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May 29, 2009

Via Hand-Delivery

Hon. Roy Scudday
Administrative Law Judge
State Office of Administrative Hearings
300 W. 15th Street, Suite 502
Austin, Texas 78701

Re: SOAH Docket No. 582-08-2186; TCEQ Docket No. 2006-0612-MSW
Application of Waste Management of Texas, Inc. for a Municipal Solid Waste Permit Amendment; Permit No. MSW-249D
Reply to Closing Arguments

Dear Judge Scudday:

Enclosed please find Applicant Waste Management of Texas, Inc.'s Reply to Closing Arguments in the above-referenced matter. Also enclosed is a compact disc containing electronic copies (in Word format) of Applicant's Proposed Findings of Fact, Conclusions of Law, and Ordering Provisions.

Respectfully submitted,

Bryan J. Moore

cc: Service List (*via electronic mail*)

Austin 1079164v.1

SOAH DOCKET NO. 582-08-2186
TCEQ DOCKET NO. 2006-0612-MSW

APPLICATION OF	§	**BEFORE THE STATE OFFICE**
WASTE MANAGEMENT OF TEXAS, INC.	§	
FOR A MUNICIPAL SOLID WASTE	§	**OF**
PERMIT AMENDMENT;	§	
PERMIT NO. MSW-249D	§	**ADMINISTRATIVE HEARINGS**

APPLICANT WASTE MANAGEMENT OF TEXAS, INC.'S
REPLY TO CLOSING ARGUMENTS

TO THE HONORABLE ADMINISTRATIVE LAW JUDGE:

COMES NOW Applicant Waste Management of Texas, Inc. ("***Applicant***" or "***WMTX***") and files this consolidated reply to the closing arguments of Protestants and the Office of Public Interest Counsel ("***OPIC***") in the above-captioned contested case. For the reasons set forth below, and more fully in Applicant's Closing Argument, WMTX has demonstrated, by proof exceeding a preponderance of the evidence, that its application to expand the Austin Community Recycling and Disposal Facility ("***ACRD Facility***") complies with all applicable statutory and regulatory requirements. In their closing arguments, Protestants and OPIC fail to cite to any record evidence sufficient to overcome this demonstration. Protestants and OPIC cannot reasonably claim that there is any legal impediment to the proposed expansion of the ACRD Facility, nor any reasoned, lawful justification for denying WMTX's application. Accordingly, for the foregoing reasons, as set out more fully below and in Applicant's Closing Argument, Permit No. MSW-249D should be issued to WMTX.

I.
INTRODUCTION

To avoid repetition, this consolidated reply seeks only to address Protestants' and OPIC's allegations in their respective closing arguments that were not anticipated and refuted in Applicant's Closing Argument. However, where appropriate and for clarity, this brief may

provide concise additional responses to those allegations that are more fully addressed in Applicant's Closing Argument. Here again, as requested by the Administrative Law Judge ("***ALJ***"), the arguments in this consolidated response follow the outline set forth in the ALJ's Order No. 12.

II.
PARTIES

The parties to this case were identified in Applicant's Closing Argument.

III.
JURISDICTION

The jurisdiction of the Texas Commission on Environmental Quality ("***TCEQ***" or "***the Commission***") and the State Office of Administrative Hearings ("***SOAH***") was addressed in Applicant's Closing Argument. No party appears to dispute that TCEQ has jurisdiction over this proceeding or that SOAH had jurisdiction to conduct the hearing in this contested case.

IV.
PROCEDURAL HISTORY

The procedural history of this matter was discussed in Applicant's Closing Argument.

V.
BACKGROUND FACTS

The relevant background facts were discussed in Applicant's Closing Argument.

VI.
ISSUES

A. WHETHER THE APPLICATION INCLUDES ADEQUATE PROVISIONS FOR THE PROTECTION OF HUMAN HEALTH AND WELFARE, AND THE ENVIRONMENT IN GENERAL

1. Whether the Application Includes Adequate Protection of Groundwater and Surface Water, in Compliance with Agency Rules, Particularly in Relation to the Effects of the IWU and Phase I on the Groundwater and Surface Water

2. Whether the Application Includes Adequate Provisions for Groundwater Monitoring, in Compliance with Agency Rules, Particularly the Sufficiency of the Groundwater Monitoring Plan and the Point of Compliance to Assess Effects of the IWU and Phase I on the Groundwater

Protestants' and OPIC's arguments regarding the foregoing two issues were almost entirely limited to monitoring of the Industrial Waste Unit ("***IWU***") and the Phase I Unit. Accordingly, WMTX provides the following consolidated reply to Protestants' and OPIC's arguments regarding these two issues.

a. The Record Evidence Demonstrates that the Point of Compliance Groundwater Monitoring Network Proposed in the Application will Monitor the IWU and the Phase I Unit

Mr. Winters was unequivocal in his testimony that the point of compliance groundwater monitoring network proposed in WMTX's application will serve to detect a potential release of contaminants from either the IWU or the Phase I Unit.[1] As discussed in WMTX's Closing Argument, WMTX's application proposes to extend the facility's point of compliance north and east from monitoring well MW-11 along the eastern boundary of the West Hill portion of the existing facility, over the northern limits of the IWU, and south along the western boundary of the East Hill portion of the existing facility to monitoring well MW-12. The groundwater monitoring network that Mr. Winters designed, as proposed in the application, includes the

[1] *See, e.g.*, Trial Tr. at 935:2-14, 966:3-7; 988:12-16; 989:1-6; 1016:22 to 1017:15, 1022:22 to 1023:1, 1023:12 to 1024:12, 1037:2-8, 1043:15-20, 1044:5-6 (Winters).

addition of six monitoring wells along this new extension of the facility's point of compliance.[2] As Mr. Winters explained, currently MW-11 is the only groundwater monitoring well in the permitted monitoring network for the existing ACRD Facility that is located such that it will detect a release from either the IWU or the Phase I Unit.[3] WMTX's application proposes to retain MW-11 in the network and add two additional wells to the network – MW-30 and MW-44 – that will monitor the IWU and another additional well – MW-51 – that will monitor the Phase I Unit.[4]

The record evidence overwhelmingly supports a finding that these groundwater monitoring wells are located, or are proposed to be located, where they will be capable of detecting a release from the respective unit(s) that they will monitor. Every potentiometric surface map in the record – with the lone, arguable exception being the one relied upon by Dr. Kier and addressed below – demonstrates that MW-30 and MW-44 are hydraulically downgradient of the IWU; that MW-51 is downgradient of the southeast portion of the Phase I Unit; and that MW-11 is downgradient of both the IWU and the Phase I Unit.[5] This record

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2 *See* Ex. APP-202 at 3023 (showing the locations of wells MW-44, MW-30, MW-50, MW-45, MW-46, and MW-51 along the proposed point of compliance between MW-11 and MW-12).

3 As discussed below, Dr. Kier testified that monitoring well MW-11 is – to some degree – capable of monitoring the IWU and the Phase I Unit. *See* Trial Tr. at 1325:7 to 1326:9, 1470:10 to 1471:8, 1471:24 to 1472:11, 1485:24 to 1486:3 (Kier). Another of TJFA's witnesses, Dr. Uliana, testified that MW-11 is downgradient of the IWU. *See id.* at 1616:12-14 (Uliana). The City of Austin's witness, Mr. Lesniak, also testified that MW-11 is, "to some extent, downgradient of the IWU" and that groundwater from the central portion of the ACRD Facility flows in the general direction of MW-11. *Id.* at 2143:17-25 (Lesniak).

4 *See id.* at 989:11 to 990:2; 1017:1-8, 1023:17-23, 1037:2-8, 1043:15-20, 1044:5-6, 1055:4-13 (Winters).

5 *See, e.g.*, Ex. APP-202 at 1483-86, 2135, 2334, 3017-23; Ex. APP-1 at Att. A, Pt. III, Figs. 3-5, 3-6, 3-7; Ex. TJFA 204 at 56-58; Ex. TJFA 5 at WM-064107; *see also* Ex. APP-202 at 3001 ("Based on the groundwater potentiometric maps, the groundwater flow paths were identified for both the current condition and the future condition of the site (i.e., the condition after cell excavations)."), 3002

evidence cannot be reasonably disputed – even potentiometric surface maps offered by TJFA clearly show these downgradient well locations.[6]

These downgradient well locations are also evidenced by every map in the record that depicts the contours of the top of the unweathered Taylor Formation (i.e., Stratum II) at the site, which influences the flow of groundwater at the interface of the weathered and unweathered Taylor.[7] Additional support for these downgradient well locations is also provided by the topographic maps in the record, and every witness that addressed the issue testified that groundwater at the ACRD Facility generally flows in conformance to the natural topography of the surface of the land.[8]

(explaining that "[t]he direction of groundwater flow is governed by the hydraulic gradient (from a higher to a lower groundwater elevation)").

[6] *See* Ex. TJFA 5 at WM-064107; Ex. TJFA 204 at 56-58 (depicting MW-30 downgradient of the IWU (MW-30 is located along the "21" vertical grid line, between horizontal grid lines "J" and "I")). MW-30 is an existing well that, per WMTX's agreement with the City of Austin, is currently gauged to determine the potentiometric head in the IWU area. *See* Ex. APP-202 at 2993; Ex. COA 8 at 1; Ex. COA 9.

[7] *See, e.g.*, Ex. APP-202 at 2134, 2291, 2336, 3017; Ex. APP-1 at Att. A, Pt. III, Fig. 3-8; Ex. TJFA 204 at 59; *see also* Ex. APP-202 at 2096 (noting that groundwater flow directions at the ACRD Facility "are interpreted as being controlled by the surface of the unweathered soil"), 2105 ("Ground-water levels across the site generally mimic the surface of the unweathered claystone strata. Therefore, ground-water gradients are dictated by the surface of the unweathered claystone strata."), 2326 (noting that the groundwater flow pattern at the ACRD Facility "generally mimics the top surface of the unweathered claystone"), 3001 ("Because groundwater tends to flow at the Stratum I/II interface, a map of this surface was developed as a guide for information on groundwater flow."), 3002 (explaining that groundwater flow at the ACRD Facility "is influenced by the contours of the interface between the weathered and unweathered strata beneath the site (i.e., the Stratum I/II interface) due to the very low permeabilities of the subsurface soils"), 3005 (noting that the orientation of the weathered/unweathered interface concentrates groundwater flow near MW-11); Ex. TJFA 5 at WM-064092 ("Ground water levels across the site generally mimic the surface of the unweathered claystone strata underlying the weathered clay strata. Therefore, ground water gradients are dictated by the surface of the unweathered claystone strata.").

[8] *See, e.g.*, Ex. APP-202 at 1464, 2128-29, 2286-87, 3016, 3023; Ex. APP-1, Att. A, Pt. III, Fig. 1-1, Fig. 1-2, Fig. 2, Fig. 2-1, Fig. 2-2, Fig. 3-1; Ex. APP-11 at WM-055356; Ex. APP-12 at WM-037417; Ex. TJFA 204 at 50-52; Ex. TJFA 211 at 1-2; Ex. COA 9; *see also* Ex. APP-202 at 1404 (noting that groundwater, were present at the ACRD Facility, generally flows along the Stratum I/II interface "in subdued conformity to topography"); 1949 (noting that the direction of groundwater flow at the site is

All of these maps depict the direction of groundwater flow in the area of the IWU to be from the east to the west – westerly flow from the west side of the East Hill towards MW-30 and MW-44 and the central drainage way that bisects the facility from north to south.[9] With respect to the Phase I Unit, these maps show that the direction of groundwater flow is from the Travis County Landfill property across the ACRD Facility permit boundary and towards the drainage way (along which MW-51 will be located) that runs from east to west between the IWU and the Phase I Unit and that converges with the north-south central drainage way.[10] The surface topography of the north-south central drainage way and the east-west drainage way between the IWU and the Phase I Unit, and the gradient of the top of the unweathered Taylor beneath these

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"largely controlled by topography"), 1964 (noting that groundwater at the site "flows under the influence of gravity along the weathered-unweathered contact, which basically reflects the surface topography"), 2096 ("Ground water in the weathered soil overlying the unweathered soil is interpreted to flow along the top of the unweathered soil from topographic highs to topographic lows."), 3001 (noting that Stratum I/II interface map in the application was developed using pre-development site topography since the top of Stratum II is "expected to exist in subdued conformity to topography" and because groundwater at the site "normally flows in subdued conformity to topography following the weathered/unweathered Stratum I/II interface"); Trial Tr. at 987:20 to 988:4 (Winters) (testifying that groundwater tends to flow in conformance with surface topography and that surficial valleys and drainage features control groundwater flow); *id.* at 1316:4-8 (Kier) (testifying that, where present in the Taylor, groundwater generally flows in conformance with topography).

9 *See* Ex. APP-202 at 2992 ("[T]he local flow regime is affected by a regional groundwater divide with most of the groundwater flow directed west-southwest towards a tributary of Walnut Creek."), 3005 ("Groundwater beneath a portion of the East Hill flows generally to the west and southwest from a groundwater divide beneath the unit . . . ."); Ex. TJFA 204 at 40 ("[T]he shallow groundwater flow direction in the vicinity of the IWU has consistently been to the west."), 45 ("[T]he unweathered clay surface generally dips to the west across the IWU . . . . The dip of the unweathered clay surface across the IWU generally mirrors the groundwater potentiometric surface as evaluated during this investigation.").

10 *See, e.g.*, Ex. APP-202 at 2113 ("The closed [Travis County] landfill site has the potential for ground-water flow to enter the ACL site along the southern boundary. The ACL site is downgradient of the closed landfill."); Ex. TJFA 5 at WM-064107 (depicting groundwater flowing from the Travis County Landfill across the ACRD Facility permit boundary).

drainage features, influence groundwater flow and direct it toward MW-11 (i.e., groundwater flow, here again, mimics the surface topography).[11]

These groundwater flow directions are consistently documented by a wealth of additional evidence in the record – evidence in addition to the many recent and historic potentiometric surface maps and other maps that depict the direction of groundwater flow in the area of the IWU and the Phase I Unit. For instance, historic documentation included in WMTX's application demonstrates that, from the outset, monitoring well MW-11 was designed and located to monitor groundwater "flowing from the ACL site south toward the Travis County Landfill."[12] Additionally, with respect to the IWU, the ThermoRetec report offered by TJFA and relied upon by Dr. Kier is clear: "[T]he shallow groundwater flow direction in the vicinity of the IWU has consistently been to the west."[13] Regarding the Phase I Unit, the record evidence demonstrates that the direction of groundwater flow east of MW-11 along the southern boundary of the ACRD Facility has historically and consistently been determined to be from the Travis County Landfill and across the ACRD Facility permit boundary – that is, the Phase I Unit has

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[11] *See* Ex. APP-202 at 1371 ("The eastern side of the West Hill and western side of the East Hill naturally drain into a drainage ditch that bisects the site . . . ."), 1400 ("On the central portion of the site (between the East and West Hills), groundwater flow is generally to the south and southeast from the West Hill, [and] to the southwest from the East Hill. Both flow systems have groundwater movement towards a low point at the southern perimeter."), 2106 (noting that "ground-water flow is toward the erosional valley that bisects" the ACRD Facility), 2326 ("Flow is generally from potentiometric highs to lows, the latter of which exists in the center of the site . . . . In addition to mimicking the top surface of the unweathered claystone, the ground water flow direction also appears to follow the surficial stream beds to a certain degree."), 3005 (noting that the orientation of the weathered/unweathered interface concentrates groundwater flow near MW-11), 3006 (noting that groundwater flow "is concentrated in the area of the topographic low that crosses the site").

[12] Ex. APP-202 at 2063-64. This historic report also explains that the location of MW-11 was "based on the location of the pre-landfill surface drainage valleys, the surface of the unweathered claystone, existing site topography, and the apparent general ground-water gradients." *Id.* at 2063.

[13] Ex. TJFA 204 at 40; *see also id.* at 44 (identifying the shallow groundwater at the ACRD Facility as "the transition zone between the weathered and the underlying unweathered Taylor Clay").

historically and consistently been determined to be downgradient of the Travis County Landfill.[14] Every expert who offered testimony on this issue, including Dr. Kier, testified that the Phase I Unit is downgradient of the Travis County Landfill and upgradient of the ACRD Facility.[15]

Protestant TJFA mistakenly contends that WMTX's proposed groundwater monitoring well network will not monitor the IWU and the Phase I Units because the application notes that these units are downgradient of other disposal units at the ACRD Facility – portions of the East Hill and West Hill. It is the position of the monitoring wells relative to the disposal units, not the positions of the disposal units relative to one another, that governs whether the monitoring wells will serve to monitor the disposal units. As discussed above, and in the application and the testimony in this case, groundwater flow at the ACRD Facility occurs at the Stratum I/II interface, along the top of Stratum II (the unweathered Taylor).[16] The contour of the top of Stratum II generally mimics that of the surface topography – highest beneath topographic highs and lowest beneath topographic lows.[17] Accordingly, as discussed above, groundwater in the central portion of the ACRD Facility flows from the western side of the East Hill, and from the eastern side of the West Hill, toward the topographic low of the central drainage way that bisects

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14 *See, e.g.*, Ex. APP-202 at 2113 ("The closed [Travis County] landfill site has the potential for ground-water flow to enter the ACL site along the southern boundary. The ACL site is downgradient of the closed landfill."), 2115 (listing the Travis County Landfill as a source of groundwater recharge).

15 *See* Trial Tr. at 926:10-12, 934:2 to 935:1, 1017:11-15 (Winters) (testifying that the area along the southern permit boundary adjacent to the Phase I Unit is an upgradient portion of the ACRD Facility); *id.* at 1327:1-12, 1349:12 to 1350:1, 1357:2-17 (Kier) (testifying that the Phase I Unit is downgradient of the closed Travis County Landfill).

16 *See* sources cited *supra* note 7.

17 *See* sources cited *supra* note 8.

the facility.[18] However, these groundwater flow directions do not mean that a groundwater monitoring system that will monitor the west side of the East Hill and the east side of the West Hill will be incapable of monitoring the IWU and the Phase I Unit.

On the contrary, because all groundwater flow in the central portion of the ACRD Facility converges in the deepest elevations of the Stratum I/II interface beneath the surficial topographic lows marked by the drainage ways, monitoring wells located along these drainage ways – as proposed in WMTX's application – will serve to monitor portions of the East Hill and West Hill, as well as the IWU and the Phase I Unit. To the extent that groundwater flow from the western side of the East Hill and the eastern side of the West Hill is in the direction of the IWU and the Phase I Unit, these units are downgradient of those portions of the East Hill and West Hill, as stated in the application. However, groundwater flows from all of these areas follow the surface of Stratum II and converge at the deepest downgradient elevations of the top of Stratum II, which results in the direction of groundwater flow in the central portion of the site mimicking the direction of surface water flow in the drainage ways in this area of the facility.[19] Hence, a multi-unit monitoring network with wells located along these drainage ways, as proposed in the application, will serve to monitor these multiple units. The proposed wells – proposed to be located along the facility's point of compliance – will be downgradient of portions of the East Hill and West Hill, as well as the IWU and the Phase I Unit.

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18 *See* sources cited *supra* note 11.

19 *See* sources cited *supra* note 8.

b. While Existing Well MW-11 Monitors Groundwater Flows from Nearly All of the Central Portion of the ACRD Facility, the Application Proposes Six Additional Wells to Monitor Groundwater in this Area of the Facility

TJFA wholly ignores the design of the proposed groundwater monitoring system in the application when it alleges that monitoring well MW-11 alone would be responsible for monitoring the central portion of the ACRD Facility if WMTX's application is granted. Under the existing, permitted groundwater monitoring network, MW-11 is responsible for monitoring nearly all of the central portion of the ACRD Facility.[20] By implementing the groundwater monitoring network design proposed in the application, that monitoring responsibility would be shared with the six additional wells that WMTX proposes to add to the permitted monitoring network between MW-11 and MW-12. While the documentation in the application and the historic documentation in the record demonstrate that groundwater flow from the central portion of the ACRD Facility is concentrated at MW-11, the record evidence also demonstrates that the six additional wells that WMTX proposes to install between MW-11 and MW-12 will be located such that they will monitor groundwater flows that ultimately converge beneath the central drainage way and flow toward MW-11.[21]

With respect to whether MW-11 is capable of detecting a release from the IWU or the Phase I Unit, Dr. Kier's testimony at the hearing varied somewhat from his unequivocal deposition testimony – that MW-11 is capable of monitoring the IWU.[22] However, Dr. Kier did not retreat entirely from his deposition testimony and maintained at the hearing that MW-11 is

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[20] In addition to MW-11, existing, permitted wells MW-21 and MW-12 also monitor groundwater in the central portion of the ACRD Facility. *See* Ex. APP-202 at 3005, 3022.

[21] *See* sources cited *supra* note 11; *see also, e.g.*, Ex. APP-202 at 3022-23.

[22] *See* Trial Tr. at 1325:10 to 1326:9 (Kier).

"potentially capable of detecting a release from the IWU"[23] and "could possibly be said to monitor Phase I."[24] Dr. Kier's unwillingness to testify consistently with his prior deposition testimony was apparently due to his reluctant recognition that MW-11 is located such that it monitors groundwater flowing from portions of the East Hill and West Hill, as well as the IWU and the Phase I Unit, which Dr. Kier contends is "asking . . . a lot for one monitoring well."[25]

Dr. Kier's asserted concern regarding MW-11 is unexplained in the record. Dr. Kier did not even attempt to offer any scientific basis for concluding that, because MW-11 is located in the path of converged groundwater flows from portions of the East Hill and West Hill, and from the IWU and the Phase I Unit, MW-11 is somehow incapable of detecting a release from those areas in the central portion of the ACRD Facility. Moreover, it is hypocritical for Dr. Kier to question the capability of a monitoring well solely because it may be monitoring groundwater flows from significant portions of a facility when Dr. Kier himself designed a groundwater monitoring network for the Texas Disposal Systems Landfill that employs only 10 wells to monitor a roughly 350-acre facility.[26] By contrast, 15 groundwater monitoring wells are currently monitoring the existing 288-acre ACRD Facility and WMTX's application proposes to utilize 41 wells to monitor the 360-acre expanded facility.[27]

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23 *Id.* at 1470:10-25 (Kier).

24 *Id.* at 1348:1-10 (Kier). Another of TJFA's witnesses, Dr. Uliana, testified that MW-11 is downgradient of the IWU. *See id.* at 1616:12-14 (Uliana). The City of Austin's witness, Mr. Lesniak, also testified that MW-11 is, "to some extent, downgradient of the IWU" and that groundwater from the central portion of the ACRD Facility flows in the general direction of MW-11. *Id.* at 2143:17-25 (Lesniak).

25 *Id.* at 1348:5-10 (Kier); *see also id.* at 1471:24 to 1472:11 (Kier).

26 *See* Trial Tr. at 1291:22 to 1292:17 (Kier) (also noting that some of the 10 groundwater monitoring wells may be spaced more than 1,000 feet apart).

27 *See* Ex. APP-202 at 2990, 2999, 3003.

In any event, even assuming arguendo that Dr. Kier has a legitimate, supportable concern regarding the scope of the groundwater flows that MW-11 is monitoring, that concern is negated by the groundwater monitoring network proposed in WMTX's application. As set forth above, whereas in the existing, permitted groundwater monitoring network MW-11 alone is responsible for monitoring nearly all of the central portion of the ACRD Facility, if WMTX's application is granted, that responsibility would be shared with the six additional wells that WMTX proposes to add between MW-11 and MW-12.

c. The Record Evidence Demonstrates that Contaminants are Not Migrating, and Cannot Migrate, Off-Site Through Waste

(*i*) There is No Support for Off-Site Migration Through Waste Across the Permit Boundary Between Phase I and the Travis County Landfill

Protestants contend that the municipal solid waste ("***MSW***") that is continuous across a portion of the property line between the closed Travis County Landfill and the Phase I Unit[28] provides a preferential pathway for contaminants to travel from the waste in the IWU or the Phase I Unit across the permit boundary and into the waste in the Travis County Landfill without being detected by the ACRD Facility's groundwater monitoring network. Indeed, Dr. Kier claims that this asserted preferential pathway through MSW is the "principal circumstance" wherein MW-11 may not be able to monitor the IWU.[29]

An analysis of this issue must begin with a recognition of WMTX's regulatory obligation to monitor for contaminants in ***groundwater in the uppermost aquifer*** passing the facility's

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[28] *See* Trial Tr. at 114:18 to 115:7, 231:20 to 233:23 (Smith); *id.* at 293:1-22, 313:9-19, 528:23 to 529:7 (Dominguez); *id.* at 1808:11 to 1809:7 (White); Ex. APP-202 at 1481; Ex. APP-11 at WM-055366; Ex. TJFA 2 at WM-028305; Ex. TJFA 5 at WM-064093.

[29] Trial Tr. at 1472:12-18 (Kier).

point of compliance, not in leachate migrating through waste above the uppermost aquifer.[30] The relevant cross-sections in the record show that the waste in the IWU and Phase I areas was deposited above the interface of Stratum I and Stratum II at the site[31] – which is the uppermost aquifer for groundwater monitoring purposes.[32] Accordingly, wells placed downgradient of these disposal areas and screened at the Stratum I/II interface, as proposed in WMTX's application, are properly placed to monitor these units.[33]

Nevertheless, even if the scope of the applicable regulatory obligation is expanded to protection of human health and the environment, the hypothetical scenario posed by Protestants entails the notion that leachate moves within one continuous mass of MSW, from one landfill to another. Yet, Travis County is collecting, analyzing, and disposing of the leachate from its landfill – the theoretical destination for contaminants migrating from the IWU or Phase I Unit – and the results of the County's analyses indicate that the leachate extracted from the Travis County Landfill meets drinking water standards.[34] Accordingly, there is no support for Protestants' claims that hazardous substances or other deleterious contaminants are migrating across the ACRD Facility's southern permit boundary. Indeed, even assuming that leachate is

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30 *See* 30 TEX. ADMIN. CODE § 330.403(a), (a)(2) (providing that "[a] groundwater monitoring system must be installed . . . to yield representative groundwater samples from the uppermost aquifer" and that "[t]he point of compliance monitoring system must include monitoring wells installed to allow determination of the quality of groundwater passing the point of compliance . . . and to ensure the detection of groundwater contamination in the uppermost aquifer"); *see also* Ex. TJFA 104 at 32 (56 FED. REG. at 51,009) ("The ground-water monitoring system must consist of a sufficient number of appropriately located wells able to yield ground-water samples from the uppermost aquifer that represent the quality of ground water passing the relevant point of compliance . . . .").

