within one hundred and eighty days of the receipt of this CONSENT ORDER, unless the Commissioner has issued a written waiver to the Respondent to the effect that Respondent has presented good cause for being unable to meet this requirement.
- d. Within thirty (30) days of receipt of the Commissioner's written approval, the Respondent shall commence implementation of the FIP. If the Respondent does not commence implementation of the FIP within thirty days of receipt of the Commissioner's written approval, the Respondent shall pay FORTY-FIVE THOUSAND DOLLARS (\$45,000.00) to the Department, unless the Commissioner has issued a written waiver to the Respondent to the effect that Respondent has presented good cause for being unable to meet this requirement.
- e. Respondent shall implement the FIP and submit the FIR in accordance with the approved schedule and any conditions established in the Commissioner's approval of the FIP. If the Respondent fails to timely submit the FIR, the Respondent shall pay FIFTEEN THOUSAND DOLLARS (\$15,000.00) to the Department within sixty days of its failure to submit the FIR, unless the Commissioner has issued a written waiver to the Respondent to the effect that Respondent has presented good cause for being unable to meet this requirement.

remediation of contamination identified and addressed in this CONSENT ORDER. This Liability Protection is extended to successors in interest or in title, contractors conducting response actions at the site, developers, future owners, tenants, and lenders, fiduciaries or insurers, conditioned upon performance of the obligations contained in this CONSENT ORDER and compliance with any land use restrictions required thereby; provided, that such Liability Protection to other persons does not apply to any liability that arose prior to this CONSENT ORDER.

B. THIRD PARTY LIABILITY RELIEF

The Consenting Party shall not be liable to third parties for contribution regarding matters addressed in this CONSENT ORDER provided that the third party was given actual or constructive notice of this CONSENT ORDER, and the third party has been given an actual or constructive opportunity to comment upon this CONSENT ORDER. The Consenting Party has demonstrated to the Department that constructive notice was accomplished by publishing a summary of this CONSENT ORDER in The Daily Herald, Columbia, Tennessee, at least thirty (30) days prior to the effective date of this CONSENT ORDER. Nothing in this CONSENT ORDER shall impair the rights of third parties with respect to tort liability claims for damage to person or property arising from the contamination addressed by this CONSENT ORDER.

C. RESERVATION OF RIGHTS

T.C.A. §68-212-114(d), §68-212-215(e), and §69-3-115(e) each provide that a final action of the Commissioner of the Department may be filed with the Chancery Court of Davidson County, and shall be considered an agreement of the parties thereto to the entry by the

Court of a judgment by consent, the terms and conditions of which are the same as those recited in the administrative order. The cited provisions further provide for the Court to enter a final judgment by consent after the expiration of a forty-five day period for intervention by any citizen. The final judgment has the same effect as any judgment of a court of record of the State of Tennessee, and may be enforced or satisfied in like manner.

In agreeing to the foregoing CONSENT ORDER, the Commissioner does not implicitly or expressly waive any provisions of the Act(s) or regulation(s) promulgated thereunder. Compliance with the provisions of this CONSENT ORDER will be considered as a mitigating factor in determining the need for future enforcement action(s). The department expressly reserves the right to issue further Orders to require further or different corrective action based on changes of conditions or new information, to assess civil penalties for all violations of the law, and to assess all damages, including but not limited to, Natural Resource Damages.

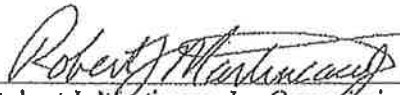
WAIVER OF RIGHT TO APPEAL

Respondent understands that it has the right to appeal this CONSENT ORDER pursuant to T.C.A. §§68-211-113, 69-3-109, 69-3-115 and 4-5-301 et seq. Respondent knowingly and voluntarily waives all of these appeal rights.


The individual signing below on behalf of the Consenting Party represents that she is a duly authorized agent, capable of entering into a CONSENT ORDER on behalf of the Consenting Party.

ORDERED AND AGREED by the Commissioner of the Tennessee Department of Environment and Conservation, AGREED AND CONSENTED to by the Respondent

6-7-11
Date


Robert J. Martineau, Jr., Commissioner
Tennessee Department of Environment and Conservation

6/6/11
Date


Sharon O. Jacobs, BPR #014626
Bone McAllester Norton PLLC
Attorney for ACC, LLC, Respondent

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

IN THE MATTER OF:)	
)	
ACC, LLC)	APD DOCKET NUMBER
)	04.27-116746A
RESPONDENT)	

AMENDED AND RESTATED CONSENT ORDER

This Amended and Restated Consent Order is made and entered into by and between the Tennessee Department of Environment and Conservation (hereinafter "Department") and ACC, LLC a Tennessee Limited Liability Company, and it supersedes the June 2011 Administrative Consent Order, Nos. SWM11-0006 and WPC11-0024.

PARTIES

I.

Robert J. Martineau, Jr., is the duly appointed Commissioner of the Department.

II.

ACC, LLC. (hereinafter the "Respondent" or "Consenting Party") is a limited liability company organized under and existing by virtue of the laws of the State of Tennessee. Service of process may be made on the Respondent through Mr. Thomas W. Hardin, Registered Agent, at 102 West 7th Street, Columbia, Tennessee 38401. Consenting Party is the owner and operator of a closed, Department-permitted industrial landfill that is releasing waste constituents to ground water and surface water. That closed landfill, known as the "ACC Landfill" is the

**Exhibit
B**

subject of this Amended and Restated Consent Order.

JURISDICTION

III.

Whenever the Commissioner has reason to believe that a violation of the Tennessee Water Quality Control Act (the "WQCA or the Act"), Tennessee Code Annotated (T.C.A.) §69-3-101 *et seq.* has occurred or is about to occur, the Commissioner may issue a complaint to the violator and the Commissioner may order corrective action be taken pursuant to T.C.A. §69-3-109(a) of the WQCA. Further, the Commissioner has authority to assess civil penalties against any violator of the WQCA, pursuant to T.C.A. §69-3-115 of the Act; and has authority to assess damages incurred by the state resulting from the violation, pursuant to T.C.A. §69-3-116 of the WQCA.

IV.

When the Commissioner finds that provisions of the Tennessee Solid Waste Disposal Act, (hereinafter the "SWD Act"), T.C.A. §68-211-101 *et seq.* are not being complied with, he is authorized by T.C.A. §68-211-112 to issue orders for correction to the responsible person. Further, T.C.A. §68-211-117 gives the Commissioner, or his authorized representative, the authority to assess damages and civil penalties against any person who violates any provision of the SWD Act or any rule, regulation, or standard adopted pursuant to said SWD Act. Notwithstanding any law to the contrary, except chapter 213 of Title 211 of the Tennessee Code Annotated, the approval of the commissioner of a solid waste processing facility or disposal facility or site shall be final and not subject to review by any administrative board, commission or other administrative office or body. T.C.A. §68-211-113(d).

V.

Pursuant to T.C.A. §68-211-107 the Department is authorized to exercise general supervision over the operation and maintenance of solid waste processing facilities and disposal facilities or sites. Such general supervision shall apply to all features of operation or maintenance which do or may affect the public health and safety or the quality of the environment and which do or may affect the proper processing and disposal of solid wastes.

VI.

Pursuant to T.C.A. §68-212-224 of the Hazardous Waste Management Act of 1983, as amended, the Commissioner is authorized to enter into a Amended and Restated Consent Order with a party who is willing and able to conduct an investigation and remediation of a hazardous substance site. The State of Tennessee is vested with the authority of the federal government to implement the Resource Conservation Act Program ("RCRA") in lieu of the federal program. 50 F. R. 85-1581; 71 F. R. 27405-01. The TDEC Commissioner, herein acting instead of the U. S. EPA Administrator for purposes of this RCRA action, enters into this Consent Order.

VII.

Department rules governing general water quality criteria and use classifications for surface waters have been promulgated pursuant to T.C.A. §69-3-105 and are effective as the Official Compilation Rules and Regulations of the State of Tennessee, Chapters 1200-4-3 and 1200-4-4.

VIII.

Sugar Creek, described herein, is "waters of the state" as defined by T.C.A. §69-3-103(33). Pursuant to T.C.A. §69-3-105(a)(1), all waters of the state have been classified by the Tennessee Water Quality Control Board for suitable uses as set forth in Tennessee Rule Chapter

1200-4-4, Use Classifications for Surface Waters. Accordingly, the impacted portion of Sugar Creek is classified for the following uses: domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife. Additionally, Sugar Creek has been assessed by the Department as impaired due to ammonia, salinity/total dissolved solids/chlorides from landfills, loss of biological integrity due to siltation, and other habitat alterations due to urbanized high density area impacts.

IX.

Tennessee Rule 1200-1-7-.04(8)(d) establishes a 30-year period of post-closure care for Class II (industrial) landfills, and Rule 1200-1-7-.04(8)(e) establishes the minimum activities that the landfill operator must perform during that post-closure care period. Specific post-closure care and ground water corrective action requirements are to be established by the landfill operator in the Post-Closure Care Plan and the Ground Water Corrective Action Plan as detailed in the regulations, and must be approved by the Commissioner.

X.

The Respondent is a "person" and/or a "potentially liable party" as defined by T.C.A. §§ 69-3-103(20); and 68-211-103(6); as herein described.

FACTS

XI.

The Respondent is the current owner of a 48.02-acre parcel of land (hereinafter the "Site") located immediately east of Arrow Mines Road south of the City of Mt. Pleasant in Maury County, Tennessee. Located on that parcel of land, and also currently owned and operated by Respondent, is the closed Class II (industrial) solid waste disposal facility known as the "ACC Landfill" (hereinafter the "Facility"). The Facility encompasses approximately 14

acres and was used for the disposal of aluminum recycling wastes from the Smelter Service Corporation (hereinafter "SSC") secondary aluminum smelting plant located at 400 Arrow Mines Road in Mt. Pleasant, Tennessee. The disposed wastes consist wholly, or almost wholly, of the "salt cake" slag and bag-house dusts from SSC's aluminum smelting operations. Salt cake constitutes by far the greatest bulk of the wastes disposed in the Facility, and it contains high concentrations of highly soluble salts sodium chloride and potassium chloride.

XII.

Surface water and ground water at the Site drain westward toward Arrow Mines Road and Sugar Creek, the Arrow Lake impoundment of which is located immediately west of Arrow Mines Road.

XIII.

The Facility was constructed and operated pursuant to a "registration" or "permit" initially issued to Respondent (in its original corporate form of Associated Commodities Corporation) by the Department (then the Department of Public Health) on July 1, 1981. Under the regulations in effect at the time, the Department actually performed the hydrogeologic evaluation of proposed landfill sites and either approved, with conditions, or disapproved such sites (or portions thereof) for use as a landfill. The Department's conditional hydrogeologic approval of the Facility for landfill use was issued by the Department on February 23, 1981. Subsequent to such approval, and in accordance with the then-applicable regulations, Respondent submitted plans for construction and operation of the landfill which were approved by the Department with the issuance of the registration (permit). The Facility is identified by the Department-assigned number IDL 60-0032.

XIV.

The Respondent started disposing of SSC's wastes at the Facility on or about August 1981, and continued doing so until September 1, 1993. The Respondent then performed final closure of the Facility in accordance with Closure/Post-closure Care and Corrective Action Plans approved by the Department. This involved principally establishing a final soil cover system over the waste deposits that met the requirements of Tennessee Rule 1200-1-7-.04(8)(c)3 [at the time], with surface water controls as necessary to minimize and control erosion and sedimentation. Following subsequent improvements to the final cover and reconstruction of the perimeter surface water drainage ditches around the landfill, Respondent on July 18, 1995, submitted to the Department a certification of completion of closure. On April 8, 1996, the Respondent was issued an Acceptance of Closure by the Department.

XV.

Within a very few years of beginning operation, it appeared to the Respondent and the Department that unacceptably high levels of chlorides and ammonia were leaching out of the wastes and into the underlying ground water and down-gradient surface water that drained into Sugar Creek and Arrow Lake. That condition was not resolved by the final closure of the Facility and continues today. Over the years as regulations and technologies have evolved, the Respondent has worked with the Department – both voluntarily and in response to Department enforcement actions – to identify why this leaching was occurring and try to stop it. Various investigative and corrective action efforts have been performed by Respondent, including, but not limited to, the following:

- Application of daily cover material to divert rainfall from the wastes;
- Construction of lengthy ditches to re-route surface water around the landfill;

- Construction of multiple settling ponds and associated drainage control ditches;
- Attempted sealing of springs and seeps;
- Installation, development, and maintenance of a system of ground water monitoring wells to delineate the nature and extent of ground water contamination;
- Collection and analysis of surface water and ground water samples at multiple locations, including routine periodic monitoring at selected locations, in accordance with plans approved by the Department;
- Soil boring / rock coring with installation of piezometers along the landfill perimeter, and test pit/trench excavations within the landfill to evaluate ground water flow into the landfill ;
- Two separate Dye Tracer Studies to try to define ground water flow and Karst impacts in the vicinity of the landfill;
- Investigation of landfill vicinity for Karst conditions that may control ground water flow;
- Electrical resistivity and microgravity surveys of the landfill to try to define ground water flow paths beneath the landfill; and
- Geoprobe / rotary auger investigations to evaluate depth to bedrock and ground water conditions.

While resulting in a greater understanding of contaminant migration at the Facility, these investigations failed to achieve the desired goal of yielding information leading to the development of feasible alternatives for the preferred remedial option of intercepting or diverting ground water away from the buried waste deposits.

XVI.

In a letter dated June 27, 2003, the Department (1) recognized that the final closure of the landfill had not significantly reduced the release of contaminated leachate from the wastes, (2) acknowledged the extensive hydrogeologic investigations Respondent had performed at the Site to identify the nature of the leachate release (including the mechanism by which ground water interacts with the waste) and the knowledge gained, and (3) called for the development and submission of the ground water corrective action plan required by Tennessee Rule 1200-1-7-.04(7)7 and 8. Respondent submitted a Corrective Action Plan (hereinafter "CAP") meeting these requirements on December 30, 2003. In the CAP, Respondent presented a comprehensive evaluation of the available data, described how the site conditions limited the available options, and identified three remaining options for mitigating the release of contaminated leachate from the landfill: (1) Clean Closure / Waste Removal, (2) Leachate Collection/Treatment, and (3) Natural or Enhanced Site Attenuation. The CAP then presented an assessment of the feasibility and potential effectiveness of these options and concluded that "selection of a remedy that fulfills all the criteria established by Rule 1200-1-7-.04(7)(a)8(ii) in the next two or three years is technically and economically impractical." The CAP then recommended that a Wetlands Treatment Alternative to enhance attenuation of releases and impacts be pursued at the Site. Following a public meeting held by Respondent in January 2004 to obtain public comments on the CAP, including the Aquatic Resource Alteration Permit ("ARAP"), the Department allowed Respondent to pursue this remedy pending the acquisition of the necessary ARAP.

XVII.

On April 2, 2004, Respondent submitted to the Department a Remedial Plan for a Constructed Wetland System down-gradient of the landfill that it believed would retain and

buffer leachate and improve water quality and habitat in Sugar Creek and Arrow Lake. Salt-tolerant vegetation would be planted in both the Constructed Wetland System and on soil impacted by salt. The Constructed Wetland System was to have the following benefits to the local environment: (1) reduce surges of salt concentration downstream of the Site; (2) improve aesthetic values of the Site by removal of stressed vegetation and planting of vegetation that will flourish; (3) improve wildlife habitat, particularly for wetland species (i.e., waterfowl, shorebirds, aquatic invertebrates and amphibians); and (4) improve water quality by the reduction of erosion and breakdown of nutrients and organic matter. On May 4, 2004, the Department's Division of Water Pollution Control issued public notice of their intent to issue an ARAP to allow the wetland restoration effort to proceed. On June 2, 2004, the Department's Division of Solid Waste Management approved the Remedial Plan. The Constructed Wetlands System was subsequently built, but Site and drought conditions over the next several years hindered the full development of the vigorous communities of salt-tolerant vegetation that were planned.

XVIII.

Following a Compliance Review Meeting between Department and Respondent representatives on April 24, 2008, the Department sent a letter to the Respondent, dated June 12, 2008, that stated, in part:

The landfill is in the fourth year of implementation of a wetland designed to mitigate impacts of a release of leachate and contaminated ground water to Sugar Creek and Arrow Lake. The rate of release of contaminants is now increasing after an initial period of decreasing concentrations. The Tennessee Solid Waste Rules (Rule 1200-1-7-.04(7)9.) require landfill owners to implement other methods or techniques when remedial objectives are not being met. The Division is therefore requiring Associated Commodities to submit modifications (improvements) to the original corrective action plan prepared on December, 2003.

The goal of the modified plan must be to restore the wetland system and to reduce the amount of contaminants reaching Sugar Creek so that those waters (below the wetland system) are no longer impaired.

XIX.

On August 15, 2008, Respondent submitted the required Modified Corrective Action Plan (hereinafter "MCAP") to the Department. In addition to describing ongoing wetland restoration and monitoring efforts, the MCAP described the very difficult leachate generation and release conditions that had resulted from the failure to accurately characterize the Site's complex hydrogeologic features in the initial permitting and development of the Facility. The MCAP also (1) described the revised corrective action goal established by the Department, (2) identified various potential corrective action options both for reducing chlorides releases from the landfill and for post-release contaminant removal, and (3) set forth a stepwise strategy and schedule for evaluating these options, for selecting from among them (or other options yet to be identified) one or more capable of achieving the revised corrective action goal, and for designing and implementing the final remedy utilizing such selected corrective action options. The MCAP identified the first step in this process to be the preliminary evaluation of the targeted corrective action options, which was to result in a report to the Department that identified those options that were determined not to be feasible and those determined to be at least potentially feasible, the additional information needed for a more complete evaluation of those potentially feasible alternatives, and a general description of the field investigations or other efforts needed to gather that additional information. The MCAP was approved for implementation in a letter from the Department dated April 19, 2010.

XX.

Pursuant to the approved MCAP, the Respondent submitted to the Department on August 24, 2010, a Report of Preliminary Evaluation of Corrective Action Alternatives (hereinafter "RPECAA"). Along with background and historical information, the RPECAA included (1) a description of certain investigative efforts that had been performed since the MCAP was approved, (2) a request for clarification of the corrective action goal by the Department and an explanation as to why such was needed, (3) a summary description of current Site conditions, (4) Respondent's preliminary evaluation of identified corrective action alternatives (which includes the recommended elimination of several from further consideration), (5) a summary of planned additional data gathering efforts to fill in critical data gaps in the site characterization information necessary to enable a complete feasibility evaluation of the remaining alternatives, and (6) a description of the corrective action path forward. As anticipated in the Department-approved MCAP, the RPECAA noted that considerable additional efforts were required of the Department (to clarify the corrective action goal) and of the Respondent (to further characterize the migration of contaminants from the landfill to Sugar Creek and Arrow Lake). The RPECAA also recommended that a meeting be held between Department and Respondent representatives to discuss the prioritization and timing of the additional efforts needed and to establish the needed content and a schedule for the Respondent's submission to the Department of the Field Investigations Plan described in the MCAP.

XXI.

On January 27, 2011, at the Department's request, a meeting was held between representatives of Respondent and the Department's Divisions of Solid Waste Management and Water Pollution Control to discuss in particular the Respondent's perceived need, as described in

the RPECAA, for a clarification of the contaminant reductions needed in Sugar Creek to achieve the corrective action goal of such water no longer being considered impaired by contaminants released from the Facility. At this meeting, Respondent also described a potential new corrective action alternative involving removal and reclamation of the salt cake deposits in the Facility, and certain test excavations and waste testing that needed to be performed on the waste deposits to enable evaluation of the feasibility of such excavation and reclamation. Following this meeting, Respondent provided to the Department via e-mail and mailed correspondence additional information concerning water quality testing performed at and around the Site by Respondent, and additional information (including a request for the minor permit modification needed to allow it to occur) on the planned test excavations and waste testing to be performed by Respondent to evaluate the feasibility of reclamation.

XXII.

On February 11, 2011, February 14, 2011, and February 17, 2011, Department personnel from the Columbia Environmental Field Office (hereinafter "CEFO") and from the Nashville Central Office (hereinafter "CO") conducted a reconnaissance of the Site along with surface water sampling and stream assessment inspections at points along Sugar Creek (and its Arrow Lake impoundment) upstream and downstream of the point at which the leachate-contaminated stream from the Site enters Sugar Creek. The sampling and analysis results confirmed that the leachate-contaminated inflow from the Site was resulting in high levels of chlorides, ammonia and dissolved solids in Sugar Creek downstream of the Site.

VIOLATIONS

XXIII.

By causing or allowing unauthorized discharges to waters of the state, as described herein, the Respondent has violated T.C.A. §§69-3-108(a) and (b) and 69-3-114(b).

T.C.A. §69-3-108(a) provides:

- (a) Every person who is or is planning to carry on any of the activities outlined in subsection (b), other than a person who discharges into a publicly owned treatment works or who is a domestic discharger into a privately owned treatment work, or who is regulated under a general permit as described in subsection (j), shall file an application for a permit with the commissioner or, when necessary, for modification of such person's existing permit.

T.C.A. §69-3-108(b) provides:

- (b) It is unlawful for any person, other than a person who discharges into a publicly owned treatment works or a person who is a domestic discharger into a privately owned treatment works, to carry out any of the following activities, except in accordance with the conditions of a valid permit:
 - (2) The construction, installation, modification, or operation of any treatment works, or part thereof, or any extension or addition thereto;
 - (6) The discharge of sewage, industrial wastes or other wastes into waters, or a location from which it is likely that the discharged substance will move into waters;

T.C.A. §69-3-114(b) provides:

- (b) In addition, it is unlawful for any person to act in a manner or degree which is violative of any provision of this part or of any rule, regulation, or standard of water quality promulgated by the board or of any permits or orders issued pursuant to the provisions of this part; or fail or refuse to file and applications for a permit as required in §69-3-108; or to refuse to furnish, or to falsify any records, information, plans, specifications, or other data required by the board or the Commissioner under this part.

XXIV.

By contributing to a condition of pollution in Sugar Creek, the Respondent has violated T.C.A. §69-3-114(a).

T.C.A. §69-3-114(a) provides:

- (a) It shall be unlawful for any person to discharge any substance into the water of the state or to place or cause any substance to be placed in any location where such substances, either by themselves or in combination with others, cause any of the damages as defined in §69-3-103(22), unless such discharge shall be due to an unavoidable accident or unless such action has been properly authorized. Any such action is declared to be a public nuisance.

XXV.

By allowing the release of solid waste or solid waste constituents to the waters of the State, the Respondent has violated T.C.A. §§68-211-104(1), 68-211-104(3), and 68-211-104(4).

T.C.A. §68-211-104(1),(3) and (4) provide:

It is unlawful to:

- (1) Place or deposit any solid waste into the waters of the state except in a manner approved by the Department or the Tennessee water quality control board;
- (3) Construct, alter, or operate a solid waste processing or disposal facility or site in violations of the rules, regulations, or orders of the commissioner or in such a manner as to create a public nuisance; or
- (4) Transport, process or dispose of solid waste in violation of this chapter, the rules and regulations established under the provisions of this chapter or in violation of the orders of the commissioner or board.

ORDER AND ASSESSMENT

XXVI.

WHEREFORE, pursuant to the authority vested by T.C.A. §§69-3-109, 69-3-115, 69-2-116, 68-211-112, and 68-211-117, I, Robert J. Martineau, Jr., issue the following ORDERS AND ASSESSMENTS:

- A. Respondent shall take the following actions to prevent the unauthorized discharge of leachate contamination in water flowing from the Site into the Arrow Lake impoundment of Sugar Creek:
1. Within 120 days of the effective date of this Amended and Restated Consent Order, or as is otherwise agreed to by the parties, the Respondent shall construct a berm upgradient of the site to divert uncontaminated storm water away from the Landfill prior to the commencement of any corrective action activities on the Landfill.
 2. As part of the Corrective Action Plan (CAP), described in Section C, Respondent shall submit to the Commissioner for his review and comment or approval a modified Discharge Reduction Plan (hereinafter "DRP") that incorporates TDEC's comments and revisions to Respondent's draft DRP that was submitted to TDEC in September 2011. The modified DRP shall significantly reduce, particularly during periods of low area surface water flow, the loading of contaminants that are currently discharging from the Site via surface waters. The modified DRP shall include a schedule for implementation.
 3. The DRP shall contain a plan to divert surface water away from the

landfill area and the current wetland system. The DRP shall eliminate, to the extent practicable, the potential for surface water to migrate from the surface into the landfill and eliminate the potential for surface water to enter the excavated area of the landfill once corrective action begins.

4. Upon receipt of written comments from the Commissioner, Respondent shall make any additional necessary modifications to the modified DRP to effectively address any deficiencies or questions identified by the Commissioner and shall submit the final modified DRP to the Commissioner within thirty (30) days of the receipt of the Commissioner's comments and approval.

5. Upon receipt of the Commissioner's written approval, Respondent shall implement the DRP in accordance with the schedule of implementation included therein. Once the CAP has been approved by the Commissioner all discharge reductions measures shall be contained therein and become part of the approved CAP.

B. Respondent shall remove from the current landfill all solid waste, to the extent practicable, that has the potential for future contact with ground or surface water. All waste removed will be relocated to a new landfill cell constructed on the Site or to a permitted off-site landfill.

1. Prior to the Commissioner's approval of the Corrective Action Plan (Section C below) but after commencement of waste removal activities, the Respondent shall capture ground water entering the excavated area, analyze the ground water to determine its chemical characteristics, and

then either (a) redirect the collected water back into the landfill or (b) discharge the collected ground water directly into Arrow Lake if the water is consistent with background concentrations as approved by TDEC, Tennessee water quality criteria, or the water quality described below:

Specific conductance	<500 μ S/cm
TDS	< 500 mg/L
Chloride	< 250 mg/L
COD	<15 mg/L
Ammonia nitrogen	< 2 mg/L
Mercury	< 0.00005 mg/L
Cadmium	< 0.00025 mg/L
Hexavalent Chromium	< 0.011 mg/L
Arsenic	<0.000051 mg/L
Copper	<0.009 mg/L
Nickel	<0.052 mg/L
Lead	< 0.0025 mg/L
Zinc	< 0.12 mg/L
Selenium	< 0.005 mg/L
Silver	< 0.0032 mg/L

2. After the Corrective Action Plan (Section C below) has been approved by the Commissioner, the list of constituents, their concentrations, and frequency of analysis shall follow the sampling plan contained in the approved Water Monitoring Plan as contained in the approved CAP as outlined in section (C) 4 below.
3. As waste is removed from the Site, the Respondent shall capture ground water that is upgradient of the remaining waste and handle such ground water as described in the approved DRP, or as is otherwise required by the CAP. Treatment, transport or disposal of water is not required pursuant to this Order until the TDEC approved CAP has been completed.

C. Within one hundred and fifty (150) days of the effective date of this Amended and

Restated Consent Order, Respondent in general accordance with the ground water corrective action provisions of Rule 1200-01-07-.04(7), shall submit to the Department a Corrective Action Plan (CAP) which provides for the methods and schedule for removal of solid wastes that have been disposed of in the ACC Landfill which have the potential for future contact with surface or groundwater. The CAP shall include, but not be limited to, the following plans:

1. Operation Plan – a narrative and design of the proposed corrective action including an estimate of the amount of waste to be removed daily and proposed methods of removal. The CAP shall contain a schedule for the removal and relocation of all impacted waste which has the potential for future contact with surface or ground water within four (4) years or less from the effective date of this Order;
2. Stormwater Management – The Respondent must obtain coverage under, and fully comply with, the Tennessee Construction Stormwater General Permit during the construction of any landfill cell on the Site and during the removal of solid waste from the existing landfill;
3. Landfill Design – The Respondent shall submit plans for the design of any landfill cell to be built on site. The plan shall be equivalent in design to Subtitle D of the Resource Conservation Recovery Act (RCRA) and include a barrier liner, leachate collection layer, and final cover system for any landfill cell. The Commissioner agrees that the Site is an “Area of Contamination” (AOC) as that term is commonly used in RCRA corrective actions and the AOC policy issued by the United States

Environmental Protection Agency in EPA530-F-98-026 on October 14, 1998 applies to remedial actions at this Site.

4. Water Monitoring Plan – Respondent shall develop and implement a monitoring and sampling plan that meets the requirements in Rule 1200-1-07-.04(7)(a)9(i)(l) for the leachate discharging from the landfill and for any ground water pumped from the worksite. Surface water sampling points shall include the primary point of discharge of contaminated water from the Site and the agreed upon representative sampling points specified in the Plan. The sampling and monitoring plan shall include continuous monitoring of temperature, flow, pH, and conductivity of the leachate, discharge at the site weir, so long as such weir is operational as deemed appropriate by TDEC . Additionally, semi-monthly grab samples shall be collected at the primary point of discharge of contaminated water from the Site and the clean water diversion and agreed upon representative sampling points and analyzed for pH, temperature, chloride, chemical oxygen demand, total dissolved solids, total suspended solids, Ammonia Nitrogen, and total recoverable Aluminum, Lead, Cadmium, Mercury, Hexavalent Chromium, Arsenic, Copper, Nickel and Zinc. The sampling frequency for these constituents may be reduced to monthly if results for 3 consecutive months (6 consecutive samples) remain below the levels indicated in XXVI-B or as otherwise agreed upon by TDEC. In the event there are certain constituents which are consistently below method detection levels, ACC may submit a request to the Department to exclude

those constituents from future sampling requirements. The Department agrees that no reasonable request shall be denied by the Department. Additionally, the Respondant may request a reduction in the extent or frequency of sampling of the clean water diversion if results indicate consistent compliance with water quality limits. Sampling shall follow an approved quality assurance plan, such as the one maintained by the Department on its website, and all chemical analyses shall meet the detection level reporting requirements found in Tennessee's General Water Quality Criteria.

The CAP shall contain a schedule requiring the Respondent to conduct a 3-Brood Water Flea (*Ceriodaphnia dubia*) Survival and Reproduction Test and a 7-Day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test on the discharge and every six (6) months thereafter. Sampling and analysis shall be conducted in accordance with TDEC-approved methods. The measured endpoint for toxicity will be the inhibition concentration causing twenty-five percent (25%) reduction in survival, reproduction and growth (IC25) of the test organisms. The IC25 shall be determined based on a twenty-five percent (25%) reduction as compared to the controls, and as derived from linear interpolation. The average reproduction and growth responses will be determined based on the number of *Ceriodaphnia dubia* or *Pimephales promelas* larvae used to initiate the test.

The test shall be conducted and its results reported based on appropriate replicates of a total of five (5) serial dilutions and a control, using the percent effluent dilutions as presented in the following table:

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
Toxicity Limit (PL) (a)	0.50 X PL	0.25 X PL	0.125X PL	0.0625X PL	Control
% effluent					
100	50	25	12.5	6.25	0

The dilution/control water used will be moderately hard water as described in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013 (or the most current edition).

Toxicity will be demonstrated if the IC25 value is not greater than one-hundred percent (100%). Test procedures, quality assurance practices, determination of effluent survival/reproduction and survival/growth values, and report formats will be made in accordance with Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013, (or the most current edition).

Results of all tests, reference toxicant information, copies of raw data sheets, statistical analysis and chemical analyses shall be compiled in a report. The report will be written in accordance with the Short-Term

Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013, (or the most current edition).

Ground water protection/monitoring standards of Rule 1200-1-7-.04(7) shall continue to apply to the ACC Landfill after implementation of the CAP. A revised Ground Water Monitoring Plan will also be prepared in conjunction with the Surface Monitoring Plan and included as part of the CAP. Upon approval of the CAP by the Commissioner, the CAP shall contain the ground water monitoring plan and the surface water monitoring plan to be conducted at the Site during the implementation of all remedial activities at the Site consistent with Rule 1200-1-7-.04(7).

5. Upon receipt of the Commissioner's written approval, Respondent shall implement the approved CAP in accordance with any conditions established in the Commissioner's approval.
- D. As new information becomes available, the plans developed and approved as described above may be modified upon written approval of both the Commissioner and Respondent.
 - E. Except as set forth below, or as provided in the approved plans described in subparagraphs A, B, and C above, or as may otherwise be specifically approved in writing by the Commissioner, Respondent shall maintain compliance with the post-closure care requirements required by regulation and the Facility's approved Post-Closure Care Plan.
 1. Upon the full execution of this Amended and Restated Consent Order,

Respondent shall no longer be required to maintain the Constructed Wetland System at the Site except that the lower dam and weir shall be maintained until alternative plans for managing the surface water have been approved by the Commissioner. Respondent and adjacent property owners shall also be relieved of any land use restrictions associated with the Constructed Wetland System remedy.

2. Upon the Commissioner's approval of the CAP described in subparagraphs B and C above, the monitoring programs described in the CAP will be implemented in lieu of the currently established ground water and surface water monitoring program.
- F. None of the actions described in this Amended and Restated Consent Order, and none of the on-site actions set forth in the approved plans described in subparagraphs A, B, and C above, require modification of the permit for the Facility or a new permit pursuant to Tennessee Rule Chapter 1200-1-7.
- G. The Commissioner may extend the compliance dates contained within this Amended and Restated Consent Order and in plans developed and approved pursuant to this Amended and Restated Consent Order if the Respondent provides a written request to the Commissioner. The request shall be received by TDEC no later than two (2) weeks, {fourteen (14) days} prior to the applicable compliance date. The written request shall include sufficient detail to justify such an extension and include at a minimum the anticipated length of the delay, the precise cause or causes of the delay, and measures taken so far, as well as those planned for the future to minimize the delay.

