

**PREFILED DIRECT TESTIMONY OF
LAWRENCE G. DUNBAR, P.E.**

TABLE OF CONTENTS

I. INTRODUCTION AND QUALIFICATIONS.....1

II. BACKGROUND AND OVERVIEW OF APPLICATION.....8

III. EVALUATION OF DRAINAGE ANALYSES.....14

IV. SUMMARY AND CONCLUSIONS.....33

1 Master of Science in Environmental Engineering. In 1988, I obtained my J.D. from the
2 University of Houston Law Center.

3
4 **Q. ARE YOU A LICENSED PROFESSIONAL ENGINEER?**

5 A. Yes. I am a licensed professional engineer in the State of Texas.

6
7 **Q. WHEN DID YOU BECOME A LICENSED PROFESSIONAL ENGINEER IN**
8 **THE STATE OF TEXAS?**

9 A. I have been licensed in the State of Texas since 1983. My professional license number is
10 54506.

11
12 **Q: WHAT PRACTICAL ENGINEERING EXPERIENCE HAVE YOU HAD SINCE**
13 **RECEIVING YOUR ENGINEERING DEGREES?**

14 A: I began working in 1975 for the U.S. Army Corps of Engineers (“Corps”), Chicago
15 District, and spent almost six years in its Hydrology and Hydraulics Branch. I stayed at
16 the Corps until 1982 when I joined Keifer Engineering, Inc.’s Water Resources Group.
17 In 1983, I worked for Espey, Huston & Associates, Inc. (“Espey”) in Austin, Texas in the
18 Hydrology/Hydraulics Group. From 1984 to 1985, I worked as a staff engineer for the
19 State of Indiana (the Indiana Board of Health, Land Pollution Control Division in its
20 Engineering Department, and the Department of Water Resources in its Dam/Lake
21 Section). I then worked for Espey in Houston, Texas from 1986 until 1988. At Espey, I
22 worked as a senior water resources engineer/group leader. From 1988 until the present, I
23 have worked as a private consultant on my own as a water resources and environmental
24 engineer.

1 **Q: WHAT TYPE OF WORK HAVE YOU DONE IN THE WATER RESOURCES**
2 **AND ENVIRONMENTAL ENGINEERING FIELD?**

3 A: As I mentioned above, for over thirty (30) years I have worked in both the public and
4 private sector. In the area of drainage and/or detention pond analysis, I have conducted
5 or reviewed over one hundred such analyses, including those associated with the design
6 of landfills. I have been a technical consultant to various governmental agencies,
7 developers, engineering firms, and law firms regarding flooding, floodplains, and
8 drainage issues, and have developed drainage and/or detention criteria for regulatory
9 agencies.

10

11 **Q. DO YOU HAVE EXPERIENCE EVALUATING MUNICIPAL SOLID WASTE**
12 **(“MSW”) LANDFILL PERMIT APPLICATIONS?**

13 A. Yes. I have extensive experience in evaluating those portions of MSW applications
14 related to surface water drainage, detention ponds analyses, and floodplains.

15

16 **Q. FOR HOW MANY MSW LANDFILL PERMIT APPLICATIONS HAVE YOU**
17 **EVALUATED IN SOME MANNER THE SURFACE WATER DRAINAGE,**
18 **DETENTION POND ANALYSES, AND/OR FLOODPLAIN ISSUES?**

19 A. Approximately twenty five (25).

20

1 **Q. PLEASE IDENTIFY SOME OF THE MAJOR MSW LANDFILL**
2 **APPLICATIONS FOR WHICH YOU HAVE EVALUATED SURFACE**
3 **DRAINAGE, DETENTION PONDS ANALYSES, AND/OR FLOODPLAIN**
4 **ISSUES.**

5 A. I have evaluated issues related to surface water drainage, detention ponds analyses,
6 and/or floodplains for applications associated with the following landfills: Waste
7 Management's Skyline Landfill near Dallas; the Spring Cypress Landfill in Harris
8 County; the Blue Flats Disposal Landfill west of Fort Worth; the North Texas Municipal
9 Water District's 121 Regional Disposal Facility ("121 RDF"); the Juliff Gardens Landfill
10 in Brazoria County; the Tan Terra Landfill in the valley; the Webb County Landfill near
11 Laredo; the Jack County Landfill near Jacksboro; and the BFI Waste Industries of North
12 America, Inc.'s ("BFI") Sunset Farms Landfill in Travis County. I have reviewed over a
13 dozen permit applications for applicants, such a Waste Management, Inc. and related
14 companies, BFI, and Delta Waste.

15
16 **Q. HAVE YOU EVER TESTIFIED IN ANY ADMINISTRATIVE OR LEGAL**
17 **PROCEEDING REGARDING MSW FACILITIES?**

18 A. Yes, I have.

19
20 **Q. PLEASE IDENTIFY REPRESENTATIVE CASES WHERE YOU HAVE**
21 **PROVIDED EXPERT TESTIMONY IN AN ADMINISTRATIVE OR LEGAL**
22 **PROCEEDING INVOLVING MSW FACILITIES.**

23 A. These would include: the Skyline Landfill; the Spring Cypress Landfill; the Blue Flats
24 Disposal Landfill; the Juliff Gardens Landfill; the 121 RDF; the Tan Terra Landfill; the

1 Webb County Landfill; the Jack County Landfill; and the Dana Landfill in Hidalgo
2 County.

3
4 **Q. YOU HAVE INDICATED THAT YOU HAVE EVALUATED SURFACE WATER**
5 **DRAINAGE, DETENTION POND ANALYSES, AND/OR FLOODPLAIN ISSUES**
6 **FOR SOME TWENTY-FIVE (25) DIFFERENT MSW LANDFILL**
7 **APPLICATIONS OVER THE COURSE OF YOUR PROFESSIONAL CAREER.**
8 **FOR HOW MANY OF THOSE APPLICATIONS HAVE YOU PROVIDED**
9 **EXPERT TESTIMONY AT AN ADMINISTRATIVE HEARING?**

10 A. Just fewer than half.

11
12 **Q. HAVE YOU EVER BEEN DEEMED UNQUALIFIED TO PRESENT YOUR**
13 **EXPERT TESTIMONY AT ANY OF THOSE ADMINISTRATIVE HEARINGS?**

14 A. No.

15
16 **Q. HAVE YOU ALSO PRESENTED EXPERT TESTIMONY BEFORE STATE AND**
17 **FEDERAL COURTS OF LAW?**

18 A. Yes.

19
20 **Q. HAVE YOU EVER BEEN DEEMED UNQUALIFIED TO PRESENT YOUR**
21 **EXPERT TESTIMONY AT ANY OF THOSE LEGAL PROCEEDINGS?**

22 A. No.

23

1 **Q. HAS YOUR PRIOR PARTICIPATION IN ADMINISTRATIVE OR LEGAL**
2 **PROCEEDINGS INVOLVING MSW FACILITIES ALWAYS BEEN ON BEHALF**
3 **OF PARTIES OPPOSING SUCH FACILITIES, i.e., PROTESTANTS?**

4 A. No. I have evaluated the surface water drainage, detention pond analyses, and/or
5 floodplain issues on behalf of applicants for over a dozen MSW landfill applications.