31 *See, e.g.*, Ex. APP-202 at 1481, 2132; Ex. APP-1 at Att. A, Pt. III, Figs. 3-2, 3-3, 3-4; Ex. TJFA 204 at 53-55.

32 *See* Ex. APP-202 at 3000-01.

33 *See id.*

34 *See* Trial Tr. at 1899:19 to 1900:8, 1900:18 to 1901:10, 1902:6-15 (White); Ex. APP-11 at WM-055351.

crossing that boundary into the Travis County Landfill – which the record evidence does not support and which WMTX in no way concedes – such migration is not reducing the drinking water quality of the leachate in the County landfill.

While the foregoing analysis alone is sufficient to end the inquiry into this issue, the record evidence demonstrates that Protestants' hypothetical pollutant pathway does not exist. A 1995 investigation measured the "liquid surface level found beneath the cap" over the "closed Phase I cell" at the ACRD Facility.[35] That investigation found that liquid (i.e., leachate) flows within the Phase I Unit from the eastern and central portions of the unit to the northwest "toe of the cell" where it is "retained by the cell wall."[36] The investigation determined that the liquid level within the Phase I Unit "slopes to the northwest" and that leachate collects in the northwest toe of the cell because this area represents the "lowest elevation" of the Phase I Unit.[37]

Notably, this Phase I investigation also found that the compacted clay cap cover over the Phase I Unit was thickest over the northwest toe of the cell. From the eight soil borings that were advanced through the Phase I cap along the northwestern-most edge of the Phase I Unit boundary, the investigation reported a clay cap thickness ranging from 3.9 to 12.5 feet, with no waste encountered in three of the borings.[38]

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[35] Ex. TJFA 12 at WM-064039-40. The Phase I investigation was "voluntarily" performed by WMTX, per a work plan that was submitted to and approved by the Texas Natural Resources Conservation Commission ("***TNRCC***"). *Id.* at WM-064037; *see also* Ex. TJFA 5. Additionally, the report of the results of the Phase I investigation was submitted to the TNRCC for consideration of the report's recommendations for installation of leachate extraction wells in the Phase I Unit. *See id.*

[36] Ex. TJFA 12 at WM-064040, -064041.

[37] *Id.* at WM-064041.

[38] *See id.* at WM-064039-40 (referencing the thickness of the compacted clay cap as measured at soil boring SB-7, located along the northwest boundary of the Phase I Unit, and noting that "no waste was found in the soil core samples taken" from soil borings SB-5, SB-6, and SB-8), WM-064043 (reporting the thickness of the clay cap at soil borings SB-1 through SB-8, interpreted as the depth at which waste was encountered), WM-064044 (showing the location of soil borings SB-1 through SB-8 along the

Also notable is the investigation's finding that an area free of waste – a "natural or backfilled" area – extends to the east and west between the Phase I Unit and the drainage way that runs east-west between the Phase I Unit and the IWU.[39] The investigation found that this area "acts as a wall or dam enhancing the natural tendency of the liquid to flow to the lower elevations to the north or west."[40] This finding of a waste-free barrier between the Phase I Unit and the drainage way between Phase I and the IWU suggests that the oft-cited "generalized" cross-section from the ThermoRetec report may be inaccurate in its interpretation of a continuum of waste from the Phase I Unit to the IWU.[41] On closer inspection, the ThermoRetec investigation of the IWU did not include any soil borings advanced on the Phase I side of the drainage way that runs east-west between the Phase I Unit and the IWU.[42] Hence, the ThermoRetec report's generalized cross-section depicts the extent of MSW from the toe of the Phase I Unit to the IWU with a dashed (rather than solid) line, indicating that the line was extrapolated and that ThermoRetec lacked sufficient data to draw a more definitive depiction.[43]

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northwest boundary of the Phase I Unit). Note that the narrative report lists a clay cap thickness of 12.5 feet at SB-7, whereas Table 1 on page WM-064043 notes a cap thickness of 13.5 feet).

39 *Id.* at WM-064040 (referencing "[a]n area extending east and west of [soil boring] SB-16 [that] exists along the north central portion of the cell" and noting that "no waste was found in the soil core samples taken" from soil borings "SB-5, SB-6, SB-8, SB-16, SB-21, SB-22, and SB-23"), WM-064063 (soil boring log for SB-16 reading "CLAY, dry appeared to be native material outside of cell"), WM-064044 (showing the locations of SB-5, SB-6, SB-8, SB-16, SB-21, SB-22, and SB-23); *see also id.* at WM-064040 (noting also that waste was encountered, but "no moisture was found," in soil borings SB-9, SB-10, SB-11, and SB-25).

40 *Id.* at WM-064040.

41 *See* Ex. APP-202 at 1481.

42 *See* Ex. APP-202 at 2400 (ThermoRetec boring map showing soil borings MW-31 and MW-26 located just north of the east-west drainage way on the IWU side and no borings on the south side of that drainage way).

43 *See* APP-1 at Fig. 3-2. In its report, ThermoRetec indicates that it reviewed the results of the 1995 Phase I investigation. *See* APP-1 at 1-5. That may explain why ThermoRetec's cross-section depicts the southernmost extent of MSW in the Phase I Unit with a solid line, then switches to a dashed line for the northern extent closest to the east-west drainage way between the Phase I Unit and the IWU.

As documented in the Phase I investigation report, leachate is not flowing, and cannot flow, upgradient through the Phase I Unit and across the southern permit boundary of the ACRD Facility. Even assuming the waste in the Phase I Unit is continuous with MSW disposed of in the IWU, as depicted in the generalized ThermoRetec cross-section, there is no theory by which contaminants could migrate from the IWU, uphill through the Phase I Unit, and across the southern permit boundary.[44] Simply put, contaminants – regardless of their point of generation within the ACRD Facility – cannot defy gravity and travel uphill and across the shared property boundary between the Phase I Unit and the Travis County Landfill. Furthermore, as the Phase I investigation report found, leachate is prevented from flowing out of the Phase I Unit and toward either of the drainage ways in the central portion of the ACRD Facility.

The Phase I investigation's finding that leachate flows to and collects in the northwest toe of the Phase I Unit provides further support for Mr. Winter's testimony that MW-11 will serve to detect a release from the Phase I Unit. MW-11 is located hydraulically downgradient from the northwest toe of the Phase I Unit.[45] Furthermore, as provided in WMTX's application, the location of the leachate collection areas within the facility's disposal cells was one of the criteria used to properly position the monitoring wells in the proposed monitoring network, and was one of the criteria used to determine that existing well MW-11 was properly located.[46]

The dashed line likely depicts the area beyond the soil borings advanced for purposes of the Phase I investigation.

[44] The ThermoRetec cross-section depicts the uphill climb that a contaminant would have to make to travel from the IWU area on the northern side of the drainage way through the Phase I Unit on the southern side of the drainage way. *See* Ex. APP-202 at 1481.

[45] *See, e.g.*, Ex. APP-202 at 3022.

[46] *See id.* at 3002-03 (describing "Criterion 1" and applying it to MW-11); *see also* Ex. TJFA 12 at WM-064041 (noting that the northwest toe of the Phase I Unit "being the lowest elevation acts as a type of sum for the cell liquids which are retained by the cell wall").

Contrary to Protestants' claims, additional wells are neither required nor otherwise necessary between MW-11 and MW-51 along the north side of the Phase I Unit. As set forth in detail in WMTX's Closing Argument, the Phase I Unit, having ceased waste receipts prior to October 9, 1991, is not subject to the Subtitle D groundwater monitoring requirements of TCEQ's current MSW rules.[47] Nevertheless, even if those requirements were to apply, MW-11 would be properly positioned as the point of compliance well for the Phase I Unit, and no other wells would be required for that unit. Per TCEQ's MSW rules, point of compliance wells must be positioned at the "hydraulically downgradient ***limit*** of the waste management unit boundary."[48] The potentiometric surface maps in the record clearly show that MW-11 is positioned at the downgradient limit of the Phase I Unit.[49] Although additional wells positioned north of the Phase I Unit between MW-11 and MW-51 would be downgradient or side-gradient to the unit, such wells would not be positioned at the unit's downgradient limit.[50] Additionally, as discussed above, given that leachate collects in the northwest toe of the Phase I Unit, MW-11 is best positioned to detect a release of leachate from the Phase I Unit; wells located to the east of the northwest toe, as proposed by Protestants, would not be so positioned.

(i) There is No Support for Off-Site Migration Through Waste Beneath the Central Drainage Way

Given that contaminants cannot flow uphill, Protestants next attempt to devise a scenario wherein contaminants could theoretically flow around the Phase I Unit and past the southern

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47 *See* 30 TEX. ADMIN. CODE § 330.5(c).

48 *Id.* § 330.3(106) (emphasis added).

49 *See, e.g.*, Ex. APP-202 at 3017-22 (consistently showing that the groundwater potentiometric level is highest on the east side of the Phase I Unit and lowest on the far western edge of the unit); *see also* sources cited *supra* note 5.

50 *See* sources cited *supra* note 49.

permit boundary without being detected by monitoring well MW-11. In support of this theory, Protestants claim that waste has been deposited beneath the drainage ways in the central portion of the ACRD Facility and that such waste is continuous beneath the central drainage way where it exits the southern permit boundary and enters the Travis County Landfill. Protestants claim that such a waste continuum – should it exist – would provide a preferred pathway for contaminant migration off-site. Here again, Protestants' preferred pathway exists only in theory.

The record evidence demonstrates that there is no waste beneath the central drainage way where it exits the southern boundary of the ACRD Facility. There is no continuum of waste. There is no preferred pathway whereby contaminants – even in theory – could exit the central portion of the facility undetected by MW-11.

Along the southern boundary of the ACRD Facility where the central drainage way exits the site, four prior soil borings have investigated the subsurface conditions. Those borings include, from west to east, the borings for piezometers PZ-18, PZ-1, PZ-19, and PZ-2. Multiple figures in the application and in the record depict the locations of these piezometer borings.[51] Piezometer PZ-18 was converted to monitoring well MW-11,[52] which is located immediately to the west of where the central drainage way exits the site.[53] The boring for PZ-1 was advanced east of MW-11, ***through the bed of the central drainage way.***[54] PZ-19 was located east and slightly north of PZ-1 along the Phase I side of the central drainage way.[55] And PZ-2 was

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51 *See, e.g.*, Ex. APP-202 at 1473, 1501, 2131-32, 2135, 2138-39, 2400, 3017; Ex. APP-1 at Att. A, Pt. III, Fig. 3-8 (same as TJFA 204 at 59).

52 *See* Ex. APP-202 at 1398, 1473, 3010, 3017.

53 *See id.* at 3023.

54 *See id.* at 2131-32, 2135.

55 *See id.* at 1473, 3017, 3023.

located east and south of PZ-19, closer to the permit boundary and at the edge of the disposal limits of the Phase I Unit.[56]

Each of these four piezometer borings was advanced through the weathered clay (i.e., Stratum I) and into the unweathered claystone (i.e., Stratum II).[57] None of the logs for these borings indicates that waste was encountered in any boring.[58] Additionally, another piezometer, also labeled PZ-2, was also advanced ***through the bed of the central drainage way*** just south of the ACRD Facility's permit boundary, on the Travis County Landfill side of the property line.[59] Waste was not encountered in that boring either.[60] Accordingly, there is no support in the record for Protestants' theory of a continuum of waste beneath the central drainage way. Indeed, the record evidence demonstrates that Protestants' theory is merely supposition.

Furthermore, the only evidence in the record that even tends to suggest that waste may have been disposed beneath any drainage way is the ThermoRetec report, particularly the generalized cross-section from that report.[61] That generalized cross-section includes a south-to-north cross-section of the east-west drainage way between the IWU and the Phase I Unit – i.e., the cross-section is drawn perpendicular to the drainage way and, therefore, is a generalized depiction of a single point in the drainage way, not a cross-section depicting the length of the

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56 *See id.* at 1473, 1501, 2131-32, 2135, 2138, 2400.

57 *See id.* at 1589-90, 1604-05, 2132.

58 *See id.* at 1589-90, 1604-05. As shown on these boring logs, each of these borings encountered only natural clay or natural clay and clay fill above the unweathered claystone.

59 *See* Ex. APP-11 at WM-055366 (describing PZ-2 as having been "drilled in the creek bottom" and "installed within a creek bed"), WM-055368 ("PZ-2 was installed in the creek bed at the north end of the main segment of the creek."); *see also id.* WM-055364 (showing location of PZ-2 on Travis County Landfill).

60 *See id.* at WM-055366; *see also id.* at WM-055403 (boring log for PZ-2).

61 *See* Ex. APP-202 at 1481; Ex. APP-1 at Att. A., Part III, Fig. 3-2.

entire drainage way.[62] As set forth above, the ThermoRetec investigation did not include any soil borings advanced on the Phase I side of the east-west drainage way between the IWU and the Phase I Unit.[63] Additionally, there is no indication in the ThermoRetec report that any waste that may have been disposed beneath the east-west drainage way is continuous throughout that drainage way and throughout the expanse of the central drainage way south of where the east-west and central drainage ways converge.[64] Moreover, ThermoRetec did not conduct any subsurface investigation at the southern permit boundary where the central drainage way exits the site.[65]

d. Protestant City of Austin Confuses the Applicable Monitoring Well Design Criteria

Protestant City of Austin fails to appreciate the differences in the completed, constructed central portion of the ACRD Facility and the proposed design of the expansion area when it contends that the same monitoring well design criteria should have been applied to the design of the monitoring well network in both portions of the facility. One of the criterion used to determine the proper locations of the wells on the western boundary of the expansion area was the location of leachate collection areas within the disposal cells.[66] As set forth above, this same

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62 *See* Ex. APP-1 at Att. A., Part III, Fig. 3-1 (cross section location map showing area of generalized cross-section A-A').

63 *See* Ex. APP-202 at 2400 (ThermoRetec boring map showing soil borings MW-31 and MW-26 located just north of the east-west drainage way on the IWU side and no borings on the south side of that drainage way).

64 *See id.* (ThermoRetec did not investigate subsurface conditions along the two drainage ways between soil boring MW-31 along the east-west drainage way and soil boring MW-25 west of the north-south central drainage way).

65 *See id.*

66 *See* Ex. APP-202 at 3002-04 (describing "Criterion 1" and applying it to wells proposed for the western boundary of the proposed expansion area); *see also id.* at 3023 (showing proposed monitoring well locations).

criterion was one of the criteria used to determine that existing well MW-11 was properly located.[67] The proposed locations of the wells on the western boundary of the expansion area were also determined based on the "direct downgradient nature of groundwater flow" toward a tributary of Walnut Creek.[68] Here again, this same criterion was used to determine that MW-11 was properly located at the "direct downgradient" point of groundwater flow off-site from the central portion of the facility toward Walnut Creek.[69]

Additional wells are proposed to be located on the western boundary of the expansion area and screened at depths below the uppermost aquifer at the Stratum I/II interface because the disposal cells in the expansion area are proposed to be excavated below this interface (i.e., below the uppermost aquifer) and into Stratum II.[70] This criterion for locating additional monitoring wells in the expansion area was not applied to the central portion of the ACRD Facility because none of the disposal units in that portion of the facility were excavated below the Stratum I/II interface. This criterion, which resulted in the proposed addition of 10 monitoring wells in the expansion area,[71] simply does not apply to the central portion of the ACRD Facility.[72]

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67 *See id.* at 3002-03 (applying "Criterion 1" to MW-11).

68 *Id.* at 3002-04 (describing "Criterion 3" and applying it to wells proposed for the western boundary of the proposed expansion area).

69 *See id.* at 3002-03 (applying "Criterion 3" to MW-11).

70 *See id.* at 2991 ("[B]ecause disposal cells WD-7 through WD-10, WD-12 and WD-13 have been or will be excavated beneath the Stratum I/II interface and into Stratum II, this application also proposes to install monitoring wells screened in Stratum II five feet above to five feet below the elevation of the sump nearest to the well (i.e., the deepest excavation of the disposal cell)."); *see also id.* ("With the removal of the Stratum I/II interface in [the expansion area], the groundwater flow from the east will be diverted around the cell excavations on the north and south and through the intercell berm areas. The proposed groundwater network has been designed to account for such groundwater diversion."); Trial Tr. at 1030:7-16, 1031:13-17 (Winters).

71 *See* Ex. APP-202 at 3003, 3004 (noting that, "in the area of the westernmost disposal cells . . ., a total of 10 additional monitoring wells will be screened in Stratum II").

72 *See id.* at 3022 (showing areas of the facility where cells have been, or will be, excavated below the Stratum I/II interface (i.e., the "weathered/unweathered interface"); sources cited *supra* note 31 and

e. The Applied Materials Data are Unreliable and Irrelevant and Should be Given No Weight

Protestant TJFA asserts that groundwater sampling results obtained from the Applied Materials facility east/northeast of the ACRD Facility are proof that contaminants have been released from the IWU and have migrated off-site. As set forth below, there is not a shred of credible evidence in the record to support TJFA's claim.

Clearly, for contaminants to migrate from the IWU located on the ACRD Facility to the Applied Materials facility, there must be a groundwater flow path linking the IWU to the Applied Materials facility (i.e., the Applied Materials facility must be downgradient of the IWU). In an attempt to establish such a flow path, Dr. Kier relies upon a groundwater contour map ("***the Carel map***") that apparently was prepared by a consultant for BFI, who operates the Sunset Farms Landfill adjacent to the existing ACRD Facility's northern boundary.[73] The Carel map is unreliable for a number of reasons.

First, there is no indication of when the Carel map was prepared or in what year the data used to prepare the map were obtained. Second, as Dr. Kier notes in his testimony, the Carel map was prepared using groundwater level measurements that were not obtained on the same day.[74] Indeed, Dr. Kier testified that the three groundwater level measuring events that produced the data were six months apart.[75] On cross-examination at the hearing, Dr. Kier conceded that a groundwater map that is contoured using groundwater level data that were not obtained on the

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accompanying text (showing that the waste in the IWU and Phase I areas was deposited above the Stratum I/II interface); site *see also* Trial Tr. at 1032:4-8 (Winters).

[73] *See* Ex. TJFA 200 at 63:10-19 (Kier); Ex. TJFA 210. TJFA references Ex. TJFA 210 as containing multiple maps. There are two maps in Ex. TJFA 210; however, they appear to be a hand-drawn version and computer-drawn version of the same map.

[74] *See* Ex. TJFA 200 at 65:10-13 (Kier).

[75] *See id.*; Trial Tr. at 1324:2-7 (Kier).

same day can be misleading.[76] Third, the groundwater contours depicted on the Carel map for the ACRD Facility were drawn using only groundwater elevations from wells around the perimeter of the ACRD Facility.[77] No groundwater level data were used from the wells and piezometers located in the interior of the facility near the IWU (i.e., the wells and piezometers that are sampled or gauged per WMTX's agreement with the City of Austin).[78]

In light of these glaring indicia of unreliability, the Carel map cannot prevail over the scores of other maps in the application and in the record that have been prepared over the decades and that have historically and consistently depicted the direction of groundwater flow in the area of the IWU to be from the east to the west – westerly flow from the west side of the East Hill towards the central drainage way and away from the Applied Materials facility.[79] These maps depict a groundwater divide beneath the East Hill east of the IWU.[80] This divide prevents groundwater located to the west of the divide from flowing east of the divide.[81] The divide precludes a flow path from the IWU to the Applied Materials facility.

Even assuming arguendo that groundwater could find a way from the IWU to the Applied Materials facility, it could not make the journey in the 30 to 35 years between the date of waste placement in the IWU and the 2002 Applied Materials sampling event that Dr. Kier relies upon. As discussed in WMTX's Closing Argument, water moves through the clay in the area of the

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76 *See* Trial Tr. at 1324:8-17 (Kier).

77 *See id.* at 1324:18-24 (Kier).

78 *See id.* at 1324:25 to 1325:2 (Kier).

79 *See* sources cited *supra* notes 5, 7, 8.

80 *See, e.g.*, Ex. APP-202 at 3022-23.

81 *See id.* at 2992 ("[T]he local flow regime is affected by a regional groundwater divide with most of the groundwater flow directed west-southwest towards a tributary of Walnut Creek."), 3005 ("Groundwater beneath a portion of the East Hill flows generally to the west and southwest from a groundwater divide beneath the unit . . . .").

IWU, if at all, at a rate of up to four feet per year.[82] The easternmost corner of the IWU is located approximately 1875 feet from the due east boundary of the ACRD Facility.[83] Using a groundwater flow rate of 4 ft/yr, it would take contaminants released from the IWU over 468 years just to make it to the eastern boundary of the ACRD Facility – again, assuming arguendo that there is such a groundwater flow path.[84] For IWU contaminants to reach the eastern boundary of the ACRD Facility in 35 years, the groundwater flow rate would have to be approximately 54 ft/yr.

Dr. Kier contends that the tentative identification of semi-volatile organic compounds ("***SVOCs***") in the groundwater at the Applied Materials site in 2002 is proof that the wastes in the IWU have altered the structure of the mass of nearly impermeable Taylor clay that lies between the IWU and Applied Materials, rendering the clay more permeable and allowing contaminants to travel from the IWU to Applied Materials at a rapid rate of speed.[85] However, Dr. Kier does not purport to have performed or even attempted to perform any analysis, study, or measurements of any kind to confirm this far-fetched theory, nor does he cite any specific data in

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[82] *See* Ex. TJFA-204 at 42; Ex. COA 6 at COA 1777; *see also* Ex. APP-202 at 1384 (noting that "the low-permeability of the natural soils and rock hinder migration"), 1404 (noting that the low-permeability clay at the site "restricts potential pollutant migration rates in the event of a release from the landfill").

[83] *See* Ex. APP-202 at 124 (scale is 1 inch equals 300 feet and distance is approximately 6.25 inches).

[84] Using the 1875-foot distance from the easternmost corner of the IWU to the due east boundary of the ACRD Facility is conservative because (1) that is the shortest distance from the IWU to the facility boundary; (2) the Applied Materials facility is still across the street from the ACRD Facility; and (3) Dr. Kier claims that groundwater may flow from the IWU and under and through the BFI Sunset Farms Landfill to the north before turning east and flowing under the Applied Materials facility (i.e., that the groundwater may take a more circuitous route). *See* Ex. TJFA 200 at 65:24 to 66:1 (Kier).

[85] *See* Ex. TJFA-204 at 61:17 to 62:3 (Kier).

support of this theory.[86] Dr. Kier's flawed logic holds that the wastes in the IWU must have altered the structure of the clay because much greater permeability was required for the tentatively identified compounds to migrate from the point that Dr. Kier insists that they originated to the point that Dr. Kier insists that they migrated by the date that Dr. Kier insists that the tentatively identified compounds were, in fact, present at that destination.

Notably, Dr. Kier is citing the tentative identification of ***SVOCs*** at Applied Materials as proof that contaminants from the IWU have migrated off-site. As Dr. Kier testified, SVOCs are not highly mobile in groundwater and, as between SVOCs and volatile organic compounds ("***VOCs***"), VOCs are more mobile.[87] Accordingly, the VOCs that Dr. Kier claims are also being released from the IWU would have had to travel to the Applied Materials facility in under 35 years, before the tentative identification of SVOCs in 2002, presumably requiring a groundwater flow rate in excess of 54 ft/yr. Moreover, in his prefiled testimony, Dr. Kier does not discuss the detection of VOCs at Applied Materials prior to 2002,[88] nor does he claim that there have been any VOC detections in existing monitoring well MW-13 on the northern boundary of the ACRD Facility.[89] If Dr. Kier's claimed groundwater flow path between the

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86 *See* Trial Tr. at 1420:12-22 (Kier) (testifying that regarding the tests that would be required, and that have not been done, to confirm whether wastes in the IWU have altered the permeability of the clay soils).

87 *See* Ex. TJFA-204 at 61:11 (Kier); Trial Tr. at 1319:23-25 (Kier); *see also* Ex. TJFA 104 at 98 (56 FED. REG. at 51,075) ("VOCs are more mobile than many other organic compounds . . . [and] would be among the best indicators for early detection of a release.").

88 *See* Trial Tr. at 1318:22 to 1319:3 (Kier) (testifying that the 2002 sampling event at Applied Materials was not Applied Materials' first sampling event); Ex. TJFA 209 at 55 (noting that the 2002 sampling event at Applied Materials was the eighteenth such event since 1990); *see also* Trial Tr. at 1319:19-22 (Kier) (testifying that no VOCs were detected in the 2002 sampling event at Applied Materials). Additionally, the summary of historic analytical results attached to the PBS&J report in Ex. TJFA 209 appears to indicate that VOCs have *never* been detected in the Applied Materials wells. *See* Ex. TJFA 209 at 64-74.

89 *See* Ex. APP-202 at 2994-98 (discussing historic groundwater monitoring data).

IWU and Applied Materials were to exist, MW-13 would appear to be located along that pathway.[90]

Given all of the foregoing holes in Dr. Kier's hypothesis, it is not surprising that he is uncertain as to whether the IWU is the source of the tentatively identified SVOCs at the Applied Materials site. Dr. Kier cannot eliminate the BFI Sunset Farms Landfill as a source and does not know if the BFI facility ever accepted industrial waste, although the record indicates that it has.[91] Dr. Kier also could not eliminate the closed Travis County Landfill as a source of the tentatively identified SVOCs, and likewise does not know whether the County landfill ever accepted industrial waste.[92] Indeed, Dr. Kier does not even know why Applied Materials is sampling and analyzing groundwater at its facility.[93]

The PBS&J report analyzing the 2002 Applied Materials sampling results also indicates considerable uncertainty regarding the source of the tentatively identified SVOCs.[94] The report explains that the tentatively identified SVOCs could be "a relict of laboratory cross-contamination of the samples during handling and preparation" or "could potentially have been

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90 *See* Ex. TJFA 210; Ex. APP-202 at 3022-23.

91 *See* Trial Tr. at 1321:1-15, 1504:18-24 (Kier); Ex. APP-10 at 2-60 (noting acceptance of industrial waste at BFI Sunset Farms Landfill).

92 *See* Trial Tr. at 1322:1-8, 1504:25 to 1505:7 (Kier); *see also id.* at 1452:1-4 (Kier) (testifying that the Travis County Landfill and the BFI Sunset Farms Landfill are upgradient of the Applied Materials facility).