H. Respondent is hereby assessed a CIVIL PENALTY in the amount of FOUR HUNDRED THOUSAND DOLLARS (\$400,000.00). The Respondent shall pay the assessed penalties as follows:

1. ONE HUNDRED THOUSAND DOLLARS (\$100,000.00) shall become due and payable to the Department if the Respondent fails to meet the one-year milestone deadlines established in the CAP for removing waste from the ACC Landfill.
2. ONE HUNDRED THOUSAND DOLLARS (\$100,000.00) shall become due and payable to the Department if the Respondent fails to meet the two-year milestone deadlines established in the CAP for removing waste from the ACC Landfill.
3. ONE HUNDRED THOUSAND DOLLARS (\$100,000.00) shall become due and payable to the Department if the Respondent fails to meet the three-year milestone deadlines established in the CAP for removing waste from the ACC Landfill.
4. ONE HUNDRED THOUSAND DOLLARS (\$100,000.00) shall become due and payable to the Department if the Respondent fails to meet the four-year milestone deadlines established in the CAP for removing waste from the ACC Landfill.

XXVII.

RESERVATION OF RIGHTS

T.C.A. §68-212-114(d) and §69-3-115(e) each provide that a final action of the Commissioner of the Department may be filed with the Chancery Court of Davidson County, and shall be considered an agreement of the parties thereto to the entry by the Court of a judgment by consent, the terms and conditions of which are the same as those recited in the administrative order. The cited provisions further provide for the Court to enter a final judgment by consent after the expiration of a forty-five (45) day period for intervention by any citizen. The final judgment has the same effect as any judgment of a court of record of the State of Tennessee, and may be enforced or satisfied in like manner.

In agreeing to the foregoing Amended and Restated Consent Order, the Commissioner does not implicitly or expressly waive any provisions of the Act(s) or regulation(s) promulgated thereunder. Compliance with the provisions of this Amended and Restated Consent Order will be considered as a mitigating factor in determining the need for future enforcement action(s). The Department expressly reserves the right to issue further Orders to require further or different corrective action, including without limitation, restoration of Aventis' and/or SLLI's property impacted solely as a result of ACC's landfill, Sugar Creek and Arrow Lake due to impacts from the discharges from the Site, or based on changes of conditions or new information, to assess civil penalties for all violations of the law, and to assess all damages, including but not limited to, Natural Resource Damages.

WAIVER OF RIGHT TO APPEAL

Respondent understands that it has the right to appeal this Amended and Restated Consent Order pursuant to T.C.A. §§68-211-113, 69-3-109, 69-3-115 and 4-5-301 et seq. Respondent knowingly and voluntarily waives all of these appeal rights.

The individual signing below on behalf of the Consenting Party represents that she is a duly authorized agent, capable of entering into an Amended and Restated Consent Order on behalf of the Consenting Party.

ORDERED AND AGREED by the Commissioner of the Tennessee Department of Environment and Conservation, **AGREED AND CONSENTED** to by the Respondent.

8/7/12
Date

Robert J. Martineau, Jr.
Robert J. Martineau, Jr., Commissioner *EDS*
Tennessee Department of Environment and Conservation

8/7/12
Date

Sharon O. Jacobs
Sharon O. Jacobs, DPR #014626
Bone McAllester Norton PLLC
Attorney for ACC, LLC, Respondent

2012 MAR 19 2012
Dav. Co. Chancery Court

IN THE CHANCERY COURT FOR THE STATE OF TENNESSEE
TWENTIETH JUDICIAL DISTRICT, DAVIDSON COUNTY

IN RE:

TENNESSEE DEPARTMENT OF
ENVIRONMENT AND CONSERVATION
Order No. SWM11-0006; WPC11-0024

ACC, LLC

Petitioner, and

StarLink Logistics, Inc., and Tennessee
Department of Environment and Conservation,

Intervenors.

CASE NO. 11-0769-III

CLERK & MASTER
DAVIDSON COUNTY CHANCERY COURT
D.C. & M.

2012 MAR 21 AM 9:33

FILED

RECEIVED
MAR 23 2012
TN ATTORNEY GENERAL
ENVIRONMENTAL DIVISION

ORDER OF REMAND FOR CONTESTED CASE HEARING BEFORE THE
TENNESSEE SOLID WASTE DISPOSAL CONTROL BOARD

Pursuant to this Court's Order of November 14, 2011, ACC, LLC ("ACC"), the
Petitioner in this matter has filed a Notice of Failure to Resolve this Matter with this Court
notifying the Court that the parties have been unable to resolve all matters at issue on or before
January 20, 2012. Therefore, as required by the November 14, 2011 Order, this matter shall be
remanded to the Tennessee Solid Waste Disposal Control Board for a contested case.

IT IS HEREBY ORDERED, ADJUDGED AND DECREED THAT:

This matter is remanded for further proceedings before the Tennessee Solid Waste

Disposal Control Board as a contested case matter pursuant to the Tennessee Uniform

Administrative Procedures Act in accordance with Tenn. Code Ann. § 4-5-301, et seq. Court costs
are taxed equally to all the parties & ~~including~~ the intervenors and
petitioner.

IT IS SO ORDERED THIS _____ DAY OF JANUARY 2012.

HON. ELLEN HOBBS LYLE,
CHANCELLOR

Exhibit
C

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been sent via HAND DELIVERY and electronic mail to the following:

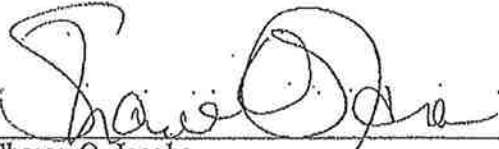
Elizabeth P. McCarter, Senior Counsel
Tennessee Attorney General's Office
Environmental Division
425 5th Avenue North
P. O. Box 20207
Nashville, TN 37202

Derek C. Jumper, Esq.
Frost Brown Todd, LLC
424 Church Street, Suite 1600
Nashville, TN 37219-2308

I hereby certify that a true and correct copy of the foregoing has been sent via United States mail and electronic mail to the following:

Christopher S. Habel, Esq.
Frost Brown Todd, LLC
2200 PNC Center
201 East Fifth Street
Cincinnati, OH 45202-4182

on January 19th, 2012.


Sharon O. Jacobs



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

IN THE MATTER OF:) DIVISION OF REMEDIATION
ACC, LLC) CASE NO: DOR 16-0010
Respondent) Related to: SWM 11-0006
WPC 11-0024

CONSENT ORDER

This Consent Order (hereinafter referred to as the "ORDER") is made and entered into by and between the Tennessee Department of Environment and Conservation (hereinafter referred to as "TDEC" or the "Department") and ACC, LLC, (hereinafter "ACC" or "Respondent").to cause the remediation of hazardous substances, solid waste, or other pollutants that are impacting portions of Sugar Creek and an unnamed tributary of Sugar Creek. The facts are set out in detail below.

PARTIES

I.

Robert J. Martineau is the duly appointed Commissioner of the Department. ACC, formerly known as Associated Commodities Corporation, is a Tennessee Limited Liability Company whose address is 400 Arrow Mines Road, Maury County, Tennessee. Its agent for service of process is Mr. Thomas W. Hardin, 102 W 7th Street, Columbia, TN 38401-3249.



JURISDICTION

II.

Pursuant to Tennessee Code Annotated ("Tenn. Code Ann.") §69-3-107 the Commissioner is authorized to exercise general supervision and control over the quality of all state waters, administer and enforce all laws relating to pollution of such waters, and administer and enforce the Tennessee Water Quality Control Act (the "WQC Act"), Tenn. Code Ann. §69-3-101 et seq. and all standards, policies, rules, and regulations promulgated under the WQC Act. The Commissioner is also authorized to bring suit in the name of the department for any violation of the provisions of the WQC Act, seeking any remedy provided in the WQC Act, and any other statutory or common law remedy available for the control, prevention, and abatement of pollution. Whenever the Commissioner has reason to believe that a violation of the WQC Act has occurred or is about to occur, the Commissioner may issue a complaint to the violator, and the Commissioner may order corrective action be taken pursuant to Tenn. Code Ann. §69-3-109(a). Further, the Commissioner has authority to assess civil penalties against any violator of the WQC Act, pursuant to Tenn. Code Ann. §69-3-115 of the Act; and has authority to assess damages incurred by the state resulting from the violation, pursuant to Tenn. Code Ann. §69-3-116 of the WQC Act.

III.

Department rules governing general water quality criteria and use classifications for surface waters have been promulgated pursuant to Tenn. Code Ann. §69-3-105 and are effective as the Official Compilation Rules and Regulations of the State of Tennessee, Chapters 400-40-03 and 400-40-04.

IV.

Sugar Creek is "waters" of the state as defined by Tenn. Code Ann. §69-3-103(44). Pursuant to Tenn. Code Ann. §69-3-105(a), all waters of the state have been classified by the Tennessee Board of Water Quality, Oil, and Gas for designated uses as set forth in Tennessee Rule Chapter 400-40-04, Use Classifications for Surface Waters. Accordingly, the impacted portion of Sugar Creek is classified for the following uses: domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering, and wildlife. Sugar Creek is listed on the 303(d) list due to salinity, total dissolved solids, chlorides, and other causes from a landfill and other pollutant sources. Additionally, an unnamed tributary to Sugar Creek is listed on the 303(d) list due to unionized ammonia, chlorides, and total dissolved solids from an industrial landfill.

V.

When the Commissioner finds that provisions of the Tennessee Solid Waste Disposal Act, (hereinafter the "SWD Act"), Tenn. Code Ann. §68-211-101 et seq. are not being complied with, he is authorized by Tenn. Code Ann. §68-211-112 to issue orders for correction to the responsible person. Pursuant to Tenn. Code Ann. §68-211-104(1), it is unlawful to place or deposit any solid waste into waters of the state except in a manner approved by the department or the Tennessee Board of Water Quality, Oil, and Gas. Further, Tenn. Code Ann. §68-211-117 gives the Commissioner, or his authorized representative, the authority to assess damages and civil penalties against any person who violates any provision of the SWD Act or any rule, regulation, or standard adopted pursuant to said SWD Act.

VI.

Pursuant to Tenn. Code Ann. §68-211-107 the Department is authorized to exercise general supervision over the operation and maintenance of solid waste processing facilities and

disposal facilities or sites. Such general supervision applies to all features of operation or maintenance which do or may affect the public health and safety or the quality of the environment and which do or may affect the proper processing and disposal of solid wastes. Tennessee Rule 400-11-01-.04 establishes the minimum activities that landfill operators must perform including, and not limited to, complying with the groundwater protection requirements.

VII.

Pursuant to Tenn. Code Ann. §68-212-206, the Commissioner is authorized to request any liable or potentially liable party to furnish information relating to possible hazardous substances and to issue an order to any liable or potentially liable party requiring such party to investigate and identify possible hazardous substance sites. The Commissioner is further authorized by this section to order any liable or potentially liable party to contain, clean up, monitor and maintain inactive hazardous substance sites. Additionally, pursuant to Tenn. Code Ann. §68-212-215, the Commissioner may issue an order for correction to an appropriate person if any provision of Part 2 of the Hazardous Waste Management Act of 1983 is not being carried out, or if effective measures are not being taken to comply with any provision of said Part. Further, pursuant to Tenn. Code Ann. §68-212-206 and Tenn. Code Ann. §68-212-216, the Department has right of entry to the site and properties that must be entered to access the site.

VIII.

Respondent is a liable or potentially liable parties pursuant to the meaning of "liable party" defined in Tenn. Code Ann. §68-212-202(4).

IX.

Respondent is a "person" within the meaning of Tenn. Code Ann. §69-3-103(26) and §68-212-202(4). Tenn. Code Ann. §68-212-202(4) incorporates by reference the definition of person set forth in Tenn. Code Ann. §68-212-104(14).

X.

The site, hereinafter described, is a hazardous substance site within the meaning of Tenn. Code Ann. §68-212-202(3).

XI.

Pursuant to Tenn. Code Ann. §68-212-222, no state or local permits are required for clean-up activities which are conducted entirely on site and in accordance with Part 2 of the Hazardous Waste Management Act of 1983; provided, that such clean-up activities meet the standards that would apply if such permits were required.

XII.

Pursuant to Tennessee Code Annotated § 68-212-224, the Commissioner is authorized to enter into a Consent Order with a party who is willing and able to conduct an investigation and remediation of a hazardous substance.

FACTS

XIII.

ACC is the current owner of an approximately 48.02-acre parcel of land located immediately east of Arrow Mines Road south of the City of Mt. Pleasant in Maury County, Tennessee. Located on that parcel of land, and also currently owned and operated by ACC, is a

closed Class II (industrial) solid waste disposal facility known as the "ACC Landfill". The ACC landfill is the same landfill identified as the Smelter Services & Associated Commodity landfill associated with the unnamed tributary to Sugar Creek, Arrow Lake, and Sugar Creek on the Proposed Final 2014 303(d) List. Hereinafter, this property is referred to as the "Site." A more complete description of this property is contained in a Deed of Record in Deed Book 809, Page 294, in the Register's Office of Maury County, Tennessee.

XIV.

In June of 2011, the Department and ACC entered into a Consent Order intended to remediate extensive environmental problems with the ACC Landfill. A copy of that Consent Order and a subsequent Amended and Restated Consent Order entered in August 2012 are attached hereto as Exhibit 1. The facts set-out in these Consent Orders are incorporated herein by this reference. While there has been ongoing litigation concerning and related to these Consent Orders since June of 2011, the Amended and Restated Consent Order remains in force. Remedial work including a Removal Action was required pursuant to the Amended and Restated Consent Order. The Removal Action and remedial work is proceeding. This Order is supplemental to the Amended and Restated Consent Order. However, to the extent there is any inconsistency, this Order controls.

XV.

The Amended and Restated Consent Order included excavation and relocation of waste during four consecutive annual construction seasons. This included:

- Construction of the downgradient impoundment and up gradient storm water diversion berms to manage storm water at the site.
- Construction of an approximate 12-acre lined on-site waste relocation areas.

- Excavation of approximately 555,500 cubic yards of waste and cover soils from the original landfill and relocation of these materials to the new, lined waste area.
- Construction and stabilization of a minimum 12-inch thick intermediate cover layer over exposed waste.

The fourth phase has been completed and is detailed in a report titled *Final Report Phase 4 Corrective Action Construction ACC Landfill*, dated February 1, 2016. The capping of the relocated waste commenced during the 2016 construction season.

XVI.

A primary goal of the Amended and Restated Consent Order was to significantly reduce the loading of contaminants discharging from the Site via surface water.

XVII.

ACC performed regular monitoring of concentrations of several pollutants in surface water and groundwater leaving the Site. Surface water leaving the ACC property flows in an unnamed tributary of Sugar Creek, through a culvert located under Arrow Mines road, and ultimately into Sugar Creek. ACC's monitoring has not included measuring surface water flow and as a result, loading cannot be calculated. However, monitoring has shown reductions in the concentrations of chlorides, ammonia, and TDS from pre-remedial action concentrations. The September 6, 2016 ACC sampling data (from the *October 2016 Surface Water Monitoring Report – Quarterly Monitoring*) shows that surface water continues to contain high levels of chlorides, ammonia, and total dissolved solids; including concentrations of 3,150 mg/L for chlorides, 41.5 mg/L for ammonia, and 4,810 mg/L for total dissolved solids.

XVIII.

ACC has monitored groundwater at the Site for a number of years from five monitoring wells. The June 21, 2016 ACC sampling data (from the *June 2016 Groundwater Monitoring Report*) shows groundwater continues to contain high levels of chlorides, ammonia, and total dissolved solids; including concentrations of 3,520 mg/L for chlorides, 4.07 mg/L for ammonia, and 5,490 mg/L for total dissolved solids in monitoring well MW-3 and 6,690 mg/L for chlorides, 108 mg/L for ammonia, and 9,620 mg/L for total dissolved solids in monitoring well MW-5. Groundwater at the Site discharges to surface water at a number of seeps and/or springs.

XIX.

In the Amended and Restated Consent Order, the Department expressly reserved the right to issue further Orders to require further or supplemental corrective action due to impacts from the discharges from the Site (ACC Landfill), or based on changes of conditions or new information, to assess civil penalties for all violations of the law, and to assess all damages.

ORDER

XX.

WHEREFORE, I, Robert J. Martineau, Jr., hereby **ORDER** and the Respondent **AGREES** to fully and timely comply with the following:

A. CORRECTIVE ACTION OBJECTIVES

The corrective action objective for surface water is for surface water in (1) the unnamed tributary draining the ACC landfill property to Sugar Creek, and (2) Sugar Creek to not be impaired due to pollutants associated with the ACC landfill. It is anticipated that this corrective

action objective will include, and not be limited to, stopping ongoing release of ACC landfill pollutants that causes violation of the WQC Act in the unnamed tributary of Sugar Creek and Sugar Creek,

The corrective action objective for surface water leaving the ACC site is to meet the Tennessee Water Quality Criteria.

B. INVESTIGATION AND CORRECTIVE ACTION

- (1) Within one hundred and twenty (120) days of receipt of this ORDER, the Respondent shall implement an interim action approved by the Department that prevents surface water and leachate with concentrations of ammonia, chlorides and/or total dissolved solids exceeding the Tennessee Water Quality Criteria from leaving the ACC property and polluting downstream waters including Sugar Creek. Said interim action shall comply with all applicable laws and regulations and shall continue to be implemented until an approved corrective action has been implemented and determined effective by the Department in removing pollution originating at the ACC landfill property including concentrations of ammonia, chlorides, and total dissolved solids exceeding Tennessee Water Quality Criteria. ACC may submit a written request for temporary discontinuance of the interim action to evaluate effectiveness of an approved, installed corrective action(s) and the Department may approve discontinuance of the interim action to evaluate corrective action(s) or when an implemented corrective action is proven to be effective. If a corrective action is deemed ineffective by the Department, Respondent shall reinstate said interim action within five (5) days of written notice from the Department that a corrective action is deemed ineffective.

- (2) Within ninety (90) days of the effective date of this ORDER, the Respondent may submit to the Department a written corrective action work plan to replace the interim action. The corrective action work plan shall be designed to prevent ammonia, chlorides, and/or total dissolved solids in surface water from leaving the ACC property in concentrations exceeding Tennessee Water Quality Criteria for the designated uses. Said corrective action work plan shall also include monitoring, feasibility study, and other activities necessary to develop an effective corrective action. Said work plan shall define the process, specifics, and schedule for implementation. Within fifteen (15) days of receipt of the Department's comments, the Respondent shall incorporate said comments and submit a revised corrective action work plan to the Department. The Respondent shall incorporate any additional comments provided by the Department and implement the corrective action as approved by the Department. Respondent shall submit a corrective action report to the Department within ninety (90) days of completion of corrective action construction with as-built drawings, data and analyses demonstrating results of implementation, operation and maintenance requirements, and other information requested by the Department.
- (3) Within ninety (90) days of completion of corrective action construction, Respondent shall submit to the Department an operation and maintenance plan that defines all activities and actions, including frequency, necessary to maintain effectiveness of the corrective action. The operations and maintenance plan shall also include monitoring required to evaluate effectiveness of the corrective action to achieve water quality criteria for chlorides, ammonia, and total dissolved solids and to establish loading trends both seasonally and over time. Respondent shall

implement the operation and maintenance plan as approved by the Department. If Respondent does not submit a corrective action work plan, Respondent shall submit an interim action operation and maintenance plan within ninety (90) days of installation of the interim action.

- (4) Respondent shall submit quarterly reports with all monitoring data, loading, documentation, analyses, and other information requested by the Department according to a schedule and format requested or approved by the Department until the Department determines quarterly reports are no longer necessary. Respondent shall submit quarterly reports prior to the end of the month following the end of the quarter.

C. COMMUNITY RELATIONS

Within thirty (30) days of the effective date of this ORDER, the Respondent shall submit a public participation plan and Respondent shall implement the public participation plan as approved by the Department.

D. ADDITIONAL CONFERENCES

Following receipt of any plans or reports, or at any time deemed necessary, the Department may schedule a meeting, which the Respondent shall attend. The Respondent shall be given notice of any such conference, in writing, at least seven (7) days prior to the meeting. To the extent practicable, the meeting shall be scheduled at a mutually convenient time.

E. SITE ACCESS

During the effective period of this ORDER, and until certification by the Department of the completion of all activities under this ORDER and determination by the Department that operation and maintenance is no longer necessary, the Department and its representatives or designees shall have access during normal business hours and, upon reasonable notice, at non-business hours, to the Site, or any location where characterization or remediation has been, is, or will be conducted pursuant to this ORDER. Such access may be for the purpose of monitoring activities; verifying data; conducting investigation; inspecting and copying records, logs, or other documents that are not subject to a legally applicable privilege; or for conducting other activities associated with the implementation of this ORDER. Nothing contained herein shall limit or otherwise affect the Department's right of entry pursuant to any applicable statute, regulation, or permit. The Department and its representatives shall comply with all reasonable health and safety plans published by the Respondent for its contractor and used by Site personnel for the purpose of protecting life and property. If safety plans are not included in the applicable Work Plan, then they shall be provided to the Department for review prior to the commencement of Work Plan activities at the Site.

F. OVERSIGHT AND ASSISTANCE COST

The Respondent shall pay all reasonable-costs associated with the Department's oversight of the implementation of this ORDER. Oversight costs shall include, but not be limited to, mileage, lab expense, and the current hourly rate and benefits for the Department's employees actively employed in oversight of work under this ORDER (including preparation for and attendance at meetings), the current State overhead rate, and costs for any state contractor(s) involved in implementation of this ORDER. The Department shall provide the Respondent with

periodic statements reflecting costs incurred. Within sixty (60) days of the receipt of each such statement, the Respondent shall pay to the Department the amount invoiced.

G. SUBMISSION OF INFORMATION, REPORTS, OR STUDIES

Any information, reports, or studies submitted under the terms of this ORDER shall be signed and contain the following notarized certification:

I certify under penalty of law including, but not limited to, penalties for perjury, that the information contained in this report or study and on any attachments is true, accurate, and complete and to the best of my knowledge, information, and belief. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for intentional violation.

H. TIMEFRAMES AND DEADLINE EXTENSION

All timeframes specified in this ORDER are based on calendar days unless otherwise specified. Prior to missing a deadline in this ORDER, Respondent may submit a written request to extend a deadline for a specific period for a good cause shown. The extension request must specify why the extension is requested and the specific cause(s) for the duration of the extension requested. If the Department extends the deadline, a new deadline will be specified in the written extension approval.

I. CONTINGENT PENALTIES

Missing any deadline required by this ORDER and/or noncompliance with any provision of this ORDER shall result in a contingent penalty of five hundred dollars (\$500.00) per day per deadline missed for calendar days one (1) through seven (7) and one thousand dollars (\$1,000.00) for day eight (8) and each day thereafter until the item associated with the deadline is met or the noncompliance is resolved to the Department's satisfaction. Contingent penalties shall be payable to the Department within forty-five (45) days of the Department invoicing

Respondent for the stipulated penalty. If Respondent disputes a contingent penalty, Respondent shall submit written notice of dispute and any supporting documentation within thirty (30) days of receipt of the Department's invoice for the contingent penalty. If Respondent disputes a contingent penalty, said penalty continues to accrue pending resolution of the dispute and does not affect other penalties or their due dates. Resolution of dispute of contingent penalty shall be decided by the Commissioner's designee. This decision may be further appealed pursuant to the Uniform Administrative Procedures Act (UAPA).

XXI.

RESERVATION OF RIGHTS

This ORDER shall not be construed as waiving any right or authority available to the Commissioner to assess the Respondent for liability for costs, expenditures, damages incurred by the State, or civil penalties. The right to order further investigation, remedial action, and/or monitoring and maintenance is also specifically reserved. Further, this ORDER shall not be construed as waiving, settling, or in any manner compromising any natural resource damage claim which the State of Tennessee may have under Section 107 of CERCLA, or any statutes, rules, regulations, or common law. The Department expressly reserves the right to issue further Orders to require further or different corrective action for issues associated with the Site but not addressed in this Order or based on changes of conditions or new information or for noncompliance with this ORDER, to assess civil penalties for all violations of law, and to assess all damages, including but not limited to, Natural Resource Damages.

XXII.

NOTICE OF RIGHTS

Tenn. Code Ann. §§68-211-113, 68-212-115, and 69-3-107 allow the Respondent to appeal this Order. To do so, a written petition setting forth the grounds (reasons) for requesting a hearing must be RECEIVED by the Commissioner within THIRTY (30) DAYS of the date the Respondent received this Order or this Order will become final (not subject to review).

If an appeal is filed, an initial hearing of this will be conducted by an Administrative Law Judge (ALJ) as a contested case hearing pursuant to the provisions of Tenn. Code Ann. §69-3-115, Tenn. Code Ann. §4-5-301 *et seq.* (the Uniform Administrative Procedures Act), and Rule 1360-04-01 *et seq.* (the Department of State's Uniform Rules of Procedure for Hearing Contested Cases Before State Administrative Agencies). Such hearings are legal proceedings in the nature of a trial. Individual Respondents may represent themselves or be represented by an attorney licensed to practice law in Tennessee. Artificial Respondents (corporations, limited partnerships, limited liability companies, etc.) cannot engage in the practice of law and therefore may only pursue an appeal through an attorney licensed to practice law in Tennessee. Low income individuals may be eligible for representation at reduced or no cost through a local bar association or legal aid organization.

At the conclusion of any initial hearing the ALJ has the authority to affirm, modify, or deny the Order. Furthermore, the ALJ on behalf of the Board has the authority to assess damages incurred by the Department including, but not limited to, all docketing expenses associated with the setting of the matter for a hearing and the hourly fees incurred due to the presence of the ALJ and a court reporter.

Any petition for review (appeal) must be directed to the Commissioner of the Tennessee Department of Environment and Conservation, c/o E. Joseph Sanders, Senior Legal Counsel.

Payments of the civil penalty and/or damages shall be made payable to "Treasurer, State of Tennessee" and sent to the Division of Fiscal Services - Consolidated Fees Section, Tennessee Department of Environment and Conservation, 10th Floor, William R. Snodgrass Bldg., 312 Rosa Parks Avenue, Nashville, Tennessee 37243. Technical questions and other correspondence involving compliance issues should be sent to Evan Spann, State of Tennessee, Division of Remediation, 14th Floor, William R. Snodgrass Bldg., 312 Rosa Parks Avenue, Nashville, TN 37243. The case number, DOR 16-0010 should be written on all correspondence regarding this matter.

WAIVER OF RIGHT TO APPEAL

The Respondent understands that it has the right to appeal this Consent Order as set-out above. By signing below, the Respondent knowingly and voluntarily waives any right to appeal this Consent Order.

AGREED by the parties this 23rd day of November, 2016.



ROBERT J. MARTINEAU, Commissioner
Tennessee Department of Environment
and Conservation

ACC LLC

by: Sharon O. Jacobs



E. Joseph Sanders
Senior Legal Counsel BPR# 6691
Office of General Counsel
312 Rosa L Parks Avenue, 2nd FL TN Tower
Nashville, TN 37243
615-532-0122



Sharon O. Jacobs
Attorney for Respondent BPR#14626
Bone McAllester Norton PLLC
511 Union Street / Suite 1600
Nashville, TN 37219
615 238-6306

**IN THE CHANCERY COURT FOR THE STATE OF TENNESSEE
TWENTIETH JUDICIAL DISTRICT, DAVIDSON COUNTY**

STATE OF TENNESSEE ex rel.)
HERBERT H. SLATERY III, in his)
official capacity as the Attorney General)
And Reporter of Tennessee and)
SHARI MEGHREBLIAN, Ph.D.,)
Commissioner of the Tennessee)
Department of Environment and)
Conservation)

Plaintiffs,

v.

ACC, LLC f/k/a ASSOCIATED)
COMMODITIES CORPORATION,)

Defendant.

No. 18-1352-III
Prior No. 11-0769-III

AFFIDAVIT OF NANCY SULLIVAN

STATE OF TENNESSEE)
)
COUNTY OF DAVIDSON)

I, Nancy Sullivan, attest that the following information is truthful and accurate to the best of my ability and the undersigned, after being duly sworn, states as follows:

1. I am an adult with personal knowledge of the facts set forth in this affidavit.
2. I am a licensed Professional Engineer. I obtained my Bachelor of Engineering Degree from Vanderbilt University in 1984. I have 34 years of experience as an environmental consultant designing and permitting landfills and engineered covers for landfills; investigating, designing, and permitting remedial actions; and providing oversight during site remediation and landfill construction activities.
3. I am a Principal at TriAD Environmental Consultants, Inc.
4. TriAD has been retained by ACC, LLC to design and prepare construction documents for

{01841802.3 }



remedial activities at the ACC Landfill located east of Arrow Mines Road south of the City of Mt. Pleasant in Maury County, Tennessee. I am the Professional Engineer who developed the construction documents and provided construction quality assurance oversight during landfill construction activities at the ACC Landfill. Since remediation activities were initiated in 2012, approximately 555,500 cubic yards of impacted wastes and soil from the former landfill have been excavated and relocated to a lined waste disposal area on the site. These activities, including the construction of a synthetic cover over the relocated wastes, were conducted over 5 phases encompassing 5 years of construction activity. Since waste relocation, the monitored constituent concentrations of ammonia, chlorides, and total dissolved solids (TDS) have declined more than 95 percent within the surface water leaving the site at the Road Crossing.

5. There are numerous corrective actions that could be implemented at the site to further reduce constituent concentrations in surface water. To determine the most effective corrective action(s) that would achieve the specified water quality criteria, a site investigation is required to delineate the horizontal and vertical impact to site soils and their associated relationship to site waters. After numerous submittals to the TDEC, approval of this first step has not been granted by TDEC for any of the Corrective Action Work Plans provided since completion of the waste relocation activities. Without this site-specific information, the development of engineering details, establishment of base flow conditions, and relation to storm events cannot accurately be developed. In addition, implementation of corrective actions without this site-specific information could result in unnecessary expenditures and/or the construction of ineffective actions that would later require removal and replacement of previously constructed measures with alternate measures. For example, in the event ACC constructs a cap over the remaining in-place soils, ACC and/or TDEC may later determine, after completion of additional site studies and continuing surface water monitoring, that the underlying soils require removal or in-situ stabilization to prevent leaching of contaminants in which case the

previously constructed cap could require removal and disposal and a new cap subsequently constructed, all at an additional cost.

6. Due to the large upgradient drainage area to the Road Crossing which generates millions of gallons of surface water runoff in a year, the collection and off-site treatment of all surface water discharging through this location is not a technologically practicable action, conflicts with the 2012 Consent Order, would not address the source of impact to the receiving waters nor is it an economically reasonable or cost-effective option for implementation. In addition, the time to construct the infrastructure necessary to collect and treat millions of gallons of surface water far exceeds any time allotted in the TDEC's August 8, 2018, letter- to achieve the water quality criteria by the November 1, 2018 deadline.

7. In my opinion, it is unlikely that isolation and collection of water from the existing on-site impoundments for subsequent treatment would achieve the water quality criteria due to the interconnection between surface water and groundwater and the presence of seeps within waterways at the site. Evidence for the ineffectiveness of this option is demonstrated by the results of sampling conducted at the road crossing during the summer months of 2018 when the ponds were not discharging. A site-specific investigation is required to determine the most effective option(s) for implementation to achieve the specified water quality criteria. To date, ACC has not received approval from TDEC to commence a site-specific investigation.

8. Based on the limited subsurface information available for the site, it is my professional opinion that there is currently no reasonable, cost-effective interim measure that can with certainty be implemented at the site to ensure all surface water will meet the water quality criteria by a date certain.

9. Interim measures were proposed and implemented to reduce constituent concentrations pending approval of the CAWP and the associated investigatory program. These measures included the collection and transport of leachate from the waste relocation area to an off-site treatment facility,

and the redirection of surface water run-on around the lower surface water impoundment. The constructed interim measures are two of several corrective actions that will ultimately be required to achieve the specified water quality criteria. The specific combination of corrective actions chosen should be based on a technical evaluation of site-specific conditions and evaluation of existing subsurface conditions to provide a sustainable, cost-effective approach. The collection and treatment of millions of gallons of water a year is not a sustainable solution to controlling releases from the remaining impacted soils at the site and would impede the progress of the investigation and ultimate construction of the corrective action by taxing the financial limits of ACC and hindering the ability of ACC to progress with the construction of permanent, sustainable corrective measures that do not require operation and maintenance of systems beyond the likely life of the company.

10. Construction Storm Water Pollution Prevention Plans were prepared for each phase of the landfill construction.

11. Specific post-closure care and ground water monitoring plans are to be established by the landfill operator in the Post-Closure Care Plan and the Groundwater Monitoring Plan. ACC has not received approval of either the Post-Closure Care Plan or Groundwater Monitoring Plan it submitted to the TDEC.

12. Everything contained herein is true and correct to the best of my knowledge.

FURTHER AFFIANT SAYETH NOT.


NANCY SULLIVAN, P.E.
TriAD Environmental Consultants, Inc.

SUBSCRIBED, SWORN TO AND ACKNOWLEDGED before me on this the 4 day of
January 2019.

Elizabeth A. Duprez
Notary Public

My commission expires: 12-18-22



IN THE CHANCERY COURT FOR THE STATE OF TENNESSEE
TWENTIETH JUDICIAL DISTRICT, DAVIDSON COUNTY

STATE OF TENNESSEE ex rel.)
HERBERT H. SLATERY III, in his)
official capacity as the Attorney General)
And Reporter of Tennessee and)
SHARI MEGHREBLIAN, Ph.D.,)
Commissioner of the Tennessee)
Department of Environment and)
Conservation)
)
Plaintiffs,)
)
v.) No. 18-1352-III
) Prior No. 11-0769-III
ACC, LLC f/k/a ASSOCIATED)
COMMODITIES CORPORATION,)
)
Defendant.)

AFFIDAVIT OF CHRISTOPHER M. SCOTT, PG

STATE OF TENNESSEE)
)
COUNTY OF DAVIDSON)

I, Christopher M. Scott, being duly sworn, do hereby depose and, upon personal knowledge, state as follows:

1. I am an adult with personal knowledge of the facts set forth in this affidavit.

2. I am employed by TriAD Environmental Consultants, Inc., as a Senior Hydrogeologist. I have been employed by TriAD in this capacity since August 31, 1998.



3. I hold bachelor's and master's degrees in geology, have over 32 years of experience as a geologist, and am registered or certified as a professional geologist in Tennessee, Kentucky, Indiana, Pennsylvania, Wyoming, and Georgia.