6
7 **Q. APPROXIMATELY WHAT PERCENTAGE OF YOUR WORK ON MSW**
8 **LANDFILL PERMIT APPLICATIONS IS FOR PROTESTANTS AS**
9 **COMPARED TO APPLICANTS?**

10 A. Through the years, over half of my work has been for applicants.

11
12 **Q. BY WHOM ARE YOU RETAINED FOR YOUR REVIEW AND EVALUATION**
13 **OF WASTE MANAGEMENT OF TEXAS' ("WMTX" OR "APPLICANT")**
14 **AMENDMENT APPLICATION (THE "ACL AMENDMENT APPLICATION")**
15 **TO EXPAND THE AUSTIN COMMUNITY RECYCLING AND DISPOSAL**
16 **FACILITY, ALSO KNOWN AS THE AUSTIN COMMUNITY LANDFILL**
17 **("ACL"), I.E., THE SUBJECT OF THIS PROCEEDING?**

18 A. I have been retained by TJFA, L.P. ("TJFA"), a protestant in this proceeding, to provide
19 expert opinions with respect to surface water drainage and detention pond analyses as
20 those issues are addressed in the ACL Amendment Application.

21

1 **Q. AS A PRACTICING ATTORNEY, WHAT TYPE OF EXPERIENCE DO YOU**
2 **HAVE IN RELATION TO MSW LANDFILL APPLICATIONS?**

3 A. I represented TJFA, a protestant landowner, as the lead attorney in two contested case
4 hearings regarding the expansion of two separate existing MSW landfills in central
5 Texas.

6
7 **Q. HAVE YOU PROVIDED ASSISTANCE TO THE VARIOUS SOLID WASTE**
8 **REGULATORY AGENCIES IN DEVELOPING RULES, GUIDANCE, AND/OR**
9 **EVALUATING CONCEPTS?**

10 A. Yes, I was asked to provide comments to TCEQ regarding a draft technical guidance
11 document addressing surface water drainage analyses that subsequently became TCEQ's
12 regulatory guidance document RG-417, *Guidelines for Preparing a Surface Water*
13 *Drainage Report for a Municipal Solid Waste Facility* (Aug. 2006).

14
15 **Q. DO YOU HAVE A RÉSUMÉ THAT SUMMARIZES YOUR EDUCATIONAL**
16 **AND WORK EXPERIENCE?**

17 A. Yes.

18
19 **Q. PLEASE IDENTIFY WHAT HAS BEEN MARKED AS EXHIBIT TJFA 501?**

20 A. Exhibit TJFA 501 is my résumé, which identifies my educational and work experience.

21
22 **Q. IS EXHIBIT TJFA 501 A TRUE AND ACCURATE COPY OF YOUR RÉSUMÉ?**

23 A. Yes.

24

1 **Q. IS EXHIBIT TJFA 501 AN ACCURATE REFLECTION OF YOUR EDUCATION,**
2 **PROFESSIONAL HISTORY, AND QUALIFICATIONS?**

3 A. Yes.

4 [MOVE TO ADMIT EXHIBIT TJFA 501]
5

6 **II. BACKGROUND AND OVERVIEW OF APPLICATION**

7 **Q. ARE YOU FAMILIAR WITH TCEQ'S RULES CONCERNING THE**
8 **PERMITTING OF MSW LANDFILLS IN TEXAS—30 TEX. ADMIN. CODE**
9 **CHAPTER 330—AS SUCH RULES WERE AMENDED AND BECAME**
10 **EFFECTIVE IN MARCH 2006, i.e., THE “NEW” MSW RULES?**

11 A. Yes, particularly those portions of the rules that address surface drainage, detention pond
12 analyses, and floodplains.
13

14 **Q. IS IT YOUR UNDERSTANDING THAT THE “NEW” MSW RULES, THOSE**
15 **MSW RULES THAT WENT INTO EFFECT IN MARCH 2006, WILL APPLY IN**
16 **THIS PROCEEDING?**

17 A. Yes.
18

19 **Q. SO, DO YOU AGREE THAT ANY DISCUSSION OF APPLICABLE TCEQ MSW**
20 **RULES IN THIS PROCEEDING WILL REFER DIRECTLY TO THE “NEW”**
21 **MSW RULES THAT WENT INTO EFFECT IN MARCH 2006?**

22 A. Yes.
23

1 **Q. ARE YOU FAMILIAR WITH THE ACL AMENDMENT APPLICATION?**

2 A. Yes. I have reviewed the version of the ACL Amendment Application identified as
3 WMTX's Exhibit APP-202, a six-volume application identified as "Revision 10 – May
4 2008." In particular, I have reviewed the drainage design aspects of the ACL
5 Amendment Application that are primarily contained in Part III, Attachment 2 – Facility
6 Surface Water Drainage Report, and the included tables, figures, and appendices.

7
8 **Q. DID YOU REVIEW ANY OTHER MATERIALS OR DOCUMENTS IN THE
9 COURSE OF YOUR REVIEW OF THE ACL AMENDMENT APPLICATION?**

10 A. Yes.

11
12 **Q. PLEASE IDENTIFY AND DESCRIBE ANY ADDITIONAL MATERIALS OR
13 DOCUMENTS YOU REVIEWED IN ADDITION TO THE ACL AMENDMENT
14 APPLICATION IN THE COURSE OF YOUR ANALYSIS.**

15 A. I have reviewed certain materials produced by WMTX and the Executive Director of
16 TCEQ during the discovery process, including previous permit amendment applications
17 and requests to modify ("MODs") the current permit, Permit No. MSW-249C. I have
18 also reviewed applicable TCEQ rules, technical guidance, and relevant published
19 documents.

20
21 **Q. PLEASE IDENTIFY WHAT IS MARKED AS EXHIBIT TJFA 502.**

22 A. Exhibit TJFA 502 is a copy of TCEQ's regulatory guidance document *Guidelines for*
23 *Preparing a Surface Water Drainage Report for a Municipal Solid Waste Facility*, RG-
24 417, dated August 2006.