93 *See id.* at 1319:7-9 (Kier). In his prefiled testimony, Dr. Kier discounts Applied Materials as the source of the tentatively identified SVOCs, in part because he was told that Applied Materials did not use chlorinated hydrocarbons. *See* Ex. TJFA 200 at 60:16-24 (Kier). However, on cross-examination, Dr. Kier conceded that chlorinated hydrocarbons aren't the only source of SVOCs. *See* Trial Tr. at 1322:9-17 (Kier).

94 *See* Ex. TJFA 209 at 60 (noting that the tentatively identified compounds are not regulated by EPA or TCEQ "and very little information is available regarding the source of these chemicals, their chemical and physical properties, and the chemical's environmental fate and transport").

introduced to the samples during field collection activities."[95] The report also notes that the Applied Materials facility includes two tracts of land that had prior industrial uses.[96] One tract was the location of a former gasoline station that had underground storage tanks.[97] The other tract was the location of a former automobile body repair shop.[98] Contamination on a portion of this second tract was remediated through TCEQ's Voluntary Cleanup Program.[99]

Accordingly, there are any number of potential sources for the SVOCs tentatively identified in the Applied Materials 2002 sampling event. Moreover, the actual presence of these compounds in the groundwater was considered "highly uncertain."[100] In light of these many uncertainties, PBS&J made two recommendations to Applied Materials to investigate further the presence of the tentatively identified SVOCs: (1) review TCEQ's files for groundwater data from the ACRD Facility and the Sunset Farms Landfill and (2) collect additional groundwater samples to confirm the results of the 2002 sampling event.[101] Dr. Kier testified that, to his knowledge, neither of these two recommendations was ever carried out.[102]

For the foregoing reasons, the Applied Materials groundwater data are of such questionable reliability and relevance that they cannot support a finding of any concern in this matter and should be given no weight. They provide no basis for denial of WMTX's

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95 *Id.* at 61.

96 *See id.* at 55.

97 *See id.*

98 *See id.*

99 *See id.*; *see also* 30 TEX. ADMIN. CODE ch. 333, subch. A (TCEQ's regulations for the Voluntary Cleanup Program).

100 Ex. TJFA 209 at 60, 61; *see also* Trial Tr. at 1320:1-10 (Kier) (testifying that it cannot be said, with any degree of certainty, that the tentatively identified compounds were definitely present in the groundwater collected from the Applied Materials site).

101 *See id.* at 61; *see also id.* at 5.

102 *See* Trial Tr. at 1322:22 to 1323:23, 1453:19 to 1454:7 (Kier).

application[103] or for requiring WMTX to sample and analyze its groundwater monitoring wells for constituents beyond those on the list in Appendix I to the federal Subtitle D regulations in 40 C.F.R. Part 258 ("***Appendix I***").[104] Moreover, this would not be the first case in which an ALJ has given no credence to Dr. Kier's testimony regarding the 2002 Applied Materials data.

As discussed in WMTX's Closing Argument, TJFA was a protesting party in the recently concluded contested case hearing regarding BFI's application to expand the Sunset Farms Landfill. In that case, TJFA also offered Dr. Kier as one of its experts and Dr. Kier apparently opined that BFI was responsible for the SVOCs tentatively identified in the 2002 groundwater samples collected from the Applied Materials facility[105] – which, in and of itself, is remarkable given that Dr. Kier claims in this case that the IWU at the ACRD Facility is the only possible source of the tentatively identified compounds.[106] After hearing Dr. Kier's testimony and weighing the evidence, the ALJ in the BFI matter determined that Dr. Kier's theory of contaminant travel from the IWU to the Applied Materials "made no sense" and was "junk science."[107]

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103 Even if Dr. Kier's theory of northeasterly and/or easterly groundwater flow paths from the IWU had any validity, which it does not, WMTX's application proposes groundwater monitoring wells around the northern and eastern boundaries of the IWU that would serve to monitor those flow paths. *See* Ex. APP-202 at 3022-23 (showing the locations of wells MW-50, MW-45, and MW-46). Additionally, WMTX's application also proposes to add three new monitoring wells along the ACRD Facility's eastern boundary between existing wells MW-13 and MW-2C). *See id.*

104 *See* 30 TEX. ADMIN. CODE § 330.419(a); *see also id.* § 330.407(a).

105 *See In re Application of BFI Waste Systems of North America, LLC, for Type I MSW Permit No. 1447A*, SOAH Docket No. 582-08-2178, TCEQ Docket No. 2007-1774-MSW, Proposal for Decision at 34 (May 8, 2009), *available at* http://www.soah.state.tx.us/pfdsearch/pfds/582/08/582-08-2178-pfd1.pdf [hereinafter *BFI Sunset Farms PFD*].

106 *See* Ex. TJFA 200 at 60:4-8 (Kier).

107 *BFI Sunset Farms PFD*, *supra* note 105, at 35, 36.

f. Alleged Detections and Indications of Groundwater Contamination in the 1980s are Not Evidence of Representative Groundwater Quality

TJFA, again through Dr. Kier, claims that alleged detections and "indications" of groundwater contamination in the 1980s at the ACRD Facility are evidence that groundwater has been contaminated at the facility. These allegations are evidence of nothing, other than the fact that, once again, Dr. Kier has nothing of substance to support his contrived claims and accusations. Dr. Kier spent nearly a decade researching the history and files of the ACRD Facility, looking for evidence of groundwater contamination to support his clients' efforts to halt a prior expansion of the facility and to portray the facility as a threat to human health and the environment.[108] The fact that Dr. Kier can only muster such scant, unverifiable, and dated "evidence" as this, despite his relentless efforts over the years to discredit WMTX and the ACRD Facility, is far more compelling than anything Dr. Kier has to offer.[109]

Dr. Kier provides no data to support his alleged detections and "indications" of groundwater contamination in the 1980s. The only documentation of any kind is a 1980 memorandum with no supporting data. In any event, groundwater data from the wells installed at the ACRD Facility in the 1980s would not be reliable. The record evidence indicates that the first six wells that were installed at the facility in the 1980s were improperly installed, per the applicable regulatory standards, and were replaced because they were "susceptible to recharge by

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108 *See* Trial Tr. at 1276:6 to 1281:21 (Kier).

109 Dr. Kier's lack of credibility is equally evident by his admission, on cross-examination at the hearing, that he had not reviewed any groundwater data for the ACRD Facility since he concluded his investigation of the ACRD Facility in the late 1990s. *See* Trial Tr. at 1295:9-24 (Kier).

surface and near-surface infiltration."[110] Accordingly, any monitoring results from these wells may not be representative of groundwater quality.

g. The Analysis of IWU Groundwater Data Conducted per the Agreement Between WMTX and the City of Austin is No Less Protective than if the Data were Evaluated under TCEQ's MSW Rules

TJFA grossly overstates its case by claiming that multiple VOCs "have repeatedly been detected in the wells monitored in the vicinity of the IWU" per WMTX's agreement with the City of Austin. The summary of IWU monitoring data that TJFA's own witness prepared shows a single, unverified detection of 2-butanone in 2003; a single, unverified detection of 1,2,4-trichloro-benzene in 2004; and two unverified detections of methylene chloride in 2004 and 2006 – one unverified detection in each of two separate piezometers.[111] The unverified detection of 1,2,4-trichloro-benzene, and one of the two unverified detections of methylene chloride, were from samples taken from piezometer PZ-31.[112] The IWU monitoring agreement between WMTX and the City of Austin states that PZ-31 is to be used for water level measurements only, and not sampled for groundwater data, because this piezometer is likely installed through saturated MSW materials and any "water quality data collected from this piezometer would possibly be cross-contaminated with MSW leachate."[113] Furthermore, the IWU monitoring

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110 Ex. APP-202 at 2062-63; *see also id.* at 2117-18, 2343, 2352.

111 *See* Ex. TJFA 24; *see also* Trial Tr. at 1605:24-25 (Uliana) ("It's difficult to attach significance to a single sample that deviates from the others.").

112 *See* Ex. TJFA 24.

113 Ex. COA 6 at COA 1765-66. The boring log for PZ-31 does not indicate that waste was encountered in the installation of that piezometer. *See* Ex. APP-202 at 1676. However, during its investigation of the IWU, ThermoRetec advanced boring MW-31 in approximately the same location as PZ-31. *Cf.* Ex. APP-202 at 2400 (showing location of MW-31) *and* Ex. COA 9 (showing location of PZ-31). The ThermoRetec boring log for MW-31 does indicate that MSW was encountered in that boring. *See* Ex. APP-202 at 2446; *see also* Trial Tr. at 2148:17-23 (Lesniak) (discussing concern regarding the presence of waste in the location of PZ-31).

agreement also states that 2-butanone and methylene chloride are "common contaminants not associated with waste disposal" and "common laboratory or sampling-induced contaminants."[114]

A claim of repeated VOC detections can only be made for 1,4-dioxane. However, the highest concentration of 1,4-dioxane ever detected in any of the wells monitored per WMTX's agreement with the City of Austin was an unverified detection of 0.75 mg/L.[115] This detection also occurred in PZ-31 which, as noted above, is likely impacted by waste and not yielding representative groundwater data.[116] Furthermore, the applicable protective concentration level ("***PCL***")[117] for 1,4-dioxane is 8.3 mg/L – more than ten times as high as the highest concentration ever reported.[118] Protestants contend that using PCLs to evaluate the groundwater data obtained per the agreement between WMTX and the City of Austin is inappropriate and less protective than if the data were evaluated under TCEQ's MSW regulations. Neither claim is true.

The PCLs used to evaluate the groundwater data obtained per the agreement between WMTX and the City of Austin were developed under the Texas Risk Reduction Program ("***TRRP***") in TCEQ's rules in Chapter 350 of Title 30 of the Texas Administrative Code.[119]

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114 Ex. COA 6 at COA 1778.

115 *See* Ex. TJFA 24.

116 *See id.* Excluding the two PZ-31 results for 1,4-dioxane, the highest concentration of 1,4-dioxane ever detected in any of the wells monitored per WMTX's agreement with the City of Austin was 0.32 mg/L. *See id.*

117 A PCL is defined as "[t]he concentration of a chemical of concern which can remain within the source medium and not result in levels which exceed the applicable human health risk-based exposure limit or ecological protective concentration level at the point of exposure for that exposure pathway." 30 TEX. ADMIN. CODE § 350.4(68); *see also id.* § 350.71(a).

118 *See* Ex. TJFA 24.

119 *See* TEX. ADMIN. CODE ch. 350, subch. D; *see also* Ex. COA 6 at COA 1763, COA 1779 (discussing evaluation of groundwater data by comparing detected concentrations to applicable PCLs pursuant to TRRP standards).

TCEQ's MSW rules in Chapter 330 specifically provide that any applicable closure obligations under those rules can be fulfilled by meeting TRRP standards in Chapter 350.[120] Additionally, if a facility enters assessment monitoring under TCEQ's MSW rules (i.e., following a verified detection of a monitored constituent in a statistically significant concentration), then the facility is required to establish groundwater protection standards for all detected constituents in point of compliance wells.[121] The groundwater protection standard may be the drinking water standard – the maximum contaminant level ("***MCL***") – for that contaminant,[122] if an MCL has been promulgated for that constituent.[123] For a constituent for which no MCL has been promulgated, the applicable groundwater protection standard may be established in accordance with the TRRP standards for PCLs in Chapter 350.[124]

With respect to the VOCs listed in Exhibit TJFA 24, only 1,2,4-trichlorobenzene has an MCL.[125] Accordingly, under TCEQ's MSW rules, the applicable groundwater protection standards for the other listed VOCs, including 1,4-dioxane, may be established, in accordance with the TRRP standards, at the very same PCL concentrations used to evaluate the groundwater data obtained per the agreement between WMTX and the City of Austin. With respect to 1,2,4-

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120 *See* TEX. ADMIN. CODE § 330.21(a). In the preamble to the agency's final, 2006-revised MSW rules, TCEQ explained that this provision was promulgated "to provide additional flexibility regarding closure standards." 31 TEX. REG. 2502, 2507-08 (Mar. 24, 2006).

121 *See* 30 TEX. ADMIN. CODE § 330.409(d)(3).

122 An MCL is the "maximum concentration of a regulated contaminant that is allowed in drinking water." *Id.* § 290.103(26). MCLs are promulgated "to assure the safety of public water supplies." *Id.* § 290.101.

123 *See id.* at § 330.409(h)(1); *see also* Ex. TJFA 104 at 15 (56 FED. REG. at 50,992) ("States may approve landfill designs that will ensure that the maximum contaminant levels will be met at the relevant point of compliance in ground water.").

124 *See* 30 TEX. ADMIN. CODE at § 330.409(i)(5); *see also* Ex. TJFA 104 at 16 (56 FED. REG. at 50,993) ("States are provided substantial flexibility to consider local site-specific conditions in determining how to address variable ground-water quality.").

125 *See* 30 TEX. ADMIN. CODE §§ 290.104(c)(2), 290.107(b)(2).

trichlorobenzene, for which an MCL has been established, the reported concentration in the single, unverified detection shown on Exhibit TJFA 24 was 0.022 mg/L. This concentration is less than the 0.07 mg/L MCL for 1,2,4-trichlorobenzene and, thus, would be less than the applicable groundwater protection standard under TCEQ's MSW rules.[126]

As the foregoing demonstrates, the use of PCLs to evaluate the groundwater data obtained per the agreement between WMTX and the City of Austin would be appropriate if that monitoring program was performed pursuant and subject to TCEQ's MSW rules. Furthermore, as set forth above, the analysis of the IWU groundwater data conducted per the agreement between WMTX and the City of Austin is no less protective than if the data were evaluated under TCEQ's MSW regulations.

h. TCEQ Does Not Lack Authority to Require WMTX to Take Action in Response to a Release from the IWU

Protestants attempt to discount the import of WMTX's agreement with the City of Austin regarding the IWU simply because the agreement was entered into voluntarily by WMTX and because TCEQ is not a party to the agreement. TCEQ neither required nor signed onto the agreement because, as set forth in detail in WMTX's Closing Argument, TCEQ's MSW regulations implementing Subtitle D do not apply to the IWU. There is no statutory or regulatory provision requiring WMTX to monitor the IWU; hence, the "voluntary" agreement with the City of Austin. Protestant City of Austin, in particular, should not be heard on any claim that the IWU is subject to any such statutory or regulatory requirement. The agreement

126 *See id.*

with WMTX that the City signed expressly states that the "cover enhancement and monitoring measures" in that agreement "go beyond what is required by stated and federal law."[127]

The absence of any statutory or regulatory provision requiring WMTX to monitor the IWU, and the voluntary nature of the agreement with the City of Austin, does not mean that TCEQ is powerless to require action if the IWU should ever present a threat to human health or the environment. Numerous statutory and regulatory provisions provide TCEQ with such authority.[128]

Moreover, although TCEQ is not a party to the agreement between WMTX and the City of Austin, TCEQ does have a significant role in the implementation of the IWU monitoring program required by that agreement. For instance, per the terms of the agreement: (1) if the facility ever changes the laboratory that is analyzing the IWU data, the new laboratory's quality assurance/quality control procedures must be submitted to TCEQ for approval;[129] (2) WMTX was required to obtain the concurrence of TCEQ regarding the location of one of the wells installed and sampled per the agreement (MW-32);[130] (3) if any of the wells sampled per the terms of the agreement have to be replaced, WMTX is required to obtain the concurrence of TCEQ regarding the location of the replacement well(s);[131] (4) if WMTX proposes to change the frequency at which it samples the wells under the agreement, it first has to obtain TCEQ's concurrence regarding the proposed change;[132] (5) if WMTX proposes to shorten the duration of

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127 Ex. COA 6 at COA 1787.

128 *See, e.g.*, TEX. HEALTH & SAFETY CODE § 361.272.

129 *See id.* at COA 1772.

130 *See id.* at COA 1776.

131 *See id.*

132 *See id.* at COA 1777.

the monitoring program under the agreement, it must obtain TCEQ's approval;[133] (6) the analytical results of the IWU groundwater sampling are required to be reported to TCEQ;[134] and (7) if a sampling result exceeds the applicable PCL, and if that result is verified through resampling, a plan must be submitted to TCEQ describing the actions that will be taken to respond to the exceedance.[135]

i. Dr. Uliana's Testimony Should be Given no Weight

Dr. Uliana's testimony on behalf of TJFA is the epitome of junk science. Dr. Uliana's testimony should be given no weight for the following reasons, all of which Dr. Uliana conceded on cross-examination:

(1) prior to this case, Dr. Uliana had never used the analyses that he discusses in his prefiled testimony to determine whether there has been a release from a solid waste facility;[136]

(2) this case is the first time that Dr. Uliana has ever offered an opinion on whether there has been a release of contaminants from a solid waste facility;[137]

(3) Dr. Uliana does not have any experience analyzing the results of groundwater sampling and analysis conducted at solid waste facilities;[138]

(4) Dr. Uliana does not have any experience assessing potential releases from solid waste facilities;[139]

(5) Dr. Uliana does not have any experience assessing whether a solid waste facility is a potential source of groundwater contamination;[140]

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133 *See id.* The agreement specifies that the IWU groundwater monitoring program must "be conducted for a period that includes the operating life of the currently permitted landfill facility plus 30 years of post-closure monitoring commencing from the date of the first sampling event." *Id.*

134 *See id.* at COA 1779.

135 *See id.*

136 *See* Trial Tr. at 1578:24 to 1579:4 (Uliana).

137 *See id.* at 1579:5-9 (Uliana).

138 *See id.* at 1579:22 to 1580:2 (Uliana).

139 *See id.* at 1580:3-8 (Uliana).

140 *See id.* at 1580:9-14 (Uliana).

(6) Dr. Uliana does not have any geochemical experience pertaining to solid waste facilities;[141]

(7) the pending applications to expand the ACRD Facility and the BFI Sunset Farms Landfill are the only municipal solid waste landfill permit applications that Dr. Uliana has ever reviewed;[142]

(8) with respect to municipal solid waste facilities, Dr. Uliana's experience is limited to whatever experience he may have gained working for TJFA on this case and the BFI matter;[143]

(9) Dr. Uliana's experience with respect to the Taylor Formation is limited to whatever experience he may have gained working for TJFA on this case and the BFI matter and "a few class field trips";[144]

(10) Dr. Uliana read TCEQ's MSW rules for the first time for purposes of this case;[145]

(11) Dr. Uliana did not use any of the statistical methods listed in TCEQ's MSW rules to evaluate groundwater monitoring data from the ACRD Facility;[146]

(12) Dr. Uliana did not conduct any statistical analysis of WMTX's groundwater data;[147]

(13) none of the constituents or parameters that Dr. Uliana claims to have evaluated is on the list of constituents that MSW facilities are required to analyze in their groundwater detection monitoring program;[148]

(14) in reaching his conclusions, Dr. Uliana did not follow any TCEQ or EPA guidance;[149]

(15) in reaching his conclusions, Dr. Uliana did not follow any method that TCEQ or EPA has accepted for the detection of releases from solid waste facilities;[150]

(16) if WMTX had submitted to TCEQ an analysis of their semiannual groundwater monitoring data using solely the methodologies that Dr. Uliana used in this case, TCEQ would not accept the analysis;[151]

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141 *See id.* at 1580:15-19 (Uliana).

142 *See id.* at 1580:20 to 1581:1 (Uliana).

143 *See id.* at 1581:2-6 (Uliana).

144 *Id.* at 1581:7 to 1582:20 (Uliana).

145 *See id.* at 1583:8-11 (Uliana). Dr. Uliana didn't even know where to find TCEQ's MSW rules in Title 30 of the Texas Administrative Code. *See id.* at 1583:12-24 (Uliana).

146 *See id.* at 1584:3-10 (Uliana).

147 *See id.* at 1584:3-13 (Uliana).

148 *See id.* at 1584:14 to 1586:20 (Uliana).

149 *See id.* at 1586:21 to 1587:5 (Uliana).

150 *See id.* at 1587:6-10 (Uliana).

(17) TCEQ has never relied solely upon major ion chemistry to determine whether a facility has caused groundwater contamination;[152]

(18) Dr. Uliana reviewed WMTX's data on trace metal concentrations and did not see an indication of a release;[153]

(19) Dr. Uliana did not review any analytical data characterizing leachate from the ACRD Facility;[154]

(20) Dr. Uliana did not determine the site-specific chemistry of the groundwater upgradient from the ACRD Facility's groundwater monitoring wells that could not have been affected by a release from the facility (i.e., the "background" groundwater quality);[155]

(21) there are natural sources of chloride ions;[156]

(22) a total organic carbon ("***TOC***") or total organic halogen ("***TOX***") reading may be wholly unrelated to a release from the facility;[157] and

(23) Dr. Uliana cannot assign a health risk to any given TOC or TOX concentration.[158]

Additionally, Dr. Uliana's prefiled testimony focused almost exclusively on major ion chemistry from the initial network of groundwater monitoring wells that were first installed at the ACRD Facility in the 1980s. As set forth above, the record evidence indicates that those initial wells were improperly installed, per the applicable regulatory standards, and were

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151 *See id.* at 1587:20 to 1588:8 (Uliana).

152 *See id.* at 1588:9-13 (Uliana).

153 *See id.* at 1598:1 to 1599:5 (Uliana).

154 *See id.* at 1599:6-14 (Uliana).

155 *See id.* at 1601:2 to 1603:4 (Uliana); *see also* Ex. APP-202 at 1379 (noting that natural groundwater in the Taylor "is usually high in sulfate, chloride, and nitrate content").

156 *See* Trial Tr. at 1607:1-12 (Uliana); *see also* Ex. TJFA 104 at 99 (56 FED. REG. 50978, 51076 (Oct. 9, 1991)) (noting that many geotechnical parameters "are naturally occurring in soils and groundwater" and "the natural variability (both temporal and spatial) of the geochemical parameters is extremely difficult to characterize"); *id.* at 101 (56 FED. REG. at 51,078) ("The detection monitoring parameters provided by today's final rule do not exhibit the high degree of spatial variability in most hydrogeological environments as do the proposed geochemical parameters.").

157 *See* Trial Tr. at 1622:19 to 1623:21, 1623:25 to 1624:7 (Uliana); *see also* Ex. TJFA 104 at 99 (56 FED. REG. at 51076) (noting that TOC is "not specific to any one element or class of man-made chemicals").

158 *See* Trial Tr. at 1623:22-24 (Uliana).

"susceptible to recharge by surface and near-surface infiltration."[159] Accordingly, any monitoring results from these wells may not be representative of groundwater quality.

Furthermore, the analysis of major ion chemistry that serves as the foundation for Dr. Uliana's testimony was specifically rejected by EPA as unreliable.[160] When the agency promulgated its Subtitle D regulations, EPA explained that analyzing groundwater for the sort of geochemical parameters that Dr. Uliana relies upon in his prefiled testimony "could lead to an excessive number of false positives" and "may not be the best indicator[] of a landfill release."[161] TJFA is correct that WMTX has employed similar analyses in its alternate source demonstrations, but those analyses were used only after the determination, through the statistical analyses prescribed by regulation, that there had been a verified exceedance of a constituent on the list of detection monitoring constituents listed in Appendix I.[162] The analysis employed by WMTX in its alternate source demonstrations analyzes a certain monitoring well at a certain time and compares the verified exceedance to trends in non-Appendix I indicator parameters occurring in the same well at the same time.[163] That is not what Dr. Uliana did in this case.[164] Dr. Uliana relied solely upon the very geochemical parameters that EPA determined over a decade ago were not reliable indicators of a release from a landfill.

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159 Ex. APP-202 at 2062-63; *see also id.* at 2117-18, 2343, 2352.

160 *See* Ex. TJFA 104 at 98, 99 (56 FED. REG. at 51,075, 51,076) (noting that EPA considered requiring detection monitoring for numerous geochemical parameters, including calcium, chloride, iron, sodium, sulfate, and TOC, and ultimately "decided against requiring the use of geochemical parameters in detection monitoring (appendix I) for several reasons").

161 *Id.* at 99, 100 (56 FED. REG. at 51076, 51077).

162 *See* Trial Tr. at 1588:14 to 1592:16 (Uliana). Per the requirements for the detection monitoring program in TCEQ's MSW rules, facilities are required to sample and analyze their groundwater monitoring systems for the constituents listed in Appendix I. *See* 30 TEX. ADMIN. CODE § 330.419(a); *see also id.* § 330.407(a).

163 *See* Trial Tr. at 1592:7-16 (Uliana).

164 *See id.* at 1592:17-19 (Uliana).

j. The Record Evidence Demonstrates that Groundwater Flow West of Monitoring Well MW-13 is From the BFI Landfill Onto the ACRD Facility

As Mr. Winters explained at the hearing, any component of groundwater flowing west of monitoring well MW-13 in the northern portion of the existing ACRD Facility would not flow off-site across the northern permit boundary because the central drainage way running from north to south through the site would control groundwater flow in that area and cause the flow to turn westward and mimic the southerly flow of the drainage way.[165] TJFA contends that Mr. Winters' explanation is contradictory to historic documentation in the application and points to a 1996 submittal to TCEQ – then, the Texas Natural Resource Conservation Commission ("***TNRCC***"). Had TJFA read further in the application, it would have realized that the 1996 submittal that it relies upon ultimately led to the determination that the northern permit boundary west of MW-13 is upgradient of the ACRD Facility and downgradient of the BFI Sunset Farms Landfill.

Following the TNRCC's promulgation of regulations in 1993 implementing the RCRA Subtitle D program in Texas, WMTX went about designing a groundwater monitoring system at the ACRD Facility to meet the new regulatory requirements. Those efforts ultimately led to a determination by the TNRCC in September 1996 that WMTX had designed and installed a groundwater monitoring system in compliance with the applicable Subtitle D requirements.[166] As part of those efforts, in 1994, piezometer PZ-23 was installed along the ACRD Facility's

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[165] *See id.* at 984:17 to 988:4 (Winters) (explaining that groundwater flow in the northern central portion of the ACRD Facility would turn to the west and follow the flow of the central drainage way "because there is a valley that runs through there that is going to control the groundwater flow because you have to visualize this groundwater flow much in the same manner as surface water flow where water flows down the hill and tends to accumulate in the valleys"); *see also id.* at 1052:6-24 (Winters).