4. I have worked on hydrogeological aspects of the investigation and remediation of the closed ACC Class II landfill since 2010, during which time I have been responsible for investigating soil, surface water, and groundwater conditions, designing and implementing environmental investigation studies, designing and implementing surface water and groundwater sampling and analysis plans, interpreting analytical results, and preparing and submitting to TDEC reports of various investigations and sampling efforts.

5. I received a copy of a letter from TDEC's Mr. Evan Spann dated September 16, 2016, regarding the June 2016 groundwater monitoring report. The letter directed ACC to submit a plan by October 31, 2016, for abandonment and replacement of two monitoring wells at the site, wells MW-4 and MW-6. **Exhibit 1.**

6. On October 21, 2016, I was present at a meeting with Mr. Spann, the purpose of which, in part, was to discuss TDEC's requested changes to the groundwater monitoring network and the plan for such changes that TDEC requested in the September 16, 2016, letter. During the meeting, broad agreement was reached, including that there was no need to replace MW-4 and that the plan should also include the addition of other monitoring points to allow future groundwater monitoring of the new waste disposal area, then being constructed to replace the closed landfill. Mr. Spann agreed that ACC should ask for an extension to the due date for the plan to allow for additional investigation of potential monitoring points. On October 28, I, acting for TriAD on behalf of ACC,

emailed to Evan a request for the due date extension. When no reply was received, a follow-up email was sent November 10. No response was received. **Exhibit 2.**

7. On February 3, 2017, Mr. Spann sent a letter responding to the routine December 2017 groundwater monitoring report with the same comments about wells MW-4 and MW-6. **Exhibit 3.**

8. On February 17, 2017, I was present at a meeting with Mr. Spann during which additional discussions were held regarding the planned changes to the monitoring network, which were those originally discussed during the October 21, 2016, meeting. At that time, Mr. Spann expressed no objections to ACC's and TriAD's proposed changes to the monitoring well network.

9. On April 19, 2017, TriAD, on behalf of ACC, submitted the written plan requested by TDEC for changes to the groundwater monitoring network. The plan included abandonment and replacement of MW-6 and the addition of two new monitoring wells. The plan also included a detailed explanation of why abandonment of MW-4 was not needed. **Exhibit 4.**

10. On July 28, 2017, Mr. Spann sent a letter to ACC regarding the report of the routine June 2017 groundwater monitoring event in which he again required abandonment and replacement of MW-4 and MW-6. I replied via email for TriAD on behalf of ACC, the same day, asking if Mr. Spann had reviewed the April 19 plan. On August 2, 2017, Mr. Spann replied via email that he had probably received the plan but could not find it. He asked that it be resubmitted. Acting for TriAD on behalf of ACC, I emailed the plan to Mr. Spann on that date. **Exhibit 5.**

11. On December 7, 2017, TDEC required the submittal of a revised Corrective Action Work Plan (CAWP), to include revisions to the groundwater monitoring network, and extended the due date for the revised CAWP to January 31, 2018.

12. On January 31, 2018, TriAD on behalf of ACC submitted the revised CAWP, which included the previously submitted proposed changes to the groundwater monitoring network in the revised groundwater monitoring plan, an appendix to the revised CAWP. This was the third time that TriAD, on behalf of ACC, submitted to TDEC the proposed changes to the groundwater monitoring network.

13. On March 5, 2018, Mr. Spann responded to the routine December 2017 groundwater monitoring report with a letter again requiring abandonment and replacement of MW-4 and MW-6, with a plan for such work due by March 30. **Exhibit 6.**

14. On March 14, 2018, Mr. Tom Grosko of ACC sent a letter to Mr. Spann, copied to me, that presented a timeline of the requests, meetings, and submittals regarding the proposed changes to the groundwater monitoring network at the site.

15. On September 27, 2018, Mr. Spann sent a letter to Mr. Grosko, copied to me, that approved the plan submitted to TDEC on April 19, 2017, with the exception that TDEC asked why MW-4 was not proposed for replacement and requesting again that it be replaced.

16. On November 26 through 28, 2018, I, acting for TriAD on behalf of ACC, supervised the abandonment and replacement of monitoring well MW-6 and installed new monitoring wells MW-9 and MW-10 in accordance with the plan submitted to TDEC on April 19, 2017. During this work, and as specified in the now-approved plan, I

attempted to consult with Mr. Spann regarding the final location of MW-10 by phoning him. I left a message and he did not return the call.

17. On December 11, 2018, I directed a routine semi-annual groundwater monitoring event at the site that included purging and sampling the new and previously existing monitoring wells in accordance with the approved, 2012 monitoring plan. During that event, monitoring well MW-4 contained sufficient water for sampling and the results confirmed the results from 2012, 2013, 2014, and 2015 that showed decreasing concentrations of chloride, ammonia, and total dissolved solids at that location, with no monitored constituents exceeding Tennessee General Use Criteria. These results further verified the description of the horizontal extent of impact to groundwater and the characteristics of MW-4 as presented in the April 19, 2017, plan and the CAWP.

18. During development of the CAWP in response to the November 23, 2016, Consent Order (Order), I was the principal author of the portions of the CAWP pertaining to the site hydrogeology, the establishment of the Water Quality Criteria (WQC) that would apply to surface water at the site, and the sampling methods that would be used to determine whether the WQC were being met. This work began in late 2016 and continued off and on as versions of the CAWP were submitted to TDEC and comments from TDEC were received and incorporated into the CAWP. The last version of the CAWP of which I was part author was the one dated October 1, 2018, which I believe to be the most recent version submitted to TDEC. I was also involved in discussions with TDEC regarding the various versions of the CAWP and the preparation of ACC's responses to TDEC comments.

19. During preparation of the CAWP, TriAD and ACC discussed with TDEC the setting of site-specific WQC based on the conditions present at the site, including the pH of the water in the unnamed tributary and the results of toxicity testing performed using water from the site. The first version of the CAWP, submitted to TDEC on March 18, 2017, included plans for development of these site-specific standards, designed to meet the requirements of the Order and the regulations.

20. On June 1, 2017, TDEC responded to the March 18, 2017, CAWP with an email from Mr. Spann containing questions and comments. The second item in the email was a question based on the CAWP's Section 3.2 that proposed a site-specific study to develop WQC. Mr. Spann asked whether existing data, rather than data yet to be collected, could be used to "begin determining these criteria now?" The fourth item in this email was a question about how the "no observable effect concentrations", based on site-specific toxicity testing, would be developed. Based on these two questions, ACC and TriAD believed that TDEC had reviewed and approved the general approach to setting site-specific WQC at the site. **Exhibit 7.**

21. On July 21, 2017, a revised version of the CAWP, which addressed the questions and comments received from Mr. Spann on June 1, was submitted to TDEC.

22. On September 11, 2017, TDEC, in a letter from Mr. Spann, responded to the July 21, 2017, CAWP. The first item in the September 11 letter requested clarification of why additional data were needed to establish site-specific WQC. The fifth item in the letter noted that the CAWP proposed interim goals to be used until WQC could be set, and that TDEC believed sufficient data were available "to develop standards based on the rules of the Division of Water Resources." Again, TriAD and ACC believed, based on

these comments, that TDEC had reviewed and approved the general approach to setting site-specific WQC at the site. However, the letter also noted, and to my knowledge for the first time, that the Division of Remediation had requested the Division of Water Resources to establish WQC for the site, contrary to the other comments in the letter, the regulations and the Order. **Exhibit 8.**

23. On November 21, 2017, ACC responded to the September 11, 2017, TDEC letter with answers to the questions and comments. This letter clarified the purpose of the interim standards, explained why additional data were needed to set site-specific WQC, and asked why the Division of Water Resources had been tasked to set WQC when Mr. Spann's prior communications, the regulations and the Order all allowed ACC to determine which WQC were applicable to the site. **Exhibit 9.**

24. On December 7, 2017, TDEC, in a letter from Mr. Spann, submitted comments on the CAWP. In this letter, TDEC identified WQC that were selected by the Division of Water Resources independent of site-specific studies or input from ACC. The letter also rejected use of the interim standards that were proposed to be used during the time needed to complete site-specific studies and set a date-certain upon which all water leaving the site had to meet the WQC set by TDEC. This letter was the first time in the process in which I was aware that TDEC would not accept the development of site-specific WQC for the site and the first time in my 28 years working with the TDEC that it mandated a date-certain by which water must meet a specific standard independent of a responsible party's studies.

25. On January 31, 2018, a revised CAWP was submitted to TDEC that incorporated the TDEC comments to the extent that ACC and TriAD judged those

comments to be technically practicable and explained in an accompanying letter which TDEC comments were not technically practicable. This version of the CAWP proposed the use of interim standards (lower than those proposed in previous versions of the CAWP) to be used only during the time required for the studies needed to set site-specific WQC, which were, as understood by ACC and TriAD, allowed consistent with the regulations and the Orders.

26. On August 8, 2018, TDEC, in a letter from Mr. Spann, rejected the revised CAWP and the accompanying explanations. In a subsequent meeting I attended with TDEC representatives including Mr. Spann and Mr. Gregory M. Denton on September 24, 2018, TDEC explained why they would not accept site-specific WQC for the site. This explanation was based on their interpretation of Rule Chapter 0400-40-03 General Water Quality Criteria. To my knowledge, this was the first time TDEC had explained to ACC and TriAD why site-specific WQC would not be accepted. TDEC also explained that it planned to use the U.S. EPA ecological screening level for chloride (230 mg/L) as a WQC rather than as guidance for developing WQC as intended by U.S. EPA. The text accompanying the U.S. EPA screening levels includes the following: "Since these numbers are based on conservative endpoints and sensitive ecological effects data, they represent a preliminary screening of site chemical concentrations to determine the need to conduct further investigations at the site. ESVs are not recommended for use as remediation levels."

27. On October 1, 2018, a revised CAWP was submitted to TDEC that incorporated changes resulting from the TDEC letter dated August 8, 2018, and the September 24, 2018, meeting. This version of the CAWP did not include interim

standards or the development of site-specific WQC, instead adopting the WQC set by TDEC in their December 7, 2017, letter. **Exhibit 10.**

28. On December 11 and 12, 2018, I directed a surface water sampling event at the site that included the collection and analysis of samples from the unnamed tributary and Sugar Creek as well as other required monitoring points. In this event, ACC and TriAD were granted access to an adjacent landowner's property, allowing for the first time ACC and TriAD to collect samples from Sugar Creek immediately downstream of the confluence with the unnamed tributary. The results for Sample SC-DS-UT, collected approximately 100 feet downstream of the confluence, show that water in Sugar Creek met the WQC TDEC cited in its December 7, 2017, letter. **Exhibit 11.**

29. Everything contained herein is true and correct to the best of my knowledge.

FURTHER THE AFFIANT SAITH NOT.


CHRISTOPHER M. SCOTT, PG

Sworn to and subscribed before me
this 4 day of January 2019.


NOTARY PUBLIC

My Commission Expires: 12-18-22





STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Remediation
William R. Snodgrass TN Tower
312 Rosa L. Parks Avenue, 14th Floor
Nashville, Tennessee 37243

September 16, 2016

Mr. Tom Grosko
ACC, LLC
400 Arrow Mines Road
Mt Pleasant, TN 38474

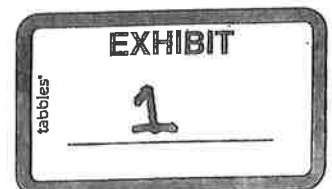
RE: June 2016 Semi-Annual Groundwater Monitoring Report
ACC Landfill
Site #60-555

Dear Mr. Grosko:

On August 04, 2016, The Tennessee Department of Environment and Conservation (TDEC) - Division of Remediation (DoR), received the June 2016 Groundwater Monitoring Report (Report). After reviewing the Report, DoR has the following comments.

As DoR observed in the December 2013 Semi-Annual Groundwater Monitoring Report Triad, reports that "Since both these wells (MW-4 and MW-6) produced water in the December 2013 sampling event, ACC believes that redevelopment was effective and that they should continue to produce sufficient water in future groundwater monitoring events." In DoR's response to this Report, it was noted that MW-4 "failed to produce sufficient water to analyze for water quality parameters". Since June of 2012, monitoring well MW-4 has been dry 4 out of 9 sampling events and monitoring well MW-6 has been dry 3 out of 7 times it has been sampled. In the June 2016 Report, Triad states that monitoring well MW-6 has provided "insufficient" data to evaluate in the regression analysis. These wells have not provided reliable data to date and the efforts taken to redevelop the wells in 2013 did not improve the performance of these monitoring wells.

As monitoring wells in the locations of MW-4 and MW-6 are required to fully understand groundwater flow, DoR is herein directing ACC, LLC to properly abandon and replace MW-4 and MW-6. At least two new replacement wells are to be developed in close proximity to the locations of abandoned wells MW-4 and MW-6. Care should be taken when installing these new wells to ensure that the screened intervals are appropriately set. Please provide a Work Plan for the proper abandonment and replacement of both MW-4 and MW-6 by October 31, 2016 for DoR's review and approval.



As of the date of this correspondence, the salt cake waste has been removed from the existing landfill and placed into the new cell. Additionally, the existing monitoring well network is insufficient to detect possible releases from the new cell because the monitoring wells are already impacted by site-related contaminants; therefore, a revised ground water monitoring plan is required. The new monitoring well network, consistent with Rule 0400-11-01-.04(7), will require installing new monitoring wells in order to discern any new contamination release from the landfill cell. In addition, financial assurance consistent with Rule 0400-11-01-.03 shall also be provided. Please provide a Work Plan for the development of a new monitoring well network by October 31, 2016 for DoR's review and approval.

Please feel free to call me at (615) 532-0919 if you have any questions or comments.

Regards,



Evan Spann
Project Manager
Nashville Environmental Field Office

cc: Mrs. Sheri Jacobs
Bone McAllester Norton, PLLC
Nashville City Center, Suite 1600
511 Union Street
Nashville, TN 37219

Chris Scott, P.G.
TriAD Environmental Consultants, Inc.
207 Donelson Pike, Suite 200
Nashville, Tennessee 37214

DoR Central Office

Chris Scott

From: Chris Scott
Sent: Thursday, November 10, 2016 4:01 PM
To: Evan W. Spann
Subject: FW: Request for Extension - ACC Landfill Groundwater - Site No. 60-555

Evan,

Just wanted to make sure you received this.

Thanks,

Chris

From: Chris Scott
Sent: Friday, October 28, 2016 2:09 PM
To: Evan W. Spann <Evan.W.Spann@tn.gov>
Cc: Tom Grosko (tgrosko@smelterservice.com) <tgrosko@smelterservice.com>; Sharon (Sheri) Jacobs (sjacobs@bonelaw.com) <sjacobs@bonelaw.com>; Nancy Sullivan <nsullivan@triadenv.com>
Subject: Request for Extension- ACC Landfill Groundwater- Site No. 60-555

Dear Mr. Spann,

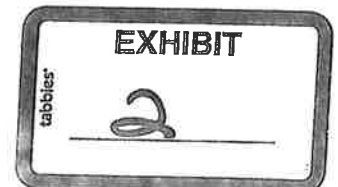
TriAD Environmental Consultants, Inc., (TriAD) on behalf of ACC, LLC, is requesting an extension to the due date for work plans relating to the groundwater monitoring network at ACC Landfill in Mount Pleasant, Tennessee (Site). In a letter dated September 16, 2016, you requested that ACC provide work plans for replacing certain monitoring wells and for establishing a new monitoring network at the Site. In a meeting at TriAD's office on October 21, 2016, you, Nancy Sullivan, and Chris Scott discussed the groundwater monitoring network and the required work plans. Part of that discussion included the possibility of creating a monitoring network for the new disposal area that incorporated a groundwater seep in the south wall of the valley in which the old landfill was located. ACC would like to investigate this possibility, and proposes to evaluate the seep location(s) further prior to completing the required work plans. Dry conditions experienced since mid-September have made investigation of the seep impractical until seasonal rains begin. For this reason, and because another scheduled groundwater monitoring event is due in December, we are requesting that the due date for the work plans be extended to January 6, 2017.

Please let us know if you have questions.

Thank you,

Chris

Chris Scott, P.G.
TriAD Environmental Consultants, Inc.
207 Donelson Pike, Suite 200
Nashville, TN 37214
ph: 615-889-6888
fax: 615-889-4004
cscott@triadenv.com





STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Remediation
William R. Snodgrass TN Tower
312 Rosa L. Parks Avenue, 14th Floor
Nashville, Tennessee 37243

February 3, 2017

Mr. Tom Grosko
ACC, LLC
400 Arrow Mines Road
Mt Pleasant, TN 38474

RE: December 2016 Semi-Annual Groundwater Monitoring Report
ACC Landfill
Site #60-555

Dear Mr. Grosko:

On January 20, 2017, The Tennessee Department of Environment and Conservation (TDEC) - Division of Remediation (DoR), received the December 2016 Groundwater Monitoring Report (Report). After reviewing the Report, DoR has the following comments.

DoR notes that monitoring wells MW-4 and MW-6 were dry in both sampling events conducted in 2016 and therefore provided no data to evaluate impacted groundwater at the Site. DoR reiterates herein the need for ACC, LLC to properly abandon and replace MW-4 and MW-6.

The Report notes that "constituent concentrations are generally declining or remaining neutral in the downgradient wells." Monitoring wells MW-3 and MW-4 were dry in the December sampling event and MW-4 was not sampled in 2016 due to the lack of water in the well. It is difficult to fully define the downgradient extent of the impacted groundwater at the Site without reliable monitoring wells. DoR reiterates herein the need, previously expressed, for a review of the existing monitoring well network to determine its suitability to monitor groundwater at the Site

Please feel free to call me at (615) 532-0919 if you have any questions or comments.

Regards,

Evan Spann
Project Manager
Nashville Environmental Field Office





207 Donelson Pike
Suite 200
Nashville, TN 37214
615-889-6888
fax 615-889-4004

ENVIRONMENTAL CONSULTANTS

April 19, 2017

Mr. Evan Spann
Division of Remediation
14thFloor
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue
Nashville, Tennessee 37243

**Re: Changes to Groundwater Monitoring Network
ACC Landfill, Mount Pleasant, Tennessee
Site # 60-555
TriAD Project No. 97-SSI07-02**

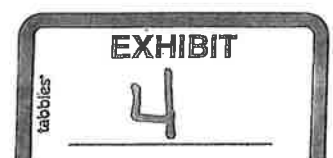
Dear Mr. Spann:

TriAD Environmental Consultants, Inc., (TriAD) on behalf of ACC, LLC is proposing in this letter certain changes to the groundwater monitoring network at the ACC Landfill (Site) in Mount Pleasant, Tennessee. These changes were requested by the Tennessee Department of Environment and Conservation – Division of Remediation (TDoR) in letters dated September 16, 2016, and February 3, 2017, and in discussions regarding the Site on June 21, 2016, and February 17, 2017. The following sections describe the existing groundwater monitoring network and the proposed changes. A map showing existing and proposed groundwater monitoring locations is attached.

Existing Groundwater Monitoring Network

As described in the *Groundwater Monitoring Plan, ACC Landfill, (Plan)* dated April 19, 2012, and approved by TDoR, groundwater monitoring during the Site corrective action has included semi-annual monitoring for selected constituents at wells MW-2, MW-3, MW-4, MW-5, and MW-6. Monitoring wells MW-7 and MW-8 are located at the southwest and northwest corners of the Site, respectively, well outside the area impacted by the former landfill, and are therefore not routinely monitored. All Site monitoring wells, except background well MW-2, monitor shallow groundwater at the soil-bedrock interface. It is this shallow groundwater that has been impacted by chlorides, ammonia, and total dissolved solids (TDS) in the valley bottom in and downgradient of the former landfill.

Monitoring wells MW-3 and MW-5 monitor groundwater in the most impacted portion of the valley and have generally provided reliable monitoring points. Well MW-4 provides horizontal definition of the impact to the north. There is no nearby well to the south of MW-5 to provide similar horizontal definition in that direction, although previous studies



at the Site, including geophysics, indicate that the southern boundary of the impacted area is nearby.

Monitoring wells MW-4 and MW-6 have, throughout their existence, often been dry or nearly dry during groundwater monitoring events. These conditions have resulted in TDoR's written request that both wells be abandoned and replaced with new, deeper wells that would presumably provide more groundwater data. More data would allow better evaluation of the effectiveness of the remedial action and more reliable future monitoring of the new Waste Relocation Area (WRA) that was constructed as part of the Site remediation.

Although monitoring well MW-6 is outside the area impacted by the former landfill, it has been routinely monitored and its location is appropriate for monitoring of the WRA. Monitoring well MW-4 is located near the edge of the area impacted by the former landfill, and data from MW-4 have shown decreases in chloride, ammonia, and TDS concentrations over the course of the Site remedial action, but it is not in a location appropriate for monitoring of the WRA.

As noted, Site wells are constructed so as to monitor the shallow groundwater at the soil-bedrock interface. The bedrock is the Hermitage Formation, which typically does not yield significant quantities of groundwater and is generally considered to be an aquitard, mostly preventing downward migration of groundwater. Therefore, the only saturated zone that has been impacted by Site constituents and that is monitorable is the thin, saturated zone at the top of rock. As discussed in person with you, MW-4 was constructed so that the well screen enters the upper bedrock, creating a situation in which the screen fully penetrates the saturated zone. When MW-4 is dry, it means there is insufficient groundwater in the saturated zone to allow sampling. Well MW-6, however, was constructed so that the bottom of the well screen is a few inches above the top of rock. In times of low water, the bottom of the well screen may actually be above the water table, making it impossible to obtain a sample.

Proposed Changes

As previously discussed with you, ACC is not proposing to abandon or replace MW-4, which is already constructed so as to provide the greatest likelihood of yielding water and is located near the edge of the impacted area, where the occasional inability to collect a sample does not significantly affect the evaluation of Site groundwater conditions. Routine monitoring of MW-4 will continue as a remedial action effectiveness point and as a detection monitoring point for the WRA.

ACC is proposing to abandon and replace well MW-6. The replacement well, MW-6R, will be constructed so that the well screen will extend across the soil-bedrock interface, providing monitoring for the uppermost saturated zone. The replacement well will be routinely monitored as a remedial action effectiveness point and as a detection monitoring point for the WRA.

ACC is proposing that a new monitoring well, MW-9, will be constructed just west of the WRA, near the nose of the ridge that extends from the WRA toward the Site Spring. This

well will be constructed so that the well screen will extend across the soil-bedrock interface, providing monitoring for the uppermost saturated zone. The replacement well will be routinely monitored as a remedial action effectiveness point and as a detection monitoring point for the WRA.

ACC will evaluate the area south of MW-5 to determine the best location for constructing a new monitoring well, MW-10, that will serve to define the horizontal extent of groundwater impact in that direction. The evaluation may include digging test pits to the top of rock so that the conductivity of the groundwater can be measured. A series of such test pits should allow determination of the approximate extent of chloride impact and therefore allow determination of the best location for the monitoring well. ACC will notify TDoR of the proposed location for MW-10 prior to constructing the well. As with MW-6R and MW-9, well MW-10 will be constructed so that the well screen will extend across the soil-bedrock interface, providing monitoring for the uppermost saturated zone.

All new wells will be constructed as 2-inch diameter PVC wells with stick-up casings, installed in accordance with TDEC and industry standards. The new wells will be developed after installation to remove sediment and ensure that representative samples can be collected. Well MW-6 will be abandoned by removing the surface completion then overdrilling and removing the well materials. The remaining borehole will be filled with cement-bentonite grout to the surface.

Schedule

The proposed changes to the groundwater monitoring network will, if approved in a timely fashion by TDoR, be implemented in time to include the new monitoring wells in the June 2017 groundwater monitoring event.

Modifications to Existing Groundwater Monitoring Plan

Upon completion of the changes to the monitoring network, the Plan will be modified to include the new locations. At this time, corrective action effectiveness monitoring will continue – ACC is not proposing implementation of the detection monitoring program for the WRA. Detection monitoring in accordance with Tennessee's solid waste rules will begin when sufficient data have been collected to allow statistical evaluation of inorganic constituent concentrations as required by the rules. Until that time, trends in the concentrations of chloride, ammonia, and TDS will continue to be monitored and reported.

Please let me know if you have questions regarding this letter.

Sincerely,

TriAD Environmental Consultants, Inc.



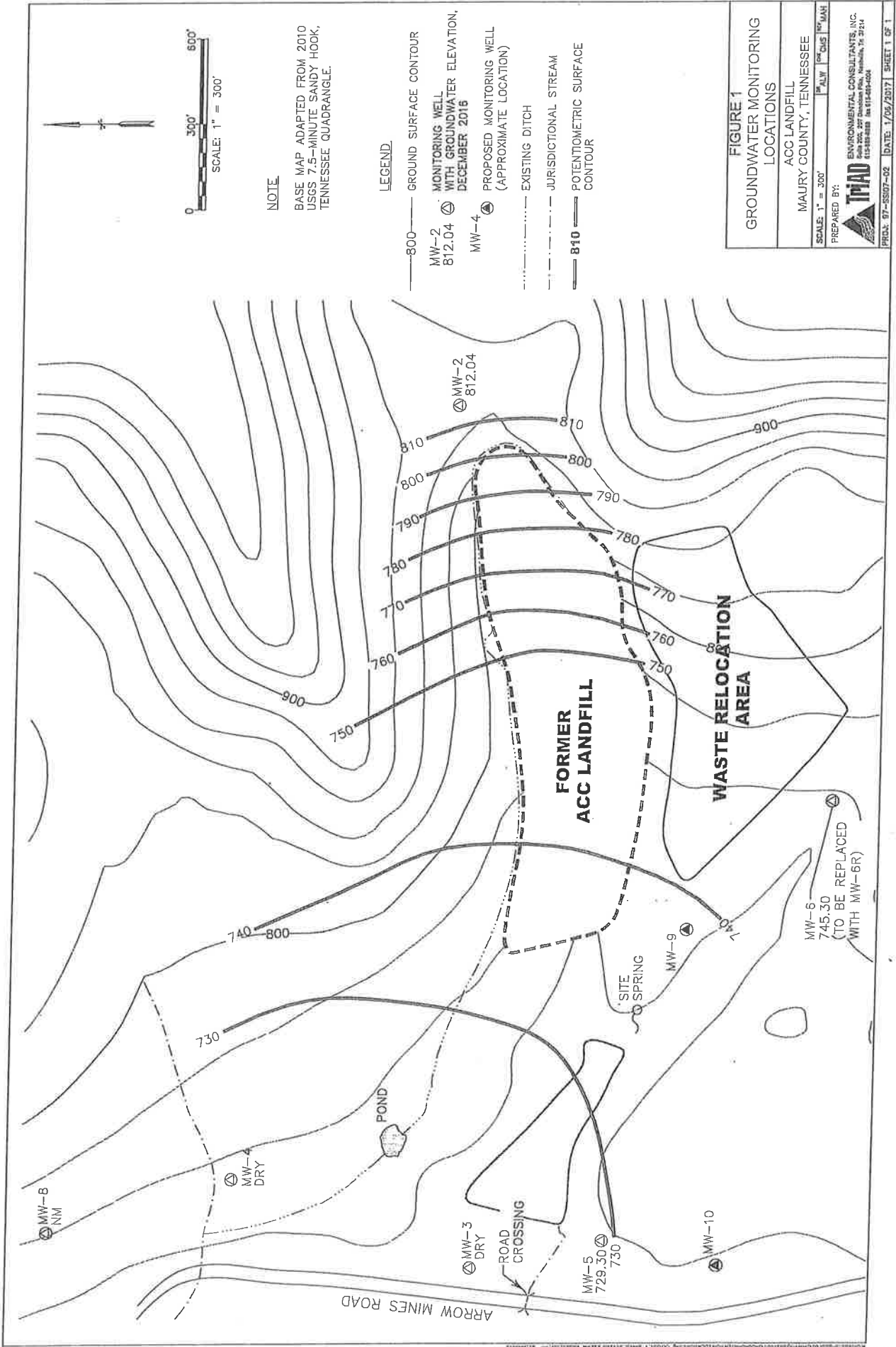
Chris Scott, P.G.
Senior Hydrogeologist

Mr. Evan Spann
April 19, 2017
Page 4

Attachments: Figure

cc: Mr. Tom Grosko

FIGURE



0 300' 600'
SCALE: 1" = 300'

NOTE

BASE MAP ADAPTED FROM 2010 USGS 7.5-MINUTE SANDY HOOK, TENNESSEE QUADRANGLE.

LEGEND

- 800 — GROUND SURFACE CONTOUR
- MW-2 (812.04) MONITORING WELL WITH GROUNDWATER ELEVATION, DECEMBER 2016
- MW-4 (812.04) PROPOSED MONITORING WELL (APPROXIMATE LOCATION)
- EXISTING DITCH
- - - JURISDICTIONAL STREAM
- 810 — POTENTIOMETRIC SURFACE CONTOUR

FIGURE 1
GROUNDWATER MONITORING LOCATIONS

ACC LANDFILL
MAURY COUNTY, TENNESSEE

SCALE: 1" = 300'
PREPARED BY: TMA ENVIRONMENTAL CONSULTANTS, INC.
1000 W. 207th Street, Nashville, TN 37214
615-888-8888 fax 615-888-0000

PROJECT: 97-5507-02 DATE: 1/26/2017 SHEET 1 OF 1



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Remediation
William R. Snodgrass TN Tower
312 Rosa L. Parks Avenue, 14th Floor
Nashville, Tennessee 37243

July 28, 2017

Mr. Tom Grosko
ACC, LLC
400 Arrow Mines Road
Mt Pleasant, TN 38474

RE: December 2016 Semi-Annual Groundwater Monitoring Report
ACC Landfill
Site #60-555

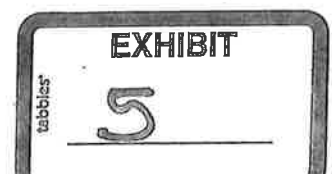
Dear Mr. Grosko:

On July 25, 2017, The Tennessee Department of Environment and Conservation (TDEC) - Division of Remediation (DoR), received the June 2017 Semi-Annual Groundwater Monitoring Report (Report). After reviewing the Report, DoR has the following comments.

DoR notes that monitoring wells MW-4 and MW-6 were again dry in this sampling event therefore provided no data to evaluate impacted groundwater at the Site. Since June of 2012, monitoring well MW-4 has been dry 5 out of 9 sampling events and monitoring well MW-6 has been dry 6 out of 11 times a sampling event has been conducted. Both MW-4 and MW-6 have provided no data for over half of the sampling events conducted under the 2012 Amended and Restated Consent Order, meaning that key side-gradient and downgradient areas of the Site are not being monitored.

As monitoring wells in the locations of MW-4 and MW-6 are required to fully understand groundwater flow, DoR is herein directing ACC, LLC to properly abandon and replace MW-4 and MW-6. At least two new replacement wells are to be developed in close proximity to the locations of abandoned wells MW-4 and MW-6. Care should be taken when installing these new wells to ensure that the screened intervals are appropriately set.

The Report notes that "constituent concentrations are generally declining or remaining neutral in the downgradient wells." While this may be an accurate assessment of the data, monitoring well MW-2, however, has shown an increasing trend in chloride concentrations. Please provide an explanation for this increasing trend. Additionally, because monitoring well MW-4 has not been sampled since December of 2015 due to the lack of water, the downgradient extent of the impacted groundwater at the Site has yet to be fully defined.



The August 9, 2012 Amended and Restated Consent Order specifies the ground water protection/monitoring standards of State of Tennessee Rule 1200-1-7-.04(7) (now Rule 0400-11-01-.04(7)) will apply to the ACC Landfill. The existing monitoring well network is insufficient to detect possible releases from the new cell because the monitoring wells are already impacted by site-related contaminants and wells MW-4 and MW-6 do not provide any data. DoR reiterates herein the need, previously expressed, for an updated monitoring well network to properly monitor groundwater at the Site. The new monitoring well network, consistent with Rule 0400-11-01-.04(7), will require installing new monitoring wells in order to discern any new contamination release from the landfill cell.

Please feel free to call me at (615) 532-0919 if you have any questions or comments.

Regards,



Evan Spann

Project Manager

Nashville Environmental Field Office

cc: Mrs. Sheri Jacobs
Bone McAllester Norton, PLLC
Nashville City Center, Suite 1600
511 Union Street
Nashville, TN 37219

Chris Scott, P.G.
TriAD Environmental Consultants
207 Donelson Pike, Suite 200
Nashville, Tennessee 37214

DoR Central Office

DoR Nashville Environmental Field Office



Subcontract Change Order (SCO)

Project Information	
Project #	17042
Title	Love's (Nashville)
Address	130 W Trinity Lane
City, State, Zip	Nashville, TN 37207
Country	USA

Subcontract Change Order	
Subcontract #	007
SCO #	001
Issue Date	22-Dec-2018
Subject	Subcontractor/ Vendor Direct Payments for October 2018

Issued By	
Contact	Kerry Adams
Company	Cloud CM, LLC
Address	3101 Cobb Parkway Suite 124 (2nd Floor)
City, State, Zip	Atlanta, Georgia 30339
Country	USA
Phone	678-699-3639
Fax	

Subcontractor	
Contact	Shaun Coleman
Company	Coleman Heating & Air, LLC
Address	1451 Elm Hill Pk Suite 164
City, State, Zip	Nashville, TN 37210
Country	USA
Phone	615-582-3800
Fax	

You are directed to make the following changes to this Subcontract:

This deduct change order is to reconcile direct payments to your subcontractor and suppliers (K.D. Bolton Plumbing, Ferguson Supply & Ed's Supply Co.) for the underground plumbing utilities, HVAC & Plumbing rough in work they performed and supplied materials for in the month of October 2018 on the Love's Truck Stop (#429) in Nashville, TN).

Upon execution of this change order Cloud will make direct payments to your vendors for the amount verified on you their lien waivers. Upon receipt of their unconditional lien waiver for payment, Cloud will issue Coleman Heating and Air, LLC the balance of pay application #1 for October 2018.