25

1 **Q. IS EXHIBIT TJFA 502 A TRUE AND CORRECT COPY OF THE 2006**
2 **GUIDELINES FOR PREPARING A SURFACE WATER DRAINAGE REPORT**
3 **FOR A MUNICIPAL SOLID WASTE FACILITY?**

4 A. Yes. Exhibit TJFA 502 is a true and correct copy of the TCEQ's *Guidelines for*
5 *Preparing a Surface Water Drainage Report for a Municipal Solid Waste Facility*
6 (*"TCEQ Drainage Guidance"*).

7
8 **Q. WAS EXHIBIT TJFA 502 DEVELOPED BY TCEQ AS A GUIDANCE**
9 **DOCUMENT REGARDING THE DEVELOPMENT OF SURFACE WATER**
10 **DRAINAGE REPORTS?**

11 A. Yes, it was.

12
13 **Q. IS EXHIBIT TJFA 502 A CURRENTLY APPLICABLE TCEQ GUIDANCE**
14 **DOCUMENT?**

15 A. Yes, it is. The TCEQ Drainage Guidance specifically states: "This guide is suitable for
16 landfill permit applications that will be processed under the new Chapter 330 rules
17 effective March 27, 2006 and compost units of Chapter 332 which must be permitted."
18 (*See Exhibit TJFA 502, TCEQ Drainage Guidance, at 1.*)

19
20 **Q. DO PROFESSIONAL ENGINEERS COMMONLY RELY UPON EXHIBIT**
21 **TJFA 502 WHEN DESIGNING SURFACE WATER DRAINAGE REPORTS FOR**
22 **MSW LANDFILLS PURSUANT TO THE MSW RULES?**

23 A. Yes, they do.

24

1 **Q. IS EXHIBIT TJFA 502 USEFUL IN YOUR TESTIMONY TODAY AND/OR IN**
2 **ASSISTING THE ADMINISTRATIVE LAW JUDGE TO UNDERSTAND YOUR**
3 **TESTIMONY TODAY SPECIFICALLY REGARDING SURFACE WATER**
4 **DRAINAGE ISSUES?**

5 A. Yes, it is.

6 [MOVE TO ADMIT EXHIBIT TJFA 502]
7

8 **Q. DO YOU HAVE ANY CONCERNS REGARDING THE DRAINAGE DESIGN**
9 **ASPECTS OF THE ACL AMENDMENT APPLICATION?**

10 A. Yes, I am concerned that the design of the ACL has and/or will result in increased
11 flooding and erosion problems off-site.
12

13 **Q. COULD YOU PLEASE ELABORATE?**

14 A. Yes. The ACL, as originally permitted in the 1980s, contained a final cover design that
15 presumably did not significantly alter the natural drainage patterns for pre-landfill, or pre-
16 development, conditions. This lack of change in natural drainage patterns should have
17 continued for every subsequent amendment and MOD to the original landfill design that
18 was requested by the applicant, whether WMTX or a predecessor owner or operator, and
19 approved by TCEQ (or a predecessor agency) or TCEQ's Executive Director. However,
20 when the final cover design for the ACL was modified as part of WMTX's 1996 MOD
21 (*i.e.*, to modify existing Permit No. MSW-249C) to minimize erosion by incorporating
22 diversion berms, downchutes and perimeter channels, these drainage improvements, as
23 presented in the 1996 MOD, should have resulted in a significant increase in the rate of
24 storm water runoff leaving the ACL.
25

1 **Q. WHY SHOULD AN INCREASE IN THE RATE OF STORM WATER RUNOFF**
2 **LEAVING THE ACL BE EXPECTED BASED ON THE 1996 MOD?**

3 A. A substantial increase in the runoff rate would be expected because of the improved and
4 enhanced drainage system being added onto the ACL's final cover, which removes storm
5 water more quickly from the landfill surface. In fact, drainage calculations performed by
6 WMTX and shown in the 1996 MOD for locations within the ACL site indicate this
7 substantial increase in the runoff rate of about twice the rate as shown for the ACL prior
8 to the 1996 MOD. Normally in such a situation, applicants incorporate into their landfill
9 design one or more detention ponds to capture this increased runoff rate off of the landfill
10 surface in order to mitigate/reduce it before it leaves the site so as to maintain existing
11 drainage patterns at the permit boundary, as required by TCEQ rules.

12
13 **Q. DID WMTX INCORPORATE ONE OR MORE DETENTION PONDS OR**
14 **OTHER DESIGN MECHANISMS INTO THE DESIGN OF THE ACL AS PART**
15 **OF THE 1996 MOD TO MITIGATE THIS INCREASED RUNOFF RATE?**

16 A. No, WMTX failed to provide any such detention ponds as part of the 1996 MOD, instead
17 representing to TCEQ that no significant changes to the drainage patterns at the permit
18 boundary would occur as a result of the modification.

19
20 **Q. DO YOU BELIEVE THAT WMTX'S REPRESENTATION IN THE 1996 MOD**
21 **THAT NO SIGNIFICANT CHANGES TO THE DRAINAGE PATTERNS**
22 **WOULD OCCUR AT THE PERMIT BOUNDARY AS A RESULT OF THE**
23 **REQUESTED MOD WAS ACCURATE?**

24 A. No, I do not believe that the representation was accurate. WMTX showed in the 1996
25 MOD that the runoff rates increased by about twice what they were for the previous

1 landfill design for locations internal to the ACL site, but failed to show what the resulting
2 runoff rate would be at the permit boundary to the south. This runoff rate to the south
3 also should have been shown to have doubled from what it had been calculated to be for
4 the ACL before the drainage improvements associated with the 1996 MOD were
5 incorporated into the design.

6
7 **Q. HOW DOES THAT REPRESENTATION IN 1996 AFFECT THE CURRENT ACL**
8 **AMENDMENT APPLICATION?**

9 A. Now WMTX is coming forth in this current permit amendment, the ACL Amendment
10 Application, and presenting to TCEQ the currently permitted landfill drainage conditions,
11 which show this dramatic increase in the runoff rate (about double) leaving the ACL to
12 the south as compared to the currently permitted drainage conditions that were
13 represented by WMTX in both the 1996 MOD and in the most recent modifications (*i.e.*,
14 the “2002 MOD” and the “2003 MOD”) that had been approved by the Executive
15 Director of TCEQ. While WMTX is proposing a new detention pond for the expansion
16 area northwest of the existing ACL, WMTX still has no such ponds throughout the
17 remainder of the site of the ACL facility. This dramatic increase in the runoff rate to the
18 south has and/or will result in increased flooding and erosion problems off-site. This is
19 contrary to TCEQ rules.