[166] *See* Ex. APP-202 at 2398.

northern permit boundary to the west of MW-13.[167] Piezometer PZ-23 was initially intended to be converted to a monitoring well and included in the facility's groundwater monitoring network.[168] Hence, the facility's point of compliance was initially drawn to extend to the west of MW-13 to PZ-23.[169]

In the course of exchanges with the TNRCC in 1995 and 1996 regarding the proposed design of the facility's Subtitle D monitoring network, the agency asked WMTX to consider additional downgradient wells – one located 500 feet west of PZ-23 and one located 500 feet east of PZ-23 (i.e., between PZ-23 and MW-13).[170] WMTX investigated the agency's proposed well locations and, in March 1996, responded to the TNRCC that both of the proposed locations would be downgradient of the BFI Sunset Farms Landfill adjacent to the ACRD Facility's northern boundary.[171] Accordingly, in the final design of the groundwater monitoring network that the TNRCC approved in September 1996, there were no downgradient wells (i.e., point of compliance wells) west of MW-13.[172] Piezometer PZ-23 was plugged and decommissioned in June 1996, prior to the TNRCC's September 1996 approval of the ACRD Facility's groundwater monitoring network.[173]

As the foregoing discussion demonstrates, the area west of MW-13 was previously investigated and found to be upgradient of the ACRD Facility and downgradient of the BFI

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167 *See id.* at 1473 (showing location of PZ-23 at grid coordinates R-30, between PZ-11 and P-25 along the northern permit boundary), 2299-301 (1994 piezometer installation report).

168 *See id.* at 2299, 2312.

169 *See id.* at 2335 (figure of recommended monitoring well locations dated April 1995).

170 *See id.* at 2319. These wells were considered as MW-17 and MW-18. *See id.*

171 *See id.* at 2322 (explaining that, based on the groundwater flow contours, "MW-17 and MW-18 would both be located downgradient of the BFI landfill").

172 *See id.* at 2327-28, 2330, 2343, 2355, 2397.

173 *See id.* at 2374, 2384.

Sunset Farms Landfill. Additionally, the gradient of groundwater flow in this area of the ACRD Facility is also supported by BFI's determination that this area is downgradient of the Sunset Farms Landfill.[174]

k. The Criteria that Mr. Winters Used to Define Stratum II at the ACRD Facility were Consistent with the Criteria Used in Prior Geological Investigations at the Site

TJFA overreaches and attempts to capitalize on a typographical error in the application when it argues that the criteria that Mr. Winters used to identify Stratum II at the site – the unweathered claystone – were not consistently defined. These criteria are first discussed in the application on pages 1391-92. There, the application provides that Stratum II was identified by the refusal to penetrate a split-spoon sampling device and the absence of in-filled, weathered desiccation/stress-relaxation cracks in the collected samples.[175] Next, on pages 1393-94 of the application, the presence of in-filled, weathered desiccation/stress-relaxation cracks in Stratum IB is discussed in detail and the absence of these cracks below the interface of Stratum I/II is specifically noted.[176]

On the next page of the application, page 1395, the identification of Stratum II is discussed again. In this discussion, the split-spoon refusal criterion is the only criterion noted for the identification of Stratum II.[177] Numerous times during the hearing, Mr. Winters explained

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174 *See BFI Sunset Farms PFD*, *supra* note 105, at 41 (noting that BFI has designated the entire perimeter of the Sunset Farms Landfill "to be the 'down gradient point of compliance'" for the landfill); *see also id.* at 32 (noting that "[t]he BFI site sits on a topographic high, and groundwater flows in all directions from the site").

175 *See* Ex. APP-202 at 1391-92.

176 *See id* at 1393-94 (describing Stratum IB as having cracks in-filled with gypsum and exhibiting mineralization and that "[b]elow the interface [of Stratum I/II], confining pressures due to the overlying soils are greater and prevent the formation of these stress-relaxation cracks"); *see also id.* at 1399 (noting the absence of cracks in Stratum II).

177 *See id.* at 1395.

that this discussion of the Stratum II criteria on page 1395 of the application was incomplete.[178] The criterion – the absence of in-filled, weathered desiccation/stress-relaxation cracks – had inadvertently been omitted.[179]

Mr. Winters also explained that the absence of in-filled, weathered desiccation/stress-relaxation cracks was the predominant criterion that was used to identify Stratum II, and refusal of the split-spoon device – a measure of the stratum's hardness or strength – was used only where there was insufficient evidence in the historic boring logs of the presence of cracks.[180] Using the absence of in-filled cracks as the predominant criterion for indentifying the unweathered claystone at the ACRD Facility is entirely consistent with the methods used to indentify this stratum in all of the numerous prior geologic investigations at the site.[181] There is no evidence in the record to suggest that Mr. Winters misidentified the unweathered claystone, or that this stratum was previously misidentified in prior geologic investigations, or that Mr. Winters' approach to identifying the stratum was inconsistent with prior approaches.

l. There is No Evidence of Compounds in a Non-Aqueous Phase

There appears to be considerable confusion – particularly by the City of Austin – regarding the existence of compounds in the IWU in a non-aqueous phase. To be clear, there is no evidence of any non-aqueous phase liquids in the IWU or elsewhere at the ACRD Facility. No witness in this proceeding testified to having any knowledge of any compounds in a non-

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178 *See, e.g.*, Trial Tr. at 853:21 to 856:20, 864:6-12, 883:10-14, 890:2-8, 894:14 to 895:4, 895:19 to 897:22 (Winters).

179 Four pages later in the application, the absence of cracks in Stratum II is again noted. *See* Ex. APP-202 at 1399. On the next page, there is a photograph of the cracks in Stratum IB. *See id.* at 1400.

180 *See id.* at 855:17-25, 864:6-12, 895:19 to 896:2 (Winters).

181 *See, e.g.*, Ex. APP-202 at 1962 ("The fractures noted in the upper weathered section were not apparent in the unweathered section."); Ex. TJFA 204 at 38 ("Evidence of fractures was not observed in the soil cores collected from the unweathered Taylor Clay.").

aqueous phase at the facility.[182] Nor is there any documentation in the record regarding the presence of non-aqueous phase liquids at the facility.

Furthermore, with respect to dense non-aqueous phase liquids ("***DNAPLs***"), while such compounds would tend to move through the subsurface under the influence of gravity, such gravity-influenced flow would not result in different migration pathways for aqueous and non-aqueous compounds at the ACRD Facility. Although, as set forth above, there is no evidence to support the existence of DNAPLs at the ACRD Facility, if they did exist, DNAPLs would follow the same groundwater flow paths as their aqueous phase counterparts. Dr. Kier was clear in his testimony that the potential for different migration pathways for DNAPLs and aqueous liquid compounds exists only in ***confined*** aquifer conditions.[183] Dr. Kier was equally clear that the uppermost aquifer at the ACRD Facility is ***not*** under confined conditions.[184] As set forth in detail above, at the ACRD Facility, groundwater flows under the influence of gravity, following the gradient of the top of the unweathered claystone – i.e., it flows downhill, mimicking the topography of the natural, above-ground surface.[185]

m. With Respect to Surface Water Protection, there is No Evidence of Any Recent Leachate Seeps, Nor Any Reason to Conclude that the Protective Compacted Clay Caps over the IWU and the Phase I Unit will be Breached

Protestants assert concerns regarding the potential for leachate seeps from the IWU and the Phase I Unit. While there is mention in the record of such seeps having been observed and

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182 *See, e.g.*, Trial Tr. at 1382:1-5 (Kier) (testifying that he has no knowledge of dense non-aqueous phase liquids having been found in the IWU).

183 *See id.* at 1382:17-20 (Kier) ("[I]n a *confined* aquifer you could have DNAPLs going one way and your hydraulic gradient going the other way.") (emphasis added).

184 *See id.* at 1442:22 to 1443:3 (testifying that "the idea that the uppermost water bearing zone is confined to the transition zone between the weathered and the unweathered Taylor" is "totally incorrect").

185 *See* sources cited *supra* notes 5, 7, 8.

repaired in the past,[186] there is no evidence of such seeps occurring in the last decade or more. Moreover, per its agreement with the City of Austin, WMTX has been conducting monthly inspections of the drainage way between the IWU and the Phase I Unit for evidence of leachate seeps.[187] The records of those inspections offered by the City of Austin do not indicate that such evidence has been discovered in the more than five-year period since the monthly inspections were commenced (i.e., there have been over 60 such inspections).[188]

Furthermore, while Mr. Lesniak testified at the hearing that he was aware of "historical leachate outbreaks," he did not note any reports of leachate outbreaks from the monthly inspections that WMTX has conducted in recent years per its agreement with the City of Austin.[189] Given the City's alleged concern for such outbreaks, one would reasonably expect Mr. Lesniak to discuss any timely evidence of such outbreaks, if any such evidence existed. Additionally, in its investigation of the IWU in 2000, ThermoRetec also looked for evidence of leachate seeps from the IWU to the surface drainage ways in the central portion of the ACRD Facility. Based on the results of its investigation, ThermoRetec concluded that "groundwater does not appear to be discharging into the drainage features located adjacent to the south and west of the IWU."[190]

It is not surprising that there is no evidence of leachate seeps from the IWU and the Phase I Unit, given the compacted clay caps that have been installed over both units. As discussed above with respect to the Phase I Unit, the 1995 investigation of that unit found that

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186 *See* Trial Tr. at 1008:7-11, 1009:10-19 (Winters).

187 *See, e.g.*, Ex. COA 14 (discussion on page 2 of February 27, 2009 letter); *see also* Ex. COA 6 at COA 1766; Trial Tr. at 2151:5-12 (Lesniak).

188 *See* Ex. COA 14.

189 Trial Tr. at 2150:22 to 2151:12 (Lesniak).

190 Ex. TJFA 204 at 44.

the compacted clay cap cover over the Phase I Unit was thickest over the northwest toe of the cell where leachate collects, with reported thicknesses ranging up to 12.5 feet.[191] Additionally, the cap over the IWU and the low permeability of the on-site clays used to create the IWU and Phase I Unit caps were discussed in detail in WMTX's Closing Argument. As noted in that discussion, test results from clay samples of the IWU cap returned hydraulic conductivity values in the range of 1.1×10^{-8} to 7.7×10^{-8} cm/sec, which is orders of magnitude more impermeable than the clay cover required by Subtitle D.[192] Pre-Subtitle D landfill units that remained in operation following the promulgation of Subtitle D standards and that close today may install a final cover with a hydraulic conductivity of 1.0×10^{-5} cm/sec or less.[193]

3. Whether the Groundwater Monitoring System Proposed in the Application Should Sample and Analyze for Any Constituents in Addition to Those Required to be Tested by Agency Rules

Protestants variously contend that WMTX should be required, in detection monitoring, to analyze all of its monitoring wells for the list of constituents on Appendix II (which includes all of the Appendix I constituents), up to 20 tentatively identified compounds, and all of the constituents that are required to be analyzed per WMTX's agreement with the City of Austin. There is no reasoned basis for broadening the scope of the detection monitoring program beyond the list of constituents on Appendix I.

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191 *See* sources cited *supra* note 38 and accompanying text.

192 *See* Ex. TJFA 204 at 37. These test results are consistent with other historic test results for clays located throughout the ACRD Facility, which show that the natural clays have very low permeabilities. *See, e.g.*, Ex. APP-202 at 1392, 1394, 1395, 1402-03, 1971-72, 1978, 2021-22, 2276-83; *see also* Ex. TJFA 203 at 11 (referencing "permeabilities less than 1.0×10^{-8} cm/sec"), 68 (referencing laboratory permeability test results of 1.0×10^{-7} cm/sec obtained from a Texas Water Quality Board investigation in 1977).

193 *See* 30 TEX. ADMIN. CODE § 330.457(a)(1)-(2), (d).

As discussed in detail in WMTX's Closing Argument, when EPA promulgated the lists of detection and assessment monitoring constituents for MSW facilities in Appendix I and Appendix II to the federal Subtitle D regulations in 40 C.F.R. Part 258, the agency did so with the knowledge that, prior to promulgation of federal standards for hazardous waste facilities under RCRA Subtitle C in 1980, "hazardous wastes were routinely disposed of in municipal solid waste landfills."[194] EPA also recognized that, even under the Subtitle D regulations it was enacting, MSW landfills would be able to receive hazardous waste from multiple small quantity generators and multiple sources of household hazardous waste.[195] Accordingly, EPA was well aware that hazardous wastes were and would be disposed of in MSW landfills when the agency developed the Appendix I list of constituents and determined that, by monitoring groundwater for those constituents, MSW facilities "should be able to detect, with reasonable confidence, nearly every type of release."[196]

With respect to tentatively identified compounds, the only asserted bases for the inclusion of such compounds in the detection monitoring program at the ACRD Facility are the 2002 Applied Materials data. For the reasons set forth above, the Applied Materials groundwater data are of such questionable reliability and relevance that they cannot support a finding of any concern in this matter and provide no basis for requiring WMTX to sample and analyze its groundwater monitoring wells for constituents beyond those on the list in Appendix I.

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194 Ex. TJFA 104 at 103 (56 FED. REG. at 51,080); *see also id.* at 5 (56 FED. REG. at 50,982) (noting that MSW landfills "that began operation prior to 1980 could contain industrial hazardous waste that, starting in 1980, could only be sent to a subtitle C facility").

195 *See id.* at 103 (56 FED. REG. at 51,080).

196 *Id.* at Ex. TJFA 104 at 99 (56 FED. REG. at 51076); *see also id.* at 98 (56 FED. REG. at 51,075) ("[T]he Agency believes that volatile organics would be among the best indicators for early detection of a release and has retained them in appendix I.").

Regarding the constituents that are required to be analyzed per WMTX's agreement with the City of Austin, in the more than six years that groundwater samples have been collected and analyzed per that agreement, only the constituents listed on Exhibit TJFA 24 have been detected above the applicable laboratory reporting limit. Of those constituents, only 1,4-dioxane and 1,2,4-trichlorobenze are not included on the Appendix I list of constituents.[197] However, 1,2,4-trichlorobenze is included on the list of constituents in Appendix II and, as set forth above, the only detection of this constituent above the laboratory reporting limit was a single, unverified detection in piezometer PZ-31.[198] For the reasons set forth above, this piezometer is likely impacted by waste and not capable of yielding representative groundwater data.[199]

With respect to 1,4-dioxane, EPA specifically considered, and ultimately rejected, this compound for inclusion on the list of assessment monitoring constituents in Appendix II when the agency promulgated its Subtitle D regulations in 1991.[200] EPA excluded 1,4-dioxane from the Appendix II list due to "serious stability or analytical limitations" by the standard analytical method.[201] Additionally, as discussed in WMTX's Closing Argument, while the TCEQ Executive Director can add constituents to a detection monitoring list, he can only do so if the constituents are reasonably expected to be in, derived from, or otherwise indicative of a release

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197 *See* 40 C.F.R. pt. 258, app. I.

198 *See id.* at app. II; Ex. TJFA 24.

199 Furthermore, the concentration of the unverified 1,2,4-trichlorobenze detection was 0.022 mg/L; the applicable PCL is 7 mg/L. *See* Ex. TJFA 24.

200 *See* Ex. TJFA 104 at 104 (56 FED. REG. at 51,081) (listing 1,4-dixoane in Table 2 as among the compounds deleted from the proposed list of Appendix II constituents).

201 *Id.*

from a regulated MSW unit.[202] For the reasons set forth above and in WMTX's Closing Argument, the IWU does not fit that description.

Moreover, even assuming arguendo that the wastes in the closed IWU may provide a basis for the addition of constituents to the detection monitoring program for wells in the permitted groundwater monitoring program at the ACRD Facility – a proposition that WMTX disputes – the IWU cannot provide such a basis for ***all*** of the monitoring wells at the facility. As discussed above, the groundwater monitoring network in WMTX's application proposes three wells that will serve to monitor the IWU – MW-11, MW-44, and MW-30. Just as there is no legal justification for using the IWU as a basis for adding to the facility's detection monitoring, there is no technical justification for using the IWU as a basis for requiring wells to be sampled and analyzed for potential IWU constituents beyond those in Appendix I when such wells cannot possibly detect a release from the IWU.

4. Whether the Application Includes Sufficient Information Demonstrating how the MSW Facility will Comply with Applicable TPDES Stormwater Permitting Requirements

Protestant TJFA contends that mere references to the facility's Stormwater Pollution Prevention Plan ("***SWPPP***") in the MSW application somehow requires WMTX to go beyond the applicable regulatory requirement and present a substantive demonstration of compliance with applicable Texas Pollutant Discharge Elimination System ("***TPDES***") stormwater permitting requirements in the context of the MSW permit amendment application. For the reasons set forth in WMTX's Closing Argument, TJFA's contentions do not square with the

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202 *See* 30 TEX. ADMIN. CODE § 330.419(c).

TCEQ's MSW rules or with express statements by EPA and TCEQ in the context of each respective agency's adoption of rules implementing Subtitle D.[203]

Furthermore, where the facility's SWPPP is referenced in the pending MSW application, it is referenced only to indicate the basis for the proposed frequency of certain inspections.[204] While TCEQ's MSW rules specify that the inspections at issue must be conducted, those rules do not prescribe a frequency for the required inspections.[205] WMTX's application references the facility's SWPPP only to provide the basis for the proposed inspection frequency, where TCEQ's MSW rules are otherwise silent with respect to how often the required inspections should be conducted.

Whether WMTX's SWPPP meets applicable TPDES requirements is not before the ALJ and is not a proper question to be decided in this MSW permitting proceeding. Moreover, Mr. Lesniak's suggestion that a facility's MSW Erosion and Sedimentation Control Plan should be identical to its SWPPP, or should otherwise demonstrate compliance with the TPDES requirements for a SWPPP in addition to the applicable MSW requirements, is not supported by TCEQ's MSW rules and the agency's requirements for SWPPPs, which in no instance cross-

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203 *See* 30 TEX. ADMIN. CODE § 330.61(k)(3)(A); Ex. TJFA 104 at 77 (56 Fed. Reg. at 51,054) (EPA responded to comments seeking the integration of Subtitle D and National Pollutant Discharge Elimination System ("***NPDES***") requirements as follows: "Under today's approach, NPDES requirements for landfills will be implemented under the NPDES permitting program, because NPDES permits are site-specific and NPDES permit writers are in the best position to ensure that the surface water requirements are met for [MSW landfills]."); *see also id.* ("EPA believes that the Clean Water Act is the appropriate mechanism for ensuring that point source discharges are protective of human health and the environment."); *id.* ("[T]he Agency believes that compliance with surface water regulations is best suited to mechanisms already established under the [Clean Water Act]."); 18 TEX. REG. at 4026 ("The commission concurs in EPA's comment that "'collect and control' does not necessarily require sampling or treatment, unless such is required to meet requirements of the Clean Water Act, including but not limited to the NPDES requirements.").

204 *See* Ex. APP-202 at 610 (referencing the frequency of inspections of temporary and permanent drainage facilities and landfill cover).

205 *See, e.g.*, 30 TEX. ADMIN. CODE § 330.165(g), (h).

reference one another or otherwise require that the two plans be combined or identical.[206] Indeed, with respect to plans stemming from other regulatory requirements, the SWPPP provisions of the Multi-Sector General TPDES Permit provide that such plans "***may*** satisfy in whole or in part specific requirements" of the general permit, but there is no requirement that such plans ***shall*** satisfy any of the SWPPP requirements.[207] Mr. Lesniak's position is yet another claim that is wholly without support in the record, and that was specifically considered and rejected by EPA when the agency promulgated its Subtitle D rules.[208]

The clear regulatory framework, as expressly intended by the regulators, is that TPDES/NPDES permitting requirements be addressed in the context of the TPDES/NPDES permitting program, and that MSW requirements be addressed in the context of the MSW program.[209] That the two programs may both address – to varying degrees – erosion control, in addition to the numerous other topics that are unique to each program, provides no basis for combining the two programs. It cannot be reasonably disputed that the SWPPP requirements go far beyond the limited requirements for erosion and sedimentation control in TCEQ's MSW rules.[210] There is no basis in law or reason to require a MSW application to demonstrate compliance with the requirements of a wholly separate permitting program that exceed the scope

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206 Indeed, the requirements applicable to the two plans, and how those plans are implemented, are demonstrably different. *Cf. id.* § 330.305(d) *with* Ex. COA TF-5 at 26-34. One significant procedural difference is that a SWPPP can be continually modified by the permittee without prior authorization from TCEQ, whereas any changes to a MSW permit would require submission of a modification or permit amendment application to TCEQ. *Cf.* Ex. COA T-5 at 34, 48 *with* 30 TEX. ADMIN. CODE §§ 305.62, 305.70.

207 Ex. COA TF-5 at 26.

208 *See* sources cite *supra* note 203.

209 *See id.*; *see also* Trial Tr. at 2399:14 to 2400:10, 2400:19 to 2401:8 (Udenenwu).

210 *See, e.g.*, Ex. COA TF-5 at 31 (one-paragraph subsection specifying erosion control measures for SWPPPs).

of the applicable MSW regulatory requirements and that MSW permit reviewers do not have the expertise to review.[211]

Furthermore, contrary to Protestants' claims, issuance of a MSW permit containing an Erosion and Sedimentation Control Plan that does not satisfy all TPDES requirements for a SWPPP does not grant the MSW permittee authority to violate any TPDES permitting requirement.[212] The MSW permittee is required, in the context of the TPDES permitting program, to prepare and comply with a SWPPP that meets the applicable TPDES requirements. That is the proper permitting proceeding in which to determine whether the applicant's plan meets the applicable TPDES requirements.

5. Whether the Application Includes Adequate Provisions for Erosion Control, in Compliance with Agency Rules

When the Erosion and Sedimentation Control Plan in the application is considered in the proper context – i.e., in terms of its compliance with the applicable TCEQ MSW rules – issues concerning its adequacy are easily resolved. Putting aside questions regarding benchmark "compliance"[213] and other TPDES matters that, as discussed above, apply to a different plan and permitting program, the City of Austin's main concerns regarding the Erosion and Sedimentation Control Plan are: (1) that the plan specify where, when, and how the facility's erosion controls will be employed, and (2) that the sedimentation and bio-filtration pond that the City of Austin

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211 *See* Trial Tr. at 2400:19 to 2401:8 (Udenenwu).

212 *See* 30 TEX. ADMIN. CODE § 330.15(h)(2).

213 Despite the testimony of its own witness and all of the evidence to the contrary, the City of Austin persists in referring to the TPDES benchmark value as a "discharge limit" and a "stringent requirement." City of Austin Closing Argument at 17. As the record evidence indisputably demonstrates, a benchmark value is neither a discharge limit nor a TPDES permit requirement. *See* Ex. COA TF-5 at 48 (providing that benchmark values "are not numeric effluent limitations"); *see also* Ex. APP-16 at 29:19 to 30:9, 31:15-19 (Franke); Trial Tr. at 2110:7-22 (Lesniak).

approved will not be able to handle the sediment load in the runoff from the facility during its construction and prior to installation of final cover. While both of these concerns were addressed in WMTX's Closing Argument, additional discussion of each issue is provided below in response to the City's closing arguments.

a. The Specificity Necessary to Ensure Compliance with the Regulatory Requirements is Provided in WMTX's Erosion and Sedimentation Control Plan

As discussed in WMTX's Closing Argument, the level of specificity demanded by the City is not required by the applicable regulation and would negate the operational flexibility that the regulation allows. The TCEQ guidance document that the City's own witness, Mr. Lesniak, relied on to review the Erosion and Sedimentation Control Plan provides that "[s]pecific configurations or development scenarios showing specific locations of structural controls are not required" for compliance.[214] The applicable rule requires the facility to "provide effective erosional stability to top dome surfaces and external embankment side slopes," but leaves it to the facility owner or operator to determine how such erosional stability should be provided – i.e., which erosion controls to use, and where, when, and how to utilize those erosion controls, to achieve effective erosional stability on the landfill's top dome surfaces and external embankment side slopes.[215] While the rule itself provides flexibility, as Mr. Dominguez explained at the hearing, the Erosion and Sedimentation Control Plan provides the requisite degree of specificity to ensure that the proper erosion controls are implemented "where, when, and how" necessary to provide effective erosional stability in compliance with the regulatory requirement.

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214 Ex. APP-15 at 2; *see also id.* at 1 (explaining that "[s]tructural controls include vegetative and nonvegetative stabilization of exposed surfaces, perimeter controls, sediment traps, improved sediment basins, silt fences, filter fabrics, stream crossing, etc."); Trial Tr. at 2398:3 to 2399:8 (Udenenwu).

215 30 TEX. ADMIN. CODE § 330.305(d); *see also* Ex. APP-202 at 603-04.

For instance, the Erosion and Sedimentation Control Plan specifies that the maximum, uninterrupted distance between stormwater diversion structures on the landfill's external embankment side slopes, at any given time, must not exceed 100 feet as measured along the side slopes (i.e., for every 100-foot length of side slope, a stormwater diversion structure must be installed).[216] The Erosion and Sedimentation Control Plan specifies the types of stormwater diversion structures that may be installed to meet the 100-foot requirement and the construction specifications for each type of diversion structure.[217] The plan also specifies soil stabilization measures that must be implemented for all top dome surfaces and external embankment side slopes; the time within which such measures must be completed; and how such stabilization will be achieved, including seeding specifications for clay soils and irrigation, fertilization, and other specifications for the establishment of vegetation and the use of mulch and other soil stabilizers.[218]

As the calculations in the Erosion and Sedimentation Control Plan demonstrate, implementation of the foregoing measures, as prescribed by the plan, will maintain soil losses from top dome surfaces and external embankment side slopes well below permissible soil loss levels, in compliance with the applicable regulatory requirement.[219] The City of Austin criticizes

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216 *See* Ex. APP-202 at 604, 606, 849, 855; Trial Tr. at 467:14 to 468:5, 477:8-18 (Dominguez); *see also* Ex. APP-15 at 2 (providing that specifying a maximum slope length is an example of how to demonstrate where structural erosion control should be installed).

217 *See* Ex. APP-202 at 605-06, 858-59; *see also id.* at 606 (requiring use of temporary downchutes when soil stormwater diversion berms are used).

218 *See id.* at 604-05, 861-84; Trial Tr. at 499:17-24 (Dominguez); *see also* Ex. APP-15 at 1, 2 (providing that plans for the stabilization of exposed surfaces, including specifying types of vegetation to be utilized for erosion control, are examples of nonstructural erosion controls) .