- October payment due to Coleman Heating & Air for pay app #1 = \$23,797.50
- October payment due to K.D. Bolton Plumbing for pay app #1 = -\$6,561.00
- October payment due to Ed's Supply Co. for pay app #1 = \$1,077.94
- October payment due to Ferguson Supply for pay app #1 = -\$194.00
- October balance due to Coleman Heating & Air for pay app #1 = \$15,964.56**

It is further understood and agreed that this adjustment constitutes compensation in full for all costs and markup directly or indirectly attributable to this change, or for all delays related thereto, and for performance for this change within the time frame stated.

Original Subcontract Price	<u>\$83,500.00</u>
Net change by previous Subcontract Change Orders	\$0.00
Subcontract Amount Prior to this Change	<u>\$83,500.00</u>
Amount of this Subcontract Change Order	<u>(\$7,832.94)</u>
Revised Subcontract Amount, including this Subcontract Change Order	<u>\$75,667.06</u>

The Contract time due to this Change Order has Increased by 0 Working Days

Response: Accept Do Not Accept

Cloud CM, LLC
Company

Coleman Heating & Air, LLC
Company

By _____ Date _____

By _____ Date _____



Subcontract Change Order (SCO)

Subcontract Change Order Financial Impact Details

Item No.	Item Description	Quantity	Unit	Unit Price	Total Price
1	Ed's Supply Co.	1	LS	-\$1,077.94	-\$1,077.94
2	Ferguson Supply	1	LS	-\$194.00	-\$194.00
3	K.D Bolton Plumbing	1	LS	-\$6,561.00	-\$6,561.00

Subtotal = (\$7,832.94)
Tax = \$0.00
Total = (\$7,832.94)

Chris Scott

From: Evan W. Spann <Evan.W.Spann@tn.gov>
Sent: Wednesday, August 02, 2017 7:20 AM
To: Chris Scott
Cc: Tom Grosko (tgrosko@smelterservice.com); Sharon (Sheri) Jacobs (sjacobs@bonelaw.com); Nancy Sullivan
Subject: RE: ACC Groundwater Report

Chris, I probably did receive that email, but it has since rolled off my email. Can you send please?

From: Chris Scott [mailto:cscott@triadenv.com]
Sent: Friday, July 28, 2017 9:36 AM
To: Evan W. Spann
Cc: Tom Grosko (tgrosko@smelterservice.com); Sharon (Sheri) Jacobs (sjacobs@bonelaw.com); Nancy Sullivan
Subject: RE: ACC Groundwater Report

Evan,

Did you receive the *Changes to Groundwater Monitoring Network* that we submitted to you on April 19? It is a proposal to make the changes DOR has requested in the groundwater monitoring network.

The chloride concentrations in MW-2, although recently increasing, remain low and an order of magnitude less than the secondary drinking water standard of 250 mg/L. The reason for the increase is not known, but it is possibly due to the significant site construction work over the last few years. Excavation and earth moving took place within about 200 feet downgradient of MW-2, and this work could have temporarily altered local groundwater conditions. We will continue to evaluate the data as additional monitoring events occur.

Thank you,

Chris

Chris Scott, P.G.
TriAD Environmental Consultants, Inc.
207 Donelson Pike, Suite 200
Nashville, TN 37214
ph: 615-889-6888
fax: 615-889-4004
cscott@triadenv.com

From: Evan W. Spann [mailto:Evan.W.Spann@tn.gov]
Sent: Friday, July 28, 2017 9:15 AM
To: Chris Scott <cscott@triadenv.com>
Cc: Tom Grosko (tgrosko@smelterservice.com) <tgrosko@smelterservice.com>; Sharon (Sheri) Jacobs (sjacobs@bonelaw.com) <sjacobs@bonelaw.com>; Nancy Sullivan <nsullivan@triadenv.com>
Subject: RE: ACC Groundwater Report

Please find attached DoR's comment letter for the Semi-Annual Groundwater Monitoring Report. DoR is reiterating that MW's 4 and 6 need to be replaced as they provide no useful data about impacted groundwater at the Site. Also, chloride concentrations have tripled in MW-2 since 2012, the upgradient well. Please provide an explanation for the increase of chloride in MW-2.

Thanks

From: Chris Scott [<mailto:cscott@triadenv.com>]

Sent: Wednesday, July 19, 2017 12:54 PM

To: Evan W. Spann

Cc: Tom Grosko (tgrosko@smelterservice.com); Sharon (Sheri) Jacobs (sjacobs@bonelaw.com); Nancy Sullivan

Subject: ACC Groundwater Report

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. *****

Evan,

Attached is the report of the June 2017 groundwater monitoring event at ACC Landfill. Hard copies and a CD will be sent via mail. Please let me know if you have questions.

Thank you,

Chris

Chris Scott, P.G.
TriAD Environmental Consultants, Inc.
207 Donelson Pike, Suite 200
Nashville, TN 37214
ph: 615-889-6888
fax: 615-889-4004
cscott@triadenv.com



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Remediation
William R. Snodgrass TN Tower
312 Rosa L. Parks Avenue, 14th Floor
Nashville, Tennessee 37243

March 5, 2018

Mr. Tom Grosko
ACC, LLC
400 Arrow Mines Road
Mt Pleasant, TN 38474

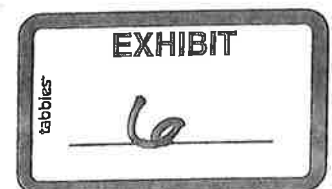
RE: December 2017 Groundwater Monitoring Report
ACC Landfill
Site #60-555

Dear Mr. Grosko:

On February 1, 2018, The Tennessee Department of Environment and Conservation (TDEC) - Division of Remediation (DoR), received the December 2017 Groundwater Monitoring Report (Report). After reviewing the Report, DoR has the following comments,

ACC, LLC's 2012 Groundwater Monitoring Plan, was submitted pursuant to the 2012 Amended and Restated Consent Order and notes that: "During the Site corrective action and for a stabilization period of two years after completion of the corrective action, each well will be sampled on a semi-annual basis with each sample analyzed for the parameters listed in this section." The 2012 Groundwater Monitoring Plan was limited to five wells which would be monitored. The Report notes that MW-4 and MW-6 "contained sufficient water to allow measurement of the water level but not enough for collection of a sample". Since June of 2012, monitoring well MW-4 has been dry 7 out of 12 sampling events and monitoring well MW-6 has been dry 6 out of 10 times (not including the 2012 events marked as "NS") a sampling event has been conducted. For the six years of monitoring included in this Report, both MW-4 and MW-6 have provided no data for over half of the sampling events (58% for MW-4 and 60% for MW-6). The Report illustrates that, once again, monitoring wells MW-4 and MW-6 provided no data to evaluate impacted groundwater at the Site. Per the schedule originally provided in the 2012 Corrective Action Plan the two-year effectiveness monitoring period ends in August of 2018.

This lack of data provided by monitoring wells MW-4 and MW-6 has been known to ACC, LLC and DoR has commented on it in numerous response letters to other



Groundwater Monitoring Reports. For example, in the December 2013 Semi-Annual Groundwater Monitoring Report, Triad Environmental Consultants, on behalf of ACC, LLC, reported that "Since both these wells (MW-4 and MW-6) produced water in the December 2013 sampling event, ACC believes that redevelopment was effective and that they should continue to produce sufficient water in future groundwater monitoring events." In fact, monitoring wells MW-4 and MW-6 have not provided reliable data since this event (December 2013) and the efforts undertaken in 2013 to redevelop the wells has not improved the performance of these monitoring wells. For the past two full years of monitoring, both MW-4 and MW-6 have provided no data to use in evaluating the effect of the waste relocation activities conducted under the 2012 Amended and Restated Consent Order due to the well being dry or having insufficient water in the well screen to collect a sample.

The Report states that "Based on the results of this monitoring event, the groundwater monitoring system continues to perform as designed." However, due to the lack of data from monitoring wells MW-4 and MW-6 (two of the five wells currently monitored), DoR concludes that the groundwater monitoring system is not performing as designed. ~~The lack of data from monitoring wells MW-4 and MW-6 render the groundwater~~ monitoring system inadequate to provide sufficient data to "allow determination of the effectiveness of the Site corrective action" as was included in the Groundwater Monitoring Plan included in the TDEC Approved 2012 Corrective Action Plan for the Site. In fact, the Report notes that the "lack of statistically large data sets results in greater uncertainty regarding long-term assessment of trends." The absence of two of five monitoring locations is clearly given as the reason that the required data sets are not available.

In conclusion, the groundwater monitoring program is not operating as designed because two of the five wells included in the monitoring well network provide no data for analysis due to insufficient water being present in the wells. DoR has on numerous occasions identified to ACC, LLC that monitoring wells MW-4 and MW-6 should be abandoned and replaced in order to provide groundwater data at these monitoring locations. To date ACC, LLC has been unwilling or unable to correct this identified problem with the groundwater monitoring system. DoR believes that this Report demonstrates that the groundwater monitoring system is not in compliance with the 2012 Corrective Action Plan prepared pursuant to the 2012 Amended and Restated Consent Order and that without addressing monitoring wells MW-4 and MW-6 the Site will remain out of compliance and provide incomplete data with which to evaluate the effectiveness of the remedy.

The 2012 Groundwater Monitoring Plan states; "At the conclusion of the two-year, post-corrective-action period, the groundwater monitoring program will be evaluated to determine whether it continues to meet regulatory objectives or whether modifications are needed". DoR has determined that modifications to the groundwater monitoring program, specifically the replacement of monitoring wells MW-4 and MW-6 are needed. Therefore,

DoR again requests that ACC, LLC provide a Work Plan for the proper abandonment and replacement of both MW-4 and MW-6 by March 30, 2018 for the Division's review and approval.

Please feel free to call me at (615) 532-0919 if you have any questions or comments.

Regards,



Evan Spann

Project Manager

Nashville Environmental Field Office

cc: Mrs. Sheri Jacobs
Bone McAllester Norton, PLLC
Nashville City Center, Suite 1600
511 Union Street
Nashville, TN 37219

Chris Scott, P.G.
TriAD Environmental Consultants
207 Donelson Pike, Suite 200
Nashville, Tennessee 37214

DoR Central Office

DoR Nashville Environmental Field Office

Chris Scott

From: Evan W. Spann <Evan.W.Spann@tn.gov>
Sent: Thursday, June 01, 2017 3:05 PM
To: Nancy Sullivan; Chris Scott
Cc: Tom Grosko; Sheri Jacobs
Subject: RE: ACC Landfill CAWP

I've reviewed the Corrective Action Work Plan and have a few comments/questions. I'm available to discuss if needed.

- Rule 0400-40-03-.02(5) states that where more than one use is established, the most stringent and protective criteria will be applicable. This should address the different established uses between the unnamed trib and Sugar Creek.
- Section 3.2 of the Work Plan states that a site-specific study will be undertaken to determine the "narrative criteria" for the Tennessee Water Quality Criteria. Is the data gathered over the last five years of surface water monitoring not sufficient to begin determining these criteria now? What data are missing to develop these criteria?
- Section 3.3 of the Wok Plan proposes to continue monitoring, with a change in frequency, for chloride and conductivity. Why are ammonia and TDS not included in this proposed sampling? Why is the chloride/conductivity correlation mentioned in this section important to the development of water quality criteria?
- In the April 7, 2015 Surface Water Monitoring Report submitted by TriAd concentrations of chloride, ammonia, and TDS that may result in an IC25 of approximately 100 percent was calculated to be in the following ranges; Chloride: 289 to 1,221 mg/L, Ammonia: 7 to 19 mg/L, TDS: 679 to 2,085 mg/L. Is this report being used to determine the No Observable Effect Concentrations for these compounds?
- Section 3.4 states a weir will be constructed "to more accurately measure flow rates and provide loading estimates for chloride, ammonia, and TDS in conjunction with the analytical sampling results." The measuring of loading was a requirement under the Amended and Restated Consent Order which was not implemented. The Work Plan does not describe the location or type of weir that will be constructed.
- In Section 4.1; how has ACC determined that the leachate from the Waste Relocation Area is "major source" of surface water pollution? Has a study of the unnamed tributary and the ACC property been conducted to make this determination?
- Section 4.1 does not adequately describe the sampling locations where "additional data will be collected to determine the viability of potential additional corrective measure."
- Section 4.4.1 discusses "existing areas of impacted soils" but does not describe how these areas will be determined
- Section 4.4.4 states that "Additional dilution water for the discharge at the Road Crossing could be obtained through the construction of groundwater interception trenches." How would groundwater, which is already impacted by chlorides, ammonia and TDS and the extent of the impact is unknown, be used to dilute surface water?

From: Nancy Sullivan [mailto:nsullivan@triadenv.com]
Sent: Saturday, March 18, 2017 3:06 PM
To: Evan W. Spann
Cc: Tom Grosko; Sheri Jacobs; Chris Scott
Subject: ACC Landfill CAWP

*** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. ***



Evan,

Attached is the Corrective Action Work Plan for ACC Landfill. Please let us know if you have any questions.

Thanks,

Nancy Sullivan, P.E.
TriAD Environmental Consultants, Inc.
207 Donelson Pike, Suite 200
Nashville, Tennessee 37214
615-889-6888



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Remediation
William R. Snodgrass TN Tower
312 Rosa L. Parks Avenue, 14th Floor
Nashville, Tennessee 37243

September 11, 2017

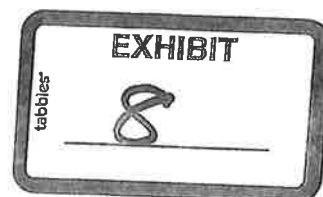
Mr. Tom Grosko
ACC, LLC
400 Arrow Mines Road
Mt Pleasant, TN 38474

RE: Corrective Action Work Plan
ACC Landfill
Site #60-555

Dear Mr. Grosko:

On July 21, 2017, The Tennessee Department of Environment and Conservation (TDEC) - Division of Remediation (DoR), received a revised DRAFT Corrective Action Work Plan (Work Plan). The Work Plan was submitted in order to meet the requirements of the November 2016 Consent Order between ACC, LLC and TDEC. DoR has reviewed the Work Plan and has the following comments.

- Section 3.2 - The Work Plan states that a site-specific study will be undertaken to determine the "narrative criteria" for the Tennessee Water Quality Criteria. The Work Plan does not clearly describe the data that are missing and needed to develop these criteria, even though ACC has collected surface water monitoring data for over five years.
- Per the 2016 Consent Order, Sugar Creek is currently classified for the following uses: domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife, including the impacted portions. TDEC Rule 0400-40-03-.02(5) states that where more than one use is established for Waters of the State, the most stringent and protective criteria will be applicable. Sugar Creek is listed on the 303(d) list due to salinity, total dissolved solids, chlorides, and other causes from the ACC landfill and other pollutant sources. Additionally, the unnamed tributary to Sugar Creek is listed on the 303(d) list due to unionized ammonia, chlorides, and total dissolved solids from the ACC landfill. Therefore, DoR requested the TDEC Division of Water Resources to establish the water quality standards that will be applied to the Site.
- Section 3.3 - What does ACC propose to use in order to determine whether surface water sampling frequency will be increased based on a reduction below 1000 mg/L of measured chloride concentrations? Does this refer to laboratory measurements or in-field instrument readings? As a reminder, DoR has never approved the use of conductivity as a surrogate for measuring chlorides and ammonia in surface water to determine if the water is in compliance with the discharge standards for the Site.



- Section 3.4 – The use of a calibrated flowmeter is preferred over stream channel estimates of flow. It is critical to provide both accurate flow and concentration data to determine the loading of contaminants from the Site. ACC has failed to provide any flow measurements from the Site, despite repeated directives from TDEC to collect flow measurements in order to demonstrate that loading has been reduced. The reduction of loading is a primary goal of the Amended and Restated Consent Order. Because ACC has not collected flow data, it will not be able to demonstrate that this goal of the Amended and Restated Consent Order has been met. The use of stream channel estimates of flow is not approved.
- Section 3.5 – The Work Plan proposes interim goals to be used until promulgated water quality standards are established. ACC now has over five years of regular surface water monitoring data. DoR believes that this data should be sufficient to develop standards based on the rules of the Division of Water Resources. Has ACC determined that the data gathered over the last five years of surface water monitoring is insufficient to begin determining these criteria? If so, what data are needed? DoR is currently working with the Division of Water Resources to determine the water quality standards that will be applied to the Site.
- Section 4.1.1 - In a telephone conversation with representatives of ACC, TDEC was informed that since January of 2017, ACC has been collecting the leachate from the landfill cell for disposal, which this Work Plan proposes as a pilot study. With the reported reduction in the July 2017 surface water sampling event, why would this Work Plan not propose to permanently install the leachate collection system until such time as the waste cell has dewatered? Please provide TDEC with a report of the landfill leachate collection and disposal by October 29, 2017.
- Section 4.12 – The Work Plan proposes to connect the former excavation area to the existing impoundment. Section 4.2 proposes an investigation of soils at the site, particularly in the former landfill excavation area. The timing of these two activities as proposed in the schedule, i.e the drainage improvements followed by the soil investigation, does not seem to take into account any results the soil investigation may provide.
- Section 4.2 – The Work Plan states that “If water quality at the Road Crossing does not meet the interim water quality goals, additional corrective measures may be proposed as described in Section 4.4. for implementation during the 2018 construction season.” If the use of interim water quality goals is not approved, what steps will be taken to meet the established water quality criteria?
- Section 4.3 – Landfill leachate collection began in January of 2017. An email dated July 20, 2017 indicated that samples from the road crossing showed a significant reduction from the June 12th 2017 sampling event for TDS, ammonia and chloride. This reduction from the previous sampling event would suggest that a ten month effectiveness monitoring period is not needed.

In regards to the 2016 Consent Order, a public participation plan as required has not been submitted to TDEC. A public notice was submitted, however, this public notice was not approved and

is not a "plan". Please submit a public participation plan by September 29, 2017 for DoR's review and approval.

Please feel free to call me at (615) 532-0919 if you have any questions or comments.

Regards,



Evan Spann
Project Manager
Nashville Environmental Field Office

cc: Mrs. Sheri Jacobs
Bone McAllester Norton, PLLC
Nashville City Center, Suite 1600
511 Union Street
Nashville, TN 37219

DoR Central Office

Chris Scott, P.G.
TriAD Environmental Consultants, Inc.
207 Doneison Pike, Suite 200
Nashville, Tennessee 37214

DoR Nashville Environmental Field Office



207 Donelson Pike
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Nashville, TN 37214
615-889-6888

ENVIRONMENTAL CONSULTANTS

November 21, 2017

Mr. Evan Spann
Division of Remediation
14th Floor, William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue
Nashville, Tennessee 37243

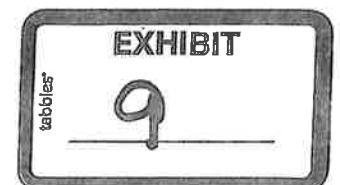
**Re: ACC Landfill CAWP
Response to Comments Dated September 11, 2017**

Dear Mr. Spann:

Provided below are our responses to your September 11, 2017 comments on the revised ACC Landfill Corrective Action Work Plan, dated July 21, 2017.

Bullet 1, Section 3.2 of the CAWP: As noted in the Draft CAWP, significant reductions in concentrations of chloride, ammonia, and TDS have been achieved at the site due to the removal of waste from the old landfill. As a result of these changed conditions, the data from the previous five years of monitoring may not represent current conditions, on which any site-specific water quality criteria must be based. Therefore, a period of additional monitoring and data gathering was proposed, during which interim water quality standards (20 percent of the previous, ambient discharge standards) would apply. This period of time was defined in the Draft CAWP as 10 months, which would allow for seasonal differences to be measured and considered as inputs when setting the final water quality criteria. During that 10-month period, as specified in the Draft CAWP, data regarding water toxicity, pH, conductivity, chlorides, ammonia, and TDS will be gathered and final water quality standards set.

There are no "missing" data in the sense that needed parameters have not been previously measured. Rather, the existing data were collected under conditions that have now been significantly altered by the excavation of the waste and construction of the waste relocation area. For example, and as noted on Page 5 of the Draft CAWP, pH data representing current site flow conditions (with allowance for seasonal variation) must be used to develop a site-specific ammonia standard.



Bullet 2, No Section Reference: The description of the water quality standards for Sugar Creek match those presented in the Draft CAWP, and ACC has no comments on them. ACC is confused regarding DoR's request to have the Division of Water Resources (DWR) set the water quality standards that will apply to the site. The November 2016 Order required ACC to develop these standards, and ACC is not aware that DWR has collected sufficient, site-specific data under current flow conditions to allow establishment of realistic site-specific standards. In the event DWR has collected data, please send us that data for our review. In contrast, other comments in DoR's September 9, 2017, letter propose ACC is to respond with explanations and additional information regarding their efforts to establish site-specific water quality criteria. Thus, it is unclear to ACC whether DoR has sought assistance from DWR. If DoR has deferred to DWR rather than comply with the terms of the November 2016 Order, it would seem to obviate the need for ACC to provide additional information regarding water quality standards to DoR at this time.

Bullet 3, Section 3.3: As stated in the Draft CAWP, ACC will increase collection of surface water samples, with associated analysis for chlorides, when the chlorides concentration drops to below 1,000 mg/L. These additional, low-chloride data are needed to allow reestablishment of the correlation between real-time conductivity readings and laboratory-derived chloride concentrations. The previously established correlation between chloride and conductivity (and also TDS and conductivity) will no longer be valid once the chloride concentrations drop below approximately 1,000 mg/L. This is simply an update of needed information and does not impact the setting of water quality criteria. It will allow future conductivity readings to be used as an indicator of chloride (and TDS) concentration, as it is now. Further, there was no implication made in the Draft CAWP that conductivity measurements would be used for any purpose other than as an indicator of chloride concentrations.

Bullet 4, Section 3.4:

ACC has proposed using a US EPA-approved method of measuring flow velocity and, therefore, streamflow in a reconfigured portion of the unnamed tributary. This method will allow good estimates of chloride, ammonia, and TDS loading for each sampling event performed at the Road Crossing location. ACC understood, based on previous meetings and discussions, that this was the goal of DoR. Measurement of flow in streams is always subject to some degree of error, and the methods approved by US EPA recognize this inherent inaccuracy. The method proposed by ACC will allow reasonable estimates of constituent loading and tracking of changes in such loading over time. If DoR requires more accurate measurement of flow in the unnamed tributary, ACC requests that DoR specify the degree of accuracy needed so that an appropriate method may be designed.

As previously requested, TriAD has conducted EPA-compliant flow measurements in the existing channel to estimate loading. Based on our 2016 and 2017 measurements,

we estimate a reduction of approximately 85 - 90 percent since initiating the remediation in 2012.

Bullet 5, Section 3.5: This comment is addressed in our response to Bullets 1 and 2.

Bullet 6, Section 4.1.1: The Draft CAWP noted that ACC had begun collection of leachate from the Waste Relocation Area (WRA) in January 2017 as a pilot study. The approximate amount of leachate collected during the first five months of this operation was reported in the Draft CAWP. Since initiating collection, approximately 210,000 gallons of leachate have been collected and transported off-site through October 25, 2017. As noted in Section 4.1.1 of the Draft CAWP, ACC did propose, as part of the corrective action, to upgrade and continue operation of this leachate management system. ACC continues to wait for approval from DoR on the leachate collection system.

Bullet 7, Section 4.1.2: With regard to CAWP proposal to connect the former excavation area to the existing impoundment, the connection will likely be delayed until after the upgradient cap is constructed and vegetation is established to provide continued containment of sediment during construction. This will be described in more detail with the updated CAWP.

Bullet 8, Section 4.2: The response to this question depends on what water quality criteria are established by DoR in conjunction with DWR (see response to Bullet 2). ACC has proposed several options for additional corrective measures that would potentially be applicable. Our approach would be to implement those proposed in the CAWP, monitor the impact on water quality, and, if the resulting monitoring does not achieve the specified goal/standard after a reasonable monitoring period, then additional measures would be constructed based on the monitoring data and site investigation results. Based on the results of monitoring obtained to date, we believe it will be necessary to add a cap and ditch through the former landfill area. Details on implementation will be provided with the updated CAWP.

Bullet 9, Section 4.3: Data collected over the last five years has demonstrated significant variation, whether due to seasonal or other (e.g., construction related) effects. Using one or two data points collected immediately after implementation of a pilot program of leachate collection is not reliable. It is necessary to collect a large data set to evaluate any corrective action; ACC proposed collection of a minimal additional data set over a 10-month period to allow evaluation of seasonal and other variability while still allowing rapid progress toward the goal of preventing the off-site migration of surface water exceeding water-quality criteria. (See also the response to Bullet 1.) Following implementation of each additional corrective measure, data should be gathered over a reasonable monitoring period (six months minimum) to evaluate the

measure's effectiveness and determine the magnitude of additional reduction, if any, of constituent concentrations to meet the water quality criteria.

Public Participation Plan: The Public Participation plan was submitted and approved by TDEC on December 15, 2016 in compliance with Consent Order No. DOR 16-0010, Section XX.C., dated November 23, 2016. Upon final approval of the CAP and CAWP ACC and TDEC agreed, ACC update the previously published public notice to include additional information detailing what has been accomplished onsite and/or any future plans.

Please let us know if you have any questions or require additional information. We would be happy to meet and discuss in more detail at your convenience.

Sincerely,

TriAD Environmental Consultants, Inc.

Nancy B. Sullivan

Nancy B. Sullivan, P.E.
Senior Project Manager/Engineer

cc: Mr. Tom Grosko
Ms. Sheri Jacobs



207 Donelson Pike
Suite 200
Nashville, TN 37214
615-889-6888
fax 615-889-4004

ENVIRONMENTAL CONSULTANTS

October 1, 2018

Mr. Evan Spann
Division of Remediation
14th Floor, William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue
Nashville, Tennessee 37243

**Re: ACC Landfill, Site #60-555
Corrective Action Work Plan**

Dear Mr. Spann:

Based on previous correspondence and our meeting conducted September 24, 2018, we have prepared the attached Corrective Action Work Plan for the ACC Landfill. We look forward to receiving your approval on the proposed plan.

Please call if you have any questions, require any additional information, or wish to discuss the plan in more detail.

Sincerely,

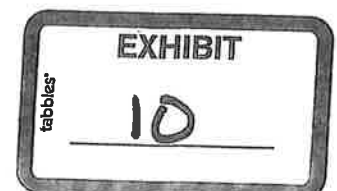
TriAD Environmental Consultants, Inc.

Nancy Sullivan

Nancy Sullivan, P.E.
Senior Project Manager

Attachment

cc: Tom Grosko
Sheri Jacobs



**CORRECTIVE ACTION WORK PLAN
ACC LANDFILL
MAURY COUNTY, TENNESSEE**

TriAD Project Number 97-SSI07-01

Prepared For:

**ACC, LLC
P. O. Box 432
Mt. Pleasant, Tennessee 38474**

Prepared by:



**TriAD Environmental Consultants, Inc.
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October 1, 2018



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1.0 INTRODUCTION

This Corrective Action Work Plan (CAWP) has been prepared by TriAD Environmental Consultants, Inc., (TriAD) on behalf of ACC, LLC., to comply with the current Tennessee Department of Environment and Conservation (TDEC) Administrative Consent Order Nos. DOR 16-0010, SWM11-0006, and WPC11-0024 (CO), dated November 23, 2016, and additional directives by TDEC with regard to the corrective action at the ACC Landfill (Site) including the December 17, 2017, Response to the Draft Corrective Action Work Plan and the August 6, 2018, TDEC Response to ACC Letter dated January 31, 2018. This CAWP outlines an approach that will improve the quality of surface water leaving ACC property with the goal of reducing the concentrations of ammonia, chlorides, and total dissolved solids (TDS) in surface water at the Road Crossing so that they will meet the Water Quality Criteria (WQC) designated by TDEC in the December 17, 2017, letter. This CAWP describes intended interim actions as well as a process of selecting, if needed, the final corrective action(s), including the proposed investigation, corrective action approach, and monitoring requirements.

2.0 BACKGROUND

Previous remedial work conducted at the Site was performed under an Amended and Restated Consent Order (ARCO) between TDEC and ACC, approved by the Solid Waste Board on August 7, 2012. Work under the ARCO primarily consisted of the excavation and relocation of waste from the former ACC Landfill to the adjacent Waste Relocation Area (WRA). Work was performed over four consecutive annual construction seasons with approximately 555,500 cubic yards of waste and cover soils from the original landfill being relocated to the permitted, lined WRA. Results of this effort have shown significant reductions in the concentrations of TDS, chlorides, and ammonia in surface water from pre-remedial-action concentrations. In November 2016, a supplemental Consent Order (CO) was signed that was intended to guide the remaining remedial process and to provide for further improvements in water quality at the Site. The CO did not replace the ARCO, but to the extent there is inconsistency between the two, the CO is the controlling document.

Background information pertaining to Site history, investigations, and corrective action phases has been previously provided to TDEC in many documents, including the following:

- Corrective Action Plan, dated December 30, 2003, prepared by URS
- Modified Corrective Action Plan, dated August 18, 2008, prepared by TriAD
- Field Investigation Plan, dated August 5, 2011, prepared by TriAD
- Field Investigation Report, dated February 22, 2012, prepared by TriAD
- Corrective Action Plan, dated April 19, 2012, prepared by TriAD
- Final Report Phase 1 Corrective Action Construction, dated January 31, 2013, prepared by TriAD
- Final Report Phase 2 Corrective Action Construction, dated January 31, 2014, prepared by TriAD
- Final Report Phase 3 Corrective Action Construction, dated January 30, 2015, prepared by TriAD
- Final Report Phase 4 Corrective Action Construction, dated February 1, 2016, prepared by TriAD
- Final Report Construction Quality Assurance for Phase 5 CAP Construction, dated January 31, 2017, prepared by TriAD
- Changes to Groundwater Monitoring Network, dated April 19, 2017, prepared by TriAD
- Corrective Action Work Plan, dated March 18, 2017, July 21, 2017, and January 31, 2018, prepared by TriAD
- Surface and Groundwater Monitoring Reports prepared by URS and TriAD (multiple events)

3.0 SITE CONCEPTUAL MODEL

This section describes the Site geology, hydrology, and waste characteristics that are relevant to the corrective action. The Site has been extensively investigated over a period of many years for landfill permitting, landfill closure, soil characterization, and activities

conducted in conjunction with the on-going corrective action. These investigations have resulted in a good understanding of the hydrogeologic setting and the nature and extent of constituent impact. Such investigations are identified in the following text. A map showing the locations of borings, test pits, and surface sampling locations is presented as Figure 1.

3.1 Geology

The Site is located in the southwestern portion and near the axis of the Nashville Dome, a broad, gentle uplift of Paleozoic sedimentary rocks which occupies most of central Tennessee. The strike of these rocks is locally variable and dips are gentle, generally less than 5 degrees. Weathering along joint sets has produced a gently rolling topography of ridges and valleys.

The Site vicinity consists of a central, broad-topped ridge flanked on the east and west by moderate to steep slopes which in turn are flanked by the broad valley bottoms of Sugar and Scott Creeks. The central ridge forms a surface water drainage divide between the watershed of Scott Creek to the east and Sugar Creek to the west. Drainage on the ridge slopes has been disturbed by strip mining. Karst features, including sinkholes, cutter-pinnacle development, and conduit groundwater flow with associated springs and seeps, are present in the areas underlain by the Bigby-Cannon Formation.

The area's topographic features correspond roughly with bedrock type. The ridge top is underlain by Mississippian-age Fort Payne Formation, the moderate to steep ridge slopes are underlain by Ordovician-age Leipers, Catheys, and Bigby-Cannon Formations, and the Hermitage Formation is found in the lower portion of the valleys and the valley bottoms. All the formations in the area are limestone, with varying amounts of shale, silt, and sand. The Bigby limestone facies at this locality is a phosphatic calcarenite which weathers to brown phosphatic soil. This soil has been mined as a source of phosphate. Most of the ridge slopes have been strip mined and still exhibit the irregular topography characteristic of this use.

The former ACC landfill (now removed to the WRA, or new landfill) was placed in an east-west trending valley on the western side of the ridge. The upper and middle slopes of the valley had been previously strip mined for phosphate soil, but the lower slopes and valley bottom, extending from the toe of the landfill to Sugar Creek, were not mined because those areas are underlain by Hermitage Formation. The Hermitage is predominantly a thin-bedded, laminated argillaceous limestone that contains frequent shale partings. A thin (less than 5 feet), fossiliferous layer known as the *dalmanella coquina* occurs in the upper portion of the formation at its contact with the overlying Bigby Limestone and is found along the sides of the valley. The contact between the Bigby and Hermitage is shown on the geologic map (Sandy Hook Quadrangle, 1966) at an elevation of approximately 740 feet above mean sea level (MSL). However, Site-specific investigations have shown that the contact is in fact higher than that, near an elevation of 800 feet MSL in the eastern half of the landfill and likely dipping gently to the southwest (Resource Consultants, Inc., April 1994; Corrective Action Plan, URS, December 30, 2003).

3.2 Hydrology

Depending on location within the Site, groundwater flow is predominantly either at the top of rock or within the rock in secondary porosity, including fractures and solution features. Groundwater recharge occurs primarily along the upper portions of the valley and the adjacent ridge tops, where surface runoff enters the overburden and bedrock of the Fort Payne, Leipers, Catheys, and Bigby formations. Groundwater then flows down the valley, along the top of rock and within the fractures and solution features of the Bigby, and at the top of rock and in the *dalmanella coquina* of the Hermitage. Where the *coquina* is absent, groundwater flow occurs along the top of the argillaceous facies of the Hermitage, which acts to prevent further downward migration of groundwater. Springs and seeps are located west and down-gradient of the landfill, including Site Spring (12 to 16 gallons per minute), just down-gradient of the landfill.

Data obtained from Site monitoring wells indicate that groundwater flow is governed generally by topography and, by extension, bedrock type. On the lower slopes and valley

bottom, groundwater is under semi-confined conditions in the thin saturated zone between the bedrock of the Hermitage Formation and the overlying silty clay. Here the piezometric surface is within 1 or 2 feet of the surface, although the saturated zone is within 1 to 2 feet of the bedrock surface, at a depth of 10 to 15 feet. Site Spring is located in the upper portion of the Hermitage. Farther up the ridge slope, groundwater is found below the soil-bedrock interface and is either unconfined or semi-confined in the conduit flow of the upper Hermitage *dalmanella coquina* and the Bigby Limestone.