20

1
2 **III. EVALUATION OF DRAINAGE ANALYSES**

3 **Q. WHAT DO TCEQ'S MSW RULES REQUIRE OF AN APPLICANT**
4 **REGARDING THE LANDFILL DESIGN AND ITS IMPACT ON DRAINAGE**
5 **PATTERNS?**

6 A. TCEQ'S MSW rules, as adopted in 2006, require that the existing or permitted drainage
7 patterns not be adversely altered as a result of the development of the proposed landfill.
8 (*See* 30 TEX. ADMIN. CODE § 330.305.) Previously, *i.e.*, prior to the 2006 amendments to
9 the rules, TCEQ's rules required that natural drainage patterns not be significantly altered
10 as a result of the development of the landfill.

11
12 **Q. BASED ON THE MSW RULES, HOW SHOULD THE ACL AMENDMENT**
13 **APPLICATION DETERMINE THE EXISTING CONDITIONS FOR THE**
14 **DRAINAGE ANALYSES?**

15 A. According to TCEQ's applicable regulatory guidance document (*see* Exhibit TJFA 502,
16 TCEQ Drainage Guidance), the existing conditions to be used for drainage analyses
17 should be the currently permitted condition. For the ACL Amendment Application, the
18 existing condition should reflect the current permit, Permit No. MSW-249C as modified
19 since its original issuance in 1991. This existing condition is the condition that is to be
20 used to compare with the proposed condition to determine that there has not been an
21 adverse alteration to existing or permitted drainage patterns, as required by 30 TEX.
22 ADMIN. CODE § 330.305.

1 **Q. CAN YOU PLEASE WALK US THROUGH CHRONOLOGICALLY THE**
2 **CHANGES TO THE ACL OVER THE YEARS THAT HAVE AFFECTED**
3 **DRAINAGE?**

4 A. Yes. The first drainage calculations available are for the 1981 amendment application
5 which resulted in issuance of Permit No. MSW-249A.

6
7 **Q. DID YOU REVIEW THE 1981 DRAINAGE CALCULATIONS?**

8 A. Yes, I did. The 1981 drainage calculations for the ACL are presented in Attachment 8,
9 the Developed Surface Water Plan, of the amendment application and were computed by
10 Pittman Engineering.

11
12 **Q. PLEASE IDENTIFY WHAT IS MARKED AS EXHIBIT TJFA 503.**

13 A. Exhibit TJFA 503 is a copy of Attachment 8, the Developed Surface Water Plan, to the
14 1981 permit amendment application. Attachment 8 was developed by Pittman
15 Engineering.

16
17 **Q. FROM WHERE DID YOU OBTAIN EXHIBIT TJFA 503?**

18 A. The document included in Exhibit TJFA 503 was produced by the Executive Director of
19 TCEQ during discovery in this proceeding.

20
21 **Q. IS EXHIBIT TJFA 503 NUMBERED IN ANY WAY?**

22 A. Yes, it is. While the Executive Director did not Bates label the documents he produced
23 during discovery in this proceeding, TJFA numbered all of the documents produced by
24 the Executive Director. The document included in Exhibit TJFA 503 is Bates labeled
25 ED 010717.

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Q. IS EXHIBIT TJFA 503 A TRUE AND CORRECT COPY OF ATTACHMENT 8, AS PRODUCED BY THE EXECUTIVE DIRECTOR?

A. Yes, it is.

Q. IS EXHIBIT TJFA 503 A DOCUMENT THAT IS KEPT BY TCEQ IN THE NORMAL COURSE OF BUSINESS?

A. Yes. Specifically, the Executive Director of TCEQ, when he produced documents during discovery in this proceeding, provided an affidavit (the "TCEQ Affidavit") executed by TCEQ's Alternate Custodian of Records, which stated that all documents produced were records kept by TCEQ in the regular course of business. The TCEQ Affidavit is attached to Exhibit TJFA 503.

Q. IS EXHIBIT TJFA 503 A TYPE OF DOCUMENT COMMONLY RELIED UPON BY PROFESSIONAL ENGINEERS?

A. Yes, it is common for professional engineers to rely upon documents such as Exhibit TJFA 503.

Q. IS EXHIBIT TJFA 503 USEFUL IN YOUR TESTIMONY TODAY AND/OR IN ASSISTING THE ADMINISTRATIVE LAW JUDGE TO UNDERSTAND YOUR TESTIMONY TODAY SPECIFICALLY REGARDING SURFACE WATER DRAINAGE ISSUES?

A. Yes, it is.

[MOVE TO ADMIT EXHIBIT TJFA 503]

1 **Q. WHAT DID THE 1981 DRAINAGE CALCULATIONS SHOW?**

2 A. The 1981 drainage calculations reflected a landfill condition without any diversion berms
3 or downchutes (they were added later) such that the time (Tc) for the storm water runoff
4 to leave the landfill slopes and exit the permit boundary was fairly long (e.g., 40 to
5 50 minutes). This resulted in computed peak runoff rates (also known as peak flow rates)
6 that averaged about 3 cubic feet per second per acre (cfs/acre) for the 100-year design
7 storm event (corresponds to about 2 cfs/acre for the 25-year storm event). Note that in
8 this earlier design, *i.e.*, the 1981 drainage calculations, the applicant used the 100-year
9 rainfall event as the design storm for its drainage calculations rather than the 25-year
10 design storm used in the subsequent amendments and MODs.

11
12 **Q. WHAT IS THE CURRENTLY PERMITTED CONDITION FOR THE ACL?**

13 A. The currently permitted condition is reflected in Permit No. MSW-249C, per an
14 amendment dated 1989 that was issued by TNRCC in July 1991, plus any and all permit
15 MODs that were subsequently issued by TCEQ/TNRCC for the ACL facility.

16
17 **Q. PLEASE DESCRIBE WHAT WAS AUTHORIZED BY PERMIT NO. MSW-249C.**

18 A. Permit No. MSW-249C involved the expansion of the West Hill to the west, adding
19 another seventy-four (74) acres to the then 216-acre landfill site for a total permitted
20 facility of 290 acres.

21
22 **Q. HOW HAS THE AUTHORIZATION APPROVED FOR PERMIT NO. MSW-249C
23 IN 1991 BEEN CHANGED SINCE THAT TIME?**

24 A. At least three MODs have been approved since issuance of Permit No. MSW-249C in
25 1991: (1) the "1996 MOD"; (2) the "2002 MOD"; and (3) the "2003 MOD."

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Q. PLEASE DESCRIBE WHAT YOU HAVE REFERRED TO AS THE 1996 MOD.

A. A MOD, dated July 22, 1996 (the “1996 MOD”), was requested to allow for the construction of interceptor berms, downchutes and a network of perimeter ditches “[t]o control runoff and reduce the potential for erosion of the final cover” (See WM-019647.)