219 *See* Ex. APP-202 at 603-04, 849-55; 30 TEX. ADMIN. CODE § 330.305(d)(1)-(2), (e); Ex. APP-15 at 2-3 ("The applicant should demonstrate that the controls proposed will achieve soil loss that does not exceed the maximum erosion soil loss . . . .").

these calculations for assuming vegetation covering 60% of the intermediate cover areas and for allowing 180 days from the installation of intermediate cover to achieve the 60% coverage. Here again, these aspects of WMTX's Erosion and Sedimentation Control Plan adhere to the same TCEQ guidance document that Mr. Lesniak relied on to review the plan.[220] Furthermore, the Erosion and Sedimentation Control Plan also specifies "cover practices that will be implemented prior to the establishment of vegetation" to control erosion, such as mulching and the application of geosynthetic products.[221]

The City also contends that measures specified in the Erosion and Sedimentation Control Plan for intermediate and final cover areas of the landfill should also apply to active areas that have only received daily cover. Again, the City's contentions are contrary to TCEQ's rules and guidance.[222] TCEQ's MSW rules require that intermediate cover be "capable of sustaining native plant growth and must be seeded or sodded following its application ***in order to control erosion***."[223] Similarly, the final cover of landfill is required to have an "erosion layer" consisting of soils "capable of sustaining native plant growth" that must "be seeded or sodded immediately following the application of the final cover ***in order to minimize erosion***."[224] There are no such

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220 *See* Ex. APP-15 at 3 ("The controls proposed to keep soil loss below . . . maximum soil loss shall be proposed to be installed within 180 days from when the intermediate cover is constructed"); *see also id.* at 3 (recommending "[a] goal of at 60% vegetative cover"); Trial Tr. at 478:13-14 (Dominguez).

221 Ex. APP-202 at 605, 870-84.

222 *See also* Ex. APP-16 at 17:16 to 19:7 (Franke) (explaining why it is unworkable to attempt to establish vegetation on daily cover areas).

223 30 TEX. ADMIN. CODE § 330.165(c) (emphasis added); *see also id.* (providing that intermediate cover "[p]lant growth or other erosion control features must be maintained). The specifications in the application for cover soils used for intermediate cover (i.e., that they must be "capable of sustaining native plant growth," etc.) are on page 3406 of Exhibit APP-202.

224 30 TEX. ADMIN. CODE § 330.457(a)(3) (emphasis added); *see also id.* § 330.457(a) (requiring a "final cover system for the unit that is designed and constructed to minimize infiltration and erosion").

similar requirements for daily cover.[225] TCEQ's rules also require intermediate and final cover areas to be inspected for erosion, and require repair of eroded areas that are deep enough to jeopardize the cover.[226] Here again, these requirements do not apply to daily cover.

Additionally, TCEQ's erosion guidance document provides that "top dome surfaces and external embankment side slopes," as used in 30 Tex. Admin. Code § 330.305(d), include only areas that have received intermediate or final cover, not areas that have received only daily cover.[227] With respect to daily cover areas, the guidance instructs facilities to use "best management practices incorporating . . . structural and nonstructural controls as appropriate."[228] Accordingly, WMTX's Erosion and Sedimentation Control Plan includes structural stormwater run-on and run-off controls for active disposal areas, and nonstructural controls, such as phased development to limit the area of bare soil and daily cover at any given time.[229]

b. Contrary to the City's Assertions, the Pond that It Permitted is Not the Primary Method of Controlling Erosion and Sedimentation

As discussed in WMTX's Closing Argument, the permissible soil loss calculations in the Erosion and Sedimentation Control Plan also demonstrate the invalidity of the City of Austin's asserted concerns regarding the sedimentation and bio-filtration pond that the City itself approved. Whereas the City contends that this pond will be the primary method for removing

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225 *See id.* § 330.165(a) (providing that the purpose of daily cover is "to control disease vectors, fires, odors, windblown litter or waste, and scavenging").

226 *See id.* § 330.165(g).

227 *See* Ex. APP-15 at 1, 2.

228 *Id.* at 2.

229 *See* Ex. APP-202 at 602 (providing that "the facility will disturb the smallest vegetated area possible"), 603, 838-46 (specifying run-on and run-off controls for active disposal areas); *see also id.* at 3393 (limiting the working face to the smallest practicable area); Ex. APP-15 at 1 (providing that phased development and "plans to disturb only the smallest area necessary to perform current activities" are examples of nonstructural erosion controls).

sediment from stormwater run-off during construction and operation of the expansion area, the calculations in the Erosion and Sedimentation Control Plan demonstrate that soil loss from erosion will be well below permissible soil loss levels, in compliance with TCEQ's MSW rules, even if the sedimentation and bio-filtration pond did not exist.[230] Through proper slope design, soil stabilization, and stormwater diversion – all of which will occur upstream of the sedimentation and bio-filtration pond – the facility will maintain erosive soil loss rates at a fraction of the permissible rates regardless of how well the City-approved pond functions at removing sediment.[231]

The City of Austin's witnesses did not take into account the erosion control and sediment removal that will occur upstream of the pond and that will result in far less sediment entering the pond than the City claims.[232] Indeed, in the calculations that he performed to analyze the pond's ability to meet the TPDES benchmark for total suspended solids ("***TSS***"), Mr. Franke assumed that there were ***no*** erosion and sedimentation control measures being implemented upstream of the pond – that stormwater run-off was allowed to flow uncontrolled and unimpeded down bare soil slopes to the pond.[233] Whereas the City argues in its brief (albeit erroneously) that the pond

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230 *See* Ex. APP-202 at 603-04, 855; 30 TEX. ADMIN. CODE § 330.305(d)(1)-(2).

231 *See* Ex. APP-202 at 603-06, 855; *see also id.* at 602-03 (discussing routing of stormwater falling on top dome surfaces and external embankment side slopes), 606 (noting that sediment control provided by the sedimentation and bio-filtration pond is in addition to the soil stabilization and stormwater diversion measures that, alone, will achieve permissible soil losses).

232 *See, e.g.*, Trial Tr. at 2170:5 to 2171:2 (Lesniak) (testifying that he has done no "quantitative analysis" of the sediment removal that will be achieved by the erosion and sedimentation control best management practices in the application).

233 *See* Ex. APP-16 at 92:3 to 93:8 (Franke) (testifying that the "Inflow TSS Concentration" of 3,000 mg/L used in the analyses in Ex. COA TF-4 does not take into account any erosion controls between the source of the sediment and the inflow to the pond); *see also* Ex. COA TF-1 at 9:200-01 (testifying that he used an inflow TSS concentration of 3,000 mg/L to model the pond and that this TSS concentration was derived from Exhibit COA TF-7); Ex. APP-16 at 92:3-21 (Franke) (testifying that the 3,000 mg/L TSS concentration was taken from a study of runoff from a highway construction site); Ex.

is the "primary control" to prevent sediment from leaving the site, Mr. Franke's analysis of the pond assumed that it was the ***only*** such control.[234]

As set forth above, WMTX's application proposes to incorporate many different best management practices for erosion and sedimentation control.[235] The City's witness recognized this "toolbox" of controls, yet they wholly ignored the sediment removal that will be achieved by any of these measures.[236] Mr. Franke's own reference document indicates that use of a silt fence can remove 75% of TSS from stormwater runoff.[237] Similarly, the TCEQ guidance document relied on by Mr. Lesniak to review the Erosion and Sedimentation Control Plan in the application indicates that vegetative cover can achieve an average TSS removal rate of 90%.[238] Yet these witnesses did not give WMTX credit for ***any*** TSS removal prior to runoff entering the pond.

COA TF-7 at 7 (explaining that the 3,000 mg/L TSS concentration is the concentration "often reported in construction runoff").

234 *See* Ex. APP-16 at 72:15-17 (Franke) ("I guess my concern at this point is that the ponds ***alone*** will not address the need for TSS removal.") (emphasis added).

235 *See* Ex. APP-202 at 602-07; Trial Tr. at 467:2-6, 479:4-7, 487:5-7, 487:19-22, 495:24 to 496:9 (Dominguez).

236 *See, e.g.*, Ex. APP-16 at 69:13-25, 88:1-19 (Franke) (testifying that "the application has quite a few additional types of erosion/sedimentation controls that are not in" the facility's SWPPP; that "the application is actually heading in the right direction;" and that some of the controls that he suggests adding to the Erosion and Sedimentation Plan in the application are already included in that plan); Trial Tr. at 2170:5 to 2171:2 (Lesniak) (testifying that he has done no "quantitative analysis" of the sediment removal that will be achieved by the erosion and sedimentation control best management practices in the application).

237 *See* Ex. COA TF-7 at 7 ("The median concentration of solids discharged from the silt-fence controls was approximately 500 mg/L. This concentration is significantly lower than the 3,000 mg/L of TSS often reported in construction runoff and suggests that approximately 75% of the particles in the runoff was removed by sedimentation in the ponds that formed behind the fences."); *see also* Ex. APP-16 at 93:9-15 (Franke) (testifying that use of a silt fence would reduce the TSS concentration entering the pond).

238 *See* Ex. APP-15 at 3.

Mr. Dominguez re-ran Mr. Franke's calculations and gave WMTX only the TSS removal benefit of a silt fence.[239] Those revised calculations plainly demonstrate that use of just one of the many erosion and sedimentation control practices specified in the application will significantly reduce the TSS concentrations in the stormwater that may be discharged from the sedimentation and bio-filtration pond.[240] Indeed, the revised calculations show that the sediment removal provided only by silt fencing and the pond itself will reduce TSS concentrations to well below the 100 mg/L TPDES benchmark value.[241] The revised calculations also reveal that the City has been rather disingenuous in its claims regarding the adequacy of the pond and the assumed TSS concentration of the stormwater that the pond will discharge.

Equally disingenuous is the City's claim that the sedimentation and bio-filtration pond is in any way unsuited for the construction phase of the expansion area (i.e., from the start of excavation to the installation of final cover). Although, as demonstrated above, the pond is not necessary for maintaining permissible soil loss levels during any phase of the ACRD Facility's operation, it should not go unnoticed that the City itself required and issued the permit for the pond's construction with full knowledge that the pond would be in existence during construction of the proposed landfill expansion.[242] Indeed, the permit issued by the City specifically states that it is for "[t]he expansion of an existing landfill," and Mr. Franke confirmed that the City

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239 *See* Ex. APP-223 at WM-GOLD-00072386-88; Trial Tr. at 491:7 to 496:23 (Dominguez).

240 *See* Ex. APP-223 at WM-GOLD-00072386-88.

241 *See id.* (showing that, at a inflow TSS concentration of 500 mg/L, the pond can reduce TSS concentrations in stormwater discharged from the pond down to at least 74 mg/L); *see also* Ex. COA TF-7 at 7 (reporting that silt fence controls have been demonstrated to achieve a median TSS discharge concentration of 500 mg/L); Trial Tr. at 494:8 to 495:23, 496:14 to 496:23 (Dominguez) (testifying that he derived the 500 mg/L from Exhibit COA TF-7 at page 7).

242 *See* Ex. APP-16 at 37:16-22, 42:11 to 44:14, 46:1 to 49:16 (Franke); *see also id.* at 62:13 to 63:13 (Franke).

issued the permit for the drainage facilities and infrastructure associated with the expansion, including the sedimentation and bio-filtration pond.[243]

The permit was issued only after the City's review of the proposed site plan submitted by WMTX and the City's determination that the site plan complied with the entirety of the City's drainage and environmental criteria.[244] Furthermore, Mr. Franke confirmed that, during the City's review of the proposed site plan, the City required certain design changes to the sedimentation and bio-filtration pond to address Mr. Franke's own concern that the pond be capable of removing sediment "during the 15 years of landfill cell activity."[245] The City-approved site plan also prescribes the erosion and sedimentation controls required by the City for development of the entire expansion area.[246] Accordingly, the City cannot credibly claim that the sedimentation and bio-filtration pond that it permitted, or the erosion and sedimentation controls that it required for the proposed expansion, are in any way inadequate.

c. The Application Includes Maintenance Requirements and Specifications for the Facility's Ponds

The City of Austin claims that it cannot locate in the application the maintenance plans or specifications for the facility's ponds. The maintenance requirements for all of the facility's stormwater collection, drainage, and storage facilities are included on page 610 of the application.[247] Specifications for the facility's sedimentation and detention ponds are provided

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243 Ex. APP-16 at Franke Depo. Ex. 10; *see also id.* at 63:23 to 64:4, 78:12 to 79:7 (Franke).

244 *See id.* at 21:8 to 23:24, 40:6-19, 62:13 to 65:6, 73:10-18 (Franke).

245 *See id.* at Franke Depo. Ex. 6; *see also id.* at 27:13-22, 49:17 to 50:14, 50:15 to 53:15, 54:4 to 57:3 (Franke).

246 *See id.* at 76:14 to 79:18, 82:11 to 83:10, 84:4-19 (Franke); *see also* Ex. COA TF-3 at 2, 6, 7, 8 (specifying erosion/sedimentation controls for the proposed expansion area).

247 *See* Ex. APP-202 at 610.

on pages 620 and 832 through 836.[248] Additionally, to obtain the City's approval of the site plan for the expansion area, WMTX entered into an easement and restrictive covenant concerning the sedimentation and bio-filtration pond, whereby WMTX agreed to maintain the pond in accordance with requirements specified by the City and granted to the City an easement "for the inspection, monitoring, operation, maintenance, replacement, upgrade and repair, as applicable" of the pond.[249]

d. Mr. Lesniak's Testimony Regarding His Prior Investigations of the ACRD Facility is Not Credible and Should be Given No Weight

The City of Austin relies heavily upon Mr. Lesniak's testimony regarding his purported observations of WMTX's prior erosion and sedimentation control practices at the ACRD Facility. Based on Mr. Lesniak's claims, the City argues that the proposed Erosion and Sedimentation Control Plan in WMTX's application does not improve upon the facility's historical sedimentation and control practices. The City's claim cannot be supported by the applicable regulation. TCEQ's current MSW rules require "effective erosional stability to top dome surfaces and external embankment side slopes during all phases of landfill operation, closure, and post-closure."[250] However, the rules that existed prior to TCEQ's 2006 revisions to its MSW rules only required long-term erosional stability for the final cover design of the landfill.[251]

Accordingly, WMTX and other MSW permittees historically have not been required by TCEQ's MSW rules to control erosion and sedimentation during the landfill's entire operational

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248 *See id.* at 832-36.

249 Ex. APP-16 at Franke Depo. Ex. 8 (pgs. COA 3566-67); *see also id.* at 57:3 to 6);10 (Franke).

250 30 TEX. ADMIN. CODE § 330.305(d).

251 *See id.* at § 330.55(b)(8) (2005); 31 TEX. REG. at 2519; Ex. APP-15 at 1.

phase (i.e., at any time prior to the construction of the landfill's final cover). Thus, each time that Mr. Lesniak claims to have inspected the ACRD Facility and observed its historical erosion and sedimentation control practices, there was no MSW rule in place requiring control of active or intermediate cover areas of the landfill. In his testimony in this matter, however, Mr. Lesniak assumed that the current requirement for erosional control "during all phases of landfill operation" had always been in place.[252]

Furthermore, if WMTX's historic erosion and sedimentation control practices over the past decade or more were as egregious as Mr. Lesniak portrays them, then one would reasonably expect to find a history of stormwater violations commensurate with the alleged inadequacy of the controls. Yet, there is no evidence of even a single violation. Indeed, when Mr. Lesniak observed many of the issues that he claims to have observed at the ACRD Facility, he was at the facility in his capacity as the City of Austin's representative designated to inspect the ACRD Facility's stormwater compliance and authorized to issue fines and citations for non-compliance.[253] But neither Mr. Lesniak nor anyone else with the City has ever cited WMTX with a stormwater-related violation.[254] There is no written record of even so much as a warning.

Mr. Lesniak attempted to explain away this apparent contradiction as some form of prosecutorial discretion – that the City reserves issuing citations for only the most "extreme violations."[255] Mr. Lesniak also claimed that the City did not see any utility in levying fines against corporations like WMTX, as the City believes the monetary fines would go unnoticed on

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252 *See* Trial Tr. at 2108:5 to 2110:6 (Lesniak).

253 *See id.* at 2104:16 to 2105:16 (Lesniak).

254 *See id.* at 2105:17 to 2106:9 (Lesniak).

255 *Id.* at 2106:19, 2115:3-6 (Lesniak).

the corporation's balance sheet.[256] It is simply incredible to assert that the City of Austin has maintained a policy of not pursuing enforcement against corporations – or anyone, for that matter – that it perceives are repeatedly and routinely committing stormwater violations. Moreover, given the weight that the City and other protestants have given in this case to citizen complaints – which carry no monetary penalty – it is difficult to imagine that the City could find no utility in establishing a record of stormwater violations at the ACRD Facility, if such violations in fact occurred.

In addition, had the City taken action and issued WMTX a citation based on what Mr. Lesniak now alleges to have observed, then the City would have had the burden of proof and WMTX would have been given the opportunity to confront the City's evidence. Instead, the City now comes forward with no evidence and claims that Mr. Lesniak's unsubstantiated testimony regarding alleged violations that the City did not so much as even record, much less prosecute, is grounds for denial of WMTX's application. The City's approach is as lacking in due process as it is in credibility. In any event, if the alleged historic erosion and sedimentation controls that Mr. Lesniak describes were not so "extreme" as to warrant a $500 fine from the City, then those allegations should provide no basis for denial of WMTX's permit.

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256 *See id.* at 2116:7-10 (Lesniak).

6. Whether the Application Includes Adequate Provisions for Proper Slope Stability, in Compliance with Agency Rules, Particularly in Relation to the Proposed "Piggyback" Liner System

a. Even if the Stability Analyses are Performed using the Unrealistically Low Values that Mr. Chandler Cites, the Analyses Still Demonstrate that the Landfill will be Stable

In its Closing Argument, TJFA begins its slope stability arguments by attempting to bolster the qualifications of Mr. Chandler. TJFA praises Mr. Chandler's experience, credentials, and recognitions. Mr. Chandler has been most recently recognized, however, as a witness lacking in intellectual honesty and credibility.[257] Notably, he shares that recognition with another of TJFA's witnesses, Dr. Kier.[258] Specific to the topic at hand, the ALJ in the BFI Sunset Farms matter "could not find that Mr. Chandler was a credible witness on slope-stability issues."[259]

Mr. Chandler's credibility fares no better in this case. With respect to the slope stability analyses in the application, Mr. Chandler has done nothing more than sit on the sidelines and throw stones. He has not performed, or even attempted to perform, a single slope stability analysis of his own. He has no independent analyses; no independent studies; no independent calculations to support his criticisms and allegations. He has done nothing more than pull books off the shelf, open their pages, and point to numbers that he claims Mr. Dominguez should have used in his stability analyses.

Yet, Mr. Chandler conceded that, if he were the one designing the landfill expansion – if he were in Mr. Dominguez's shoes – he would never rely solely on the data that he relies solely

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257 *See BFI Sunset Farms PFD, supra* note 105, at 30, 31.

258 *See id.*

259 *Id.* at 63; *see also id.* at 70 (finding that "Mr. Chandler's criticisms were not reasonable or credible").

upon in this case to critique Mr. Dominguez's work.[260] Apparently, Mr. Chandler is not reluctant to relax his engineering and data quality standards when he is under the employ of TJFA. As a protestant witness, Mr. Chandler does not hesitate to advocate the use of data that he would not base his engineering design on were he the permit engineer.

Mr. Chandler readily admits that, when it comes to determining whether a landfill will be stable, there are no better data than site-specific data.[261] Yet, Mr. Chandler has done no site-specific testing of the soils at the ACRD Facility. Mr. Dominguez has.[262] Mr. Chandler has not been at the ACRD Facility observing excavation operations and the properties of the soils firsthand.[263] Mr. Dominguez has.[264]

Indeed, Mr. Dominguez has even done what Mr. Chandler would not do – run stability analyses in the application using Mr. Chandler's own numbers. Those revised analyses readily revealed why Mr. Chandler hid behind his books and published data and did no analyses of his own. Contrary to TJFA's claims, even if the stability analyses are performed using the unrealistically low values that Mr. Chandler champions, the analyses still demonstrate that the landfill will be stable when designed as proposed in the application.[265]

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260 *See* Trial Tr. at 1723:23 to 1724:5 (Chandler).

261 *See id.* at 1678:21-25, 1679:21 to 1681:8; 1682:4-25, 1683:12 to 1684:22 (Chandler); *see also* Ex. APP-6 at 454-55 (advising that when determining the interface shear strength of geomembranes placed on clay soils "site-specific and material-specific tests should always be performed" and that "*[i]n such cases, literature values should never be used for final design purposes*") (emphasis in original).

262 *See* Trial Tr. at 2510:17 to 2511:3 (Dominguez).

263 *See id.* at 1645:17 to 1646:1 (Chandler) (testifying that he has made only a single visit to the ACRD Facility).

264 *See id.* at 2505:3-20, 2569:20, 2570:16-18 (Dominguez).

265 *See id.* at 2511:4 to 2514:17, 2519:6 to 2524:10, 2527:24 to 2529:25, 2537:5 to 2543:5 (Dominguez); *see also* Ex. APP-21 (analysis using lowest clay strength test result obtained from site-specific testing of clay samples); Exs. APP-22, APP-23 (analyses using low residual soil strengths for

b. TJFA's Construction of the Unstable Area Location Restriction is Immaterial and has Recently Been Rejected, Yet Again

As discussed in WMTX's Closing Argument, TJFA attempts to fashion a slope stability requirement out of the unstable area location restriction in 30 Tex. Admin. Code § 330.559. During the hearing, Mr. Chandler acknowledged that such an interpretation is a stretch, and one that has not been embraced by TCEQ or found its way into any permit proceeding to date.[266] In the short time since the hearing, TJFA's construction of the unstable area location restriction has been rejected yet again – this time, by the ALJ in the BFI matter.[267] In any event, as Mr. Dominguez explained, labeling a slope stability analysis as an unstable area location analysis would not change the analyses in the application.[268]

c. The Piggyback Settlement Calculations are Based on Site-Specific Data and Supported by Published Data

TJFA's closing arguments regarding the piggyback liner proposed for the expansion area are so fundamentally flawed that one can only conclude that they are either reflective of an attempt to deceive or an utter failure to comprehend the basic principles and purposes of the settlement calculations in WMTX's application. While each of TJFA's misguided claims are addressed and corrected below, the basic tenet that TJFA fails to appreciate is that no two MSW landfills will settle at the same rate or by the same amount; hence, once again, the importance of

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Taylor clay); Ex. APP-24 (analysis of geocomposite/textured geomembrane interface and textured geomembrane/clay liner interface using strength values within the range on Ex. TJFA 432).

266 *See* Trial Tr. at 1656:3-24 (Chandler).

267 *See BFI Sunset Farms PFD*, *supra* note 105 at 56-60 (finding that "there is no evidence that the Commission has ever considered an existing waste mass to be an unstable area").

268 *See* Trial Tr. at 541:1-11, 555:18 to 557:21 (Dominguez).

site-specific data.[269] Whereas Mr. Chandler has been turning pages in a book in an effort to discredit WMTX's settlement calculations, Mr. Dominguez has been collecting and analyzing settlement data from the West Hill area where the piggyback liner will be installed to determine how much that area has been settling and how much more it can be expected to settle. However, that is not to say that the published literature does not have value.

Mr. Dominguez used the published literature to confirm that his numbers were within the range of published settlement data, but he used site-specific data to calculate settlement.[270] For instance, Mr. Dominguez used the site-specific settlement data to determine the modified secondary compression index for the existing waste beneath the area where the piggyback liner is proposed to be installed.[271] As discussed below, the modified secondary compression index was used to calculate the long-term secondary compression or "creep" of the waste as it decomposes and settles under its own weight.[272] Mr. Dominguez also confirmed that the modified secondary compression index that he calculated was within the range of modified secondary compression indices reported in Qian's *Geotechnical Aspects of Landfill Design and Construction*, which Mr. Chandler sponsored and which TJFA refers to as a "recognized authority."[273]

Additionally, Dr. Gross reviewed Mr. Dominguez's settlement calculations and testified that the calculated settlement was within the range of what she would expect.[274] In fact, the

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269 *See* TJFA Ex. 438 at 23; Trial Tr. at 411:14 to 412:7, 2592:12 to 2593:17, 2596:15 to 2597:1, 2598:5 to 2599:2 (Dominguez).

270 *See, e.g.*, Ex. APP-202 at 918, 919 ("The secondary compression of the existing waste was analyzed using the site-specific settlement data.")

271 *See* Ex. APP-202 at 919, 1212-21, 1233.

272 *See id.* at 918-19, 1212-21, 1233-44.

273 TJFA Closing Argument at 68; *see also* Trial Tr. at 2545:11 to 2546:25 (Dominguez); Ex. APP-202 at 1221 (calculating an average modified secondary compression index of 0.032).

274 *See* Trial Tr. at 2613:4-6, 2616:19 to 2617:12 (Gross).

modified secondary compression index that Mr. Dominguez calculated for the waste beneath the piggy back liner (0.032)[275] was almost ***identical*** to the modified secondary compression index value that Dr. Gross has consistently calculated from her analyses of settlement at multiple landfills (0.035).[276] As Dr. Gross explained, while piggyback liners are new to Texas, they have been around for decades in other areas of the country.[277] Indeed, Dr. Gross has been working on piggyback liners and associated settlement analyses since the 1980s.[278]

As her résumé reflects, Dr. Gross is a nationally respected authority on the performance and stability of landfills and other solid waste disposal facilities.[279] Among other notable engagements in her 20 years as a professional geotechnical engineer, Dr. Gross was retained by EPA to assist that agency with geotechnical investigations of solid waste facilities and with the development of various EPA technical support and guidance documents.[280] Her work with EPA included analyses of the performance of piggyback liners at landfills around the country.[281] And EPA did not find any issues with the piggyback liners.[282]

(i) Use of Aerial Photos to Calculate Settlement is Standard Practice

TJFA's first criticism of Mr. Dominguez's settlement calculations is his use of aerial topographical surveys (i.e., aerial photographs) to track and measure the settlement occurring

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275 *See* Ex. APP-202 at 1221, 1237.

276 *See* Trial Tr. at 2616:19 to 2617:11 (Gross).

277 *See id.* at 2611:5-16 (Gross).

278 *See id.* at 2609:11 to 2612:2 (Gross).

279 *See* Ex. APP-29.

280 *See* Ex. APP-29 at 1-2; *see also* Trial Tr. at 2607:7-11, 2607:25 to 2608:14 (Gross).

281 *See* Trial Tr. at 2608:15-24 (Gross).