Groundwater flow velocity through conduit features in the bedrock of the upper slopes of the valley has not been measured, and would be quite variable depending on the degree of conduit development and interconnectedness. Because conduit features are not typically present in the argillaceous facies of the Hermitage Formation, the portion of the formation that underlies the western portion of the Site acts as an aquitard, or lower confining layer for the semi-confined overburden aquifer.

URS calculated the groundwater flow rate through the overburden at the top of the Hermitage using Darcy's Law, $V = K \times i/n$, where V = velocity, K = hydraulic conductivity, i = hydraulic gradient, and n = effective porosity. A saturated hydraulic conductivity of 1.0×10^{-5} centimeters per second (cm/sec) and an effective porosity of 10 percent were estimated based on the overburden soils consisting of silty clay. An average hydraulic gradient value of 0.03 was calculated from groundwater sampling events using the groundwater elevations and calculating the gradient over the distance between monitoring wells (MW-1 to MW-2, MW-2 to MW-3, MW-2 to MW-4, MW-2 to MW-8, and MW-2 to MW-5). These calculations yielded an estimated groundwater flow rate through the soil overburden over the entire Site of approximately 3.0×10^{-6} cm/sec (3 feet/year). The area of the Site from the former toe of the landfill to Arrow Mine Road exhibits a groundwater gradient of approximately 0.015, which reduces the estimated flow rate in that portion of the Site to approximately 1.5 feet/year. The direction of such groundwater flow is west toward Sugar Creek and Arrow Lake.

Based on the aquifer characteristics described above, the transmissivity of the saturated zone, the thickness of which is conservatively estimated at 5 feet at the top of rock, is 0.14 ft²/day.

Surface water flow on Site is dominated by overland flow in the higher elevations leading to drainageways in the valley bottoms that channel runoff toward the west, into unnamed tributaries of Sugar Creek. Runoff from the valley in which the landfill was located merges with runoff from the valley adjacent to the south to form the drainageway that exits the Site at the point known as Road Crossing. Runoff from the northern portion of the Site drains to the north, merges with drainage from the valley adjacent to the north at the point known as Northern Stream Junction, then exits the Site at the point known as Northern Road Crossing. During Site corrective action, surface water drainage was altered, with non-impacted surface water from the former landfill being directed to the north, and impacted water being directed to the impoundment and sediment controls downstream of the landfill. Site Spring, which has been submerged since wetland construction performed some years before waste excavation began, lies within the current boundary of the impoundment known as Upper Pond. Ponds and constructed wetlands have existed in this area for many years, having been used for sediment control during landfill operations and for mitigation after the landfill closed.

As demonstrated by comparison of analytical results from the unnamed tributary and Sugar Creek, and by comparisons of flow estimates for the two streams, it is apparent that the unnamed tributary contributes only about 10 percent of the total flow in Sugar Creek below the confluence. Therefore, there is an approximate 10-to-1 dilution of the water in the unnamed tributary as it enters Sugar Creek.

Groundwater and surface water interact in the lower elevations of the Site, between the toe of the former landfill and the Road Crossing. In this area, surface water migrates vertically downward, where the surface water hydraulic head and soil hydraulic conductivity allows, contributing recharge to the groundwater. The groundwater flow in this area mimics flow of the surface water, moving to the west under Arrow Mine Road.

Potentiometric data from wells MW-3 and MW-5 and water levels in the Impoundment indicate that Site constituents also migrate into groundwater from the Impoundment and the unnamed tributary.

3.3 Constituents of Concern

Many years of groundwater and surface water monitoring at the Site, combined with generator knowledge of the aluminum salt cake waste, has demonstrated that the constituents of concern at the Site are primarily chlorides, ammonia, and TDS. Sodium is also a constituent of interest because sodium chloride is the principal form of chlorides present in the salt cake waste. Studies have also shown that TDS concentrations are directly proportional to chloride concentrations at the Site, indicating that TDS impact is caused by the chloride. Based on the long history of monitoring data, in 2012 TDEC established a constituent monitoring list for surface water at the Site that includes the following:

- Aluminum
- Ammonia
- Barium
- Beryllium
- Cadmium
- Chloride
- Copper
- Fluoride
- Iron
- Lead
- Magnesium
- Nickel
- Nitrate
- pH (field measurement)
- Sodium
- Specific Conductivity (field measurement)
- TDS

During the remediation construction at the Site, the approved list of monitored surface water constituents included ammonia, chloride, TDS, conductivity, and pH. The full list of constituents was to be analyzed prior to construction activities and again at the conclusion

of a two-year post-construction monitoring period. The pre-remediation sampling was performed in August 2012. During that event, conducted at a time when Site impact to surface water was greatest, barium, beryllium, magnesium, nickel, and fluoride concentrations did not exceed Tennessee WQC or, if no WQC are promulgated, US EPA ecological risk screening levels. In April 2012, the owners of the adjacent property (SLLI) performed sampling of surface water leaving the Site at the Road Crossing (their designation SW-2). Those results, as reported to TDEC, showed that concentrations of certain other inorganic parameters including arsenic, calcium, chromium, mercury, selenium, silver, zinc, and cyanide did not exceed Tennessee WQC or, if no WQC are promulgated, US EPA ecological risk screening levels. It is therefore apparent that a limited list of water quality parameters is appropriate for the Site. Table 1 presents the results of the 2012 monitoring events.

The TDEC-approved list of constituents for groundwater monitoring includes:

- Aluminum
- Ammonia
- Barium
- Chloride
- Fluoride
- Nitrate
- Specific Conductivity (field measurement)
- Total Dissolved Solids

As of June 2018, neither aluminum nor barium are present in Site groundwater at concentrations exceeding drinking water standards.

Surface water and groundwater monitoring performed prior to the removal of waste from the former landfill showed no significant concentrations of any constituents other than chlorides, ammonia, TDS, and sodium, with specific conductivity also elevated. As noted above, sodium concentration is related to the presence of chloride. During the pre-remediation monitoring, beryllium, cadmium, copper, lead, and nickel were not detected

at laboratory reporting limits. Other constituents were detected but at concentrations typical of natural levels.

The constituents of concern for the Site are, therefore, primarily chloride, ammonia, and TDS, with some ancillary constituents listed in the 2012 monitoring parameters.

3.4 Constituent Distribution

Site investigations beginning in the 1990s demonstrated that the constituents of concern were present primarily in the former landfill and areas downgradient of the former landfill, in the lower portions of the valley in which the landfill was located. None of the many phases of investigation on and around the landfill and in other areas of the Site have ever found any evidence of waste disposal outside the limits of the former landfill. These investigations are summarized on the attached Figure 1 and in the following list:

- Soil borings have been advanced at many locations at the Site, from the top of the eastern ridge to Arrow Mine Road and from the northern side of the filled valley to the southern side of the southern valley. (This inventory of borings does not include those advanced into the landfill waste deposits during the pre-remediation investigation.) None of the borings advanced outside of the former landfill footprint encountered deposits of waste. Some of these borings, notably those on top of the eastern, northern, and southern ridges, were drilled in 1990 and 2007.
- Test pits have been excavated at many locations at the Site, including the toe area of the former landfill, in the footprint of the former landfill (after removal of the waste), and in areas to the east, north, and south of the former landfill. (This inventory of test pits does not include those excavated into the landfill waste deposits during the pre-remediation investigation.) The test pits identified chloride-impacted groundwater in areas in and downgradient of the former landfill footprint, with decreasing concentrations of chloride (as indicated by lower specific conductivity) in the southern valley upgradient of Site Spring. None of the test pits encountered deposits of waste.

- Boreholes and coreholes, several of which were converted to piezometers, were advanced along the northern, southern, and eastern boundaries of the former landfill. Several of these borings, particularly those very close to the waste deposit (some borings were located in or adjacent to the perimeter ditch), encountered chloride-impacted groundwater. Coreholes advanced just east of the former landfill (*Field Investigations Plan*, August 5, 2011) encountered unimpacted groundwater flowing toward the landfill, leading to an attempt by ACC to intercept and divert the groundwater before it entered the waste deposits, at the Eastern Diversion Ditch.
- A geophysical survey (electrical resistivity and induced polarization, *Field Investigations Plan*, August 5, 2011) was performed in April 2011 along lines located east of, north of, and across the landfill, and parallel to Arrow Mines Road along the western Site boundary. This survey identified likely chloride-impacted soil or groundwater in the landfill footprint and in an approximately 600-foot-wide, thin zone at the soil-bedrock interface at the western Site boundary, with the unnamed tributary in the zone of highest conductivity. No indications of waste deposits or significant chloride impact were identified along the northern or eastern geophysical lines. (The results of an earlier geophysical survey, performed in 2000 along lines run across the landfill, were later found to be unreliable and were not used in development of the conceptual model.)
- Surface soil and surface water samples have been collected in the former landfill footprint after removal of the waste (July 2017, see Section 6.1), and surface water and sediment samples have been collected in the Impoundment and Upper Pond (January 2018). These results will be included in the report of the Site-wide investigation.

It is apparent from the results of these many phases of investigation that the waste deposits in the former landfill were the only waste deposits at the Site and that all such

waste has been removed and placed into the WRA. Leachate from the new landfill is being collected and disposed properly off Site.

Based on available information, the primary sources of remaining impact to Site surface water and groundwater are remaining impacted soils in the former waste excavation area and the area (including the impoundments) between the former landfill and Arrow Mines Road. This area, which will be the focus of the proposed investigation and potential corrective action, is identified on Figure 2.

Secondary sources of impact include the existing ditches and haul roads used to convey impacted water to the impoundment and waste to the WRA. These areas will be investigated to determine the extent of surficial impact and potential for significant contribution to Site waters. The specific investigatory activities to be conducted are detailed in Section 5.2.

Surface water exiting the Site at the Northern Road Crossing is not significantly impacted by chloride, ammonia, or TDS. The location exhibits flowing water only in direct response to precipitation and has been dry 80 percent of the time during routine monitoring events since 2012. During the times water was flowing at the Northern Road Crossing, the average chloride concentration was approximately 265 mg/L, and the concentration has been less than the WQC proposed by TDEC (230 mg/L for fish and aquatic life) since July 2017. Average TDS over the six-year period was approximately 809 mg/L, and has met the TDEC WQC for drinking water (500 mg/L) since July 2017. Ammonia has never exceeded the TDEC WQC at this location and has been less than the laboratory reporting limit during three of the last six monitoring events.

It is also apparent from the investigations, including groundwater and surface water monitoring results over many years that the vast majority of Site constituents are migrating via surface water, with groundwater contributing insignificant volumes of constituents. Flow and concentration measurements at the Road Crossing show that

during the second half of 2017 the loading of chloride and ammonia leaving the Site averaged 879 tons per year chloride and 9.5 tons per year ammonia (see ACC letter to TDEC, September 5, 2018). By comparison, the loading of chloride and ammonia leaving the Site via groundwater flow in January 2018, assuming a conservatively thick saturated zone of 5 feet and a plume width of 800 feet, was 0.12 tons per year chloride and 0.001 tons per year ammonia, roughly 0.01 percent of the loading in the unnamed tributary. Therefore, 99.99 percent of the constituents leaving the Site are migrating via surface water.

4.0 SURFACE WATER QUALITY MONITORING

4.1 Current Conditions

Surface water quality at ACC has been monitored in accordance with the approved monitoring plan developed as required by the ARCO. This monitoring has included twice-monthly samples during construction seasons and quarterly monitoring during the remainder of the year for chlorides, ammonia, and TDS at four locations, including the Road Crossing. Currently, the Road Crossing location is the monitoring point pursuant to the 2012 ARCO. Semi-annual toxicity testing (IC25 using standard EPA methods) has also been conducted at the Road Crossing. Surface water monitoring at this location has shown significant reductions in the concentrations of chlorides, ammonia, and TDS from pre-remedial-action concentrations, which were established in 2012 as the "ambient discharge concentrations" of 16,209 mg/L chloride, 219 mg/L ammonia, and 23,606 mg/L TDS. In the most recent surface water sampling event at the Road Crossing (September 2018, report in production), concentrations were 1,510 mg/L TDS, 751 mg/L chlorides, and 5.6 mg/L ammonia. Conductivity readings obtained via an on-Site monitor also indicate continued declines in chloride and TDS concentrations. The most recent toxicity tests, performed in March and August 2018, showed IC25 survival at 100 percent for fathead minnows and water fleas, respectively, with only water flea reproduction showing an IC25 of less than 100 percent. Given the documented large dilution of unnamed tributary water as it enters Sugar Creek, it is likely that the IC25 for water flea reproduction would be 100 percent in that stream.

4.2 Water Quality Criteria

In the December 7, 2017, response to the July 2017 draft CAWP, TDEC stated which WQC they believed should be applied to the Site, but did not prohibit the use of site-specific data to establish applicable criteria. In the August 6, 2018, response to the January 2018 CAWP, TDEC stated that site-specific standards were not applicable and would not be allowed.

As stated in the CO "The corrective action objective for surface water is for surface water in (1) the unnamed tributary draining the ACC landfill property to Sugar Creek, and (2) Sugar Creek to not be impaired due to pollutants associated with the ACC landfill." The CO further states that "the corrective action objective for surface water leaving the ACC site is to meet the Tennessee Water Quality Criteria." The Tennessee WQC are a mix of numeric and narrative standards defined at Rule 0400-40-03, as described in the following paragraphs.

The WQC are based on the classified use of the stream. The use classifications are defined at Rule 0400-40-04. The CO specifically refers to both Sugar Creek and the unnamed tributary to Sugar Creek as it leaves the ACC Site. The use classifications of the unnamed tributary are defined at 0400-40-04-.05, where "All other surface waters named and unnamed in the Duck River Basin, with the exception of wet weather conveyances, which have not been specifically noted shall be classified Fish and Aquatic Life, Recreation, Livestock Watering and Wildlife, and Irrigation." Sugar Creek, which receives the flow of the unnamed tributary, is classified for the same uses plus Domestic Water Supply and Industrial Water Supply, though it is not currently used for either purpose. Thus, there are two different sets of WQC defined in the CO, and two different compliance points, as follows:

- Water leaving the Site via the unnamed tributary at the Road Crossing should meet the WQC for fish and aquatic life, and

- Water in Sugar Creek, downstream of the junction with the unnamed tributary, should meet the WQC for domestic use, industrial use, and fish and aquatic life.

Notwithstanding the above facts, TDEC has, in their August 6, 2018, response to the CAWP, established that the WQC applicable to the unnamed tributary will be the same as those applicable to Sugar Creek. The rationale presented by TDEC is that the length of the unnamed tributary is not sufficient to protect the water in Sugar Creek from potential exceedance of WQC in that water body.

The following paragraphs present a discussion of the potentially applicable WQC for the unnamed tributary and Sugar Creek. It is also important to note that Rule 0400-40-03-.02 (9) specifies that "Site specific criteria studies may be conducted on any appropriate fish and aquatic life criteria," and (10) specifies that "Interpretation and application of narrative criteria shall be based on available scientific literature and EPA guidance and regulations."

TDS: Tennessee has specific water-quality standards for TDS only in waters classified for Domestic Water Supply and Industrial Water Supply; therefore, there are no TDS-specific WQC for the unnamed tributary, except as determined by TDEC due to its proximity to Sugar Creek. The domestic and industrial use standard, applicable to Sugar Creek and, by TDEC directive, the unnamed tributary, is 500 mg/L TDS. TDS in the unnamed tributary exiting ACC would otherwise be governed by narrative criteria including Taste or Odor, Other Pollutants, and Biological Integrity. There are no US EPA ecological screening concentrations set for TDS because the risk posed to aquatic life depends on the types of metals and salts dissolved in the water. As demonstrated by previous studies, the primary component of TDS at ACC is chloride. To determine whether the numeric 500 mg/L for industrial use or a narrative standard for Fish and Aquatic Life applies, a Site-specific study would be required. However, until a Site-

specific approach can be agreed upon by ACC and TDEC, the 500 mg/L WQC will be considered the remediation goal.

Chloride: Tennessee has no water quality standards specifically for chloride. US EPA has set a Secondary Drinking Water Regulation for chloride at 250 mg/L. The secondary standards are not health or technology based, but are based on aesthetic effects (taste, odor, etc.) and are therefore not enforceable criteria. Sugar Creek is not a drinking water source nor is it expected to be used in the future as a source of drinking water. US EPA has also set a generic screening level for ecological receptors (fish and aquatic life) of 230 mg/L (chronic exposure). This screening level is not based on Site-specific conditions and is specifically not intended as a remediation goal by US EPA. Establishing the WQC for chloride in the unnamed tributary and Sugar Creek would therefore require a Site-specific study. However, until a Site-specific approach can be agreed upon by ACC and TDEC, the 230 mg/L ecological screening level will be considered the remediation goal.

Ammonia: Tennessee has specific standards for ammonia in waters classified for Fish and Aquatic Life, but not for any other use classifications. According to the Domestic Water Supply and Industrial Water Supply classifications, the drinking water ammonia standard would fall under Taste or Odor and Other Pollutants. US EPA has set a Secondary Drinking Water Regulation for ammonia at 30 mg/L, based on the taste threshold for ammonia. As described above for chloride, the secondary standards are not enforceable criteria, and these waters are not now, nor are they expected to be, sources of drinking water.

The ammonia standard for Fish and Aquatic Life is calculated based on temperature and pH of the stream water. As such, an ammonia standard for the Site must be based on Site-specific data that reflect current

conditions. The calculated ammonia WQC will be presented in each report based on those data.

4.3 Proposed Surface Water Monitoring

Proposed sampling at ACC will consist of continuing the current surface water monitoring program with minor modifications. To effectively monitor the corrective action measures proposed in this CAWP, surface water sampling frequency at the Road Crossing or other, appropriate and approved monitoring location(s), will be increased from quarterly to monthly for chloride, ammonia, and TDS, plus field measurements of pH, temperature, conductivity, dissolved oxygen, and turbidity. Once surface water concentrations of chlorides decrease to below 1,000 mg/L, sampling frequency may, at ACC's option, be increased to every two weeks. The additional sampling data at lower chloride concentrations will allow a more accurate correlation between chloride and conductivity to be established. (The correlation between conductivity and chloride concentration has been well established at the historically higher concentrations observed at the Site, but must be reestablished as concentrations continue to decline.)

Surface water monitoring will also be performed at three locations on Sugar Creek. These locations, to be monitored monthly for the same parameters as the on-Site locations are:

- Sugar Creek upstream of the Site at the Enterprise Road culvert
- Sugar Creek before Sugar Creek enters the southern boundary of SLLI's property
- Sugar Creek as it exits Arrow Lake

During the initial monitoring event performed under the approved CAWP, analyses will be performed on all surface water samples for the inorganic parameters listed in the WQC standards at Rule 0400-40-03-.03, including any necessary ancillary parameters such as total suspended solids, hardness, and chemical oxygen demand. The results of this initial monitoring event will be used to determine whether constituents other than chlorides,

ammonia, TDS, and the field parameters need to be analyzed on a routine basis. The need for such additional analyses will be determined in consultation with TDEC.

Toxicity testing for the species ceriodaphnia dubia (water flea) and pimephales promelas (fathead minnow) has been performed since 2012 in accordance with EPA methods 1000.0 and 1002.0 as specified in EPA-821-R-02-013. This testing will continue to be performed on a semi-annual basis on samples collected from Road Crossing.

Surface water monitoring using an in-place probe to measure temperature, pH, and conductivity, and an on-Site rain gauge to measure rainfall, which has been ongoing for several years, will continue. Upon construction of a weir near the Road Crossing, water flow and ammonia concentrations will be added to the real-time monitoring capabilities. (See also Section 4.4.) Measurements will be taken on an hourly basis and the records maintained on site. In the event other perennial surface water outlets are observed or created at the Site, other weirs with continuous monitoring capabilities may be established at those points. As described in Section 3.4 above, the Northern Road Crossing is neither a perennial outlet (being dry approximately 80 percent of the time) nor is water flowing there impacted at concentrations exceeding the WQC; therefore, no weir or continuous monitoring capability will be installed at that location.

A revised Surface Water Monitoring Plan, providing details regarding monitored parameters and schedules, is included as Appendix 1.

4.4 Flow Measurements

A weir will be constructed at the approximate location depicted on the drawings to allow continuous flow measurements that, combined with field conductivity and ammonia data and laboratory-derived chlorides and TDS will allow estimation of contaminant loading under base flow and minor precipitation events. Due to the low head and disperse flow at the outfall location, significant rain events cannot be accurately measured without construction of a new impoundment at the road crossing to capture and direct flow through the weir. In the event that sampling is conducted during a significant storm event or high

run-off condition, the flow will be field estimated based on USEPA approved field measures.

4.5 Evaluation

Evaluation of the surface water quality at ACC will be performed to document the concentrations and loading of chlorides, ammonia, TDS, and, if necessary, other constituents, over time. Results, trends, and estimated loadings will be submitted in quarterly progress reports to TDEC, submitted within 30 days of the end of each quarter.

5.0 CORRECTIVE ACTION

ACC has implemented a leachate collection and transfer operation to collect leachate generated from the New Landfill for off-Site treatment. Additional corrective actions proposed for immediate implementation are described in the following sections. Additional corrective actions may be proposed in the future based on the results of field investigations and on-going outfall monitoring. These additional field investigations and potential corrective actions are described in Section 6.0.

5.1 New Landfill Leachate Collection

A pilot study was initiated in January 2017 to determine system requirements for long-term collection and transport of leachate from the WRA. Initially, two 6,000-gallon polyethylene tanks were constructed at the location depicted on Figure 2. The tanks were thereafter connected to the existing leachate discharge pipe with PVC piping and the tanks were allowed to fill. By the end of 2017, approximately 250,000-gallons of leachate were successfully collected and transported off-Site for subsequent treatment.

As part of the proposed corrective action, these tanks will be secured, fenced, and the surrounding area contained to prevent the discharge of spilled leachate that could occur during loading/unloading operations. The location and details of the existing tank system and proposed components are provided in Appendix 3.

5.2 Impoundment Removal

To remove a secondary source of impact, the upper and lower impoundments will be closed upon approval of this CAWP and as weather conditions permit. The proposed activities may be conducted in phases as indicated on the drawings provided in Appendix 3.

Subsequent to construction of storm water diversion berms and ditches identified in Figure 3 to permanently direct storm water run-on away from the impoundment area, the impoundment(s) will be dewatered and approximately 1 foot of sediment will be excavated from the floor of the impoundment to remove potentially impacted sediment from the previous landfill excavation activities. During excavation, water will be directed to the northwestern section of the impoundment to provide temporary containment of storm water during construction activities. Water in the impoundment will be pumped to the former landfill impoundment or discharged in accordance with the procedures described in Section 5.3 for diluting impacted water. Excavated sediment will be stockpiled upgradient of the former landfill area and covered with plastic tarps to prevent storm water contact pending sampling and analysis to determine what, if any, future treatment or disposal is necessary.

Subsequent to sediment excavation, a minimum 2-foot vegetated cap will be constructed across the excavated floor and graded to provide positive drainage across the impoundment. The proposed final grading plan is provided as Figure 2 in Appendix 3. This grading plan depicts anticipated grades required to provide a minimum 2 percent slope across the final cover. Actual final cover elevations may vary based on base pond elevations revealed upon dewatering. However, the minimum slopes and thicknesses for the final cover will be maintained as specified herein.

Specifications required for final cover construction are included in Appendix 3. Upon the completion of cap construction, the former impoundment will be revegetated in accordance with the specifications provided in Appendix 4.

5.3 Dilution

Impacted site surface water will be diluted with city water or other non-impacted storm water to achieve water quality goals. Site waters may be temporarily stored in the impoundment provided by the former landfill excavation or other impoundments that may be created in the future based on the results of the sitewide investigation described in Section 6. Water will be discharged from the impoundment when Sugar Creek or Road Crossing flow information indicate that adequate flow is present to meet water quality criteria when combined with one of these two sources. Alternatively, water from a POTW may be used for dilution upon approval by TDEC and implementation of the suitability evaluation provided in Section 5.3.1.

5.3.1 POTW Water

- Obtain information regarding the type of chlorination (free chlorine, chloramine, etc.) used to treat the water and the most recent data regarding chemical constituents in the water.
- Identify system access point(s) and delivery route(s).
- Determine system capacity and maximum anticipated input.
- Collect a sample of the municipal water proposed for use in dilution and analyze the sample, using USEPA standard methods, for a variety of compounds including, but not necessarily limited to chlorine, fluoride, total trihalomethanes, chloroform, chloride, ammonia, TDS, hardness, sodium, and nitrate. Field measurements of pH, temperature, conductivity, and turbidity will be collected at that time, as appropriate.
- Determine appropriate POTW discharge locations. These may include the former landfill impoundment, the southern drainage channel, and/or additional impoundments constructed to increase available storage volumes or support future treatment systems.

5.3.2 Surface Water Dilution

Upon approval by TDEC, water from Sugar Creek will be used for dilution. Based on the current constituent concentrations in the former landfill impoundment and Sugar Creek and the annual mean Sugar Creek flow information provided by USGS web application StreamStats Version 4, water may be introduced directly into Sugar Creek to achieve water quality criteria goals. Based on the results of preliminary mixing zone calculations performed with CORMIX, Version 11.0, the length of the mixing zone within Sugar Creek to meet EPA chloride mixing requirements (860 mg/l acute, 230 mg/l chronic), is less than ten feet from the proposed point of discharge. Based on assumed stream cross-sections, this mixing zone meets the water quality requirements specified in Rule 0400-40-03-.05 with the exception that the 7-day minimum, 10-year recurrence interval was not calculated because discharge will not occur at these low stream flow rates. Several discharge scenarios were modeled including annual mean flow (Table 1, Appendix 3) and annual summer mean flow (Table 2, Appendix 3). For the worst case, low flow scenario (annual summer mean flow), discharge would only occur during known in-stream flows above 1,145 gpm at a known discharge rate of 40 gpm or less. For the average flow scenario (annual mean flow), this same discharge rate will reduce the resulting downstream Sugar Creek chloride concentration by an approximate factor of 3. Alternatively, pumping could potentially be increased by a factor of 3 to 120 gpm to achieve the 230 mg/l water quality criteria for chloride in Sugar Creek. The results of CORMIX modeling for annual mean flow conditions is provided in Appendix 3.

Prior to discharge, the assumed stream characteristics (i.e., width, depth) utilized in these calculations will be verified by stream cross-sectional surveys. Actual stream data will subsequently be utilized to confirm the availability of an adequate mixing zone within the stream. Agreements are in place with current property owners to provide easements allowing access to Sugar Creek. The anticipated discharge point is identified on Figure 1 in the calculations section of Appendix 3. However, the actual discharge location may vary and will be determined subsequent to the completion of stream cross-sectional surveys. Subsequent to approval of the discharge point, the specific forcemain route will be identified and provided to TDEC for approval. Typical pumping and stream flow rates

required for discharge correlated to current chloride and conductivity concentrations are provided in Tables 1 and 2, Appendix 3. Ammonia and TDS concentrations are not included in the current tables because chloride is the limiting factor for the calculations requiring twice the dilution that ammonia does for in-stream dilution. However, ammonia, TDS, and continuous monitoring parameter limits will be included within the final calculation package upon completion of the stream surveys. The surveys and dilution monitoring program that will be implemented to prevent the elevation of constituent concentrations in Sugar Creek above Water Quality Criteria is described in Section 5.3.3.

Surface water from the southern drainage channel may also be used for dilution when constituent concentrations indicate that adequate flow and capacity is present to support discharge from the former landfill impoundment without exceeding the approved water quality criteria. Water will be pumped from the former landfill impoundment and the water quality parameters of pH, conductivity, and ammonia will be monitored to verify that water quality objectives are achieved. The dilution monitoring program and system operating parameters are described in Section 5.3.3. Prior to implementation, specific flow information, correlated to constituent concentrations, will be provided to TDEC for approval.

5.3.3 Dilution Monitoring Program

To ensure compliance with water quality criteria limits the following program will be implemented prior to stream discharge:

- Survey stream at minimum 25-foot cross-sections to verify design assumptions and determine optimum discharge location.
- Adjust calculations, if necessary, based on surveyed conditions and recalculate mixing zone.
- Install in-stream flow meter immediately upgradient of proposed discharge point.
- Install pump and forcemain with flow meter and totalizer at impoundment intake.
- Install continuous conductivity, pH, and ammonia monitor at system intake.

- Operate system in accordance with minimum Sugar Creek Stream Flow requirements and impoundment conductivity concentrations.
- Update upper and lower limits of pumping discharge limits, as appropriate based on evolving site conditions.

5.3.4 Sugar Creek Treatment Pond

If necessary, a mixing pond may be utilized to dilute site water prior to direct discharge into Sugar Creek. The specific location will be designed based on proximity to the approved treatment water sources (POTW and/or Sugar Creek). If used, dilution monitoring will be conducted as described in Section 5.3.3.

5.4 Weir Construction (or monitoring equipment)

As described in Section 4.4 and as provided on Sheet 3 of the Drawings provided in Appendix 3, a weir will be constructed upgradient of the road crossing at the location identified on Sheet 1. Water depth will be measured using a calibrated pressure transducer that will record continuously at a rate of one measurement per hour to provide flow measurements at the Road Crossing in base flow conditions and minor precipitation events.

6.0 SITE-WIDE INVESTIGATION

In addition to the actions described in Section 5.0, ACC will conduct a Site-wide investigation to identify remaining sources and the extent of the Site-related constituents of chloride, ammonia, and, in water, TDS. Over the course of the Site development, including phased waste excavation and relocation to an on-Site, lined landfill, periodic Site investigations were conducted to identify sources of low-permeability material as well as to verify that no additional sources of unauthorized waste placement were present on the Site. These combined investigations revealed no additional subsurface waste placement at the Site. The areas of previous investigation are identified on Figure 1.

6.1 Soil Sampling

Soil samples will be collected to determine background, surface, and subsurface concentrations for the primary constituents of chloride and ammonia. Total chloride and ammonia analyses will be conducted on all samples. In July 2017, multiple soil samples were collected from in and around the former landfill excavation. These samples, designated SAWP-2 through SAWP-22 and SPLP-2 through SPLP-5, were collected from a variety of positions, including:

- in the bottom of the excavation where surface water would naturally come in contact with the soil (surface soil samples SAWP-2 through SAWP-15 and SPLP-2 through SPLP-5),
- between the excavation and the impoundments (surface soil samples SAWP-17 through SAWP-19),
- in two soil borings drilled into the berm at the toe of the former landfill (subsurface soil samples SAWP-21 and SAWP-22), and
- in the stockpile of soil north of the Impoundment (subsurface soil sample SAWP-16).

All samples were analyzed for chlorides, and samples SAWP-16 and SPLP-2 through SPLP-5 were subjected to SPLP extraction with the extraction water analyzed for chlorides. The results of the analyses are presented in Table 2. Based on comparison of the SPLP and total chlorides results, it is apparent that approximately 5 percent of the chlorides in the soil is leached by precipitation. The range of results is 4.7 to 7.9 percent, with an average of approximately 5.5 percent. This relationship will be used during evaluation of future chloride soil results to determine the likely concentration of chlorides in runoff water. No additional SPLP analyses are currently proposed but may be performed if conditions warrant.

Samples will be collected at the surface and at 2-foot vertical intervals to total depth (drill refusal) at the locations depicted on Figure 2. The investigation area will encompass both

the former waste excavation area and the downgradient drainage area. Surface samples will also be collected in the secondary source areas encompassing former haul roads and ditches at the locations identified on Figure 2.

Upon collection and analysis of the initial soil samples, it is likely that a second phase of investigation will be required to further define the extent and volume of impacted soils requiring treatment, solidification, stabilization, capping, or removal. Although the specific scope will be based on the results of the initial sampling event and cannot therefore be determined at this time, it is likely that additional samples will be collected within targeted areas to characterize both the physical and chemical properties of the materials and how these materials will respond to the potential remedial alternatives.

6.2 Groundwater Investigation

As described in Section 3.0, Site Conceptual Model, the groundwater flow regime at the Site is well understood and contributes very little to environmental risk or off-Site migration of constituents of concern. A combination of test pits, geophysical surveys, and monitoring wells has verified the nature and extent of the constituent impact. The plume dimensions and groundwater flow characteristics have been used to calculate constituent loading in groundwater, which is negligible compared to the surface water loading. Many test pits and soil borings have established depth-to-bedrock, and the location of previously mined areas is well known based on topography and the location of the Bigby limestone, which was the target formation for the phosphate mining. There is little additional information that is needed to evaluate hydrogeologic characteristics at the Site. However, the following investigation tasks will be implemented to augment the existing data:

- Slug tests will be performed at wells MW-3 and MW-5 to allow further refinement of the estimate of hydraulic conductivity in the top-of-rock saturated zone so that a more accurate estimate of groundwater flow rate and loading can be developed.

- Two new monitoring wells, MW-9 and MW-10 will be installed to improve the monitoring network for both the old landfill remediation and the WRA monitoring. The locations and construction of these wells is described in Appendix 2 of this CAWP, the revised Groundwater Monitoring Plan.
- Monitoring well MW-6 will be abandoned and replaced to allow reliable collection of representative samples, as described in the revised Groundwater Monitoring Plan.
- A potential replacement for monitoring well MW-4 will be installed in the vicinity of the existing well and water levels monitored to determine if it will be an effective replacement.

It is important to note that groundwater monitoring since 2012 has demonstrated declining or steady trends in the concentrations of chloride, ammonia, and TDS within the contaminant plume. The most recent monitoring event, June 2018, found that ammonia and chloride in the two most impacted wells, MW-3 and MW-5, has either not significantly changed (MW-3) or has declined by approximately 80 percent (MW-5) since the initiation of remedial action. Well MW-3 is located farther from the unnamed tributary and was not as impacted as well MW-5; it will presumably take longer to respond to Site remedial action. It is also important to note that well MW-4, when hydrologic conditions allow sampling, has been shown to be located on the edge of the chloride plume (a finding supported by the results of the 2011 resistivity survey) and therefore does not contribute meaningful data to evaluation of the declining concentrations in the main body of the plume. Chloride concentrations at MW-4 have declined over 90 percent since the initiation of remedial action and did not, in the two most recent monitoring events, exceed the US EPA secondary drinking water standard (250 mg/L). Samples from MW-6, which is proposed to be replaced, continue to show no impact from Site constituents.