Q. PLEASE IDENTIFY WHAT IS MARKED AS EXHIBIT TJFA 504.

A. Exhibit TJFA 504 includes three documents.

- (1) A letter from Mr. Brian Dudley, P.E., Project Manager, Rust Lichliter/Jameson, to Ms. Susan Janek, P.E., Manager, Permits Section, MSW Division, TNRCC, dated July 22, 1996 (the “Dudley Letter”). The Dudley Letter identifies that it is transmitting a requested MOD to the final landfill contours and drainage system.
- (2) Excerpts of Permit No. MSW-249C, as produced by the Executive Director of TCEQ, which is identified as “Part A and Site Development Plan for the Austin Community Landfill Expansion Permit Amendment Application 249-C, Travis County, Volume I, Main Text through Attachment 15, Applicant: Texas Waste Systems, Inc., Prepared By: Cook-Joyce, Inc., 15 September 1989, Revision 1 – 27 September 1990, Revision 2 – July 1996 Modification, By: Rust Environment & Infrastructure” (the “Permit Excerpt”). This excerpted portion includes: the cover page (as of the 1996 MOD), the table of contents, and excerpts from the narrative of the permit, starting with Sections 3.6, Surface Water

1 Protection, pages 29 through 37, and including Attachment 5 and
2 Attachments 8-1A and 8-1B.

- 3 (3) Excerpts of a copy of "Appendix 2.3, Austin Community Recycling and
4 Disposal Facility, Post-Development Drainage Calculations," as prepared
5 for WMTX by Rust Environment and Infrastructure (the "Appendix 2.3
6 Excerpt"). The document was signed and sealed by Mr. J. Brian Dudley
7 on July 22, 1996, pursuant to the Texas Engineering Practice Act.
8

9 **Q. FROM WHERE DID YOU OBTAIN THE THREE DOCUMENTS INCLUDED IN**
10 **EXHIBIT TJFA 504?**

11 A. The documents were obtained as follows:

- 12 (1) The Dudley Letter, as included in Exhibit TJFA 504, was produced by the
13 Executive Director of TCEQ during discovery in this proceeding. As
14 noted above, the Executive Director did not Bates label the documents he
15 produced, so this document was Bates labeled by TJFA as ED 0004754
16 through ED 00004757.
- 17 (2) A portion of the Permit Excerpt, specifically the cover page, the table of
18 contents, and excerpts from the narrative of the permit, starting with
19 Sections 3.6, Surface Water Protection, pages 29 through 37, as included
20 in Exhibit TJFA 504, was produced by the Executive Director of TCEQ
21 during discovery in this proceeding. This document was Bates labeled by
22 TJFA as ED 0010138, ED 0010149 through ED 0010151, ED 0010263
23 through ED 0010272. The rest of the Permit Excerpt, specifically
24 Attachment 5 and Attachments 8-1A and 8-1B, as included in Exhibit
25 TJFA 504, were produced by WMTX. WMTX Bates labeled the

1 documents as WM-GOLD-00000410 through WM-GOLD-00000411 and
2 WM-GOLD-00000419 through WM-GOLD-00000421.

3 (3) The Appendix 2.3 Excerpt, as included in Exhibit TJFA 504, was
4 produced by WMTX during discovery in this proceeding. WMTX Bates
5 labeled the document as WM-019646 through WM-019680.

6
7 **Q. IS THE DOCUMENT YOU REFERENCED ABOVE AS WM-019647 INCLUDED**
8 **IN EXHIBIT TJFA 504?**

9 A. Yes, it is.

10
11 **Q. DOES EXHIBIT TJFA 504 CONTAIN TRUE AND CORRECT COPIES OF THE**
12 **DUDLEY LETTER AND PORTIONS OF THE PERMIT EXCERPT, AS**
13 **PRODUCED BY THE EXECUTIVE DIRECTOR OF TCEQ, AND PORTIONS**
14 **OF THE PERMIT EXCERPT AND THE APPENDIX 2.3 EXCERPT, AS**
15 **PRODUCED BY WMTX?**

16 A. Yes, it does.

17
18 **Q. ARE THE DOCUMENTS INCLUDED IN EXHIBIT TJFA 504 DOCUMENTS**
19 **THAT ARE KEPT IN THE NORMAL COURSE OF BUSINESS?**

20 A. Yes. Specifically, with regard to the Dudley Letter and the Permit Excerpt, the Executive
21 Director of TCEQ, when he produced documents during discovery in this proceeding,
22 provided the Affidavit, as described above, which stated that all documents produced
23 were records kept by TCEQ in the regular course of business. The TCEQ Affidavit is
24 attached to Exhibit TJFA 503.

1 **Q. ARE THE DOCUMENTS INCLUDED IN EXHIBIT TJFA 504 THE TYPE OF**
2 **DOCUMENTS COMMONLY RELIED UPON BY PROFESSIONAL**
3 **ENGINEERS?**

4 A. Yes, it is common for professional engineers to rely upon documents such as those
5 included in Exhibit TJFA 504.

6
7 **Q. IS EXHIBIT TJFA 504 USEFUL IN YOUR TESTIMONY TODAY AND/OR IN**
8 **ASSISTING THE ADMINISTRATIVE LAW JUDGE TO UNDERSTAND YOUR**
9 **TESTIMONY TODAY SPECIFICALLY REGARDING SURFACE WATER**
10 **DRAINAGE ISSUES.**

11 A. Yes, it is.

12 [MOVE TO ADMIT EXHIBIT TJFA 504]

13
14 **Q. HOW DID THE 1996 MOD REVISE PERMIT NO. MSW-249C?**

15 A. The 1996 MOD resulted in a revision to the drainage patterns throughout the ACL site,
16 with accompanying new drainage calculations for these revised drainage areas as shown
17 in Appendix 2.3. (See Exhibit TJFA 504, Appendix 2.3 Excerpt.) These new drainage
18 calculations show the peak flow rate being calculated generally at about 4 cfs/acre for the
19 25-year storm event. This is a significant increase in the peak flow rates for the storm
20 water coming off of the landfill surface as compared to those peak flow rates associated
21 with the landfill for Permit No. MSW-249A dated 1981 (which were about 2 cfs/acre).
22 This is contrary to the statement in the narrative of the 1996 MOD, which stated that
23 “[n]atural drainage patterns will not be significantly altered.” (See Exhibit TJFA 504,
24 Permit Excerpt, at ED 0010268).

25

1 **Q. HOW DID THE 1996 MOD AFFECT COMPUTED PEAK FLOW RATES?**

2 A. With the addition of the interceptor berms, rundown channels, and perimeter ditches in
3 the 1996 MOD, the time (Tc) for the storm water runoff to leave the landfill slopes and
4 exit the permit boundary was significantly reduced (e.g., 10 to 20 minutes). As a result,
5 the computed peak flow rates were increased to about 4 cfs/acre for the 25-year design
6 storm event.