282 *See id.*

from year to year in the piggyback area of the West Hill.[283] The criticism is meritless. Use of aerial surveys in this manner is recognized in Qian's *Geotechnical Aspects of Landfill Design and Construction*.[284] Additionally, Dr. Gross testified that the use of aerial surveys in the manner used by Mr. Dominguez is "standard practice."[285]

(ii) Mr. Dominguez's Exclusion of Unrepresentative Data Was Reasoned and Conservative

TJFA next criticizes Mr. Dominguez's grounds for not including in his calculations some of the data that he obtained from locations on the West Hill that he monitored yearly for settlement. This issue was discussed in detail in WMTX's Closing Argument. As explained in that brief and as Mr. Dominguez explained numerous times, the data at issue were excluded because the monitoring points from which the data were obtained were impacted by soil stockpiled on that area of the West Hill.[286] The stockpiled soil is discussed in the text and depicted in cross-sections and figures in the application.[287] As Mr. Dominguez explained, there is no question that soil was stockpiled in this area: "[T]here's ample evidence that soil stockpiling has occurred on that area of the West Hill."[288]

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283 *See* Ex. APP-202 at 919, 1212.

284 *See* Ex. TJFA 438 at 17 ("To measure the rate of settlement under constant load, surveying methods have been widely used. Techniques include aerial photo comparisons over time . . . .").

285 Trial Tr. at 2617:12-13 ("[W]hat Golder was doing was standard practice. They were using aerial photos.").

286 *See* Trial Tr. at 2543:8-24, 2544:7-20 (Dominguez).

287 *See* Ex. APP-202 at 918 ("Currently, there are soil stockpiles averaging approximately 10-feet thick overlying the old waste in most of the piggyback area."), 937-38, 940, 1235 ("Portions of the proposed piggyback liner area and adjacent areas have been loaded with soil stockpiles.").

288 Trial Tr. at 2544:14-16 (Dominguez); *see also id.* at 520:24 to 521:18 (Dominguez) ("I am sure where the soil stockpiles were based on the topography of the maps . . . . So I knew what points fell into the stockpile."); *id.* at 2583:3-5 (Dominguez) ("In some cases, I knew points that had 20 to 30 feet of soil placed on top of them, so I knew what had happened."); *id.* at 2583:19-20 ("[I]t was pretty clear where soil stockpile operations were occurring.").

Due to the stockpiled soil, the data were not representative. The data points indicated that the landfill grew from one year to the next, rather than settled as expected.[289] As Mr. Chandler testified, "once waste is in place, it typically doesn't increase in height."[290] Accordingly, Mr. Dominguez's exclusion of these unrepresentative data resulted in more conservative settlement calculations. Had he included, rather than excluded, these data in his calculations, his calculations would have indicated less settlement beneath the piggyback liner.[291]

Multiple, additional conservatisms were also included in Mr. Dominguez's settlement calculations, which would tend to result in an over-prediction of settlement. For instance, the modified secondary compression index that Mr. Dominguez used is reported to overestimate settlement.[292] Additionally, extrapolating the measured settlement data out to future years to estimate settlement through the post-closure phase of the landfill is likely to overestimate the projected settlement, since the magnitude of settlement decreases over time.[293] Also, December 2010 was used in the settlement calculations as the estimated piggyback liner construction date; if construction of the piggyback liner is delayed, the amount of settlement affecting the liner will be less (i.e., the amount of settlement affecting the liner will be the calculated settlement amount less the amount of settlement that occurs between December 2010 and the date the piggyback liner is installed).[294] Other additional conservative assumptions were

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289 *See id.* at 2544:7-20 (Dominguez).

290 *Id.* at 1733:7-10 (Chandler); *see also id.* at 2545:3-7 (Dominguez).

291 *See id.* at 536:25 to 537:18, 2544:21 to 2545:7 (Dominguez).

292 *See* Ex. APP-202 at 1213.

293 *See id.* at 1214, 1235; Ex. TJFA 438 at 23 ("The magnitude of settlement decreases over time . . . .").

294 *See* Ex. APP-202 at 919, 1235.

made in the settlement calculations to further over-estimate settlement beneath the piggyback liner.[295]

Yet another indication of the reliability and soundness of Mr. Dominguez's settlement calculations is how well his calculated results compare to settlement observed at other landfills. As set forth above, the modified secondary compression index that Mr. Dominguez calculated nearly matched the same value that Dr. Gross has consistently calculated from her analyses of settlement at multiple landfills, and both of these values are within the range of modified compression indices reported in Qian's *Geotechnical Aspects of Landfill Design and Construction*. Additionally, as discussed below and in WMTX's Closing Argument, Mr. Dominguez's calculated rate of settlement is also well within the range of published values for settlement occurring after the landfill is filled to completion (i.e., settlement following the date of fill completion, rather than settlement calculated from the date of first waste placement).[296]

(*iii*) Mr. Dominguez Properly Used the Modified Secondary Compression Index to Calculate Secondary Compression and the Modified Primary Compression Index to Calculate Primary Compression

TJFA makes an incomprehensible claim that Mr. Dominguez used a "short-time" compression index to calculate "long-time" settlement. The record is clear: Mr. Dominguez used the modified secondary compression index to calculate secondary compression, and the modified primary compression index to calculate primary compression.[297] As between primary and

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295 *See, e.g., id.* at 1237.

296 *See* Ex. APP-225 at 445-46. (reporting post-construction settlement ranges between 4.5% and 6% of total fill depth); *see also* Trial Tr. at 2555:2 to 2556:9 (Dominguez) (explaining the settlement calculations in APP-225).

297 *See* Ex. APP-202 at 918-19, 1213-14, 1233-37.

secondary compression, secondary compression is the longer settlement term.[298] Secondary compression is the slow downward creep of the waste mass under its own weight as the waste decomposes.[299] Primary compression (aka "mechanical settlement") is caused, in this case, by the weight of the piggyback liner over the existing waste, as well as the weight of the new waste that will be deposited on top of the piggyback liner.[300] Accordingly, the difference between the two is that, in primary compression, the waste settles under a load from above, whereas in secondary compression, the waste settles under its own weight.

TJFA appears to take issue with Mr. Dominguez's calculation of secondary compression – of long-term settlement. Apparently, TJFA contends that, if Mr. Dominguez had started collecting settlement data in 1992 rather than 1998, then he would have calculated greater settlement. The point is lost on WMTX. The waste beneath the piggyback liner is going to settle, but that amount of settlement is not going to increase simply because the period of analysis has been extended.

TJFA further confuses the settlement analysis by portraying the 5.3 feet of settlement that Mr. Dominguez calculated to be the total amount that the waste will have settled from the first date of waste placement beneath the proposed location of the piggyback liner through the estimated end of the ACRD Facility's post-closure period. That is not what Mr. Dominguez

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298 *See* Trial Tr. at 2548:25 to 2549:11 (Dominguez).

299 *See id.* at 2549:8-11 (Dominguez); Ex. APP-202 at 918, 1233.

300 *See* Trial Tr. at 2549:4-7 (Dominguez); Ex. APP-202 at 918, 1233, 1235.

calculated. "I'm not starting from day zero age of waste. I'm starting with waste that's already settled, has been decomposing for years." [301]

Mr. Dominguez calculated the settlement that is expected to occur in the waste beneath the piggyback liner from the estimated date of installation of the piggyback liner (December 2010), to the estimated end of the expanded ACRD Facility's post-closure period (December 2057).[302] By 2010, the existing waste in the disposal cell beneath the piggyback liner area will have been in that cell for ***14 to 22 years***,[303] ***and would have been settling during that entire time***. Indeed, by 2010 when the piggyback liner is estimated to be installed, Mr. Dominguez calculates that "most of the waste settlement would have occurred."[304]

The 5.3 feet of settlement that Mr. Dominguez calculated does not include the substantial settlement that would have occurred in the 14 to 22 years prior to 2010 (i.e., the entire life of the landfill cell prior to 2010).[305] Settlement prior to installation of the piggyback liner in 2010 is irrelevant for purposes of analyzing the stability and integrity of the piggyback liner.[306] Accordingly, Mr. Dominguez's calculation analyzes the settlement that is expected to occur after the piggyback liner is in place and through the estimated end of the ACRD Facility's post-

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301 Trial Tr. at 407:22 to 408:1 (Dominguez); *see also id.* at 405:4-7 (Dominguez) ("[M]y analysis . . . didn't determine the amount of settlement that would occur from when the waste was placed. My analysis begins with a certain time when the waste is already 14 years old.").

302 *See* Ex. APP-202 at 919, 1235; Trial Tr. 402:8-24 (Dominguez).

303 *See* Trial Tr. at 2549:25 to 2549:3 (Dominguez) (testifying that waste filling began in this cell in 1988 and was completed in 1996); *see also* Ex. APP-202 at 918 ("The existing waste in the piggyback expansion area is well over 10 years old.").

304 Trial Tr. at 2552:14-17 (Dominguez); *see also id.* at 2553:18 to 2554:6 (Dominguez) (testifying that the waste beneath the piggyback area is in the extended period of secondary compression and that most of the settlement has already occurred).

305 *See id.* at 405:4-7, 407:22 to 408:10 (Dominguez).

306 *See id.* at 2547:16-18 (Dominguez) ("Our interest in performing these analyses is to find out what the settlement is beneath the piggyback."); *see also id.* at 405:4-10 (Dominguez).

closure care period. The additional settlement that is calculated to occur is an acceptable 5.3 feet because nearly all of the settlement of the waste beneath the proposed piggyback area will have occurred prior to 2010.

Contrary to TJFA's claims, the 5.3 feet of additional settlement that Mr. Dominguez calculates for the post-2010 period is well supported by the studies of landfill settlement reported in Qian's *Geotechnical Aspects of Landfill Design and Construction.* As stated in this recognized authority: "Waste settlement under its own weight typically ranges from 5 to 30% of the original thickness, ***with most of the settlement occurring in the first year or two years.***"[307] The first year or two years of settlement of the waste beneath the area proposed for the piggyback liner will have long since passed by 2010. Additionally, the waste beneath the proposed location of the piggyback liner is not settling only under its own weight. As explained in the application and by Mr. Dominguez, the area where the piggyback liner will be installed has been loaded with the weight of soil stockpiles and, before the piggyback liner is installed, the application requires an additional 15-foot stockpile of soil to be placed over the entire area for at least three months.[308]

Additionally, in his rebuttal testimony, Mr. Dominguez went step-by-step through the oft-referenced Figure 12.1 in the Qian treatise and showed that there is no support for TJFA's claim that waste settlement beneath the piggyback will reach the double-digit percentage range.[309]

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307 Ex. TJFA 438 at 23 (citation omitted); *see also id.* (explaining that, "[i]nitially, there is a large settlement with one or two months after completing construction" and that "[t]he magnitude of settlement decreases over time"); *see* Trial Tr. at 2553:18 to 2554:6 (Dominguez) (testifying that the waste beneath the piggyback area is in the extended period of secondary compression and that most of the settlement has already occurred).

308 *See* Trial Tr. at 2548:15-24 , 2554:7-18(Dominguez); Ex. APP-202 at 1235.

309 *See* Trial Tr. at 2549:12 to 2552:17, 2596:15 to 2597:1, 2598:5 to 2600:1 (Dominguez).

Also from the Qian publication, Mr. Dominguez reviewed the methodology and results of a study that observed landfill settlement over a nine-year period after the landfills were filled to completion (rather than settlement calculated from the date of first waste placement).[310] The study found that post-completion settlement ranges between 4.5% and 6% of total fill depth, which is just below the 6.6% that Mr. Dominguez calculated for the waste beneath the proposed location of the piggyback liner.[311]

As discussed in WMTX's Closing Argument, these post-construction settlement rates are particularly relevant given that piggyback settlement period does not commence until 14 years after the landfill cell at issue has been filled to completion. Additionally, Mr. Dominguez first started monitoring settlement beneath the proposed piggyback area in 1998, two years after the landfill cell at issue had been filled, and a decade after this cell was first opened for waste disposal.[312] Per Qian, most of the settlement that was going to occur would have already occurred by 1998 and would be nearing completion by 2010.

d. The Slope Failures that TJFA References were Unrelated to the Properties of the Taylor Clay

TJFA references prior slope failures at facilities sited in the Taylor Formation or similar geologic formations, misleadingly insinuating that the geologic properties of the formation were to blame. That is not the case. As Mr. Chandler confirmed, the slope failures that occurred at the Skyline Landfill and the City of Irving Landfill resulted from operations occurring on the

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310 *See* Ex. APP-225 at 445-46; Ex. APP-225 at 448; *see also* Trial Tr. at 541:19 to 544:19, 2555:2 to 2556:9 (Dominguez) (explaining settlement calculations in APP-225).

311 *See* Ex. APP-225 at 445-46.

312 *See* Ex. APP-202 at 919, 1212-13; Ex. TJFA 456; Trial Tr. at 2342:20 to 2343:21, 2345:8-13, 2544:11-13, 2549:25 to 2550:12.

landfills, not the properties of the Taylor clays beneath the facilities.[313] Additionally, there is evidence in the record of only a single slope failure at the ACRD Facility in its near 40-year history. As Mr. Dominguez explained, that failure was caused by a weak geosynthetic interface that is no longer employed at the facility, or proposed to be employed at the facility, and the prior use of which is no longer of any concern.[314] Here again, the cause of the slope failure was unrelated to the properties of the Taylor Formation.

e. There is No Justification for the Use of Residual Strengths, Nor Any Demonstrated Benefit to be Gained By Doing So

TJFA claims that Mr. Dominguez should have used unrealistically low residual shear strength for the Taylor clays in his stability analyses, rather than the peak strength data that Mr. Dominguez derived from site-specific testing. As discussed above, and as Mr. Chandler confirmed, using site-specific data is far superior to plucking numbers from a book. Additionally, one of the foremost authorities in the field of geotechnical engineering, Dr. Koerner, whose work Mr. Chandler relies upon, recommends the use of peak strengths in the design of geosynthetic interfaces, such as those that are proposed in the application.[315] As Dr. Koerner explains, "we are essentially defending bad or inadequate design by using anything other than peak strength."[316]

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313 *See* Trial Tr. at 1663:9 to 1664:19 (Chandler).

314 *See id.* at 429:8-20, 431:1-8, 540:6-25 (Dominguez); *see also id.* at 1665:24 to 1666:6 (Chandler) (testifying that he does not know what caused the failure at the ACRD Facility).

315 *See* Ex. APP-26; *see also* Trial Tr. at 2532:4 to 2533:7 (Dominguez); Ex. TJFA 403 at 6 (referencing Koerner). *But see* Ex. APP-6 at 455 ("The designer's dilemma of using peak or residual shear strength (or something between) is an actively disputed topic.") (citation omitted).

316 Ex. APP-26 at WM-GOLD-00072765; *see also id.* (expressing the opinion that designing using peak strengths "is exactly what we should be doing with systems involving geosynthetic interfaces").

There is no benefit to be gained by using residual strengths over peak strengths, as use of residual strengths would allow for use of a lower, acceptable factor of safety, whereas Mr. Dominguez's use of peak strengths required his design to be held to a higher factor of safety.[317] Furthermore, there is no evidence of residual strength properties in the soils at the ACRD Facility. Mr. Dominguez testified unequivocally that he has not observed residual strength characteristics in the clays at the site.[318] As discussed above, Mr. Dominguez has been to the ACRD Facility and observed excavation operations and the properties of the soils, and has conducted site-specific testing on the very soils at the site.

TJFA claims that there is evidence of "stiff-fissured clay" soils at the site warranting the use of residual strengths. When asked if the clays at the ACRD Facility were stiff-fissured, Mr. Dominguez's testimony was equally unequivocal and supported by site-specific experience: "Based on my observation of the samples and what I've seen in the excavation, I would not classify it at such."[319] There is no contradictory testimony in the record. No other witness provided testimony on this issue. And Mr. Dominguez's testimony and observations were not challenged on cross-examination in any substantive way.[320]

Nevertheless, in its closing arguments, TJFA attempts to advance, for the first time, a claim that there is evidence of stiff-fissured clays at the site, citing 16 boring logs that allegedly show "characteristics" of stiff-fissured clays. Putting aside the fact that ***over 140 borings*** have

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317 *See* Trial Tr. at 1699:2-14 (Chandler).

318 *See id.* at 2518:21 to 2519:1 (Dominguez).

319 Trial Tr. at 2569:19-23 (Dominguez).

320 *See id.* at 2569:24 to 2570:10 (Dominguez) (responding again to the question of whether he has observed stiff-fissured clays at the ACRD Facility: "No, sir, I haven't.").

been drilled throughout the existing ACRD Facility and proposed expansion area,[321] no expert reviewed the boring logs in the application and opined that there is evidence of stiff-fissured clays – and there was extensive expert review and testimony regarding the boring logs in this case.[322] TJFA retained and presented the testimony of a geologist and a geotechnical engineer. Neither witness testified that they observed evidence of stiff-fissured clays in the boring logs. Indeed, neither witness opined, on any basis, that stiff-fissured clays are present at the site.

f. The Database Shear Strength Values were Within the Range of Shear Strength Values Obtained from Tests on the Same Type Soils that Exist at the Facility

TJFA claims that the interface shear strengths in the database that Mr. Dominguez used for certain of his stability analyses included some interfaces with soils that are not representative of the "CH" classified clays at the ACRD Facility. Mr. Dominguez addressed this issue in his rebuttal testimony.[323] Mr. Dominguez narrowed down the database to only those shear strength tests that were conducted on interfaces containing "CH" classified clays.[324] Both Mr. Dominguez and Mr. Chandler were in agreement regarding the tests results in the database that were specific to "CH" clays.[325] Mr. Dominguez analyzed only those data and determined the range of shear strength values that were specific to "CH" clay interfaces.[326] Mr. Dominguez then compared that range of "CH" clay shear strength values to the shear strength values that he

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321 *See* Ex. APP-202 at 1385-91, 1502-783.

322 Moreover, Mr. Dominguez's testimony was based on observing entire excavations at the ACRD Facility, not just a handful of logs of borings a few inches in diameter. *See* Trial Tr. at 2569:19-23, 2570:16-18 (Dominguez).

323 *See id.* at 2537:5 to 2543:4 (Dominguez); *see also* Ex. APP-27.

324 *See* Trial Tr. at 2538:7-17, 2539:11-15 (Dominguez); *see also* Ex. APP-27.

325 *See* Trial Tr. at 2538:7-12 (Dominguez).

326 *See id.* at 2540:17 to 2541:23, 2542:18-25 (Dominguez); *see also* Ex. APP-27.

used in his stability analyses.[327] The shear strengths that Mr. Dominguez used for his analyses were in the range of shear strength values from the database that were specific to "CH" clay interfaces.[328]

Accordingly, contrary to TJFA's claims, the shear strength values that Mr. Dominguez used were representative. They were within the range of shear strength values obtained from tests on the very same type of soils that exist at the ACRD Facility.

g. The Site-Specific, Confirmatory Testing Required by WMTX's Application is in Accordance with EPA Guidance

As discussed in WMTX's Closing Argument, the Liner Quality Control Plan ("***LQCP***") in WMTX's application requires WMTX to conduct site-specific, confirmatory testing to confirm the results of Mr. Dominguez's stability analyses prior to constructing the facility's liner systems.[329] The confirmatory tests are required to be conducted on the actual soils and geosynthetic materials that will be used to construct the facility's liners.[330] The testing is used to confirm that actual construction materials and interfaces have the requisite strengths to yield the

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327 *See* Trial Tr. at 2543:1-5 (Dominguez); *see also* Ex. APP-27.

328 *See* Trial Tr. at 2543:1-5 (Dominguez); *see also* Ex. APP-27.

329 *See* Ex. APP-202 at 1092-93 (requiring "[p]rior to the beginning of construction activities, . . . confirmatory testing of soil liner materials to demonstrate that the strengths of materials assumed in the stability calculations . . . are available"), 1096-99 (requiring "laboratory and field testing to assure that liner material conformance and construction performance specifications are achieved"), 1100-01 (requiring, "[p]rior to the beginning of construction activities, . . . confirmatory testing of geomembrane liner materials to ensure that the interface shear strengths of materials assumed in the stability calculations . . . are available"), 1107-09 (requiring "[p]rior to the beginning of construction activities, . . . confirmatory testing of geosynthetic materials to be used in the leachate collection system to ensure that the strengths of materials assumed in the stability calculations . . . are available"); *see also* Trial Tr. at 537:23 to 540:5, 550:1-5 (Dominguez); *id.* at 2347:12-18 (Udenenwu); *id.* at 2619:8-16 (Gross).

330 *See* sources cited *supra* note 329.

acceptable factors of safety that Mr. Dominguez calculated in his slope stability analyses.[331] If the materials do not pass the test, they cannot be used.[332]

The site-specific, confirmatory testing required by WMTX's application is what Mr. Chandler refers to as the "Cadillac" standard – a far superior approach to mere reliance on published data.[333] And it is not required by TCEQ's MSW rules. Nevertheless, TJFA criticizes the frequency of the required testing. As Dr. Gross testified, the frequency of the confirmatory testing required by WMTX's application is in accordance with EPA guidance,[334] with which Dr. Gross is particularly familiar, as noted above.

Dr. Gross reviewed the confirmatory testing requirements in the LQCP in the application and determined that they were in line with EPA guidance and the confirmatory testing that she conducts in her projects.[335] Here again, there is no contradictory testimony in the record. No other witness provided testimony on this issue. And Dr. Gross' testimony was not challenged on cross-examination in any substantive way. There is no evidence that the frequency of confirmatory testing in WMTX's application is insufficient or otherwise does not meet professional or industry standards.

TJFA also speculates that the person in the field conducting the confirmatory testing may not recognize an insufficient test result or know how to handle it. Again, TJFA claims are pure speculation unsubstantiated by any evidence in the record. In any event, TCEQ's rules and the

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331 *See* sources cited *supra* note 329.

332 *See, e.g.*, Ex. APP-202 at 1098 ("Section of compacted soils liner that do not pass either the density or moisture requirements in the field shall be reworked and retested until the section in question does pass."), 1099 ("If reworking consistently fails and the section does not pas the criteria, the non-conforming area will be removed and replaced.").

333 *See* Trial Tr. at 1678:21-25, 1679:21 to 1681:8; 1682:4-25, 1683:12 to 1684:22 (Chandler).

334 *See* Trial Tr. at 2627:3-8 (Gross).

335 *See* Trial Tr. at 2614:8-12, 2627:3-8 (Gross).

LQCP in WMTX's application require a quality assurance/quality control ("***QA/QC***") professional to perform all field sampling and testing during construction of the landfill's liner systems and to document the results.[336] That documentation is sealed by the QA/QC professional and submitted to TCEQ for approval prior to waste disposal in the new excavation.[337] If TCEQ determines that the documentation is incomplete or that the test data provided are insufficient to support the QA/QC professional's evaluation, then TCEQ may require additional test data and prohibit waste disposal in the excavation until such additional data is reviewed and approved by the agency.[338]

7. Whether the Application Includes Adequate Provisions to Manage Landfill Gas, in Compliance with Agency Rules

Protestants TJFA and Travis County were the only protesting parties to brief this issue. Their claims were fully addressed in WMTX's Closing Argument; no further discussion is warranted here.

8. Whether the Application Includes Adequate Provisions to Prevent the Ponding of Water over Waste on the Landfill, in Compliance with Agency Rules

Protestants TJFA and Travis County claim that water is ponding over waste in two areas of the existing, central portion of the ACRD Facility: (1) in the east-west drainage way between

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336 *See, e.g.*, 30 TEX. ADMIN. CODE §§ 330.339(a)(2) (requiring the QA/QC professional to perform all field sampling and testing during construction of the landfill and to be on-site during all liner construction), 330.339(c)(1) (requiring all field sampling and testing during construction of the landfill liner to be performed by "a qualified professional experienced in geotechnical engineering and/or engineering geology"), 330.339(c)(2) (requiring all liners to have "continuous on-site inspection during construction" by the QA/QC professional); *see also* Ex. APP-202 at 1091 (defining general responsibilities of QA/QC professional).

337 *See* 30 TEX. ADMIN. CODE §§ 330.339(a)(2), 330.341(a)-(c) (requiring a soils and liner evaluation report to be submitted to and approved by TCEQ prior to waste disposal in the evaluated excavation). Additionally, TCEQ's rules require the reporting of any site-specific conditions that require special design considerations. *See id.* § 330.61(a).

338 *See id.* § 330.341(c).

the IWU and the Phase I Unit, and (2) beneath the existing sedimentation pond that has been constructed in the central drainage way along the ACRD Facility's southern boundary. Neither claim has merit.

a. There is No Credible Evidence of Water Ponding, Much Less Water Ponding Over Waste, in The East-West Drainage Way

Protestants contend that water is, *de facto*, ponding in the east-west drainage way because some vegetation in that drainage way has been identified as wetland-type vegetation. Protestants' contention is not supported by the testimony of any witness in this case that has expertise in the relevant subject matter. There is no credible evidence in the record on which to support a finding that water must be ponding in the drainage way in order for such vegetation to be present. Yet TJFA asserts: "Such wetlands vegetation indicates that water ponds in this area, and that the water ponding is of such extent and duration to make the area suitable for this type of vegetation to survive."[339] As support for this proposition, TJFA cites only the testimony of Mr. Chandler.[340]

Mr. Chandler did not hold himself out in this matter as an expert in wetlands ecology and lacks the proper credentials and knowledge to do so.[341] Moreover, Mr. Chandler testified only that it was his "impression" that the presence of the vegetation at issue ***could be an indication*** of where water may be ponding.[342] The presence of the vegetation could also be an indication of

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339 TJFA Closing Argument at 77.

340 *See id.* at 77 n.280.

341 *See, e.g.*, Ex. APP-600 at 7:4-11 (Sherrod) (describing the methodologies, standards, regulations, and other technical or scientific knowledge that one must be familiar with in order to conduct a wetlands survey).

342 Trial Tr. at 1750:19-24 (Chandler).

where water may be ***flowing*** intermittently. The vegetation is growing in a drainage way after all.

In any event, the one witness to address this issue that actually had the credentials to do so put to rest Protestants' ponding theory. Upon reviewing photographs of the vegetation at issue, Mr. Sherrod concluded that the vegetation was, in fact, indicative of wetland vegetation. However, it takes more than wetland vegetation to constituent a wetland. As discussed below, Mr. Sherrod confirmed that the area in question was not a wetland.[343] Additionally, the Executive Director's expert witness, Mr. Udenenwu, who has visited the ACRD Facility on multiple occasions, testified that he has never seen water ponding in the drainage way between the IWU and the Phase I Unit.[344]

Furthermore, even assuming arguendo that water is ponding in the area of the drainage way at issue, there is no evidence in the record to support a finding that such ponding is occurring over waste. Mr. Chandler, who photographed the vegetation, testified that the area of the drainage way at issue is "the upper end of the ditch close to where the drainage comes onto the property"[345] (i.e., where the drainage way enters the ACRD Facility from the Travis County Landfill on the east side of the Phase I Unit, between the Phase I Unit and the East Hill).[346] TJFA cites the ThermoRetec borings and generalize cross-section as evidence that waste is buried beneath this area of the drainage way. The results of the ThermoRetec investigation

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343 *See id.* at 1124:5-14 (Sherrod).