Monitoring wells are located west of the Site, across Arrow Lake Road on property not controlled by ACC. If future conditions warrant, and permission is granted by the property owner, one or more of these off-Site wells may be temporarily added to the groundwater monitoring network. Based on current conditions, such monitoring is not necessary.

A Groundwater Monitoring Plan is presented as Appendix 2 of this CAWP.

6.3 Data Evaluation

The information obtained in the Site-Wide Investigation will be used to evaluate the need for and feasibility of the potential future corrective measures described herein. SPLP and total chloride data will be used to determine the likelihood of any impacted areas to cause WQC exceedances at the Road Crossing and in Sugar Creek. Any areas of the Site that are, based on this data evaluation (which may include flow and dilution modeling), likely to cause the WQC to be exceeded at the Road Crossing and in Sugar Creek, will be addressed through one or more of the corrective measures described in the following sections.

7.0 POTENTIAL ADDITIONAL CORRECTIVE MEASURES

Potential additional corrective measures that may be suitable for ACC are described in the following sections. Selection and design of these potential measures will depend on the investigative work performed on-Site during the monitoring and data collection period. Potential corrective measures may be implemented independently or in conjunction with other measures.

7.1 Capping of Impacted Soils and Sediments

Additional areas of the Site could be capped in place to minimize future contact between surface water and impacted soils. The cap would likely consist of a compacted clay layer, overlain by a vegetated soil or other protective cover layer such as rip-rap. Additional geosynthetics including HDPE liners, LLDPE Liners, and geocomposites may be considered for incorporation into the capping system based on the results of the investigation.

7.2 Existing Drainage System Evaluation

The existing surface and storm water conveyance systems on-Site and within close proximity to the Site will be evaluated to identify opportunities to combine, redirect, or otherwise modify these systems to improve water quality discharge. Any modification identified that will improve water quality without negative impact to future remedial activities will be conducted as soon as practicable upon approval by TDEC.

7.3 Additional Surface Water Impoundment Construction

To provide additional dilution of surface water prior to its leaving the Site at the Road Crossing, new surface water impoundments could be constructed on-Site to collect and store non-impacted water for periodic discharge during the summer and fall (low flow periods). The surface impoundments would be located in areas identified during the monitoring/data collection period as optimal for the collection and subsequent discharge of storm water. Each impoundment may be configured with either a valve, siphon, or pump to allow for the controlled release of accumulated storm water to combine with the current flow leaving the Site at the Road Crossing.

7.4 Groundwater Interception Trenches

Additional dilution water for the discharge at the Road Crossing as described in Section 5.3.3 could be obtained through the construction of groundwater interception trenches. Based on investigative work performed during the monitoring/data collection period, trenches with access to non-impacted groundwater could be utilized to direct additional dilution water to the Road Crossing or new impoundment storage area(s).

Groundwater interception trenches may also be used in redirect on-going and periodic subsurface flow around areas of impacted soils.

7.5 Impacted Soil Excavation or Stabilization

In areas identified during the monitoring/data collection period as impacted by chloride and ammonia, soils may be excavated or may be stabilized in place to prevent future contact with surface water. Excavated soils may be solidified/stabilized and placed back

in the excavation, may be relocated to another location on-site and capped, or may be transported off-site for disposal.

If solidification/stabilization is determined to be a feasible, cost-effective option for treatment of the soils, both in-situ and ex-situ treatment will be evaluated for use.

8.0 SURFACE WATER MANAGEMENT

Pending completion of the data collection and evaluation phase of the plan, surface water management at the Site will continue to operate in accordance with the approved work plans developed under the ARCO. Storm water contact with the Former ACC landfill will be minimized with the existing storm water diversion berms and drainage will be directed to the lower surface water impoundment. Surface water management at the WRA will continue to operate as described in the previously submitted Phase 5 Corrective Action Plan. All WRA runoff will enter a series of perimeter ditches before entering the downgradient sediment basin. Impounded water will exit the sediment basin through the perforated riser during storm events.

As part of the data collection and evaluation phase, the existing surface water system will be evaluated to determine the impact of surface water on current water quality parameters and to identify potential modifications that could improve water quality parameters. This study will be conducted in conjunction with the on-Site constituent monitoring to determine the most effective use of on-Site water sources in improving downgradient water quality. This study will include an evaluation of the potential impact of diversion, isolation, and combining various surface, storm, and groundwater contributions to surface water at the Road Crossing.

9.0 ENVIRONMENTAL MONITORING

9.1 Groundwater Monitoring

A revised Groundwater Monitoring Plan, based on the existing plan with changes as proposed by ACC in the April 2017 *Changes to Groundwater Monitoring Network*, is attached to this CAWP as Appendix 2.

Groundwater monitoring will be performed on a quarterly basis at monitoring wells MW-2, MW-3, MW-4 (or replacement), MW-5, MW-6 (replacement), MW-9 (new), and MW-10 (new). Monitoring wells MW-7 and MW-8, being so far outside the constituent plume and having, historically, no significant detections of chloride, ammonia, TDS, or any other monitored constituent, have not and will not be routinely monitored. Constituents monitored during the quarterly events will be those previously approved by TDEC in the 2012 monitoring plan.

9.2 Surface Water Monitoring

As described in Section 4.3, surface water will be monitored monthly at the following locations:

- Road Crossing
- Northern Stream Junction
- Northern Road Crossing
- Former Landfill Impoundment (or Impoundment if weather prevents immediate implementation of the corrective measures described herein).

In addition, to provide data regarding conditions in the receiving stream, surface water will be monitored monthly at the following locations:

- Sugar Creek Up (at the Enterprise Road culvert)
- Sugar Creek Mid (before Sugar Creek enters the southern boundary of SLLI's property)
- Sugar Creek Down (below Arrow Lake dam)

Monthly sampling of the Road Crossing, or other appropriate, approved location(s) will continue until sufficient data have been collected to demonstrate that the WQC have been met.

A revised Surface Water Monitoring Plan is included as Appendix 1.

10.0 REPORTING AND RECORDKEEPING

The progress of remedial action(s) will be compiled and submitted to TDEC on a quarterly basis. Analysis and results of surface water and groundwater monitoring at the Site will be included as well. Reports will be provided within 30 days of the end of each quarter.

A report of the completed construction activities and as-built drawings of any on-Site construction will be submitted to TDEC within 90 days of construction completion.

11.0 SCHEDULE

The proposed implementation schedule will be determined upon approval of the CAWP.

TABLES

Table 1
Water Quality Criteria for Inorganic Constituents
October 1, 2018
Units in mg/L Unless Otherwise Noted

Constituent	Domestic ¹	F&AL ²	EPA ESV ³	EPA DWS ⁴	Road Crossing ⁵	SLLI SW-2 ¹²
Conductivity (F) uS/cm	NE	NE	NE	NE	2872 (Sept 2018)	ND
Temperature (F) °C	30.5	30.5	NE	NE	24 (Sept 2018)	ND
pH (F) SU	6.0 to 9.0	6.0 to 9.0	NE	6.5 to 8.5	6.89 (Sept 2018)	ND
Dissolved Oxygen (F)	Sufficient	5.0	NE	NE	NM	NM
TDS	500	NE	NE	500	1510 (Sept 2018)	ND
Chloride	NE	NE	230	250	751 (Sept 2018)	ND
Ammonia	NE	4.23 ⁷	varies	30	5.61 (Sept 2018)	ND
Hardness	Shall not impair	NE ⁸	NE	NE	160 (Aug 2018)	NM
Aluminum	NE	NE	0.087	0.05 to 0.2	0.8 (Aug 2012)	
Antimony	0.006	NE	0.19	0.006	NM	NM
Arsenic	0.01	0.15	0.15	0.01	NM	<0.00369 (Apr 2012)
Barium	2.0	NE	0.22	2.0	0.15 (Aug 2012)	0.05- 0.08 (Apr 2012)
Beryllium	0.004	NE	0.011	0.004	<0.0020 (Aug 2012)	NM
Cadmium	0.005	0.00025	0.00045	0.005	<0.005 (Aug 2012)	<0.0014 (Apr 2012)
Calcium	NE	Shall not impair	116	NE	NM	81 (Apr 2012)
Chromium III	0.100 ⁹	0.074	0.042	0.100 ⁹	NM	<0.00147 (Apr 2012)
Chromium VI	NE	0.011	0.011	NE	NM	<0.00147 (Apr 2012)
Copper	NE	0.009	0.00495	1.0	<0.020 (Aug 2012)	0.00339- 0.00365 (Apr 2012)
Iron	NE	Shall not impair	1.0	0.3	1.3 (Aug 2012)	0.0265- 0.0307 (Apr 2012)
Lead	0.005	0.0025	0.00125	0.015	<0.025 (Aug 2012)	<0.00541 (Apr 2012)
Magnesium	NE	Shall not impair	82	NE	10 (Aug 2012)	NM
Mercury	0.002	0.00077	0.00077	0.002	NM	<0.000019 (Apr 2012)
Nickel	0.100	0.052	0.0289	NE	<0.020 (Aug 2012)	NM
Potassium	NE	Shall not impair	53	NE	NM	486- 503 (Apr 2012)
Selenium	0.05	0.005	0.005	0.05	NM	<0.00268 (Apr 2012)
Silver	NE	0.0032 ¹⁰	0.00006	0.1	NM	<0.00105 (Apr 2012)
Sodium	NE	NE	680	30 to 60	8400 (Aug 2012)	2100- 2120 (Apr 2012)
Thallium	0.002	NE	0.006	0.002	NM	<0.00857 (Apr 2012)
Zinc	NE	0.120	0.066	5	NM	<0.00226 (Apr 2012)
NH3-N	NE	4.23 ⁷	varies	30	4.12 (Jul 2018)	ND
NO2-N	NE	Shall not impair	0.020	1	NM	NM
NO3-N	10	Shall not impair	NE	10	5.15 (Aug 2012)	NM
Phosphorus	NE	Shall not impair	1.00	NE	NM	NM
Cyanide	0.200	0.0052	0.0052	0.2	NM	0.001- 0.0012 (Apr 2012)
COD	NE	NE	NE	NE	NM	NM
Fluoride ¹¹	NE	NE	2.7	4	1.03 (Aug 2012)	NM
TSS ⁶	Shall not impair	Shall not impair	NE	NE	NM	NM

Notes:

(F)- Field Measurement

NE- Not Established

NM- Not Measured

ND- No Recent Data

¹- Domestic Use TN Rule 0400-40-03-.03(1)

²- Fish & Aquatic Life TN Rule 0400-40-03-.03(3), chronic value

³- Region 4 Ecological Risk Assessment Supplemental Guidance, March 2018, chronic value

⁴- EPA Drinking Water Standards and Health Advisories 2018

⁵- Most recent data for the constituent (date in parentheses)

⁶- To be measured only at upstream and downstream Sugar Creek locations

⁷- at pH = 7.5, temp = 15C

⁸- Used to determine criteria for certain metals

⁹- Set as total chromium

¹⁰- Acute level, chronic level not set

¹¹- Fluoride included in 2012 Monitoring Plan- not included in 2017 TDEC request

¹²- SW-2 located on SLLI property directly across road from Road Crossing, data collected in multiple events, April 2012

List of constituents is from TDEC December 7, 2017, response to draft Corrective Action Work Plan

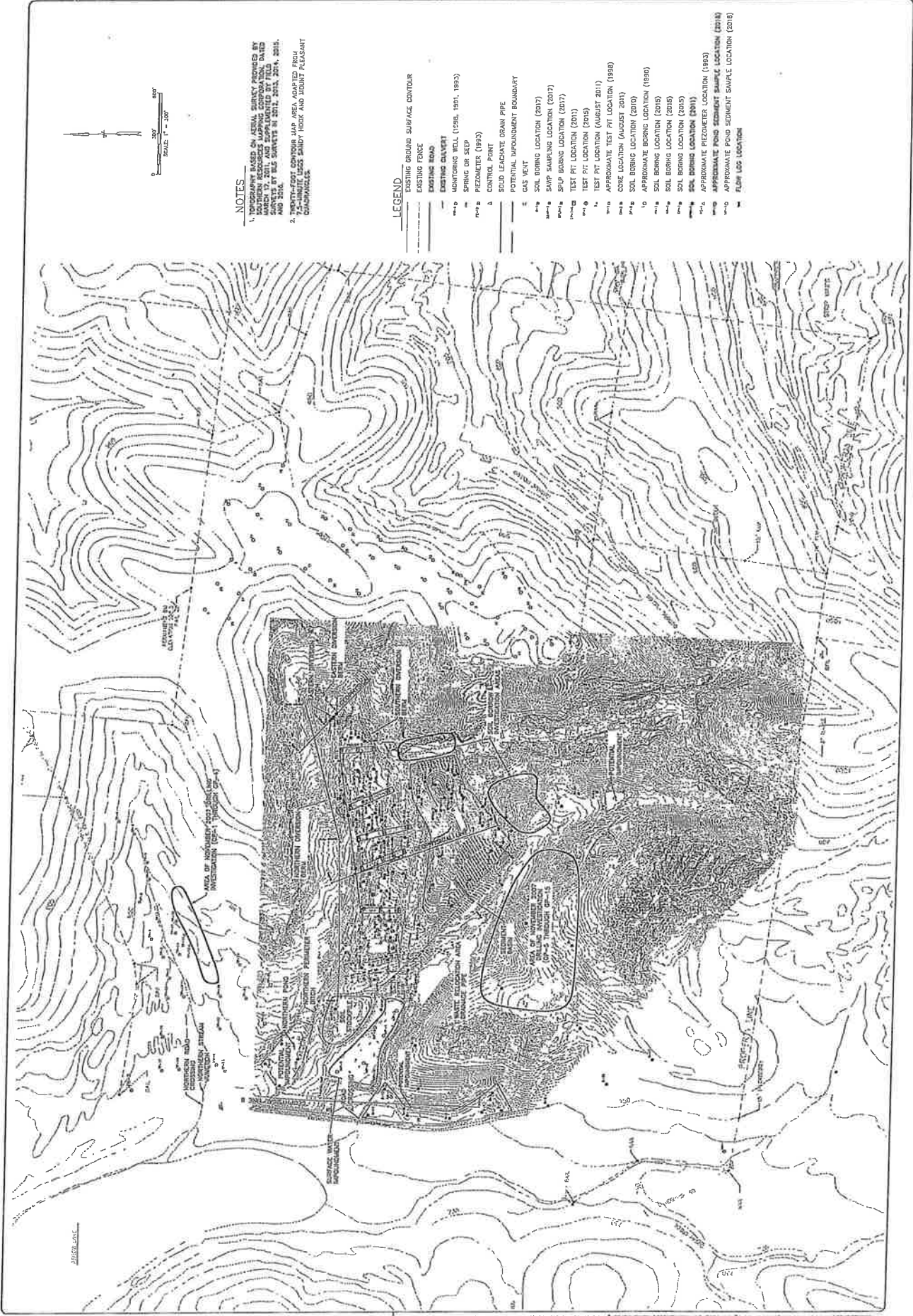
Parameter included in 2012 Monitoring Plan

TABLE 2
Soil Analytical Results
ACC Landfill: Maury County, Tennessee
27-Jul-17

Sample ID	Chloride (mg/Kg)	SPLP Chloride mg/L
SAWP- 2	4,850	NA
SAWP- 3	4,790	NA
SAWP- 4	7,030	NA
SAWP- 5	29,200	NA
SAWP- 6	28,900	NA
SAWP- 7	7,130	NA
SAWP- 8	4,440	NA
SAWP- 9	6,420	NA
SAWP- 10	8,910	NA
SAWP- 11	22,600	NA
SAWP- 12	655	NA
SAWP- 13	15,000	NA
SPLP- 14	913	43.1
SAWP- 15	3,090	NA
SAWP- 16	235	NA
SAWP- 17	5,570	NA
SAWP- 18	221	NA
SAWP- 19	1,040	NA
SAWP- 20	3,950	NA
SAWP- 21	1,900	NA
SAWP- 22	1,870	NA
SPLP- 2	12,700	663
SPLP- 3	2,920	149
SPLP- 4	12,200	551
SPLP- 5	3,520	279

FIGURES

NO.	REV.	REVISION	DATE



NOTES

1. TOPOGRAPHY BASED ON AERIAL SURVEY PROVIDED BY [Name] AND [Name] ON MARCH 17, 2011, AND SUPPLEMENTED BY FIELD DATA COLLECTED BY [Name] AND [Name] BY BLS SURVEYS IN 2012, 2014, 2014, 2015.
2. GEOLOGIC MAP OF MAURY COUNTY, TENNESSEE, 7.5-MINUTE QUAD SANDY HOOK AND MOUNT PLEASANT QUADSHAPES.

LEGEND

- EXISTING GROUND SURFACE CONTOUR
- EXISTING FENCE
- EXISTING ROAD
- EXISTING DRAINAGE
- MONITORING WELL (1998, 1991, 1993)
- SPRING OR SEEP
- PIEZOMETER (1993)
- CONTROL POINT
- SOLID LEACHATE DRAIN PIPE
- POTENTIAL IMPOUNDMENT BOUNDARY
- GAS VENT
- SOIL BORING LOCATION (2017)
- SAMP SAMPLING LOCATION (2017)
- SNIP BORING LOCATION (2017)
- TEST PIT LOCATION (2011)
- TEST PIT LOCATION (2015)
- TEST PIT LOCATION (AUGUST 2011)
- APPROXIMATE TEST PIT LOCATION (1998)
- COSE LOCATION (AUGUST 2011)
- SOIL BORING LOCATION (2010)
- APPROXIMATE BORING LOCATION (1995)
- SOIL BORING LOCATION (2015)
- SOIL BORING LOCATION (2015)
- SOIL BORING LOCATION (2011)
- APPROXIMATE PIEZOMETER LOCATION (1993)
- APPROXIMATE POND SEDIMENT SAMPLE LOCATION (2016)
- APPROXIMATE POND SEDIMENT SAMPLE LOCATION (2016)
- FLOW LOG LOCATION

DATE BY DATE	SCALE: 1"=200'
ACC LANDFILL	
PROJECT NO.	

PROPOSED SAMPLING LOCATION PLAN
 MAURY COUNTY, TENNESSEE

REV.	DATE	REVISION

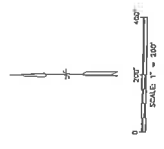


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NOTES

1. TOPOGRAPHY BASED ON AERIAL PHOTOGRAPHS BY SOUTHERN RESOURCES MAPPING CORPORATION, DATED 1998. ELEVATIONS AND SPACING OF CONTOUR LINES WERE VERIFIED BY FIELD SURVEYS BY TSC SURVEYORS IN 2003, 2004, 2005, 2006, AND 2008.
2. ADDITIONAL SOIL SAMPLING AND ANALYSIS WILL BE REQUIRED TO DETERMINE THE EXTENT OF IMPACTED SOIL BASED ON THE RESULTS OF THE INITIAL INVESTIGATION.



LEGEND

- Existing Ground Surface Contour
- Existing Fence
- Existing Road
- Existing Culvert
- BM-1-S
- Monitoring Well
- Landfill Standpipe
- Piezometer
- Control Point
- Soil Leachate Drain Pipe
- Gas Vent
- Proposed Sampling Location

APPENDIX 1
Surface Water Monitoring Plan

**SURFACE WATER MONITORING PLAN
ACC LANDFILL
MAURY COUNTY, TENNESSEE**

TriAD Project Number 97-SSI07-01

Prepared For:

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1.0 INTRODUCTION

This Surface Water Monitoring Plan (SWMP) is provided as part of the Corrective Action Work Plan (CAWP) for the ACC Landfill in Maury County, Tennessee (Site). The CAWP and this SWMP have been prepared in accordance with the requirements of the *Amended and Restated Consent Order* (ARCO) entered into by the Tennessee Department of Environment and Conservation (TDEC) and ACC, LLC (Case No. SWM11-0006, WPC11-0024, August 7, 2012); with the Consent Order (CO) entered into by TDEC and ACC, LLC (Case No. DOR 16-0010, SWM11-0006, WPC11-0024 issued November 23, 2016); with comments received in written and verbal form from TDEC, and with guidance documents issued by TDEC. This SWMP supplants a 2012 SWMP previously approved by TDEC and used during the remedial action at the Site from 2012 through 2018. The purpose of the SWMP is to serve as guidance for personnel performing surface water monitoring during implementation of the CAWP. Other elements of the monitoring program, such as continuous monitoring of flow, pH, conductivity, and temperature in the unnamed tributary as it leaves the Site at the Road Crossing, are described in the CAWP.

Included in this SWMP are the following:

- A brief description of the Site location and surface water setting;
- A description of the surface water monitoring points;
- Description of the proposed surface water monitoring program;
- A sampling and analysis plan that includes field and analytical methods and quality assurance/quality control (QA/QC) procedures needed to accomplish the required surface water monitoring at the Site; and
- Data evaluation and reporting requirements for surface water monitoring data.

Site surface water was monitored under a TDEC-approved *Water Monitoring Plan* (ERC Environmental and Energy Services Company, May 31, 1990) from 1993 to 2012. The plan was modified several times over the years, including modification to the parameter

list by TDEC on December 11, 1996, and by letters dated September 14, 1999, December 17, 1999, and February 11, 2000. The 2012 SWMP supplanted all previous plans, guidance, Orders, or directives upon approval of the 2012 Corrective Action Plan. These 2018 revisions to the SWMP have been made at the request of TDEC, primarily in letters dated December 7, 2017, and August 6, 2018, and will become effective upon approval of the CAWP. Should any conflicts arise between the CAWP and any other documents, the approved CAWP shall be the controlling document.

2.0 SITE LOCATION AND SURFACE WATER CONDITIONS

The Site is located in Maury County, Tennessee, just south of the City of Mt. Pleasant. The Site was previously strip-mined for phosphate, primarily in the 1960s, and was used from 1981 to 1993 as the location of an industrial landfill receiving inorganic process wastes from secondary smelting of aluminum at Smelter Service Corporation. This waste consisted primarily of aluminum salt cake with some baghouse dust and debris, and has since been relocated to a new landfill area on Site.

Surface water flow at and in the vicinity of the Site is within the watershed of Sugar Creek, which flows roughly south to north and is located west of the Site. Arrow Lake, located west and north of the Site, is an impoundment of Sugar Creek. There are two places where surface water exits active portions of the Site. The main flow point, henceforth referenced as "Road Crossing," receives drainage from the valley in which the landfill is located and the adjacent valley to the south. This drainage passes through a culvert under Arrow Mines Road downstream of the existing Site impoundments. A second flow point receives drainage from the valley to the north of the landfill, and also receives surface water flow from the north side of the landfill via the landfill ditch and a stock pond located northwest of the landfill. This second location, henceforth known as "Northern Road Crossing," also passes through a culvert under Arrow Mines Road approximately 1,050 feet north of the Road Crossing.

Where the surface water flow from the north side of the landfill via the landfill ditch and a stock pond enters North Stream will henceforth be referenced as “North Stream Junction.”

Surface water flow from the former and new landfill areas of the Site is currently collected in the surface impoundments between the landfill area and the road. During implementation of the CAWP, this area may be altered. The sampling location in the current large impoundment will henceforth be referenced as “Impoundment.”

Three new monitoring locations are being added to the surface water monitoring network, as follows:

- Sugar Creek upstream of the confluence of the unnamed tributary (located where Enterprise Road crosses Sugar Creek), to be known as “Sugar Creek Up”
- Sugar Creek before it crosses the southern boundary of the SLLI property, to be known as “Sugar Creek Mid”
- Sugar Creek as it exits Arrow Lake, to be known as “Sugar Creek Down”

3.0 SURFACE WATER MONITORING POINTS

Surface water monitoring for the Site will be performed at the monitoring points designated as Road Crossing, North Stream Junction, Northern Road Crossing, Impoundment, Sugar Creek Up, Sugar Creek Mid, and Sugar Creek Down. These locations are shown in Figure 1. The Road Crossing point generally represents the historical monitoring (pre-2012) performed at the “Road Crossing” point where the unnamed tributary enters the culvert under Arrow Mines Road, and the Impoundment point generally corresponds to the upstream “Weir” where the Site Stream flow formerly exited the wetland ponds.

Monitoring at these points will provide an assessment of water quality conditions in the unnamed tributary and the northern drainageway as they leave the Site, and conditions

in Sugar Creek both upstream and downstream of the confluence with the unnamed tributary.

4.0 SURFACE WATER MONITORING PROGRAM

The surface water monitoring program established by this SWMP is designed to meet the requirements of the CAWP in monitoring water flowing from the Site into Sugar Creek. The program is designed to monitor water quality conditions during implementation of the CAWP. It should be noted that as more data are gathered and evaluated it may become necessary to change the surface water monitoring program. Any such changes would be made only with approval of TDEC in accordance with the Order.

Waste disposed at the Site consists of inorganic byproducts from the recycling of aluminum. This byproduct is composed primarily of metal salts that evolve ammonia when in contact with water. The waste is well characterized and consists solely of inorganic compounds; consequently, only inorganic constituents will be analyzed during monitoring. Further, there are two decades of water monitoring data from the Site that allow further refinement of the list of constituents of concern. Therefore, the analytical indicator parameters for the surface water monitoring program will consist of the following:

- Ammonia
- Chloride
- Specific Conductivity (field measurement)
- Total Dissolved Solids

This list will be modified only by approval of TDEC. Other field parameters will be measured and recorded along with the indicator parameters during each monitoring event, including temperature, pH, turbidity, and dissolved oxygen.

To establish concentrations of all inorganic constituents listed in the Tennessee Water Quality Rules (Chapter 0400-40-03-.03), water from each monitoring point will be analyzed for the following list of constituents during the first monitoring event performed under the approved CAWP:

- Specific Conductivity (field measurement)
- pH (field measurement)
- Temperature (field measurement)
- Dissolved Oxygen (field measurement)
- TDS
- Chloride
- Ammonia
- Hardness
- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Calcium
- Chromium III
- Chromium VI
- Copper
- Iron
- Lead
- Magnesium
- Mercury
- Nickel
- Potassium
- Selenium

Silver
Sodium
Thallium
Zinc
NO₂-N
NO₃-N
Phosphorus
Cyanide
Chemical Oxygen Demand
Fluoride
Total Suspended Solids

The results of the initial monitoring event for the listed constituents will be used to determine whether any constituents other than the indicator parameters must be monitored on a routine basis. Constituents found at concentrations less than the Tennessee Water Quality Criteria (WQC) will be eliminated from future monitoring. TDEC will be consulted regarding the final list of analytes and the frequency of sampling.

The following monitoring points will be included in the surface water monitoring program:

Road Crossing
Northern Stream Junction
Northern Road Crossing
Impoundment
Sugar Creek Up
Sugar Creek Mid
Sugar Creek Down

Surface water samples will be collected from all surface-water locations on a monthly basis and analyzed for the indicator parameters listed in this section. Analytical results will be compared using regression analysis on an intrapoint basis to determine whether trends in constituent concentrations continue to decline. Sampling for additional parameters, if needed, will be performed on a schedule to be agreed upon with TDEC.

Flow measurements in the unnamed tributary will be made on a continuous basis in accordance with the procedure described in Section 4.4 of the CAWP. The flow measurements will be used to calculate stream loading at the Road Crossing based on a combination of analytical results (for TDS, chlorides, and ammonia) and conductivity measurements (for TDS and chlorides). In addition to flow, continuous measurements of pH, conductivity, temperature, and ammonia will be recorded at this location using instruments maintained and calibrated in accordance with manufacturer's instructions. A recording rain gauge is also in place at the Site.

In addition to the monitoring described above, every six months a sample will be collected from Road Crossing for use in toxicity testing. The toxicity testing will include both a Three-Brood Water Flea (*Ceriodaphnia dubia*) Survival and Reproduction Test and a Seven-Day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test. Testing and reporting will be in accordance with Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms (EPA-821-R-02-013, or most current edition), or as otherwise approved by TDEC.

At the conclusion of the CAWP implementation, the surface water monitoring program will be evaluated to determine whether it continues to meet regulatory objectives or whether modifications are needed. Any modifications must be approved by TDEC.

5.0 SURFACE WATER SAMPLING AND ANALYSIS

The following paragraphs describe the field activities required to accomplish the surface water sampling. All field activities will be recorded in a dedicated field notebook with permanently bound and sequentially numbered pages. Entries will be made in ink and will contain, at a minimum:

- Project number and facility name
- Date and time of the sampling event
- Names of personnel and their roles
- Weather and other field conditions
- Sampling locations
- Field measurements (pH, temperature, specific conductivity, turbidity)
- Description of sampling procedures
- Type and number of sample containers
- Description of any deviations from the sampling plan
- Description of extraordinary events or conditions and
- Incidents related to health and safety

The following sequence of activities will be performed at each sampling location:

- Don clean synthetic gloves
- Collect field parameter readings using calibrated field instruments
- Collect sample using the methodologies and specifications described below

To minimize the potential for cross-contamination, sampling will proceed from Sugar Creek Down to Sugar Creek Mid to Sugar Creek Up, to Northern Road Crossing to Northern Stream Junction to Road Crossing to Impoundment.

5.1 Sample Collection

Surface water samples will be collected by placing the laboratory-supplied sample container directly into the water being sampled. The sample container will be held so the opening is under the surface of the water with the opening pointing in the upstream direction, while avoiding loss of sample preservative. The samples will be collected and containerized in the following order for analysis of:

- TDS, Chloride, Fluoride
- Ammonia
- Metals

Measurements of pH, temperature, turbidity, specific conductivity, and dissolved oxygen will be recorded in the field. These readings will be obtained using portable, direct-reading, electronic instruments calibrated and maintained in accordance with manufacturer's instructions. To obtain a measurement the probes will be immersed either directly into the surface water flow or into a container holding a water sample that has been freshly removed from the flow.

To prevent cross contamination between sampling locations, all reusable sampling equipment that comes into direct contact with the water will be decontaminated prior to reuse. Decontamination will be performed by cleaning equipment with a non-phosphatic detergent and triple rinsing with distilled water. Personnel will don clean synthetic gloves before sampling each location.

5.2 Sample Preservation and Handling

Sample container and preservation requirements are provided in Table 1. Containers will be supplied by the analytical laboratory. Preservatives may be added to the containers beforehand by the laboratory or may be added in the field, as required. All samples will be stored and shipped in a cooler with ice as needed to maintain the appropriate temperature.

Table 1 Sample Containers and Preservation		
Parameter	Container	Preservation
TDS, Chloride, Fluoride, NO ₂ -N, NO ₃ -N	500 ml plastic	cool to 4° C
Ammonia, COD	125 ml plastic	H ₂ SO ₄ to pH < 2, cool to 4° C
Metals, hardness	250 ml plastic	HNO ₃ to pH<2, cool to 4° C
Cr ^{VI}	250 ml HDPE	cool to 4°C (24-hour hold)
TSS, phosphorus	1000 ml plastic	cool to 4° C
Cyanide	100 ml plastic	NaOH to pH >12, cool to 4°C

Each sample will be designated with a unique identification code that will be used throughout the sampling, analysis, and reporting process. Sample containers will be labeled with the following information:

- Sample identification number
- Project number
- Site name
- Date and time of collection
- Samplers' names
- Analysis requested
- Preservation information

Labels will be obtained from the laboratory and will be completed in waterproof ink and attached to the sample container. Each shipment or transport of containers to the laboratory will be accompanied by a completed chain-of-custody record that will contain the following information:

- Sample identification numbers
- Numbers of containers
- Sample type
- Requested analyses
- Date and time of collection

- Project name and number
- Signatures of persons involved in chain-of-possession, showing transfer of custody

A copy of the chain-of-custody will be kept with the project files.

5.3 Sample Analysis

Surface water samples will be analyzed for the parameters listed in Section 4. All analysis of constituents will be in accordance with approved methods and will provide reporting limits sufficient to detect constituents at the Tennessee Rule 0400-40-03-.05 reporting limits or the lowest practical quantization limit (PQL) that can be reliably achieved during routine laboratory procedures. Table 2 shows the methods to be used for analysis of surface water samples. Inorganic analyses will be reported as total recoverable concentrations. Equivalent or updated methods may also be used.

Table 2 Analytical Methods	
Parameter	Method
TDS	SM2540
Chloride, Ammonia, Fluoride, Cyanide, Phosphorus	SM4500
Metals	SW846 6000, 7000 series
Cr ^{VI}	SW 846 3060A/7199
TSS	SM2540
COD	SM5220
Hardness	SM2340

Analytical results, including the calculated reporting limits and results of any internal quality assurance and quality control measures, will be reported by the laboratory as part of their reporting package.

5.4 Quality Assurance and Quality Control

QA/QC will be ensured by following the field methods described in this SWMP and by analyzing the resulting samples in accordance with US EPA laboratory methods as specified in Section 5.3. A Field Blank (FB) and duplicate will be obtained during each sampling event and analyzed for constituents identical to those of the surface water samples. The duplicate will be obtained from the Road Crossing and will be labeled in a manner to prevent the laboratory from knowing it is a duplicate sample (e.g., "RC-1"). The FB will be completed near Road Crossing. The FB data will be used to diagnose any impact that Site environmental conditions have upon laboratory analysis of Site ground-water samples. The results of the duplicate sample will be compared to the Road Crossing sample to assess the precision of the laboratory analyses.

All samples will be analyzed using standard methods by a qualified commercial laboratory using such quality assurance/quality control as required by the methods.

6.0 RECORDKEEPING AND REPORTING

The owner/operator will maintain records of all surface water sampling activities performed at the Site throughout the active life of the landfill and the post-closure period. The records will be kept at the facility or at some other location in Tennessee as approved by TDEC.