7
8 **Q. DID THE 1996 MOD PRESENT A COMPARISON BETWEEN THE THEN-
9 PERMITTED PEAK FLOW RATES AND THOSE PEAK FLOW RATES FOR
10 WHICH AUTHORIZATION WAS SOUGHT THROUGH THE 1996 MOD?**

11 A. The 1996 MOD drainage report did not present a comparison at the southern boundary of
12 the ACL site between the peak flow rates for the then currently-permitted condition
13 (Permit No. MSW-249C) and the modified condition sought to be approved through the
14 1996 MOD. The proposed drainage calculations provided were only for the internal
15 landfill areas without showing how the peak flow rates at the southern permit boundary
16 had changed. As identified above, the 25-year peak flow rates off of the ACL increased
17 from about 2 cfs/acre to 4 cfs/acre. This kind of increase in the peak flow rates should
18 have also occurred at the permit boundary to the south.

19
20 **Q. WHAT DID THE 1996 MOD REPRESENT AS THE PEAK FLOW RATE AT
21 THE SOUTHERN PERMIT BOUNDARY ALONG THE CENTRAL CHANNEL?**

22 A. First, the peak flow rate at the southern permit boundary along the Central Channel had
23 been computed to be 977 cfs for the 100-year storm event under Permit No. MSW-249A
24 in 1981. (See Exhibit TJFA 503, 1981 Attachment 8.) This peak flow rate was shown
25 not to change with the amendment which resulted in issuance of Permit No. MSW-249C

1 in 1991 since that amendment simply added an additional seventy-four (74) acres to the
2 West Hill and sent the majority of the storm water from that area to the west and into the
3 unnamed tributary to Walnut Creek. (See Exhibit TJFA 504, Permit Excerpts at Att. 5 at
4 WM-GOLD-00000411.) However, it was noted by WMTX that Permit No. MSW-249C
5 and the 1996 MOD actually reduced the drainage area to the south by about twelve (12)
6 acres (from 295 acres to 283 acres) by diverting some of the West Hill area to the west
7 and through the expansion area associated with the amendment resulting in Permit No.
8 MSW-249C. (See Exhibit TJFA 504, Permit Excerpt at ED 0010268.) Yet, this
9 reduction in the drainage area to the south also did not result in WMTX making any
10 adjustment to the peak flow rate from the permitted area draining to the south, as 977 cfs
11 was still shown to be the peak flow rate for the 100-year storm event even in the
12 2003 MOD. (See ED 0010713.)

13
14 **Q. PLEASE DESCRIBE WHAT YOU HAVE REFERRED TO AS THE 2002 MOD.**

15 A. A WMTX letter to TCEQ dated December 23, 2002, requested a permit modification to
16 allow for the construction of two sedimentation ponds in the Central Channel. Prior to
17 seeking the 2002 MOD, Permit No. MSW-249C had no provisions for sedimentation
18 ponds. (See ED 0010351.) According to WMTX, the changes requested in the 2002
19 MOD were considered “minor in nature” and would not impact off-site drainage. (See
20 ED 0010353.) The 2002 MOD was issued by TCEQ in February 2003.

21
22 **Q. PLEASE IDENTIFY WHAT IS MARKED AS EXHIBIT TJFA 505.**

23 A. Exhibit TJFA 505 includes four (4) documents.

- 24 (1) A letter from Mr. Rusty Fusilier, P.E., Compliance Manager, WMTX, to
25 Mr. Richard Carmichael, Ph.D., Manager, MSW Permits Section, Waste

1 Permits Division, TCEQ, dated December 23, 2002 (the “Fusilier Letter”).
2 The Fusilier Letter identifies that it is transmitting a requested MOD for
3 drainage improvements.

4 (2) A Certification Statement to TCEQ Pertaining to Permit Modification for
5 a Class I Modification for drainage improvements, signed by Mr. James O.
6 Smith, and dated December 24, 2002 (the “2002 Certification Statement”).

7 (3) Excerpts from “Permit Plans for Central Channel Drainage Improvements,
8 for Waste Management of Texas, Inc., Austin Community Landfill,
9 Austin, Texas, as prepared by RJR Engineering, and dated November
10 2002 (the “2002 Permit Plans”). The 2002 Permit Plans was signed and
11 sealed by Mr. James R. Murray III on December 23, 2002, pursuant to the
12 Texas Engineering Practice Act.

13 (4) Letter from Mr. Richard C. Carmichael, Ph.D., P.E., CIH, Manager, MSW
14 Permits Section, Waste Permits Division, TCEQ, to Mr. James O. Smith,
15 District Landfill Manager, Waste Management of Texas, Inc., dated
16 February 21, 2003, and transmitting “Modification to Municipal Solid
17 Waste Permit No. 249C,” dated February 20, 2003 (collectively, the “2002
18 MOD Approval”). The letter provided notification to WMTX that the
19 2002 MOD had been approved.
20

21 **Q. FROM WHERE DID YOU OBTAIN THE FOUR DOCUMENTS INCLUDED IN**
22 **EXHIBIT TJFA 505?**

23 **A.** The documents were obtained as follows:

24 (1) The Fusilier Letter, as included in Exhibit TJFA 505, was produced by the
25 Executive Director of TCEQ during discovery in this proceeding. As

1 noted above, the Executive Director did not Bates label the documents he
2 produced, so this document was Bates labeled by TJFA as ED 0010350
3 through ED 0010354.

4 (2) The 2002 Certification Statement, as included in Exhibit TJFA 505, was
5 produced by the Executive Director of TCEQ during discovery in this
6 proceeding. This document was Bates labeled by TJFA as ED 0010357.

7 (3) The 2002 Permit Plans, as included in Exhibit TJFA 505, was produced by
8 WMTX during discovery in this proceeding. WMTX Bates labeled the
9 pages WM-CAST-0000498 through WM-CAST-0000514.

10 (4) The 2002 MOD Approval, as included in Exhibit TJFA 505, was produced
11 by the Executive Director of TCEQ during discovery in this proceeding.
12 This document was Bates labeled by TJFA as ED 0010348 and
13 ED 0010349.