344 *See id.* at 2370:14-21 (Udenenwu) ("I was at the site myself on some occasions, and I saw that drainage way and I saw that there was continuous flow of water within there . . . .").

345 *Id.* at 1748:16-18 (Chandler); *see also id.* at 1748:19 to 1749:1 (Chandler) (explaining that the vegetation at issue is located roughly where the east-west drainage way comes onto the ACRD Facility).

346 *See, e.g.*, Ex. APP-202 at 3023.

provide no evidence of waste buried beneath or anywhere near this portion of the drainage way. ThermoRetec did not conduct any investigation whatsoever in this area.[347]

As discussed above, ThermoRetec's generalized cross-section includes a south-to-north cross-section of the east-west drainage way between the IWU and the Phase I Unit – i.e., the cross-section is drawn perpendicular to the drainage way and, therefore, is a generalized depiction of a single point in the drainage way, not a cross-section depicting the length of the entire drainage way.[348] Moreover, the cross-section is through the western side of the IWU and the drainage way.[349] The ThermoRetec investigation did not include any soil borings advanced in the drainage way on the east side of the Phase I Unit, between the Phase I Unit and the East Hill, where the drainage way enters the ACRD Facility.[350] All of the historic borings that have been advanced near or in the drainage way in this area of facility have not encountered any waste.[351]

As the foregoing demonstrates, there is no credible evidence of water ponding, much less water ponding over waste, in the east-west drainage way where it enters the ACRD Facility.

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347 *See, e.g., id.* at 2400 (location map for ThermoRetec borings).

348 *See* Ex. APP-1 at Att. A., Part III, Figs. 3-1 (cross section location map showing area of generalized cross-section A-A'), Fig. 3-2 (generalized cross-section A-A'); *see also* Ex. APP-202 at 1481.

349 *See* Ex. APP-1 at Att. A., Part III, Fig. 3-1; *see also* Ex. APP-202 at 1481.

350 *See* Ex. APP-202 at 2400 (showing boring MW-26 below the central portion of the IWU as the most easterly boring).

351 *See* Ex. TJFA 12 at WM-064043 (showing no waste encountered in borings SB-21 and SB-22), WM-064044 (showing locations of borings SB-21 and SB-22 on west and east side of drainage way, respectively), WM-064046 (same), WM-064068 (boring log for SB-21), WM-064068 (boring log for SB-22); Ex. APP-202 at 1473 (showing locations of borings PZ-17 and PZ-25, and MW-3), 1603 (boring log for PZ-17), 1611 (boring log for PZ-25); *see also* Ex. APP-11 at WM-055364 (showing location of boring PZ-4 on Travis County Landfill), WM-055406 (boring log for PZ-4).

b. The Record Evidence Does Not Support a Finding that the South Pond in the Central Drainage Way was Constructed Over Waste

TJFA also contends that there is waste beneath the existing sedimentation pond constructed in the central drainage way at the southern permit boundary where the drainage way exits the site. Here again, TJFA relies upon the ThermoRetec investigation. And here again, the ThermoRetec data do not support TJFA's claims.

Construction of the pond at issue was authorized by TCEQ in 2003.[352] WMTX's pending application proposes to use the pond for flood and sediment control.[353] The pond is located adjacent to the ACRD Facility's southern boundary, in the central drainage way, where the drainage way exists the site.[354] The only ThermoRetec boring in proximity to the location of the pond is a single boring, MW-24.[355] However, this boring appears to have been advanced north of the pond and east of the drainage way.[356]

Borings in closer proximity to the pond do not indicate the presence of waste below ground. As discussed above, no waste is indicated in the multiple borings that were advanced along and just above the southern boundary of the ACRD Facility, where the drainage way exits

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352 *See* Ex. TJFA 505; Ex. TJFA 506.

353 *See* Ex. APP-202 at 599.

354 *See id.* at 613-16; Ex. TJFA 505 at 8.

355 *See* Ex. APP-202 at 2400. TJFA claims that the boring log for this boring shows 18 to 19 feet of waste. That is false. The boring log indicates no more than 10 feet of a "clay matrix" containing some amount of MSW. *See id.* at 2433 (noting, in the "DESCRIPTION" column, "MSW in clay matrix" from 3 to 13 feet, then only one foot of recovery after that down to 22 feet). Similarly, the boring log for MW-25 to the north of MW-24 shows only one foot of soil containing MSW followed by 8 feet of no recovery. *See id.* at 2438; *see also id.* at 2400 (showing location of MW-25).

Furthermore, while MW-24 is shown a being located on the border of an "area of unknown or suspected industrial waste management," the boring does not indicate that any industrial waste was encountered, and the boring was the only one advanced in the "unknown or suspected" area. *See id.* at 2400.

356 *See id.* at 2400.

the site, including at least one boring advanced through the bed of the drainage way.[357] In fact, the pond at issue would appear to be directly above the boring location for PZ-19.[358] No waste was encountered in the boring for this piezometer.[359]

Additionally, here again, the Executive Director's expert witness, Mr. Udenenwu, testified that he had considered this issue and did not find any evidence of ponding over waste. Mr. Udenenwu testified that he had reviewed cross-sections through the pond at issue and those cross-sections did not indicate the presence of waste below the pond.[360]

Furthermore, by its terms, the regulation at issue is concerned with the ponding of water on a constructed "landfill," not water that may questionably pond over some random, unknown and undefined area where waste may have once been deposited outside of the boundaries of the landfill unit.[361] A single boring a few inches in diameter does not define the boundaries of a landfill.

9. Whether the Application Includes Adequate Provisions for Cover, in Compliance with Agency Rules

Protestants' claims regarding the cover provisions in the application were either fully addressed in WMTX's Closing Argument or are addressed in other sections of this reply; no further discussion is warranted here.

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357 *See* sources cited *supra* note 58.

358 *See* Ex. APP-202 at 1473.

359 *See id.* at 1605.

360 *See* Trial Tr. at 2387:20 to 2388:11 (Udenenwu).

361 30 TEX. ADMIN. CODE § 330.167; *see also id.* at § 330.3(75) (defining a "landfill" as a "solid waste management unit").

10. Whether the Application Includes Adequate Provisions to Protect Endangered or Threatened Species, in Compliance with Agency Rules

Mr. Sherrod testified regarding the application's compliance with all applicable requirements relating to threatened and endangered species.[362] No party challenges his testimony or the application's compliance with requirements relating to threatened and endangered species.

11. Whether the Application Provides Adequate Information Related to Transportation, in Compliance with Agency Rules

Mr. McInturff testified regarding the application's compliance with all applicable requirements relating to transportation.[363] Mr. McInturff's testimony was not challenged by the testimony of any other witness, nor was it discredited on cross-examination in any way. Mr. McInturff is traffic engineer – a licensed Professional Engineer with a master's degree in civil engineering with a focus on transportation.[364] Mr. McInturff is certified as a Professional Traffic Operations Engineer with 34 years of experience and has conducted traffic analyses for approximately 23 solid waste facilities in Texas, including proposed expansions of existing landfills.[365]

Protestants City of Austin and Travis County contend that traffic analyses that Mr. McInturff conducted for purposes of this matter were insufficient for various reasons, all of which are beyond the scope of the traffic information required by TCEQ's MSW rules. Per the applicable regulatory requirements, the applicant's obligation is one of providing roadway and

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362 *See* Ex. APP-600 (Sherrod).

363 *See* Ex. APP-500 (McInturff).

364 *See id.* at 3:8-9, 4:19-27; Ex. APP-501.

365 *See* Ex. APP-500 at 4:24-27, 6:5-22, 7:4-12 (McInturff); Ex. APP-501; Trial Tr. at 1070:18-24 (McInturff).

traffic data to TCEQ and, more importantly, to the Texas Department of Transportation ("***TxDOT***").[366] It cannot be reasonably disputed that WMTX has satisfied these regulatory requirements. Indeed, the traffic analyses prepared by Mr. McInturff go beyond data accumulation and provide a thorough analysis of the availability and adequacy of the ACRD Facility's access roadways.[367] TxDOT reviewed the data and analyses provided by Mr. McInturff and had no objection to the information and data provided, and the methodologies and analyses employed, by Mr. McInturff.[368]

In addition to the analyses that Mr. McInturff conducted, Protestants City of Austin and Travis County contend that Mr. McInturff should have also conducted an investigation of the structural design of each of the facility's access roadways, claiming that, in the absence of such an investigation, it is unknown whether the access roadways can withstand the weight of trucks that may be hauling waste to the ACRD Facility. A structural design investigation is neither required by TCEQ's MSW rules nor necessary to determine the weight capacities of the access roadways. As part of his work on this project, Mr. McInturff determined that maximum vehicle weight limitation for each of the facility's access roadways is 80,000 pounds – the statewide limit by law for any public roadway in Texas.[369] As Mr. McInturff explained in his prefiled testimony, most waste collection vehicles weigh 54,000 pounds or less, and larger transfer trailers weigh 80,000 pounds or less.[370]

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366 *See* 30 TEX. ADMIN. CODE § 330.61(i)(1)-(4); *see also id.* § 330.23(a) (requiring the Executive Director to coordinate with TxDOT on the review of MSW permit applications).

367 *See* Ex. APP-202 at 264-333, 337-43; Ex. APP-502; Ex. APP-500 at 13:15-22 (McInturff).

368 *See* Ex. APP-500 at 24:9 to 25:25 (McInturff); Ex. APP-202 at 345.

369 *See* Ex. APP-502 at 1; Trial Tr. at 1092:17-23, 1095:19 to 1096:1, 1099:10-11 (Sherrod).

370 *See* Ex. APP 500 at 16:16-20 (McInturff).

Roadway weight limitations are established "to maintain the integrity of the roads for the future" – to ensure that use of the roadways will not "lead to excessive maintenance and deterioration of roadways."[371] Accordingly, a separate structural investigation of each roadway is unnecessary; ensuring the long-term structural integrity of the roadway is the very purpose of the roadway's weight limitation. Furthermore, contrary to Protestants' suggestions, Mr. McInturff should not have assumed that drivers would disobey the roadway weight limitations; nor was he required to investigate the structural design of each roadway to confirm that the posted weight limitation was appropriate for each roadway. Assuming that drivers will violate the law is an unreasonable assumption that would render any traffic analysis useless and unworkable. As Mr. McInturff explained:

> As with all laws, all vehicles using this landfill or any others must comply with the law; speed limit, stop signs, traffic signal, weight limits. So vehicles that are utilizing the landfill, unless they have a permit to do so otherwise, must comply with the state's maximum weight limit on the roadways . . . .[372]

It is the responsibility of all drivers to obey the law, and the responsibility of law enforcement to uphold the law. It is reasonable to assume that those responsibilities will be met.

Additionally, it is the obligation of the state or any other public entity that maintains the roadway at issue to determine and post the appropriate weight limitation for the roadway.[373] As well, one of the stated purposes of requiring coordination with TxDOT on all MSW application is so that TxDOT can consider "the adequacy and design capacity" of state-maintained roadways "to safely accommodate the additional volumes and ***weights*** of traffic generated or expected to

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371 Trial Tr. at 1108:2-6 (McInturff).

372 Trial Tr. at 1096:2-8 (McInturff).

373 *See id.* at 1099:10-15 (McInturff).

be generated by the facility operation."[374] Mr. McInturff also explained that his analysis of roadway capacity was adjusted based on the type of vehicles using the roadway, including the percentage of "heavy vehicles in the traffic stream."[375] Accordingly, at multiple levels and in multiple ways, vehicle weights and roadway integrity are taken into account in the traffic analyses that Mr. McInturff prepared.

The City of Austin misconstrues Mr. McInturff's testimony regarding Blue Goose Road. While Mr. McInturff testified, for the foregoing reasons, that he did not investigate the structural design of Blue Goose Road, he did obtain the design and other information about Blue Goose Road and the other facility access roads necessary to conduct his traffic analyses.[376] Additionally, Mr. McInturff testified that he has visually inspected Blue Goose Road.[377] Contrary to the City of Austin's portrayal of his testimony, Mr. McInturff did not testify that the road is "a structurally failing facility."[378] He testified only that sections of the road "are less well maintained than other roadways."[379] "I wouldn't classify it as anything more than that."[380] Mr. McInturff certainly did not "classify" Blue Goose Road as a structurally failing facility.

In addition, whatever deterioration of Blue Goose Road that has occurred cannot be attributed to vehicles accessing the ACRD Facility. As Mr. McInturff's analyses indicate,

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374 30 TEX. ADMIN. CODE § 330.23(a) (emphasis added).

375 *See* Trial Tr. at 1091:18 to 192:1 (McInturff).

376 *See, e.g.*, Ex. APP-502 at 1-2 (listing the maximum height, maximum weight, number of lanes, surface type, average daily traffic, and capacity for Blue Goose Road and all other access roadways).

377 *See* Trial Tr. at 1098:14-17 (McInturff).

378 City of Austin Closing Argument at 23.

379 Trial Tr. at 1098:20-21 (McInturff).

380 *Id.* at 1098:21-22 (McInturff).

landfill traffic currently represents only 1% of the peak hour traffic volume on Blue Goose Road.[381] Moreover, through the year 2025, this percentage is projected to decrease to 0.6%.[382]

The City of Austin and Travis County also voice concerns regarding trucks traveling on non-access roadways and potential nuisance issues, such as mud tracked onto the roadway and vehicle noise. With respect to the former concern, the applicable regulations require data only on "the availability and adequacy of roads that the owner or operator will use to access the site" and vehicular traffic volumes "on access roads within one mile of the site."[383] Roads that are not used as access routes to the facility are not required to be analyzed. Analyzing every street that every truck goes down to collect household waste for delivery to the facility would be an impossible task.[384] Additionally, as set forth above, it is not reasonable to assume that vehicles will illegally use routes to access the facility that are not permitted for truck travel.[385]

With respect to nuisance conditions, such conditions are beyond the required scope of the traffic analysis required by TCEQ's MSW rules. To the extent they are relevant and applicable, such conditions are addressed in the facility's Site Operating Plan in Part IV of the application.

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381 *See* Ex. APP-502 at 2.

382 *See id.* at 3.

383 30 TEX. ADMIN. CODE § 330.61(i)(1)-(3).

384 Mr. McAfee testified that "Waste Management labeled trucks" go past the Barr Mansion "all the time on Sprinkle Road." Trial Tr. at 2252:19-21 (McAfee). Mr. McAfee fails to explain how he is able to distinguish between a truck that is allegedly using Sprinkle Road for access to the facility and one that is on a collection route, collecting household waste. In any event, Mr. McAfee's claim is not credible given his testimony that he has not lived at the Barr Mansion since 1996. *See* Ex. NNC MM-1 at 1:16-17 (McAfee); Trial Tr. at 2205:16-19 (McAfee).

385 *See, e.g.*, Trial Tr. at 1097:23 to 1098:4, 1101:20 to 1102:12 (McInturff) (testifying that, if a waste hauling truck were to use Harris Branch Parkway, "they would do so illegally").

12. Whether the Application Includes Adequate Provisions for Closure and Post-Closure, in Compliance with Agency rules

Protestants' claims regarding the closure and post-closure care provisions in the application were either fully addressed in WMTX's Closing Argument or are addressed in other sections of this reply; no further discussion is warranted here.

13. Whether the Application Includes Adequate Provisions to Show that the MSW Facility Shall not Cause or Contribute to Significant Degradation of Wetlands, in Compliance with Agency Rules

Mr. Sherrod and Ms. Castille testified regarding the application's compliance with all applicable requirements relating to wetlands.[386] Their testimony was not challenged by the testimony of any other witness, nor was it discredited on cross-examination in any way. Indeed, Ms. Castille was not asked a single question on cross-examination.

TJFA contends that its photograph of wetland vegetation in the drainage way between the IWU and the Phase I Unit means that the drainage way is a wetland. As Mr. Sherrod explained in his prefiled testimony and in his testimony at the hearing, it takes more than wetland vegetation for an area to be a wetland.[387] Wetland vegetation alone is insufficient evidence of a wetland, and wetland vegetation is all that TJFA has to offer.

TJFA claims that Mr. Sherrod did not have a basis from which to conclude that the area in question was a "manmade drainage feature" that does not meet the state or federal wetland criteria. To the contrary, Mr. Sherrod's conclusion was well supported. First and foremost, he's an expert on the topic, and the only wetlands expert in this case that was questioned about the

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386 *See* Ex. APP-600 (Sherrod); Ex. APP-700 (Castille).

387 *See* Ex. APP-600 at 12:17 to 13:29 (Sherrod); Trial Tr. at 1113:16-19 (Sherrod) ("A wetland, per se, is identified based on the type of vegetation present, the type of soils present, and usually physical or physiochemical characteristics of the soil and the landscape.").

area at issue. Mr. Sherrod has a master's degree in botany with an emphasis in wetlands ecology.[388] He is a Certified Professional Wetland Scientist with 29 years of experience in wetlands ecology.[389] Mr. Sherrod has published numerous papers, has authored hundreds of technical reports, and has provided expert testimony regarding wetlands and wetland delineations.[390]

Mr. Sherrod surveyed this portion of the facility.[391] He took note of the wetland vegetation.[392] He analyzed the area and concluded that it was not a wetland – that it did not meet the state or federal wetland criteria.[393] He also reviewed a topographic map and observed that the contour lines in the area of the drainage way in question were indicative of a manmade feature.[394]

Throughout this case, TJFA has argued, and Dr. Kier has testified, that the entire east-west drainage way at issue was previously excavated and filled with waste, and that the grade of the drainage way was raised significantly in the process. TJFA would have the ALJ believe that WMTX and its predecessors have created a river of waste across the central portion of the ACRD Facility. Yet, despite all of those allegations, TJFA apparently still finds it credible to

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388 *See* Ex. APP-600 at 4:2-4 (Sherrod); Ex. APP-601.

389 *See* Ex. APP-600 at 4:15 to 5:10 (Sherrod); Ex. APP-601.

390 *See* Ex. APP-600 at 5:23 to 6:2, 8:1-6 (Sherrod); Ex. APP-601.

391 *See* Trial Tr. at 1123:3-5, 1123:24 to 1124:1 (Sherrod).

TJFA suggests that Mr. Sherrod did not do a thorough analysis of the existing ACRD Facility and claims that, per the general requirement for a wetlands statement in 30 Tex. Admin. Code § 330.61(m)(3), wetlands within the entire facility boundary – both existing and proposed, must be located. However, the actual prohibition on locating a facility in a wetland applies – as one would reasonably expect – only to "[n]ew municipal solid waste landfill units [and] lateral expansions." 30 TEX. ADMIN. CODE § 335.553(b). In any event, Mr. Sherrod testified that he surveyed the entire facility for wetlands. *See* Trial Tr. at 1120:22 to 1121:1 (Sherrod).

392 *See* Trial Tr. at 1123:6-8, 1124:2-4 (Sherrod).

393 *See id.* at 1124:6-19 (Sherrod).

394 *See id.* at 1122:18-21 (Sherrod).

claim that the drainage way as it exists today is a natural feature. TJFA cannot have it both ways. The testimony of the only expert to offer an opinion on the matter – Mr. Sherrod – is clear: It is a manmade feature and it is not a wetland.

B. WHETHER THE APPLICATION PROVIDES ASSURANCE THAT OPERATION OF THE SITE WILL POSE NO REASONABLE PROBABILITY OF ADVERSE EFFECTS ON THE HEALTH, WELFARE, ENVIRONMENT, OR PHYSICAL PROPERTY OF NEARBY RESIDENTS OR PROPERTY OWNERS

According to rule, Applicant provides assurance that it will not adversely affect nearby residents or property owners as follows:

> Impact on surrounding area. A primary concern is that the use of any land for a municipal solid waste facility not adversely impact human health or the environment. The owner or operator shall provide information regarding the likely impacts of the facility on cities, communities, groups of property owners, or individuals by analyzing the compatibility of land use, zoning in the vicinity, community growth patterns, and other factors associated with the public interest. To assist the commission in evaluating the impact of the site on the surrounding area, the owner or operator shall provide the following...[395]

Whether the required information was submitted by WMTX and arguments regarding the proper interpretation and application of that information to the compatibility issue are discussed in the next section. At the outset, it is important to put the recommendations of certain parties, namely, Protestants and OPIC, and non-party, the Capitol Area Council of Governments ("***CAPCOG***"),[396] that the application be denied in proper legal context.

The Commission's specific authority to deny this permit is found in Texas Health and Safety Code § 361.089. Notably, there is a distinction drawn in the statute between denial of a

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[395] 30 TEX. ADMIN. CODE § 330.61(h).

[396] The Commission is prohibited from considering the position of a state agency, such as CAPCOG, regarding land use compatibility "unless the position is fully supported by credible evidence *from that agency during the public hearing.*" TEX. HEALTH & SAFETY CODE § 361.069 (emphasis added). Thus, CAPCOG's failure to participate in the hearing renders its opinion on land use irrelevant to this proceeding.

permit for reasons pertaining to land use and denial of a permit for reasons pertaining to compliance history.[397] In this matter, where "compliance history"[398] has been and continues to be argued in the context of the land use compatibility analysis, the distinction is particularly important. Despite the number of times and fervor with which these arguments are offered, they are legally incorrect. For the reasons set forth below, the ALJ and, ultimately, the Commission should not be drawn in to a consideration of "compliance history" in the context of a land use compatibility determination.

With respect to compliance history, the statute could not be more specific: before denying the permit the Commission *must* find that the Applicant is in the lowest classification under Texas Water Code §§ 5.753 and 5.754.[399] In other words, denial of the application for reasons related to compliance history may only occur if the Applicant is found to be legally classified under TCEQ's rules as a "poor performer."[400] WMTX and the ACRD Facility compliance history classifications as average performers are not in dispute and, therefore, this application simply cannot be denied based on compliance history.[401]

Leaving aside the ad hoc non-regulatory definition of "compliance history" that Protestants and OPIC apparently urge on the ALJ and the Commission, an interpretation of the

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397 *See id. at* § 361.089 (a).

398 The parties urging consideration of compliance history in the context of a land use are clearly not applying the regulatory definition of the term. If they were, there would be no place for discussion of unverified complaints as they are not components of compliance history under the rule. *See* 30 TEX. ADMIN. CODE § 60.1(c).

399 *See* TEX. HEALTH & SAFETY CODE § 361.089 (f).

400 30 TEX. ADMIN. CODE § 60.2 (a).

401 *See* Ex. APP-104. The most recent compliance history report for WMTX and the ACRD Facility was issued on December 10, 2008. Per that report, WMTX's compliance history is rated at 2.76 and the ACRD Facility's is 6.17. Both WMTX and the ACRD Facility are classified as "average" performers at this time.

controlling statute that allows land use compatibility considerations to swallow the non-discretionary statutory requirements pertaining to denial of a permit based on compliance history cannot stand. The statute expressly requires the Commission to find that the Applicant is in the lowest classification before considering denial of a permit based on compliance history and cannot be circumvented by simply labeling compliance history a land use consideration.

1. Whether the Application Includes Adequate Information Regarding the Compatibility of Land Use to Show that the MSW Facility will not Adversely Impact Human Health or the Environment

At the outset, it should be noted Applicant correctly predicted in its Closing Argument that the information required by TCEQ rules,[402] provided in the Application, and updated by Mr. Worrall at the hearing is uncontroverted. Only the interpretation of that information is in dispute. Consequently, it is unquestionable that Mr. Worrall prepared a land use analysis report that contains all of the information required by the applicable regulatory provisions.[403] Mr. Worrall's initial report was completed in January 2005, and the requisite information was subsequently updated in September 2006 and December 2008.[404] Thus, the application satisfies the core land use requirements. Mr. Worrall, alone, evaluated the information required by the Commission and explained his findings with respect to each feature of the TCEQ's rules and the bases for his ultimate conclusion.[405] In Mr. Worrall's expert opinion, the use of the expansion area for continuing landfill operations at the ACRD Facility is compatible with the surrounding land uses.[406]

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402 30 TEX. ADMIN. CODE § 330.61(g), (h).

403 *See* Ex. APP-300 at 6,10.

404 *See* Ex. APP-302.

405 *See* Ex. APP-300 at 19.

406 *See id.*

Setting aside for the moment that it is incorrect to allow compliance history to drive the land use compatibility determination, as discussed in Section B, above, Protestants' and OPIC's closing arguments, including their points pertaining to "compliance history," do not detract from the preponderance of credible and reliable evidence in the record supporting a finding that the proposed expansion is in the public interest and compatible with surrounding land uses. In summary, the credible evidence in the record proves that the site has been authorized to operate as a MSW landfill for nearly forty years;[407] the proposed expansion area is buffered from existing and future residential and commercial development on three sides by active or closed MSW landfills or property owned by WMTX;[408] the proposed expansion does not represent a significant change in area land use relationships;[409] and residential and commercial development within one mile of the landfill has been and continues to be robust.[410]

Fundamentally, the parties opposing the proposed expansion of the ACRD Facility argue that the Applicant failed to prove that the expansion is compatible with existing and future surrounding land uses. Not surprisingly, the oppositions' arguments are very similar and, in essence, are variations on the same themes, utilizing six core components: (1) non-regulatory based claims or assumptions of inherent incompatibility between residential and, perhaps, commercial development and MSW landfills;[411] (2) vague allegations, unsupported by any credible record evidence whatsoever, that residents and landowners around the ACRD Facility have some reasonable, enforceable, though unwritten, unproven, and otherwise unsubstantiated

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407 *See* Ex. APP-202 at 1.

408 *See id.* at 114, 392.

409 *See id.* at 179.

410 *See id.* at 20, 179.