Reports of monthly surface water monitoring activities and semi-annual toxicity testing will be prepared and transmitted to TDEC within 30 days of the end of each quarter.

These reports will include:

- A description of sampling activities and a summary of analytical results,
- A Site map showing sampling locations,
- Documentation of trend analyses, and
- Copies of the laboratory analytical data reports

FIGURE

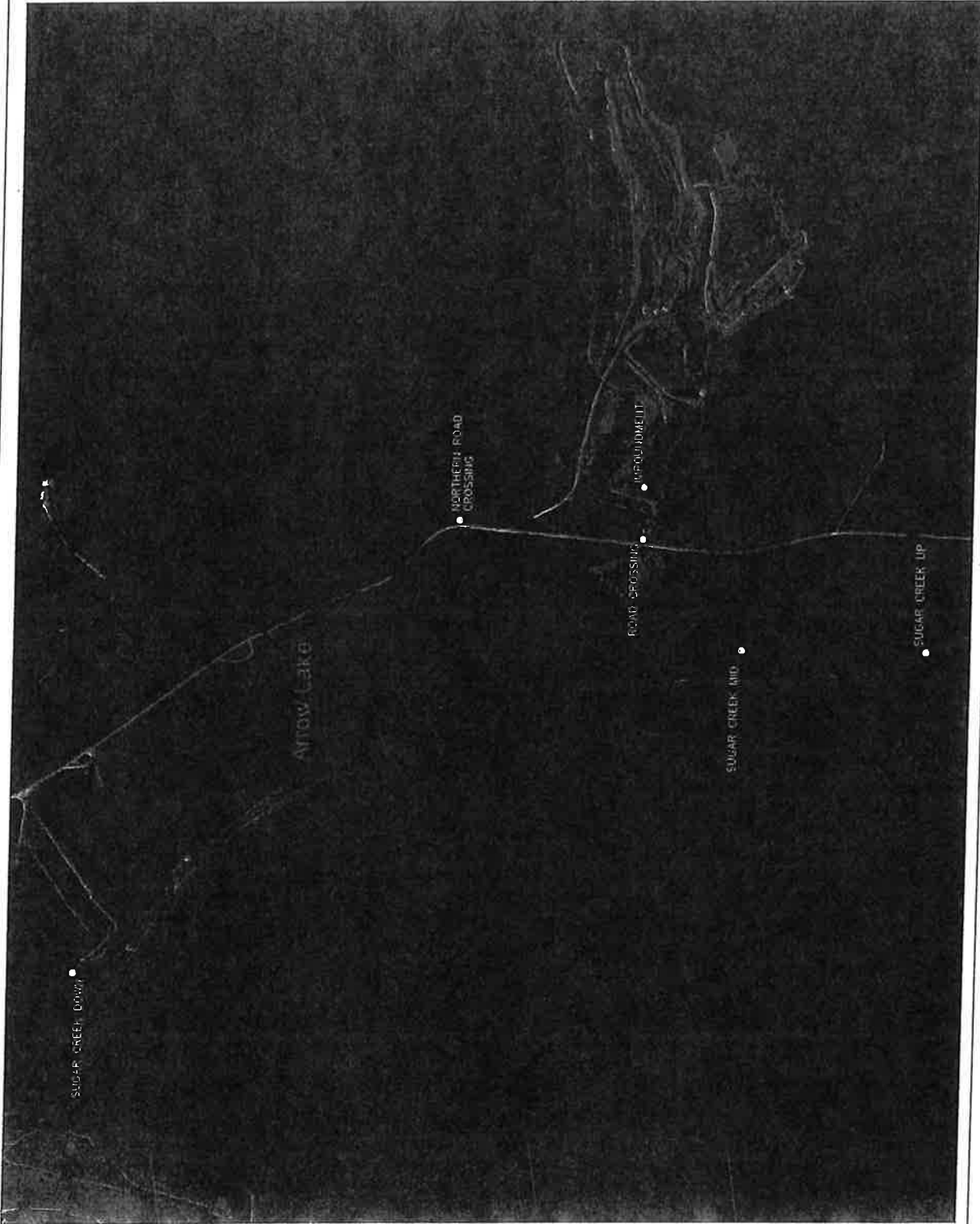



FIGURE 1
SURFACE WATER SAMPLING
LOCATIONS

ACC LANDFILL
 MAURY COUNTY, TENNESSEE

SCALE: 1" = 600'
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APPENDIX 2
Groundwater Monitoring Plan

**GROUNDWATER MONITORING PLAN
ACC LANDFILL
MAURY COUNTY, TENNESSEE**

TriAD Project No. 97-SSI07-01

Prepared For:

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Attachment

Attachment A: Well Construction Diagrams

1.0 INTRODUCTION

This Groundwater Monitoring Plan (GWMP) is provided as part of the Corrective Action Work Plan (CAWP) for the ACC Landfill in Maury County, Tennessee (Site). The CAWP and this GWMP have been prepared in accordance with the requirements of the *Amended and Restated Consent Order (ARCO)* entered into by the Tennessee Department of Environment and Conservation (TDEC) and ACC, LLC (Case No. SWM11-0006, WPC11-0024, August 7, 2012); with the Consent Order (CO) entered into by TDEC and ACC, LLC (Case No. DOR 16-0010, SWM11-0006, WPC11-0024 issued November 23, 2016); with Tennessee Rule Chapter 0400-11-01-.04, *Solid Waste Processing and Disposal*; with comments received from TDEC; and with the related guidance documents issued by TDEC's Division of Solid Waste Management (TDSWM). Upon completion of the corrective action, the groundwater monitoring network will be used to perform the required monitoring of the new landfill in accordance with Rule 0400-11-01-.04(7).

The purpose of the GWMP is to serve as guidance for personnel performing groundwater monitoring during implementation of the CAWP. Should any conflicts arise between the CAWP and any other documents, the approved CAWP shall be the controlling document.

Included in this GWMP are the following:

- A brief description of the Site location and hydrogeological setting;
- A description of the groundwater monitoring system;
- Descriptions of the proposed groundwater monitoring program;
- A sampling and analysis plan that includes field and analytical methods needed to accomplish the required groundwater monitoring at the Site; and
- Data evaluation and reporting requirements for groundwater monitoring data.

Site groundwater was monitored under a TDSWM-approved *Water Monitoring Plan* (ERC Environmental and Energy Services Company, May 31, 1990) until 2012. The plan was modified several times over the years, including additions to the groundwater monitoring well network and modifications to the parameter list by TDEC on December 11, 1996, and by letters dated September 14, 1999, December 17, 1999, and February 11, 2000. This earlier plan was replaced in 2012 by a new plan, as required by the ARCO. These 2018 revisions to the GWMP (this document) include modifications to the groundwater monitoring network requested by TDEC in letters dated September 16, 2016, February 3, 2017, December 7, 2017, August 6, 2018, and in discussions regarding the Site on June 21, 2016, February 17, 2017, and September 24, 2018. A previous plan, titled *Changes to Groundwater Monitoring Network* and submitted to TDEC on April 19, 2017, August 2, 2017, and January 31, 2018, was approved by TDEC on September 27, 2018 – this revision includes the changes proposed in that document. This revised GWMP will supplant all previous plans and become effective upon approval of the CAWP.

2.0 SITE LOCATION AND HYDROGEOLOGIC CONDITIONS

The Site is located in Maury County, Tennessee, just south of the City of Mt. Pleasant. The Site was previously strip-mined for phosphate, primarily in the 1960s, and was used from 1981 to 1993 as the location of an industrial landfill receiving inorganic process wastes from secondary smelting of aluminum at Smelter Service Corporation. This waste consisted primarily of aluminum salt cake with some baghouse dust and debris.

According to the Geologic Map of the Sandy Hook Quadrangle (1966) the landfill lies within the outcrop zones of the Bigby-Cannon Limestone and the Hermitage Formation. The Bigby is a medium- to coarse-grained, cross-bedded limestone that weathers to a silty, brown phosphate-rich soil. Beneath the Bigby is the Hermitage Formation, an argillaceous limestone that acts as a regional aquiclude, although the thin (less than 5 feet) upper bed of the Hermitage, known as the *dalmanella coquina*, does weather to produce a permeable zone. The contact between the Bigby and Hermitage is shown on

the geologic map at an elevation of approximately 740 feet above mean sea level (MSL). However, Site-specific investigations have shown that the contact is in fact higher than that, near an elevation of 800 feet MSL in the eastern half of the landfill and likely dipping gently to the southwest. The landfill was constructed in a valley in which the Hermitage forms the base and lower side slopes and the Bigby forms the upper side slopes. Above the Bigby, east of the landfill, are found the limestones of the Liepers and Catheys Formations, with the ridge to the east capped by the Fort Payne Formation, which is hydraulically isolated from the Leipers and Catheys by the Chattanooga and Maury Shales.

Site overburden has been significantly reworked during mining activities and consists principally of a medium brown to yellow-brown silty, sandy clay. The thickness of the silty clay at the Site is quite variable, ranging from 0 to approximately 20 feet.

Groundwater flow has been observed at the top of rock and within the rock in secondary porosity, including fractures and solution features. Groundwater recharge occurs along the upper portions of the valley in which the landfill is located, where surface runoff enters the overburden and bedrock of the Bigby. Groundwater then flows down the valley, along the top of rock and within the fractures and solution features of the Bigby and at the top of rock and in the upper portion of the Hermitage. Springs and seeps are located west and downgradient of the landfill, including Site Spring, which is just downgradient of the western toe of the landfill. Previous investigations resulted in estimates of the rate of groundwater flow through the overburden soils to be approximately 3.0×10^{-6} cm/sec (3.1 ft/year).

3.0 GROUNDWATER MONITORING SYSTEM

The groundwater monitoring system for the Site consists of one upgradient well (MW-2) and six downgradient wells (MW-3, MW-4, MW-5, MW-6, MW-7, and MW-8). The well locations are shown in Figure 1. Well MW-1 was abandoned during construction of the wetlands, and was removed from the monitoring network in a December 17, 1999, letter

from TDSWM. Wells MW-4 and MW-6 are frequently dry and have not been sampled on a regular basis. Even though it has been routinely monitored, wells MW-7 and MW-8 are far removed from both the landfill and the groundwater contaminant plume and have never exhibited evidence of impact from the landfilled wastes.

The downgradient Site wells are constructed to monitor the shallow groundwater at the soil-bedrock interface. The bedrock in this area is the Hermitage Formation, which typically does not yield significant quantities of groundwater and is generally considered to be an aquitard, mostly preventing downward migration of groundwater. Therefore, the only saturated zone that has been impacted by Site constituents and that is monitorable is the thin, saturated zone at the top of rock.

Although monitoring well MW-6 is outside the area impacted by the former landfill, it has been routinely monitored and its location is appropriate for monitoring, particularly for the new landfill. Well MW-6 was constructed so that the bottom of the well screen is a few inches above the top of rock. In times of low water, the bottom of the well screen may actually be above the water table, making it impossible to obtain a sample. As requested by TDEC, the existing well MW-6 will be abandoned and replaced by a well screened across the soil-bedrock interface.

Monitoring well MW-4 is located near the edge of the area impacted by the former landfill, and data from MW-4 have shown significant decreases in chloride, ammonia, and TDS concentrations over the course of the Site remedial action, with no exceedance of drinking water standards as of 2015. Further, MW-4 is not positioned to intercept groundwater flow from the new landfill, located as it is in the northern valley rather than the central or southern valleys at the Site. MW-4 was constructed so that the well screen enters the upper bedrock, creating a situation in which the screen fully penetrates the saturated zone. When MW-4 is dry, it means there is insufficient groundwater in the saturated zone to allow sampling. Nevertheless, at the request of TDEC officials, a potential replacement for MW-4 will be installed in the same vicinity

and constructed to penetrate the top-of-rock aquifer. The potential replacement will be monitored for water level to determine whether it will be a more reliable monitoring point, and will be incorporated into the monitoring system if it is more reliable than the existing MW-4.

As requested in discussions with TDEC officials, two new monitoring wells, MW-9 and MW-10, will be installed at the locations shown on Figure 1. MW-9 will be constructed just west of the new landfill, near the nose of the ridge that extends from the landfill toward the Site Spring. The location for MW-10 will be determined by investigating the area south of MW-5 to determine the best location to define the horizontal extent of groundwater impact in that direction. The investigation may include digging test pits to the top of rock so that the conductivity of the groundwater can be measured. A series of such test pits should allow determination of the approximate extent of chloride impact and therefore allow determination of the best location for the monitoring well.

The new and replacement wells will be screened across the soil-bedrock interface. Once completed, the replacement well MW-6 and wells MW-9 and MW-10 will be included in the routine groundwater monitoring events.

All groundwater monitoring wells were and will be installed by a licensed Tennessee driller in compliance with applicable guidance. Well construction diagrams for existing wells are presented in Attachment A, and construction diagrams for the new wells will be included in an addendum to this GWMP upon completion.

4.0 GROUNDWATER MONITORING PROGRAM

The groundwater monitoring program established by this GWMP is designed to allow determination of the effectiveness of the Site corrective action. The goal of the corrective action is to reduce to background concentrations the concentration of waste constituents in groundwater. Documenting trends in the concentration of waste constituents is therefore the goal of the groundwater monitoring program. It should be

noted that as more data are gathered and evaluated, it may become necessary to change the groundwater monitoring program. Any such changes would be made only by agreement between ACC and TDEC.

Waste disposed at the Site consists of inorganic byproducts from the recycling of aluminum. This byproduct is composed primarily of highly soluble metal salts that evolve ammonia when in contact with water. The waste is well characterized and consists solely of inorganic compounds; consequently only inorganic constituents will be analyzed during monitoring. Further, there are over two decades of groundwater monitoring data from the Site that allow further refinement of the list of constituents of concern. Therefore, the analytical parameters for the corrective action monitoring program will consist of the following:

- Ammonia
- Chloride
- Fluoride
- Nitrate
- Specific Conductivity (field measurement)
- Total Dissolved Solids
- Aluminum
- Barium

This list will be modified only by approval of TDEC. Such modification may be made as monitoring results demonstrate reductions in constituent concentrations to levels at which they pose no risk to human health or the environment.

The following wells will be included in the corrective action monitoring:

- MW-2
- MW-3

MW-4 or 4R

MW-5

MW-6R

MW-9

MW-10

Until a change in the schedule is approved by TDEC, each well will be sampled on a quarterly basis with each sample analyzed for the parameters listed in this section. Analytical results will be compared to historical groundwater results using regression analysis on an intrawell basis, using pre-corrective-action data as the baseline. The regression analysis will be used to determine whether trends in constituent concentrations can be detected. The groundwater monitoring program will be continually evaluated to determine whether it continues to meet regulatory objectives or whether modifications are needed. Any modifications must be approved by TDEC.

Upon completion of the corrective actions, the groundwater monitoring network will be converted to use in a groundwater monitoring program for the new landfill, with a monitoring plan developed in accordance with Tennessee Rule 0400-11-01-.04(7).

5.0 MONITORING WELL INSTALLATION AND DEVELOPMENT

The following subsections describe the methods to be used in drilling, constructing, developing, and surveying the wells. The methods used are in general accordance with the U.S. Environmental Protection Agency Region 4 Science and Ecosystem Support Division guidance document, *Design and Installation of Monitoring Wells*, February 18, 2008.

5.1 Drilling Operations

Drilling will be performed by a Tennessee-licensed well driller under the supervision of a Tennessee-registered professional geologist, or a person under the direct supervision of a professional geologist, who will log the retrieved drill cuttings. The boreholes for the

wells will be drilled using hollow-stem auger and air-rotary methods. At each location, an approximate 6-inch diameter boring will be drilled to the target depth, which will be a minimum of 2 feet into the bedrock.

5.2 Well Construction

Monitoring wells will be constructed of 2-inch-diameter, schedule 40 PVC screens and risers. Screens will be factory slotted with 0.01-inch slots. Screen length is proposed to be 10 feet, unless the depth of the well is less than 15 feet, in which case a screen length of 5 feet may be used. Longer screens will not be used without verbal consultation with TDEC officials. Unless obtained wrapped from the manufacturer (and thus presumed clean), the screen and riser sections will be decontaminated before installation by pressure washing with potable water. The filter pack will consist of clean silica sand, of 20-40 or equivalent size grade. Approximately 6 inches of filter pack sand will be placed into the borehole prior to setting the well. The filter pack will extend a minimum of 2 feet above the top of the screen. Above the filter pack will be placed a minimum 2-foot-thick bentonite seal, hydrated as necessary prior to installation of a cement-bentonite grout in the remaining annular space.

After grouting, the well will be allowed to set for about 24 hours prior to completion of the surface pad and protective casing, which for each monitoring well will consist of a steel stick-up, lockable security casing set in an approximately 2-foot by 2-foot concrete pad. Substantial posts (bollards) will be set around the stick-up casings to protect them from vehicle traffic. These posts shall be a minimum of 5 feet long, with 2 feet below ground surface. Wells will be marked with permanent identification numbers either on the stick-up security casing or the concrete pad.

5.3 Well Development

Each well will be developed to remove residual well-construction materials (e.g., fine sediment and drilling fluids) and to re-establish the natural hydraulic flow condition of the formation. Well development will be performed via bailing, pumping, or surging until

the removed water is free of visible sediment and at least three sequential field measurements of pH, conductivity, temperature, and turbidity have stabilized within 10 percent.

5.4 Equipment Decontamination

The drill rig and any down-hole drilling tools will be decontaminated prior to mobilizing to the Site and prior to drilling each boring by steam cleaning/pressure washing using potable water.

Non-disposable well development equipment will be decontaminated between uses by washing thoroughly using a laboratory detergent (e.g., Alconox) and water solution, using a brush to remove any particulate matter or surface film. The equipment will then be rinsed thoroughly using potable water, then distilled water, then allowed to air dry as long as possible. Cleaned equipment will be wrapped in new, disposable plastic wrap between uses.

5.3 Surveying of Wells

After completion of installation, the well and piezometer top-of-casing elevations will be surveyed to the nearest 0.01 foot by a Tennessee registered land surveyor. The surveyor will also horizontally locate the wells and piezometers to the nearest 0.1 foot. All survey data will be referenced to the on-Site benchmark to allow comparison of elevations and locations to existing surveys.

6.0 GROUNDWATER SAMPLING AND ANALYSIS

The following paragraphs describe the field activities required to accomplish the groundwater sampling. All field activities will be recorded in a dedicated field notebook with permanently bound and sequentially numbered pages. Entries will be made in ink and will contain, at a minimum:

- Project number and facility name
- Date and time of the sampling event
- Names of personnel and their roles
- Weather and other field conditions
- Sampling locations
- Field measurements (pH, temperature, specific conductivity, turbidity)
- Description of sampling procedures
- Type and number of sample containers
- Description of any deviations from the sampling plan
- Description of extraordinary events or conditions and
- Incidents related to health and safety

The following sequence of activities will be performed at each well:

- Unlock and inspect well
- Don clean synthetic gloves
- Measure and record depth to water to nearest one-hundredth of a foot from top-of-well casing
- Purge well using the methodologies and specifications described below
- Collect sample using the methodologies and specifications described below
- Close and lock well

Unless all dedicated equipment is used, the potential for cross-contamination will be minimized by sampling the upgradient well (MW-2) first.

6.1 Well Purging

Prior to purging or sampling, the water level in and the depth of each well will be measured and recorded. Well volumes will be determined by subtracting the depth to groundwater from the total depth of the well. The total depth will be used to calculate

the total approximate volume of water in the 2-inch diameter well by the following formula:

$$V = (\text{depth of well} - \text{depth of water}) \times 0.163$$

Where:

V = volume of water in gallons

Depth of well = distance in feet from top of casing to static water level

0.163 = gallons per linear foot of 2-inch casing

The water level and well depth will be measured using a pre-cleaned and calibrated electronic water level indicator.

No immiscible layers are expected. Therefore, each monitoring well will be purged prior to sampling to remove stagnant water from the casing and draw a representative sample from the aquifer. Unless an approved low-flow purge method is used, each well will be purged until a minimum of three well volumes have been removed and three consecutive readings of pH, temperature, and specific conductivity have met the following criteria:

- pH: = ± 0.1 Standard Units
- Temperature: ± 0.5 °C
- Specific Conductivity: $\pm 10\%$
- Turbidity: < 50 NTU

Purging will be performed using either dedicated plastic tubing and a peristaltic pump, dedicated bladder pumps, or disposable polyethylene bailers. The rate of purging will be regulated to minimize agitation of the groundwater and to prevent the well from going dry, if possible. If a well is purged dry, purging will be considered complete.

6.2 Sample Collection

Groundwater samples obtained from wells will be collected as soon as possible after purging or within 24 hours. For rapidly recovering wells, it is recommended that the time interval between well evacuation and sampling is considerably less than 24 hours. Samples will be collected using dedicated bladder pumps or disposable polyethylene bailers. Groundwater samples will be collected and containerized in the following order for analysis of:

- Metals
- TDS, Chloride, and Fluoride
- Ammonia
- Nitrate-Nitrite

Measurements of pH, temperature, and specific conductivity will be recorded in the field. These readings will be obtained using a portable, direct-reading, electronic instrument equipped with remote probes. To obtain a measurement the probes will be immersed in a container holding a water sample that has been freshly removed from the well. Turbidity measurements will also be recorded in the field using a portable turbidity meter.

To prevent cross contamination between sampling locations, all reusable sampling equipment, (i.e., water-level indicator, etc.), which comes into direct contact with the groundwater will be decontaminated prior to reuse. Decontamination will be performed by cleaning equipment with a non-phosphatic detergent and triple rinsing with distilled water. Personnel will don clean synthetic gloves before purging and sampling each well.

6.3 Sample Preservation and Handling

Sample container and preservation requirements are provided in Table 1. Containers will be supplied by the analytical laboratory. Preservatives may be added to the containers beforehand by the laboratory or may be added in the field, as required. All

samples will be stored and shipped in a cooler with ice as needed to maintain the appropriate temperature.

Parameter	Container	Preservation
Metals	250 ml plastic	HNO ₃ to pH <2, cool to 4° C
TDS, Chloride, Fluoride	500 ml plastic	cool to 4° C
Ammonia	125 ml plastic	H ₂ SO ₄ to pH < 2, cool to 4° C
Nitrate-Nitrite	125 ml plastic	cool to 4° C

Each sample will be designated with a unique identification code that will be used throughout the sampling, analysis, and reporting process. Sample containers will be labeled with the following information:

- Sample identification number
- Project number
- Date and time of collection
- Samplers' names
- Analysis requested
- Preservation information

Labels will be obtained from the laboratory and will be completed in waterproof ink and attached to the sample container. Each shipment or transport of containers to the laboratory will be accompanied by a completed chain-of-custody record that will contain the following information:

- Sample identification numbers
- Numbers of containers
- Sample type
- Requested analyses
- Date and time of collection
- Project name and number

- Signatures of persons involved in chain-of-possession, showing transfer of custody

A copy of the chain-of-custody will be kept with the project files.

6.4 Sample Analysis

Groundwater samples will be analyzed for the inorganic parameters listed in Section 4. All analysis of constituents will be in accordance with approved methods and will provide detection limits sufficient to detect constituents at the maximum contaminant levels specified in Appendix III to Rule 0400-11-01-.04(7) or the lowest practical quantization limit (PQL) that can be reliably achieved during routine laboratory procedures. Table 2 shows the methods to be used for analysis of ground-water samples. Equivalent or updated methods may also be used.

Parameter	Method
Metals	SW846 6000/7000 Series
TDS	SM2540
Chloride	SM4500
Fluoride	SM4500
Ammonia	SM4500
Nitrate-Nitrite	SM4500

Analytical results, including the calculated reporting limits and results of any internal quality assurance and quality control measures, will be reported by the laboratory as part of their reporting package.

6.5 Quality Assurance and Quality Control

QA/QC will be ensured by following the procedures outlined in this GWMP and by analyzing samples in accordance with US EPA methods by a qualified commercial laboratory. A Field Blank (FB) will be obtained during each sampling event and analyzed for constituents identical to those of the groundwater monitoring wells. The

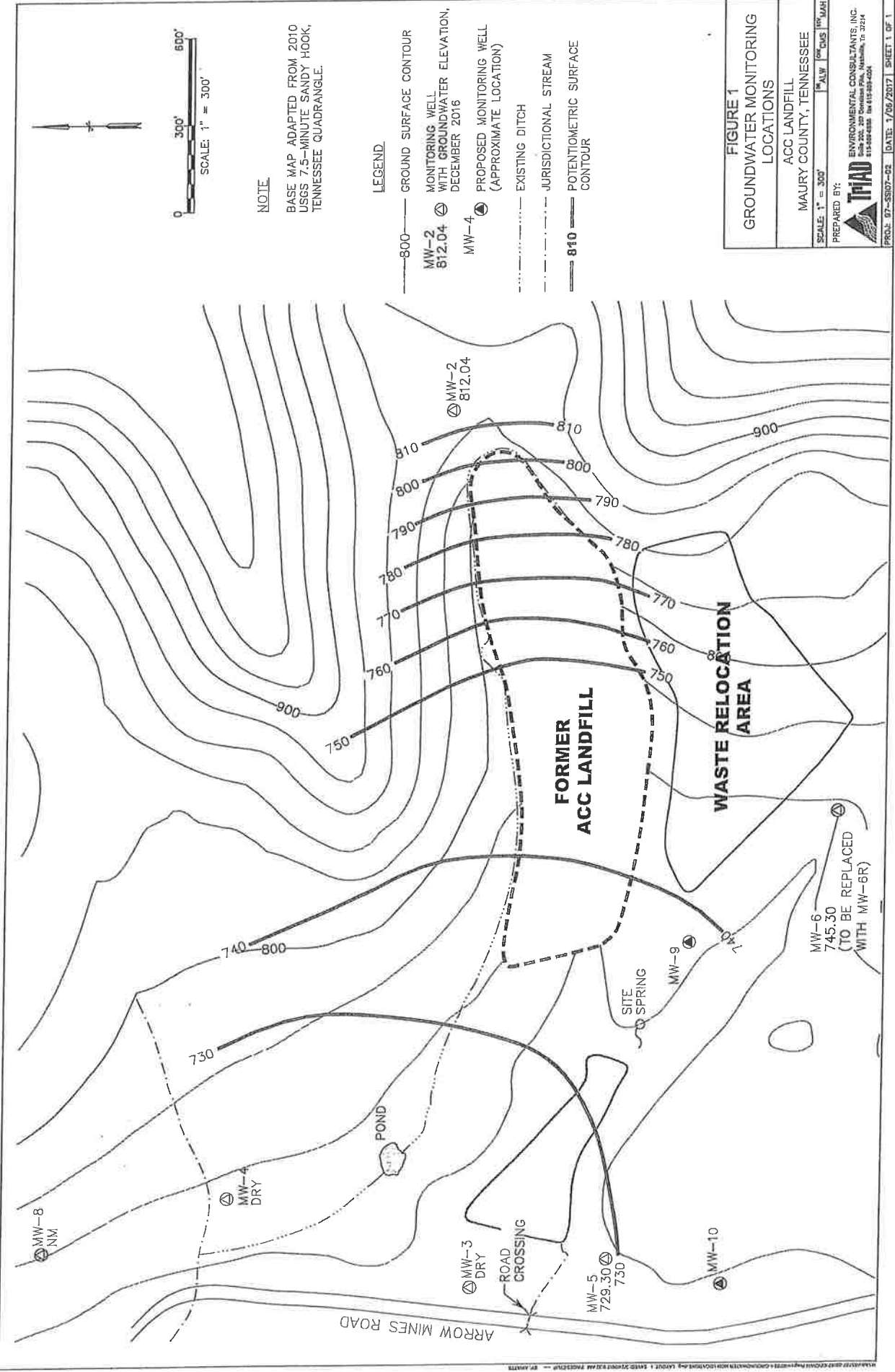
FB will be completed near MW-3 or MW-5. This data will be used to diagnose any impact that Site environmental conditions have upon laboratory analysis of groundwater samples.

7.0 RECORDKEEPING AND REPORTING

The owner/operator will maintain records of all groundwater sampling activities performed at the Site throughout the active life of the landfill and the post-closure period. The records will be kept at the facility or at some other location in Tennessee as approved by the TDEC. Reports of quarterly groundwater monitoring activities will be prepared and transmitted to TDEC within 60 days of the completion of each quarterly monitoring event. These reports will include:

- A description of sampling activities, groundwater flow direction and gradient, and a summary of analytical results
- A table showing potentiometric surface elevations
- A Site map showing potentiometric surface contours of groundwater and flow direction; sampling locations and their respective potentiometric elevations
- documentation of trend analyses, and
- copies of the laboratory analytical data report

FIGURE

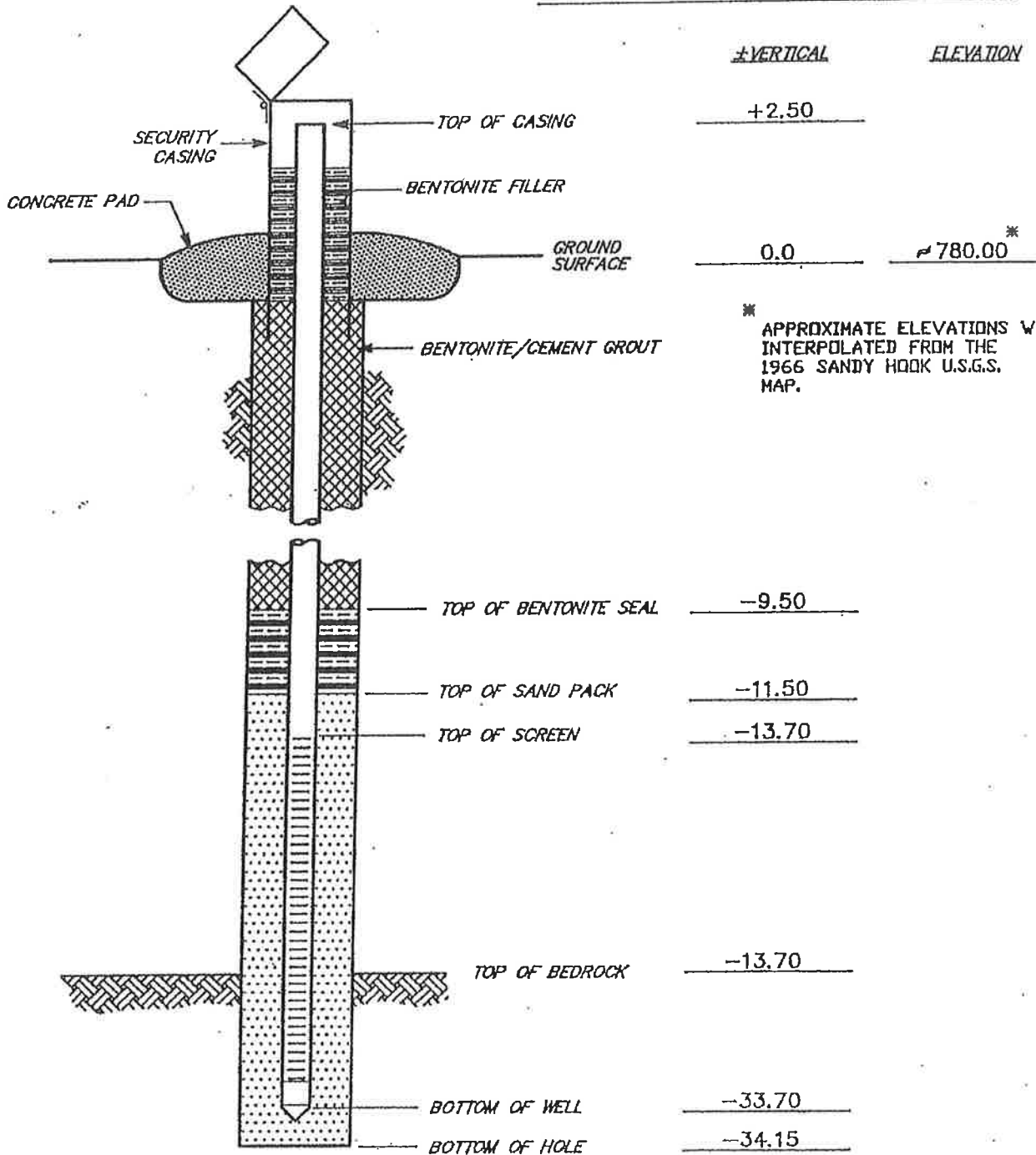


ATTACHMENT A



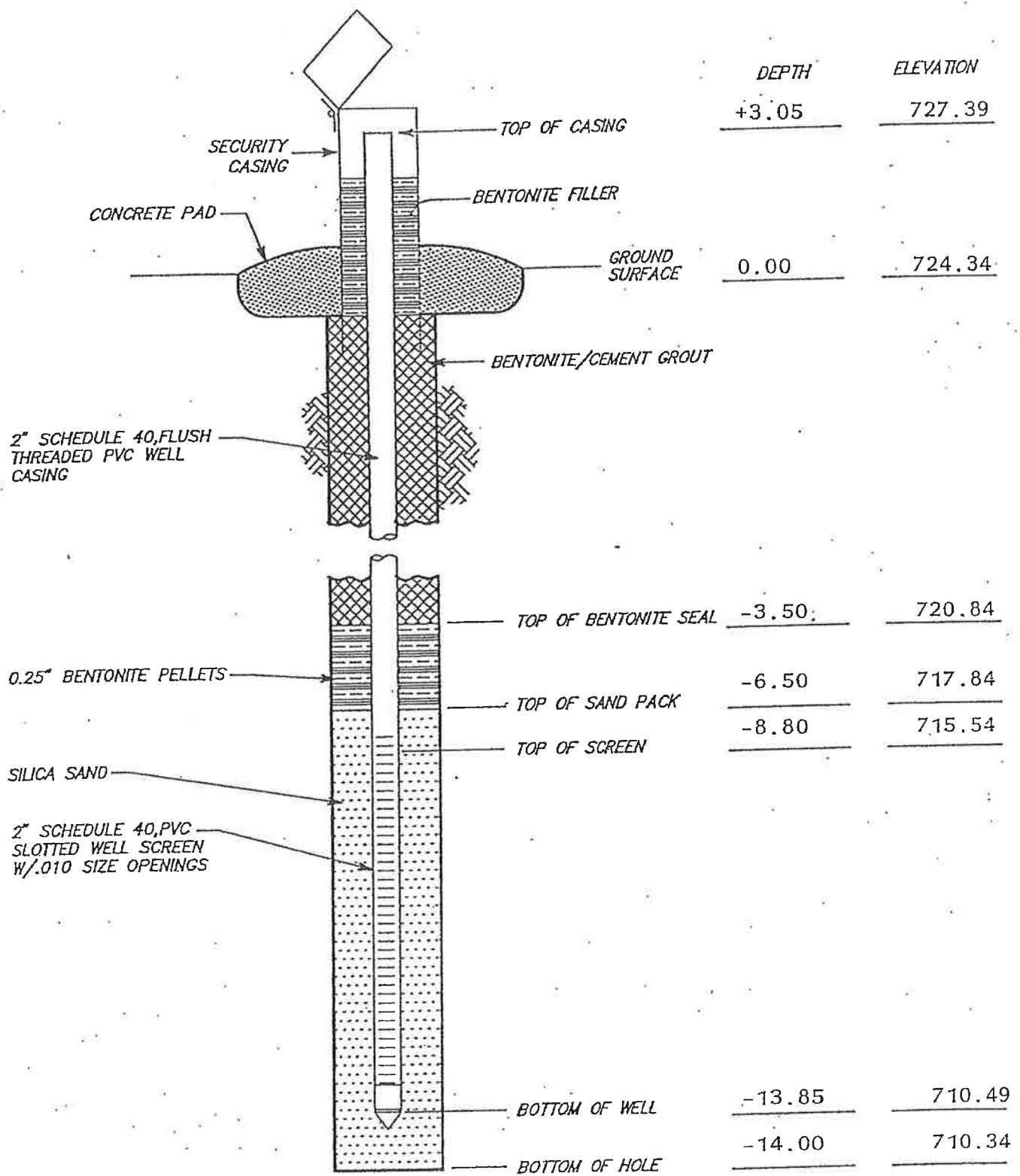
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 ERG ENVIRONMENTAL AND ENERGY SERVICES CO.