14
15 **Q. ARE THE DOCUMENTS YOU REFERENCED ABOVE AS ED 0010351 AND**
16 **ED 0010353 INCLUDED IN EXHIBIT TJFA 505?**

17 **A. Yes, it is.**

18
19 **Q. DOES EXHIBIT TJFA 505 CONTAIN TRUE AND CORRECT COPIES OF THE**
20 **FUSILIER LETTER, THE 2002 CERTIFICATION STATEMENT, THE 2002**
21 **PERMIT PLANS, AND THE 2002 MOD APPROVAL, AS PRODUCED BY THE**
22 **EXECUTIVE DIRECTOR OF TCEQ?**

23 **A. Yes, it does.**

1 **Q. ARE THE DOCUMENTS INCLUDED IN EXHIBIT TJFA 505 DOCUMENTS**
2 **THAT ARE KEPT IN THE NORMAL COURSE OF BUSINESS?**

3 A. Yes. Specifically, the Executive Director of TCEQ, when he produced documents during
4 discovery in this proceeding, provided the Affidavit, as described above, which stated
5 that all documents produced were records kept by TCEQ in the regular course of
6 business. The TCEQ Affidavit is attached to Exhibit TJFA 503.

7
8 **Q. ARE THE DOCUMENTS INCLUDED IN EXHIBIT TJFA 505 THE TYPE OF**
9 **DOCUMENTS COMMONLY RELIED UPON BY PROFESSIONAL**
10 **ENGINEERS?**

11 A. Yes, it is common for professional engineers to rely upon documents such as those
12 included in Exhibit TJFA 505.

13
14 **Q. IS EXHIBIT TJFA 505 USEFUL IN YOUR TESTIMONY TODAY AND/OR IN**
15 **ASSISTING THE ADMINISTRATIVE LAW JUDGE TO UNDERSTAND YOUR**
16 **TESTIMONY TODAY SPECIFICALLY REGARDING SURFACE WATER**
17 **DRAINAGE ISSUES?**

18 A. Yes, it is.

19 [MOVE TO ADMIT EXHIBIT TJFA 505]

20
21 **Q. PLEASE DESCRIBE WHAT YOU HAVE REFERRED TO AS THE 2003 MOD.**

22 A. A modification request dated October 20, 2003, was then submitted by WMTX to TCEQ
23 for the East hill to allow for a change in the contours along the eastern side of the hill.
24 The 2003 MOD was issued by TCEQ on December 9, 2003.

25

1 **Q. PLEASE IDENTIFY WHAT IS MARKED AS EXHIBIT TJFA 506.**

2 A. Exhibit TJFA 506 includes five (5) documents.

3 (1) A letter from Mr. James Smith, Landfill Manager, WMTX, to Mr. Richard
4 Carmichael, Manager, MSW Permits Section, Waste Permits Division,
5 TCEQ, dated October 20, 2003 (the "Smith Letter"). The Smith Letter
6 identifies that it is transmitting a requested MOD for the final cover and
7 drainage improvements.

8 (2) A Certification Statement to TCEQ Pertaining to Permit Modification for
9 a Class I Modification for final cover and drainage improvements, signed
10 by Mr. James O. Smith, and dated October 20, 2003 (the "2003
11 Certification Statement").

12 (3) Excerpts from "Permit Modification Request, Permit No. MSW-249C,
13 Final Cover and Drainage Improvements, Austin Community Landfill,
14 Austin, Travis County, Texas," as prepared for WMTX by RJR
15 Engineering, Ltd., L.L.P. and dated September 22, 2003 (the "2003
16 Drainage Request"). The 2003 Drainage Request was signed and sealed
17 by Mr. James R. Murray III on September 22, 2003, pursuant to the Texas
18 Engineering Practice Act.

19 (4) Additional excerpts from "Permit Modification Request, Permit
20 No. MSW-249C, Final Cover and Drainage Improvements, Austin
21 Community Landfill, Austin, Travis County, Texas," as prepared for
22 WMTX by RJR Engineering, Ltd., L.L.P. and dated September 22, 2003,
23 specifically attachments starting at "Culvert Design" (the "Additional
24 Excerpts").

1 (5) Letter from Mr. Richard C. Carmichael, Ph.D., P.E., CIH, Manager, MSW
2 Permits Section, Waste Permits Division, TCEQ, to Mr. James Smith,
3 Landfill Manager, Waste Management Austin Community Landfill, dated
4 December 9, 2003, and transmitting "Modification to Municipal Solid
5 Waste Permit No. 249C," dated December 9, 2003 (collectively, the "2003
6 MOD Approval"). The letter provided notification to WMTX that the
7 2003 MOD had been approved.
8

9 **Q. FROM WHERE DID YOU OBTAIN THE FIVE DOCUMENTS INCLUDED IN**
10 **EXHIBIT TJFA 506?**

11 A. The documents were obtained as follows:

12 (1) The Smith Letter, as included in Exhibit TJFA 506, was produced by the
13 Executive Director of TCEQ during discovery in this proceeding. As
14 noted above, the Executive Director did not Bates label the documents he
15 produced, so this document was Bates labeled by TJFA as ED 0010332
16 through ED 0010335.

17 (2) The 2003 Certification Statement, as included in Exhibit TJFA 506, was
18 produced by the Executive Director of TCEQ during discovery in this
19 proceeding. This document was Bates labeled by TJFA as ED 0010346.

20 (3) The 2003 Drainage Request, as included in Exhibit TJFA 506, was
21 produced by the Executive Director of TCEQ during discovery in this
22 proceeding. This document was Bates labeled by TJFA as ED 0010347
23 and ED 0010673 through ED 0010716.

1 (4) The Additional Excerpts, as included in Exhibit TJFA 506, was produced
2 by the WMTX during discovery in this proceeding. WMTX Bates labeled
3 the pages as WM-019613 through WM-019637.

4 (5) The 2003 MOD Approval, as included in Exhibit TJFA 506, was produced
5 by the Executive Director of TCEQ during discovery in this proceeding.
6 This document was Bates labeled by TJFA as ED 0010330 and
7 ED 0010331.
8

9 **Q. IS THE DOCUMENT YOU REFERENCED ABOVE AS ED 0010713 INCLUDED**
10 **IN EXHIBIT TJFA 506?**

11 A. Yes, it is.
12

13 **Q. DOES EXHIBIT TJFA 506 CONTAIN TRUE AND CORRECT COPIES OF THE**
14 **SMITH LETTER, THE 2003 CERTIFICATION STATEMENT, THE 2003**
15 **DRAINAGE REPORT, AND THE 2003 MOD APPROVAL, AS PRODUCED BY**
16 **THE EXECUTIVE DIRECTOR OF TCEQ, AND THE ADDITIONAL**
17 **EXCERPTS, AS PRODUCED BY WMTX?**

18 A. Yes, it does.
19

20 **Q. ARE THE DOCUMENTS INCLUDED IN EXHIBIT TJFA 506 DOCUMENTS**
21 **THAT ARE KEPT IN THE NORMAL COURSE OF BUSINESS?**

22 A. Yes. Specifically, with regard to the Smith Letter, the 2003 Certification Statement, the
23 2003 Drainage Request, and the 2003 MOD Approval, the Executive Director of TCEQ,
24 when he produced documents during discovery in this proceeding, provided the
25 Affidavit, as described above, which stated that all documents produced were records

1 kept by TCEQ in the regular course of business. The TCEQ Affidavit is attached to
2 Exhibit TJFA 503.