PROJECT ASSOCIATED COMMODITIES CORPORATION MONITORING WELL NO. 2
 PROJECT NO. A404-001 INSTALLATION DATE 5/20/88
 WELL LOCATION UPGRADIENT



* APPROXIMATE ELEVATIONS WE:
 INTERPOLATED FROM THE
 1966 SANDY HOOK U.S.G.S.
 MAP.

PRODUCTION RATE DURING DEVELOPMENT: [0.11] GALLONS PER HOUR
 STATIC WATER LEVEL ★ ⊙ -30.55 ELEV. ≈ 749.00 DATE 5/27/88



NOTE
 GROUND SURFACE ELEVATIONS ARE BASED ON THE APPROXIMATE SURFACE ELEVATION OF MW-1.

ERCE
Southeast Region

ENVIRONMENTAL DIVISION
NASHVILLE, TENNESSEE

DRILLING LOG OF BORING NO. 3
SHEET 1 OF 1

PROJECT Associated Commodities Corporation
PROJECT NO. 05501302 DATE 4.4-91
BORING LOCATION _____

DRILLER R. Ford
HELPER M. Rittenberry
GEOLOGIST B. McCabe
RIG B-47

SURFACE ELEVATION ≈ 724.34
REFUSAL DEPTH 14.0 ELEV ≈ 710.34
FOOTAGE SAMPLED 14.0
TOP OF ROCK DEPTH 14.0 ELEV ≈ 710.34
BEGAN CORING DEPTH _____ ELEV _____
FOOTAGE CORED _____
BOTTOM OF HOLE DEPTH 14.0 ELEV ≈ 710.34

WATER LEVEL DATA
COMPLETION: DEPTH 11.14 ELEV ≈ 712.94
AFTER _____ HRS: DEPTH _____ ELEV _____
LDW AT: DEPTH _____ ELEV _____

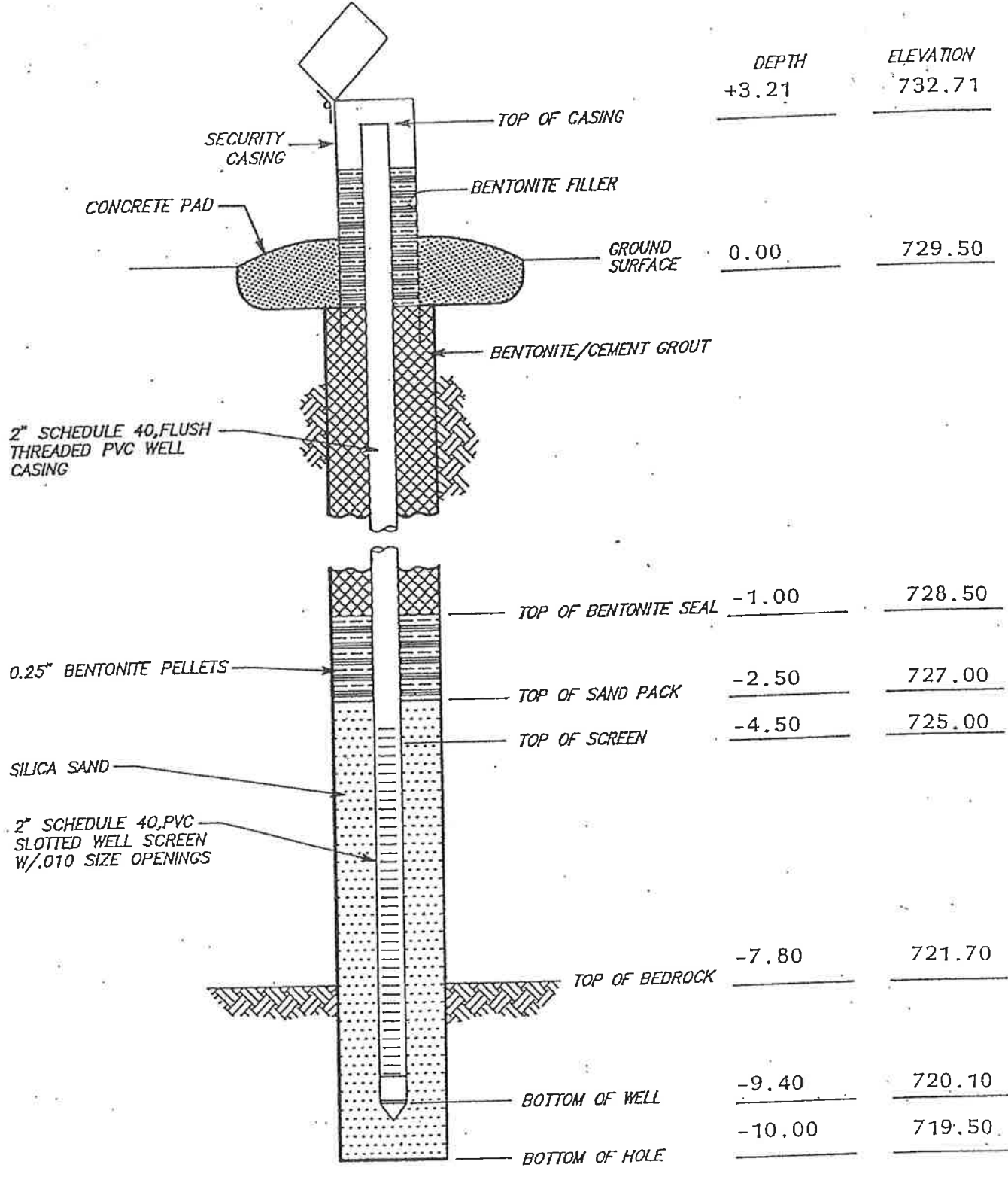
WATERBORNE
WATER SURFACE ELEVATION _____ DEPTH OF WATER 11.14
GROUND ELEVATION _____

(X) POWER AUGER () WASHBORED

SAMPLE NO.	DEPTH		BLOW COUNTS	DESCRIPTIONS AND REMARKS
	FROM	TO		
Auger	0.0	2.5		0.0-1.0 Clay, slightly silty, brown
				1.0-2.5 Clay, slightly silty, reddish-brown
1	2.5	4.0	7/6/7	Clay, slightly silty, reddish-brown, chert
Auger	4.0	5.0		Clay, slightly silty, reddish-brown, chert
2	5.0	6.5	6/7/2	5.0-5.5 Clay, slightly silty, reddish-brown, chert
				5.5-6.5 Clay, slightly silty, yellowish-brown with small chert fragments
Auger	6.5	7.5		Clay, slightly silty, yellowish-brown with small chert fragments
3	7.5	9.0	7/9/15	Clay, slightly silty, yellowish-brown with small chert fragments
Auger	9.0	10.0		Clay, slightly silty, yellowish-brown with small chert fragments, waxy appearance
4	10.0	11.5	5/5/6	Clay, slightly silty, yellowish-brown with small chert fragments, waxy appearance
Auger	11.5	12.5		Clay, slightly silty, yellowish-brown with small chert fragments, waxy appearance
5	12.5	14.0	5/14/50	Clay, slightly silty, yellowish-brown with small chert fragments, waxy appearance, saturated
				Refusal at 14.0 feet
				Bottom of Hole at 14.0

PULL NO.	DEPTH	RAN	REC'D	LOSS	GAIN	DESCRIPTIONS AND REMARKS

* NUMBER OF BLOWS PER 6" INTERVALS, TO DRIVE 1-3/8 I.D., 2" O.D. SPLIT SAM. - 14" 140 POUND HAMMER FALLING 30 INCHES.



NOTE
 GROUND SURFACE ELEVATIONS ARE BASED ON THE APPROXIMATE SURFACE ELEVATION OF MW-1.

ERCE
Southeast Region

ENVIRONMENTAL DIVISION
NASHVILLE, TENNESSEE

DRILLING LOG OF BORING NO. 4
SHEET 1 OF 1

PROJECT Associated Commodities Corporation
PROJECT NO. 05501302 DATE 4-3-91
BORING LOCATION _____

DRILLER R. Ford
HELPER M. Rittenberry
GEOLOGIST B. McCabe
RIG _____

SURFACE ELEVATION ≈ 729.50
REFUSAL DEPTH 7.8 ELEV ≈ 721.70
FOOTAGE SAMPLED 7.8
TOP OF ROCK DEPTH 7.8 ELEV ≈ 721.70
BEGAN CORING DEPTH 7.7 ELEV ≈ 721.80
FOOTAGE CORED 2.3
BOTTOM OF HOLE DEPTH 10.0 ELEV ≈ 719.50

COMPLETION: WATER LEVEL DATA
AFTER _____ HRS: DEPTH 1.5 ELEV ≈ 728.00
LDWAT: DEPTH _____ ELEV _____
DEPTH _____ ELEV _____

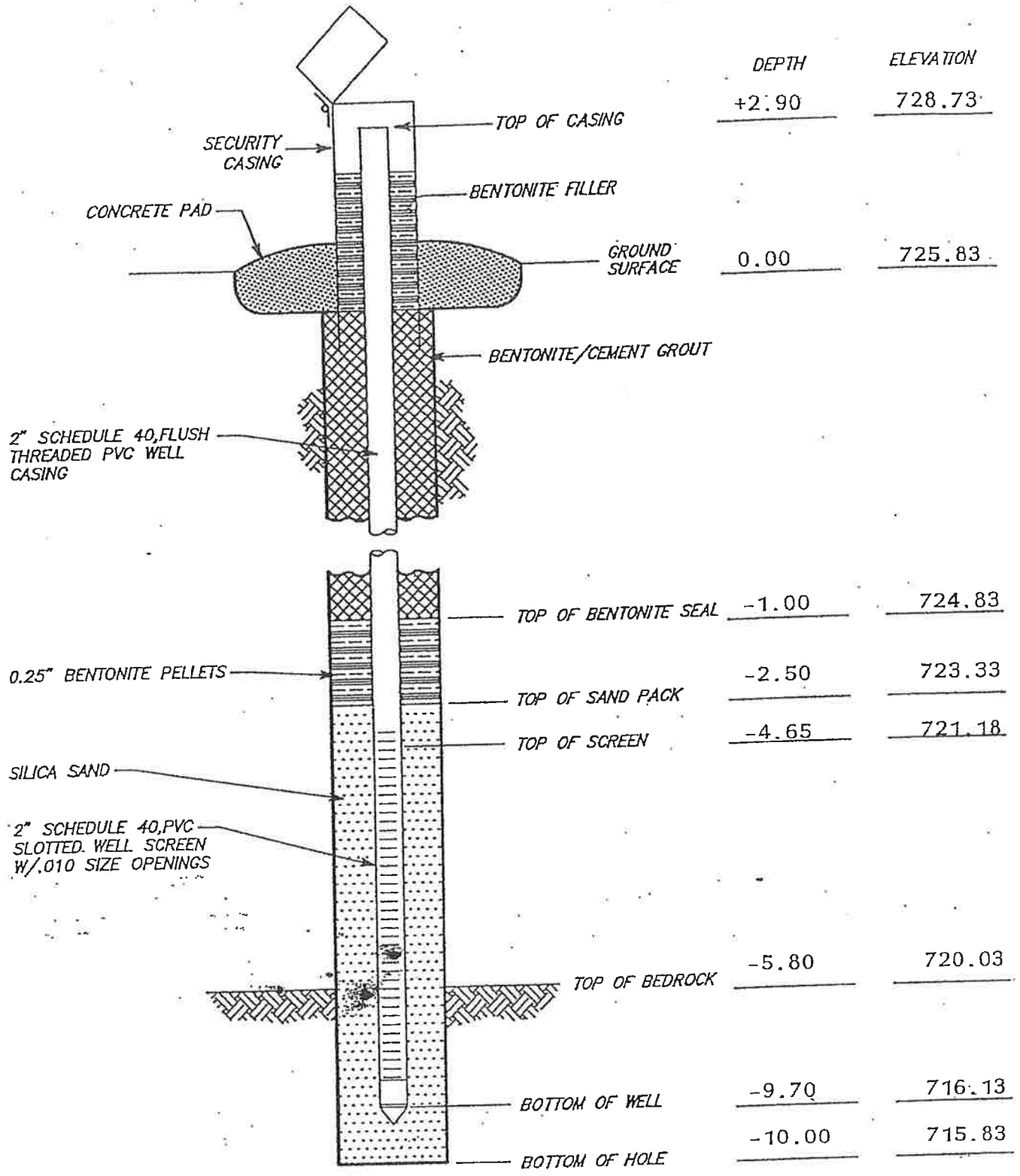
WATERBORNE
WATER SURFACE ELEVATION _____ DEPTH OF WATER 1.98
GROUND ELEVATION _____

(X) POWER AUGER () WASHBORED

SAMPLE NO.	DEPTH		BLOW COUNTS	DESCRIPTIONS AND REMARKS
	FROM	TO		
Auger	0.0	2.5		Clay, silty, brown
1	2.5	4.0	3/3/5	Clay, silty, reddish-brown with occasional small chert fragments very moist at 3.5 feet
Auger	4.0	5.0		Clay, silty, reddish-brown, chert
2	5.0	6.5	2/3/4	Clay, silty, reddish-brown, chert
3	6.5	7.8	4/3/50	Clay, sandy, silty, reddish-brown, saturated
				Refusal at 7.8 feet
				Water at 1.5 feet in hole
				Began NQ Coring at 7.7 feet

PULL NO.	DEPTH	RAN	REC'D	LOSS	GAIN	DESCRIPTIONS AND REMARKS
1	10.0	2.3	1.9	0.4		

* NUMBER OF BLOWS PER 6" INTERVALS, TO DRIVE 1-3/8" O.D., 2" O.D. SPLIT SAMPLER WITH 120 POUND HAMMER FALLING 30 INCHES



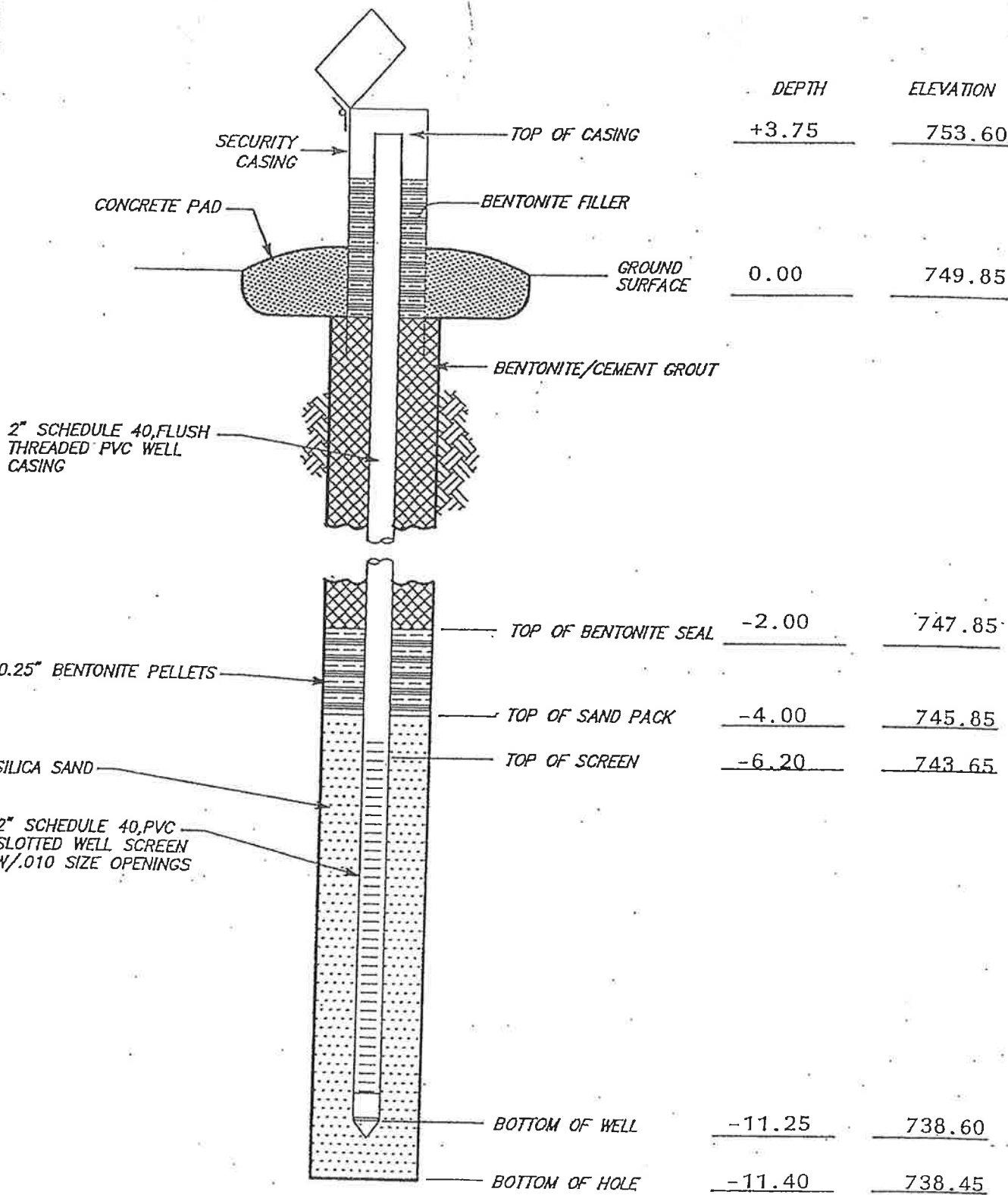
NOTE
GROUND SURFACE ELEVATIONS ARE BASED ON THE APPROXIMATE SURFACE ELEVATION OF MW-1.

PROJECT ASSOCIATED COMMODITIES CORPORATION

MONITORING WELL NO. 6

PROJ. NO. 05501302

INSTALLATION DATE 4-4-91



NOTE

GROUND SURFACE ELEVATIONS ARE BASED ON THE APPROXIMATE SURFACE ELEVATION OF MW-1.

ERCE
Southeast Region

ENVIRONMENTAL DIVISION
NASHVILLE, TENNESSEE

DRILLING LOG OF BORING NO. 6
SHEET 1 OF 1

PROJECT Associated Commodities
 PROJECT NO. 05501302 DATE 4-4-91
 BORING LOCATION _____
 DRILLER R. Ford
 HELPER M. Rittenberry
 GEOLOGIST B. McCabe
 RIG _____

SURFACE ELEVATION ≈ 749.85
 REFUSAL DEPTH 11.4 ELEV ≈ 738.45
 FOOTAGE SAMPLED 11.4
 TOP OF ROCK DEPTH 11.4 ELEV ≈ 738.45
 BEGAN CORING DEPTH _____ ELEV _____
 FOOTAGE CORED _____
 BOTTOM OF HOLE DEPTH 11.4 ELEV ≈ 738.45

WATER LEVEL DATA
 COMPLETION: DEPTH 7.48 ELEV ≈ 742.37
 AFTER HRS: DEPTH _____ ELEV _____
 LDW AT: DEPTH _____ ELEV _____

WATERBORNE
 WATER SURFACE ELEVATION _____ DEPTH OF WATER 7.48
 GROUND ELEVATION _____

(X) POWER AUGER () WASHBORED

SAMPLE NO.	DEPTH		BLOW COUNTS	DESCRIPTIONS AND REMARKS
	FROM	TO		
Auger	0.0	2.5		Clay, silty, reddish-brown, cherty
1	2.5	4.0	3/2/4	Clay, silty, reddish-brown to brown with small chert fragments, moist
Auger	4.0	5.0		Clay, silty, reddish-brown to brown with small chert fragments, moist
2	5.0	6.5	1/1/2	Clay, very silty, dark brown, very moist
Auger	6.5	7.5		Clay, very silty, dark brown, very moist
3	7.5	9.0	1/1/3	Clay, very silty, dark brown, very moist
Auger	9.0	10.0		Clay, very silty, dark brown, very moist
4	10.0	11.4	4/7/50	Clay, very silty, dark brown, saturated
				Refusal at 11.4 feet
				Bottom of Hole at 11.4

PULL NO.	DEPTH	RAN	REC'D	LOSS	GAIN	DESCRIPTIONS AND REMARKS

* NUMBER OF BLOWS PER 6" INTERVALS, TO DRIVE 1-3/8 I.D., 2" O.D. SPLIT SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES.

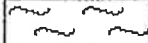


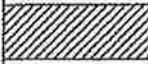
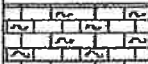
BORING LOG MW-7

SHEET 1 of 1

PROJECT No:
 SITE:
 CLIENT: Associated Commodities Corporation

DATE: 6/2-6/3/93
 LOGGED BY: Bryan Parker-RCI
 CONTRACTOR:

START TIME:
 FINISH TIME:

DEPTH (FT)	WATER LEVEL	WELL	GRAPHIC LITHOLOGY	DESCRIPTION	PID (ppmv)	SAMPLE LABEL	SAMPLE DEPTH (ft)
0				Ground Surface			
1				Topsoil, silty, dk. bwn.			
2				Clay, silty, dk. bwn., w/ wea. rk			
3							
4							
5				Clay, silty, red (iron stained) w/ wea. rk. frag. to clay silty, sandy, gray w/ wea rk frag.			
6							
7							
8				Clay, silty and sandy, gray streaked red, occ fossil, wea. rk. frags., moist			
9							
10				Refusal at 10.2			
11				Ls, gry and lt gray, solution marks, foss (brachs), tight			
12							
13							
14							
15							
16				Ls, As above, frac at 14.5			
17							
18							
19							
20							
21				Ls, As above, vugs at 23.4 ft			
22							
23							
24							
25							
26				Ls, gry w/ br moll., occ. foss., sh. partings, tight			
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

COMMENTS:

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

DRILL METHOD:
SAMPLING METHOD:

Reviewed By:

FILE

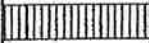
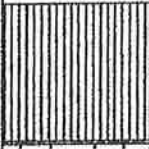
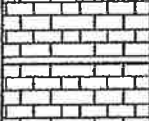


BORING LOG MW-8

SHEET 1 of 1

PROJECT No:
 SITE: Mount Pleasant, TN
 CLIENT: Associated Commodities Corporation

DATE: 6/3-6/4/93
 LOGGED BY: Bryan Parker
 CONTRACTOR:

START TIME:
 FINISH TIME:

DEPTH (FT)	WATER LEVEL	WELL	GRAPHIC LITHOLOGY	DESCRIPTION	PID (ppmv)	SAMPLE LABEL	SAMPLE DEPTH (ft)
0				Ground Surface			
1				Silt, cl., br. w/ wea. rk frags.			
2							
3				Ls, gry, crse xline, dia frac, stained			
4							
5							
6							
7							
8				Ls, gry, crse xline to fn. xline banded gry and brwnish gry			
9							
10							
11							
12							
13				Ls, fn xline, banded			
14							
15							
16							
17							
18				Ls, As above vugs at 19.6			
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
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36							
37							
38							
39							
40							

COMMENTS:

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

DRILL METHOD:
SAMPLING METHOD:

Reviewed By:

FILE

APPENDIX 3
2018 Corrective Action Construction Plans and Specifications

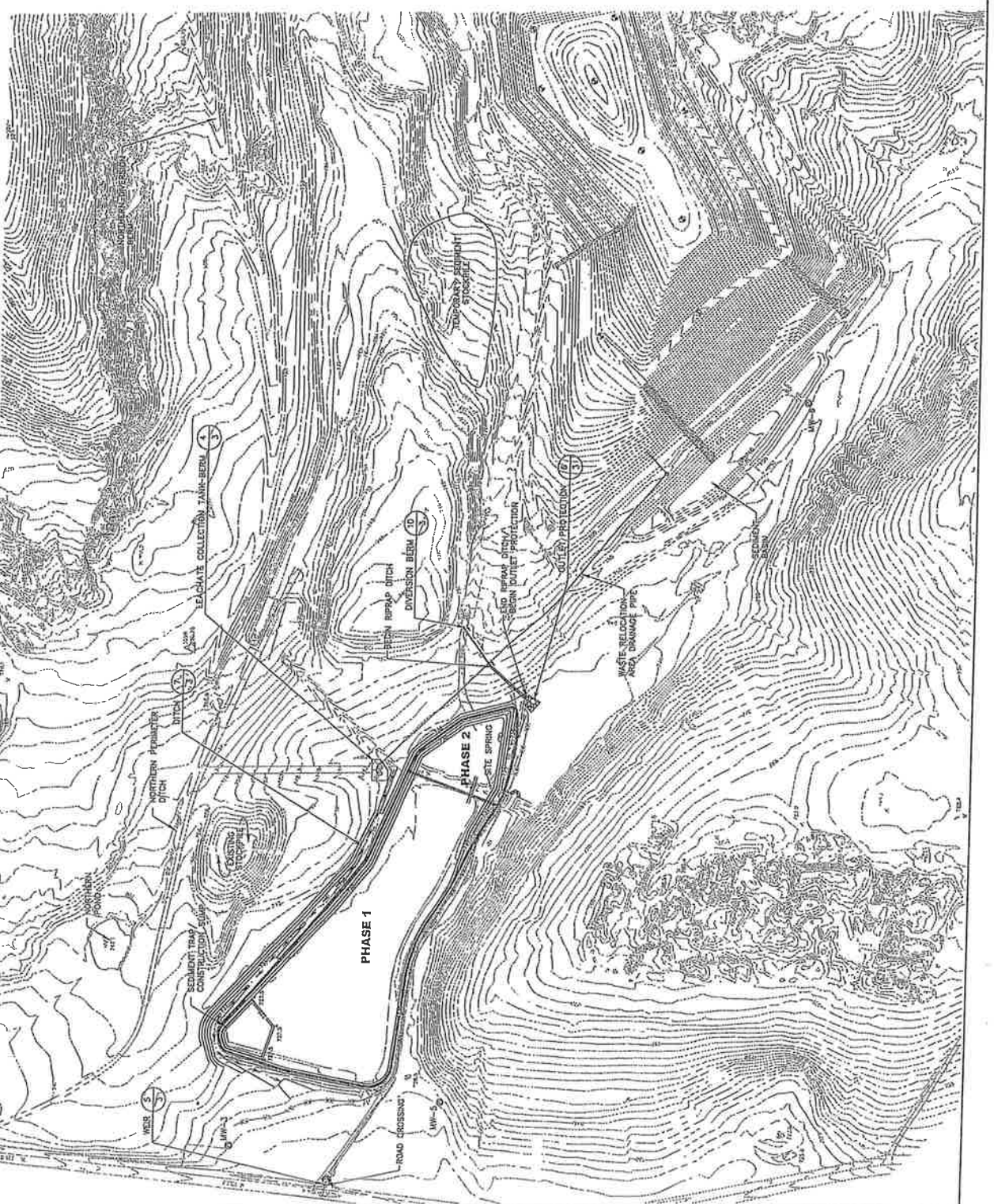
DRAWINGS

NO.	BY	DATE	REVISION

NOTES

1. TOPOGRAPHY BASED ON AERIAL SURVEY PROVIDED BY MAURY COUNTY AND SUPPLEMENTED BY FIELD DATED SURVEYS IN 2012, 2013, 2014, 2015.
2. PROPOSED PHASE 2 SURVEY FOR APPROXIMATE 100' X 100' CONCRETE SOIL BEAM AT DOWNDROUGHT TOE OF EXISTING SOIL BEAM TO CONTAIN SEDIMENT FROM LABORATORY STOCKPILE TO CONTAIN SEDIMENT WITH AN EROSION CONTROL BLANKET AFTER EXCAVATION.

- LEGEND**
- EXISTING GROUND SURFACE CONTOUR
 - EXISTING FENCE
 - EXISTING ROAD
 - EXISTING CHANNELED
 - MW-6 @ MONITORING WELL
 - 1-5 @ SPRING OR SEEP
 - 1-5 @ LANDFILL STANDPIPE
 - EXISTING FILTER RING
 - CONTROL POINT
 - EXISTING SILT FENCE
 - SOLID LEACHATE BRAIN PIPE
 - GAS VENT
 - PHASE LINE
 - PUMPED CHECK DAM
 - PROPOSED SILT FENCE
 - TEMPORARY PHASE 2 DIVERSION BEAM
 - PROPOSED EXCAVATION CONTOUR
 - 18" x 18" @ DITCH
 - OUTLET PROTECTION

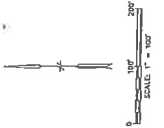


NO.	BY	REVISION	DATE



NOTES

1. PHOTOGRAPHY BASED ON AERIAL SURVEY PROVIDED BY MAURY COUNTY ON MARCH 17, 2011 AND SUPPLEMENTED BY FIELD DATED SURVEY DATA IN 2011, 2012, 2013, 2014, 2015, 2016, AND 2017.
2. DIRECT SITE SPRING TO SOUTHERN DRAINAGE CHANNEL.
3. ALL GRADES AND SLOPES ARE APPROXIMATE. ACTUAL GRADES WILL BE BASED ON THE PROPOSED GRADING PLAN. THROUGH FINAL COURT THINNESS REQUIRED TO PRODUCE A VARIATION OF DRAINAGE ACROSS THE FINAL COVER.



LEGEND

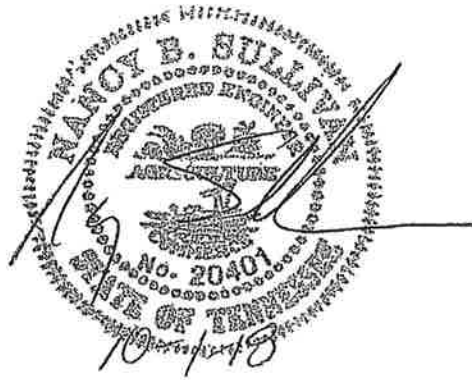
- EXISTING GROUND SURFACE CONTOUR
- EXISTING FENCE
- EXISTING ROAD
- EXISTING CULVERT
- MONITORING WELL (MW-6)
- SPRING OR SEEP
- LANDFILL STANPIPE (1-9)
- CONTROL POINT
- EXISTING SILT FENCE
- SOLID LEACHATE DRAIN PIPE
- GAS VENT
- PHASE LINE
- PROPOSED CHECK DAM
- PROPOSED SILT FENCE
- TEMPORARY PHASE 2 DIVERSION BERM
- PROPOSED GROUND SURFACE CONTOUR
- RIP-RAP DITCH
- OUTLET PROTECTION



SPECIFICATIONS

INDEX OF SPECIFICATIONS

- SECTION 01095: DEFINITIONS AND STANDARDS
- SECTION 01400: QUALITY ASSURANCE AND CONTROL SERVICES
- SECTION 01500: TEMPORARY FACILITIES AND CONTROLS
- SECTION 01560: TEMPORARY EROSION AND SEDIMENT CONTROLS
- SECTION 01570: TRAFFIC CONTROL
- SECTION 02160: DUST CONTROL
- SECTION 02200: GENERAL EARTHWORK
- SECTION 02930: SEEDING AND MULCHING



SECTION 01095

DEFINITIONS AND STANDARDS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Basic definitions are provided in the this section
- B. Additional technical definitions are provided in appropriate sections of these Specifications.
- C. Abbreviations and acronyms are sometimes used in the Specifications to identify reference standards. Implied words and meanings shall be interpreted as appropriate.
- D. When a standard is specified by reference, the Contractor shall comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or when applicable codes established more strict standards.
- E. When published standards are referenced, the publication in effect on the date of issue of Contract Documents shall apply unless specified otherwise.

1.02 ABBREVIATIONS, NAMES, AND ADDRESSES OF ORGANIZATIONS

The Contractor shall obtain copies of referenced standard direct from the publication source, when needed for proper performance of Work, or when required for submittal by Contract Documents.

AASHTO	American Association of State Highway and Transportation Officials 444 North Capital Street N.W., Suite 249 Washington, D.C. 20001
ANSI	American National Standards Institute (Formerly American Standards Association - ASA) 1819 L Street, N.W., Suite 600 Washington, D.C. 20036
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Richmond, Virginia 20191