3
4 **Q. ARE THE DOCUMENTS INCLUDED IN EXHIBIT TJFA 506 THE TYPE OF**
5 **DOCUMENTS COMMONLY RELIED UPON BY PROFESSIONAL**
6 **ENGINEERS?**

7 A. Yes, it is common for professional engineers to rely upon documents such as those
8 included in Exhibit TJFA 506.

9
10 **Q. IS EXHIBIT TJFA 506 USEFUL IN YOUR TESTIMONY TODAY AND/OR IN**
11 **ASSISTING THE ADMINISTRATIVE LAW JUDGE TO UNDERSTAND YOUR**
12 **TESTIMONY TODAY SPECIFICALLY REGARDING SURFACE WATER**
13 **DRAINAGE ISSUES?**

14 A. Yes, it is.

15 [MOVE TO ADMIT EXHIBIT TJFA 506]

16
17 **Q. HOW DID WMTX REPRESENT THE EXISTING OR PERMITTED DRAINAGE**
18 **PATTERNS IN THE ACL AMENDMENT APPLICATION?**

19 A. WMTX presents the drainage patterns for existing conditions based on the 2002 MOD
20 and the 2003 MOD drainage plans for the West and East hills, respectively, which are
21 intended to reflect the currently permitted landfill design. (See APP-202 at ATT2-1A &
22 ATT2-1B at 613-14.) However, the storm water runoff rates leaving the ACL facility to
23 the south between these two hills, as presented in the ACL Amendment Application, are
24 dramatically different (about double) from those values provided in the 2002 MOD and
25 2003 MOD.

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Q. PLEASE EXPLAIN.

A. For example, in the 2003 MOD, WMTX represented that the peak runoff rate leaving the permit boundary on the south side of the ACL facility between the two hills is 977 cubic feet per second (cfs) for the 100-year storm event. (See Exhibit TJFA 506 at ED 0010713.) This is the same peak rate that had been computed for the ACL since the 1981 permit amendment, at which time Permit No. MSW-249A was issued. Yet, WMTX now in ACL Amendment Application shows the peak runoff rate for the same existing conditions to the south as 1,931 cfs for the 100-year storm event. (See APP-202 at 636.) This is almost double the rate that had been represented to the TCEQ in the 2002 MOD and the 2003 MOD for the same landfill design condition.

Q. HOW DID WMTX REPRESENT THE PROPOSED DRAINAGE PATTERNS IN THE ACL AMENDMENT APPLICATION?

A: WMTX presented its proposed drainage patterns based on its proposed design changes to the currently permitted (existing) condition. The computed peak runoff rate leaving the site to the south between the two hills for this proposed condition is 1,971 cfs for the 100-year storm event (see APP-202 at 636), similar to the value computed by WMTX in the ACL Amendment Application for existing conditions. However, this value is also about double the peak runoff rate computed for the existing conditions as presented by WMTX in the 2002 MOD and the 2003 MOD.

1 **Q. PLEASE DESCRIBE THE DRAINAGE ANALYSES CONTAINED IN THE ACL**
2 **AMENDMENT APPLICATION.**

3 A. As just described, the ACL Amendment Application presents drainage calculations for
4 existing and proposed conditions. The hydrologic method used was the SCS lag method
5 (a unit hydrograph method) along with the SCS Curve Number for determining runoff
6 volume. The HEC-HMS computer program was used to perform these drainage
7 calculations using these methods. The existing conditions calculations showed peak flow
8 rates internal to the landfill for the 25-year design storm event averaging about
9 5-6 cfs/acre, with the peak flow rate at the southern permit boundary computed at
10 4.5 cfs/acre ($Q_p=1,269$ cfs for a drainage area of 283 acres). (See APP-202 at 636.)
11

12 **Q. ARE THE RESULTS YOU JUST DESCRIBED ABOVE DIFFERENT THAN THE**
13 **1996 MOD DRAINAGE CALCULATIONS FOR THE ACL?**

14 A. Yes, these results for existing conditions in the ACL Amendment Application are
15 different than the 1996 MOD drainage calculations for the same condition of the ACL.
16 Part of this difference is due to WMTX using different hydrologic methodologies.
17 However, in spite of those different methods, the peak flow rate to the south is still being
18 computed to be substantially higher now than the value presented in the previous design
19 reports submitted to TCEQ by WMTX.

1 **IV. SUMMARY AND CONCLUSIONS**

2 **Q. CAN YOU PLEASE SUMMARIZE WHAT YOU HAVE FOUND WITH REGARD**
 3 **TO PEAK FLOW RATES FROM THE PERMITTED AREA DRAINING TO THE**
 4 **SOUTH?**

5 **A.** Yes, the following Table 1 shows that the 100-year peak flow rate off of the landfill site
 6 to the south has been computed by WMTX to be 977 cfs since issuance of Permit
 7 No. MSW-249A in 1981, until now and the ACL Amendment Application.

8 **Table 1. 100-year Peak Flow Rate Leaving the ACL to the South**

Permit Condition		Site Drainage Area (acres)	Peak Flow Rate (cfs)	Drainage Area (acres)
249	1977	-	-	-
249A	1981	216	977	295
249B	1988	216	977	295
249C	1991	290	977	283
249C MOD	1996	290	977	283
249C MOD	2002	290	977	283
249C MOD	2003	290	977	283
249C	PAA (Existing)	290	1,931	283
249D	PAA (Proposed)	360	1,971	285
PAA – ACL Amendment Application				

1 **Q. BASED ON YOUR EVALUATION, IN YOUR PROFESSIONAL OPINION,**
2 **HAVE DRAINAGE CONDITIONS BEEN ADVERSELY ALTERED BY THIS**
3 **INCREASE IN PEAK FLOW RATE LEAVING THE ACL TO THE SOUTH?**

4 A. Yes, my evaluation indicates that the storm water runoff rate to the south has been
5 adversely altered and significantly increased over what had been represented to the
6 TCEQ by the Applicant in prior submittals to the TCEQ as a result of changes in the
7 design of the final cover of the ACL. These changes have or will result in increased
8 flooding and erosion of off-site areas to the south of the landfill site.

9

10 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

11 A. Yes. However, I would like to reserve my rights to supplement or amend my testimony
12 as appropriate and as permitted by the Administrative Law Judge.