411 *See* Travis County Closing Argument at 16; OPIC Closing Argument at 3; City of Austin Closing Argument at 17; Protestants 1 Closing Argument at 7.

expectation that the ACRD Facility will close in November 2015, despite the absence of any legal requirement to do so;[412] (3) speculation that residential growth trends in the area, which, for example, Travis County labeled "shockingly large" and "overwhelming,"[413] have or will render the ACRD Facility expansion incompatible with surrounding land uses, despite a current residential development inventory within a five-mile radius that is sufficient to provide for 25 years of steady population growth;[414] (4) diametrically opposed testimony based on scant evidence that the existing ACRD Facility and proposed expansion suppress development in the area;[415] (5) an exaggerated and misplaced focus on "compliance history" in the context of land use compatibility, as discussed in the previous section, comprised of a 2004 TCEQ Agreed Order, where no actual findings of violation were made[416] but citing the ACRD Facility for a single odor nuisance violation alleged to have occurred on April 4, 2002,[417] and a multitude of unverified complaints[418] that did not result in any TCEQ enforcement action,[419] and (6) the putative CAPCOG non-conformance determination[420] that, the best anyone can decipher from the evidence in the record, evaluated some version of the application under some version of the Regional Solid Waste Management Plan ("***RSWMP***") and found the proposed expansion did not

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412 *See* Trial Tr. at 237:17 to 238:10, 1895:4 to 1897:1, 2272:22 to 2276:19.

413 *See* Travis County Closing Argument at 19.

414 S*ee* Trial Tr. at 767:8 to 768:21.

415 *See* Travis County Closing Argument at 18-19, 25; OPIC Closing Argument at 3; City of Austin Closing Argument at 25-26; Protestants 1 Closing Argument at 9; TJFA Closing Argument at 85-86.

416 Ex. COA -1.

417 *Id.* at 5.

418 As previously noted, unverified complaints are not components of compliance history under TCEQ's rules. 30 TEX. ADMIN. CODE § 60.1(c).

419 *See* Travis County Closing Argument at 22, 33; OPIC Closing Argument at 5-6; City of Austin Closing Argument at 26; Protestants 1 Closing Argument at 11; TJFA Closing Argument at 89-90.

420 *See* APP-13.

conform. Components 1-5 are discussed, to the extent any further discussion is warranted, in this section, while the significance, or lack thereof, of the CAPCOG non-conformance letters is discussed in Section E, *infra*.

Protestants and OPIC abruptly conclude that there is an inherent incompatibility between the use of property for a MSW land fill and residential, school, daycare and other uses.[421] For example, Travis County postulates that "[b]y 2008, however, this one-mile [radius around the facility] contained 1,487 residential homes, the Bluebonnet Trails Elementary School, and a daycare center, The Children's Courtyard – all of which are uses that are incompatible with expansion of this landfill."[422] Of course, if that were the case and there were such absolutes, the TCEQ rules on the topic would be nonsensical or, at least, wasteful of the parties' and agency's resources. In other words, if the location of a school and a daycare facility within a mile of a proposed MSW landfill precluded issuance of a permit for the site, how would it serve any purpose to go further in the permitting process? Instead, the Commission seeks information on a variety of uses within the one-mile radius in an effort to strike a balance on the issue of compatibility. TCEQ rules state: "[p]opulation density and proximity to residences and other uses described in this paragraph may be considered for assessment of compatibility."[423] Thus, there is no one use or number of residences within that radius that trumps another or precludes issuance of this permit.

In fact, this location of the ACRD Facility fares well in the balance of uses and other factors set forth in the rules. While there is a single school, a single daycare center, and a single

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421 *See* Travis County Closing Argument at 16; OPIC Closing Argument at 3; City of Austin Closing Argument at 17; Protestants 1 Closing Argument at 7.

422 Travis County Closing Argument at 18.

423 30 TEX. ADMIN. CODE § 330.61(h)(4).

historic building, "[t]here are no hospitals, cemeteries, churches, archeologically significant sites or sites of exceptional aesthetic quality" within the one-mile radius.[424] Furthermore, only approximately 13% of the area within the one-mile radius is currently in use as or planned for residential or recreational application.[425] Considering that there is an approximately 25-year supply of planned single family and multi-family housing within a five-mile radius of the ACRD Facility, there is no evidence that the residential density within one mile of the ACRD Facility will increase during the active life of the proposed expanded ACRD Facility.[426] In sum, there is no basis in law or fact for the Protestants' and OPIC's claims or assumptions of inherent incompatibility between the ACRD Facility and surrounding land uses.

Similarly, regardless of whether there is credible evidence in the record, which there is not, the suggestion that residents and landowners had expectations that the ACRD Facility would close in 2015 or any other time for that matter, is not germane to any statutory or regulatory requirement. There is no legal basis for consideration of individual expectations in an evaluation of land use compatibility. Furthermore, to the extent that someone may have calculated a closure date from publicly available records containing current waste intake volumes and remaining permitted landfill space at the ACRD Facility, it was made abundantly clear early in the case that a MSW landfill operator can control waste intake volumes to greatly extend or shorten predicted site life.[427] This reality was confirmed later in the hearing by Travis County expert witness Jon White when discussing the BFI Sunset Farms Landfill, which, by some estimates, should have

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424 Ex. APP-302 at 9.

425 *See id.* at 4.

426 See Trial Tr. at 767:18 to 768:21.

427 *See id* at 237:17 to 238:10.

closed in 2008.[428] Mr. White also confirmed a landfill operator's general ability to extend site life by controlling waste intake, including at the ACRD Facility under current Permit No. MSW-249C.[429] Finally, to the extent that there is any remaining question on this topic resulting from Travis County's introduction of the 1990 settlement agreement pertaining to expansion of the ACRD Facility under Permit No. MSW-249C,[430] Mr. McAfee conceded that his claimed expectations regarding closure of the ACRD Facility did not coincide with the terms of the agreement he signed.[431] Thus, based on the evidentiary record in this case, it cannot reasonably be argued by the Protestants or OPIC that the existing ACRD Facility has an uncertain and indeterminable amount of active life remaining.

In light of seeming agreement among the parties that residential growth trends in the area around the ACRD Facility are robust,[432] rapidly occurring,[433] greatly increase[ing],[434] or even "shockingly large,"[435] it is unreasonable to conclude based on the evidence in the record that the existing ACRD Facility has suppressed, and the proposed expansion will suppress, development in the area around the landfill. Certainly, City of Austin staff and, ultimately, the Austin City Council by approving the Planned Unit Developments ("***PUD***") of Harris Branch and Pioneer Crossing, necessarily concluded that the proposed uses were not incompatible with the BFI and

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428 *See id* at 1895:19 to 1897:1.

429 *See id* at 1895:1 to 1895:22.

430 *See* Ex. TC-7.

431 *See* Trial Tr. at 1895:1 to 1895:22.

432 *See* Applicant WMTX's Closing Argument at 56.

433 *See* OPIC Closing Argument at 6.

434 See Protestants 1 Closing Argument at 8.

435 *See* Travis County Closing Argument at 19.

ACRD Facility operations at the time.[436] It is not believable that the proposed expansion materially alters the land use relationships at the time the PUDs were approved.

While Mr. Guernsey was offered as an expert in land use matters, he candidly testified that he had no familiarity with TCEQ's rules or policies governing land use compatibility decisions in MSW permitting.[437] Unfettered by the rules or Commission precedents pertaining to MSW landfill permitting, Mr. Guernsey's espoused standard for gauging incompatibility in this context would likely guarantee that no existing MSW landfills in Texas could be expanded and, certainly, no green field projects could be sited. It is difficult to conceive of a situation that would meet Mr. Guernsey's thousand-acre standard.[438]

Finally, WMTX's true compliance history, more fully discussed in Applicant's Closing Argument, as calculated and classified according to TCEQ's rules, provides no basis for concern, much less denial of the permit. Hyperbole and discussion of unverified complaints abound in Protestants' and OPIC's arguments but, in the end, the sum total of Applicant's compliance history based on statutory and regulatory considerations is nil. Indeed, by the time this matter reaches the Commission for consideration, more than five years will have passed sine the 2004 Agreed Order was issued[439] and its inclusion in the ACRD Facility/WMTX future compliance history scores will no longer be appropriate.[440]

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436 *See* Trial Tr. at 1988:1 to 2006:4.

437 S*ee id.* at 2010:21 to 2011:8.

438 *See* Trial Tr. at 2009:11 to 2010:1.

439 *See* Ex. COA-1.

440 *See generally* 30 TEX. ADMIN. CODE ch. 60.

2. Whether the Application Includes Adequate Provisions to Prevent the Creation or Maintenance of a Nuisance, Including Odors, Control of Spilled and Windblown Waste, Dust Control, and Maintenance of Site Access Roads, in Compliance with Agency Rules

Protestants' and OPIC's claims regarding nuisance issues were either fully addressed in WMTX's Closing Argument or are addressed in other sections of this reply; no further discussion is warranted here.

3. Whether the Application Includes Adequate Provisions to Control Noise, In Compliance with Agency Rules

Protestants' claims regarding noise were either fully addressed in WMTX's Closing Argument or are addressed in other sections of this reply; no further discussion is warranted here.

4. Whether the Landfill's Operational Hours are Appropriate

Protestants' claims regarding operating hours were fully addressed in WMTX's Closing Argument; no further discussion is warranted here.

5. Whether the Application Includes Adequate Provisions for Buffer Zones and Landscape Screening, in Compliance with Agency Rules

Protestants' claims regarding operating hours were fully addressed in WMTX's Closing Argument; no further discussion is warranted here.

C. WHETHER THE APPLICATION SHOULD BE DENIED BASED ON THE APPLICANT'S COMPLIANCE HISTORY, IN ACCORDANCE WITH STATE LAWS AND AGENCY RULES

Protestants' claims regarding compliance history were either fully addressed in WMTX's Closing Argument or are addressed in other sections of this reply; no further discussion is warranted here.

D. WHETHER THE APPLICATION SHOULD BE DENIED BECAUSE APPLICANT ALLEGEDLY BEGAN CONSTRUCTION OF THE PROPOSED LATERAL EXPANSION PRIOR TO THE ISSUANCE OF THE DRAFT PERMIT, IN VIOLATION OF AGENCY RULES

Protestants TJFA and Travis County assert that WMTX's application should be denied because it commenced construction of the sedimentation and bio-filtration pond that the City of Austin permitted and required as a mitigation measure. Notably, in its Closing Argument, the City of Austin is silent with respect to this issue. Protestants' arguments regarding this issue were fully addressed in WMTX's Closing Argument; no further response is necessary.

In its brief, OPIC recognizes that there is a potentially applicable exception to the "commence physical construction" prohibition in 30 Tex. Admin. Code § 330.7(a). The exception at issue provides that prohibited "physical construction" is limited to the "[c]onstruction of actual waste management units and necessary appurtenances."[441] Construction of "other features not specific to waste management [is] allowed without commission approval."[442] TCEQ's MSW rules do not define "necessary appurtenances," but the clear concern of the rule is the unauthorized construction of waste management features, not locally-authorized environmental mitigation features such as the pond at issue. For this reason, as well as those set forth in WMTX's Closing Argument, construction of the pond provides no basis for denial of WMTX's application.

TJFA claims that, to the extent there are differences in the design criteria for the pond between what WMTX submitted to the City of Austin and WMTX's pending permit amendment application, WMTX cannot represent that it has all necessary approvals from the City of Austin. Notably, the City itself dos not take that position in its closing brief. Rather, the City's witness,

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441 30 TEX. ADMIN. CODE § 330.3(26).

442 *Id.*

Mr. Franke, testified that the site development plan that WMTX submitted to the City simply needs to be "updated" to match the applicable parts of the MSW permit amendment application, and that updating the plan is a "fairly routine" process.[443]

E. WHETHER THE APPLICATION PROVIDES ADEQUATE INFORMATION THAT THE WASTE MANAGEMENT ACTIVITIES OF THE MSW FACILITY WILL CONFORM TO THE REGIONAL SOLID WASTE MANAGEMENT PLAN, IN ACCORDANCE WITH STATE LAWS

With the exception of the City of Austin, the parties agree[444] that "the Commission is the ultimate decision maker as to whether an application for a MSW landfill permit is in compliance with a regional solid waste management plan."[445] The City of Austin relies exclusively upon the January 31, 2006 CAPCOG letters and CAPCOG's subsequent reaffirmation of that January letter, as expressed in the April 10, 2008 CAPCOG letter to the ALJ,[446] as the basis for claiming that pursuant to TEXAS HEALTH AND SAFETY CODE § 363.066 (a), does not conform to CAPCOG's RSWMP and must, therefore, be denied. Even assuming arguendo that the application was properly evaluated under a legally approved Regional Solid Waste Management RSWMP[447] and the application does not "conform"- which WMTX denies - according to CAPCOG, § 363.066 (a) is not a sufficient basis and does not require denial of the application.

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443 Ex. APP-16 at 76:2-13 (Franke); Trial Tr. at 2185:1-24 (Franke).

444 See Travis County Closing Argument at 7, ED Closing Argument at 65, Protestants1 Closing Argument at 23, TJFA Closing Argument at 95.

445 *See* TJFA Closing Argument at 95.

446 To the extent that CAPCOG viewed its direct communication Judge Scudday as satisfying the requirements of TEX. HEALTH & SAFETY CODE § 361.069 which prohibits the Commission from considering the position of a state agency, such as CAPCOG, on issues regarding land use compatibility "unless the position is fully supported by credible evidence *from that agency during the public hearing.*" (emphasis added), Applicant disagrees that such a communication is sufficient. CAPCOG's failure to participate in the hearing renders its opinion on land use irrelevant to this application and proceeding.

447 *See* 30 TEX. ADMIN. CODE § 330.61(p).

Unlike the other Protestants, the City of Austin chooses to focus exclusively on § 363.066 controls and otherwise ignores other relevant statutes and Commission precedents. Specifically, § 363.007 unequivocally states that "[t]his chapter [i.e., Chapter 363] does not affect Chapter 361," the Solid Waste Disposal Act. As recognized by all of the other parties in this case, Chapter 361 gives the Commission its extensive authority regarding solid waste management facilities. Even more specifically, § 361.151(b) and (c) make it abundantly clear that the powers granted to a county by Chapter 361 do not preclude the TCEQ commission from exercising its own power to issue a permit to dispose of solid waste and to supersede any authority granted to or exercised by a county under this chapter." Accordingly, the City of Austin's myopic and complete reliance upon § 363.066(a) – a statute that has no affect on the Commission's broad authority under Chapter 361– is misplaced and this statute serves as no basis to deny this application.

As stated above in Section B of this brief, it is not in any way clear what version of the application was reviewed by CAPCOG or under what RSWMP but, regardless, the objectives listed under Goal 15 of the CAPCOG RSWMP concern land use compatibility, roadway and drainage impacts, the applicant's compliance history as determined by the TCEQ, buffer zones and visual screening, and practices to prevent and control windblown litter, stormwater runoff, vectors, odors, and nuisance conditions.[448] Each of these topics is addressed directly in the application and, in the case of compliance history, by TCEQ in the application review process, pursuant to TCEQ's rules in 30 Tex. Admin. Code Chapter 60, as discussed above.[449] Thus, it is clear that the application provides sufficient information demonstrating that the waste

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448 *See* Ex. APP-218 at 50-51.

449 *See generally,* APP-202 Parts I/II and Part IV, APP-103, and APP-104.

management activities associated with the proposed expansion of the ACRD Facility will conform to the CAPCOG RSWMP, in accordance with state law.

VII.
NOTICE

TJFA waits until its closing arguments to claim that changes to WMTX's technically complete application that were made in February and April of 2008 constituted a major amendment. Regardless of the timing, TJFA's claim has no merit. The changes that were made were not major amendments, by any definition. The changes principally concerned an increase in the buffer zone and the addition of groundwater monitoring wells along the west side of the proposed expansion area screened in Stratum II. Pulling back the permit boundary and disposal footprint to accommodate the increase in buffer resulted in a number of revisions, all of which are specifically defined by regulation to be modifications or would be considered modifications.[450]

TJFA alleges that the changes reduced the capability of the ACRD Facility to protect human health and the environment, but TJFA offers no basis for that sweeping allegation. Indeed, there is no conceivable basis for concluding that the addition of monitoring wells and a bigger buffer zone is less protective of human health and the environment. The claim is absurd. In an attempt to find a change – any change whatsoever – that could be portrayed as less protective, TJFA cites an "attempted" redefinition of "contaminated water." The change that

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[450] *See, e.g.*, 30 TEX. ADMIN. CODE §§ 305.70(j)(2) (changes in excavation details), 305.70(j)(6) (changes to underdrain system), 305.70(j)(10) (changes in drainage control plan), 305.70(j)(14) (changes that reduce size of the facility), 305.70(j)(21) (changes to landfill gas monitoring system), 305.70(j)(26) (installation of groundwater monitoring wells at a different depth), 305.70(j)(28), (30) (changes to post-closure care plans and cost estimates), 305.70(k)(4) (changes to groundwater well depth), 305.70(k)(7) (changes to facility legal description for purpose of increasing buffer zone), 305.70(k)(9) (changes to final contours and slopes), 305.70(l) (allowing the Executive Director to determine whether a change not specifically listed in § 305.70(j)-(k) is eligible to be processed as a modification).

was request was made to bring the wording of the application in line with the applicable regulation, which specifically provides: "Runoff from areas that have intact daily cover is not considered as having come into contact with the working face or leachate."[451]

Stripped of all of its unsubstantiated claims, TJFA's argument is simply that, because the changes involved a lot of pages, it must have been a major amendment. Unlike TJFA's argument, major amendments are defined by substance, not page count.

VIII.
TRANSCRIPT COSTS

Protestants make no reasoned attempt to propose an allocation of reporting and transcription costs in accordance with the rule governing such allocations. Protestants' proposed approach to apportionment ignores the criteria set forth in the applicable rule and would require an applicant to pay all costs in every case. If that were the standard, then the Commission – like Protestants – would have no use for a rule that requires a "just and reasonable assessment" of costs.[452]

For the reasons set forth in its Closing Argument, WMTX respectfully requests that half of the reporting and transcription costs that WMTX has incurred in this proceeding be apportioned to WMTX and the other half to all Protestants, collectively.

IX.
SUMMARY

For the foregoing reasons, and those set forth in WMTX's Closing Argument, Applicant respectfully requests that the ALJ recommend issuance of Permit No. MSW-249D.

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451 *Id.* § 330.165(a).

452 *Id.* § 80.23(d)(1)(G).

X.
FINDINGS OF FACT

Applicant WMTX's proposed Findings of Fact are attached as ***Attachment 1***.

XI.
CONCLUSIONS OF LAW.

Applicant WMTX's proposed Conclusions of Law are attached as ***Attachment 2***.

XII.
ORDERING PROVISIONS

Applicant WMTX's proposed Ordering Provisions are attached as ***Attachment 3***.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that a true and correct copy of the foregoing Reply to Closing Arguments has been served on the following on this the 29th day of May, 2009:

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Attachment 1

AN ORDER Granting the Application for Permit No. MSW-249D to Waste Management of Texas, Inc.; TCEQ Docket No. 2006-0612-MSW; SOAH Docket No. 582-08-2186.

On _____, the Texas Commission on Environmental Quality ("Commission" or "TCEQ") considered the application of Waste Management of Texas, Inc. ("WMTX" or "Applicant") for Permit No. MSW-249D to authorize WMTX to laterally expand the existing Austin Community Recycling and Disposal Facility ("ACRD" or "Facility"). Roy G. Scudday, Administrative Law Judge ("ALJ") with the State Office of Administrative Hearings ("SOAH"), presented a Proposal for Decision ("PFD"), which recommended that the Commission grant WMTX's Application for Permit No. MSW-249D. After considering the ALJ's PFD, the Commission adopts the following Findings of Fact:

I. FINDINGS OF FACT

GENERAL FINDINGS/PROCEDURAL ISSUES

1. The Applicant is Waste Management of Texas, Inc., 9900 Giles Road, Austin, Texas 78754. (Ex. APP-202 at 35.)

2. The Facility is the Austin Community Recycling and Disposal Facility, and is owned and operated by WMTX. (Ex. APP-202 at 35.)

3. The Facility is located approximately 250 feet north of the intersection of Giles Road and Highway 290, in Travis County, Texas. (Ex. APP-202 at 7.)

4. The Facility is an existing Type I Municipal Solid Waste ("MSW") landfill consisting of approximately 360 acres, of which approximately 241 acres has been or will be used for landfilling, and permitted pursuant to Permit No. MSW-249C. (Ex. APP-202 at 3270.)

5. Applicant has sufficient property rights in the Facility to ensure right of entry until the end of the post-closure care period. (Ex. APP-202 at 3326.)

6. Applicant filed Application No. MSW-249D ("the Application"), which requests an amendment of Permit MSW-249C to add 71.11 acres to the permitted boundary of the Facility, for a total permitted area of 359.71 acres. (Ex. APP-202 at 12.)

7. The Facility is currently authorized to accept municipal solid waste, Class 2 and Class 3 industrial wastes, and approved special wastes. (Ex. APP-202 at 12.)

8. Applicant WMTX has operated municipal solid waste facilities in Texas since 1980, and within the past 10 years has owned and/or operated 50 sites in the state. Applicant has provided the names of the WMTX principals and supervisors directly responsible for operation of the Facility and the equipment that Applicant plans to utilize in the daily operation of the Facility. At least one individual licensed as a solid waste facility supervisor shall be employed to supervise or manage the operations of the facility, and on or before September 1, 2009, at least one individual holding a "Class A" license as a solid waste facility supervisor shall be employed to supervise or manage the operations of the Facility. (Ex. APP-202 at 10.)

9. The Application was compiled by Golder Associates, Inc. The Application was developed under the direction and supervision of Steve Jacobs, Central Texas Landfill Manager for WMTX. (Ex. APP-100 at 6; Ex. APP-202 at 44.)

10. The seal of Charles G. Dominguez, P.E., a professional engineer registered in Texas, was affixed to all engineering plans and drawings and on the Application cover pages. (Ex. APP-202.)

11. The Application was initially submitted to the Texas Commission on Environmental Quality ("TCEQ") on August 26, 2005, for review under the agency's MSW rules in effect at that time. (Ex. APP-200 at 14.)

12. Notice that the Application was deemed Administratively Complete by the Executive Director ("ED") of TCEQ was issued on September 15, 2005. (Ex. APP-200 at 14.)

13. While the administratively complete Application was pending before TCEQ and under technical review by the Executive Director, TCEQ revised the entirety of its MSW rules. These revisions went into effect on March 27, 2006. (Ex. APP-200 at 16; Ex. APP-202 at 25; 31 TEX. REG. 2502 (Mar. 24, 2006).)

14. Although not required to do so, WMTX elected to revise its pending Application to comply with the new rules and submitted a revised Application to TCEQ on October 10, 2006. The TCEQ issued notice of the technically complete Application on January 4, 2008. (Ex. APP-200 at 14; Ex. APP-204.)

15. On February 15, 2008, WMTX requested direct referral of its Application to SOAH for a contested case hearing. (Ex. APP-100 at 8.)

16. The Notice of Receipt of Application and Intent to Obtain Municipal Solid Waste Permit Amendment containing the information specified in 30 TEX. ADMIN. CODE § 39.11 was published in the *Austin American Statesman* on October 14, 2005. (Ex. APP-203.)

17. The Notice of Application and Preliminary Decision for a Municipal Solid Waste Permit Amendment containing the information required by 30 TEX. ADMIN. CODE § 39.11 was published on February 13, 2008, in the *Austin American Statesman*, and on February 14, 2008 in *Ahora Si*. (Ex. APP-208.)

18. The Notice of Public Meeting containing the information specified in 30 TEX. ADMIN. CODE § 39.11 was published on March 27, April 3, and April 10, 2008, in the *Austin American Statesman* and in *Ahora Si*. (Ex. APP-209.)

19. The Application, draft permit, and technical summary were made available for viewing and copying at the University Hills Branch of the Austin Public Library and the TCEQ's offices in Austin. (Ex. APP-210.)

20. Applicant provided documentation of the publication and mailing of the Notice of Hearing that contained the information specified in 30 TEX. ADMIN. CODE § 39.11. The publication and mailing are sufficient to show proper notice of the hearing given to affected persons, and establish SOAH's jurisdiction over the matter, pursuant to the TEX. HEALTH & SAFETY CODE, § 361.08(3)(a). (Preliminary Hearing Tr. at 8:3 – 22; Preliminary Hearing Tr. at 9:4 – 25; Preliminary Tr. at 10:1 – 11; Preliminary Hearing Ex. 1; Preliminary Hearing Ex. 2.)

21. A complete copy of the permit application was posted on the internet on a publicly accessible website. (Ex. APP-202 at 10.)

22. A preliminary hearing commenced on April 16, 2008, at the offices of the State Office of Administrative Hearings, William Clements Building, 300 West 15th Street, Suite 502, Austin, Texas 78701. (ALJ Order No. 1.)

23. The following persons were named as parties to the proceeding: WMTX, the Executive Director of the TCEQ, the Office of Public Interest Council ("OPIC"), TJFA, L.P. ("TJFA"), the City of Austin, Travis County, Williams, Ltd., Mark and Melanie McAfee, Cecil and Evelyn Remmert and Alfred Wendland, Janet L. Smith, Jean Breazeale, John Wilkins, George K. Edwards, John P. Murphy, Alto S. and Rosemary M. Nauert, Northeast Neighbors Coalition ("NNC"), and Harris Branch Residential Property Owners Association ("HBRPO"). (ALJ Order Nos. 1, 8.)

24. A contested case hearing on the Application was conducted on March 30 through April 13, 2009, at the offices of the State Office of Administrative Hearings, William Clements Building, 300 West 15th Street, Suite 404, Austin, Texas 78701. (ALJ Order No. 2.)

SUFFICIENCY OF PERMIT APPLICATION AND DRAFT PERMIT

25. Applicant provided a certificate of incorporation issued by the Texas Secretary of State and a Certificate of Account Status. No person other than WMTX has any ownership interest in the existing Facility or the Facility as proposed to be expanded in the Application. (Ex. APP-202 at 9 and 96-97.)

26. The Application is signed by Steve Jacobs, Area Landfill Manager at the time the Application was filed. Applicant provided documentation evidencing the appointment of Mr. Steve Jacobs as the Applicant's agent and his authority to act as such. (Ex. APP-202 at 43 – 44.)

27. Maps detailing the latitude and longitude of the Facility, the property boundary of the Facility, all easements within or adjacent to the site, and land ownership with accompanying landowner and mineral owner lists, were included in the Application. (Ex. APP-202 at 108 – 119.)

28. Applicant coordinated with all appropriate agencies, officials, and authorities that may have jurisdictional interest in the Application. (Ex. APP-202 at 168; Ex. APP-202 at 261 – 345; Ex. APP-202 at 364 – 365; Ex. APP-202 at 406 – 426.)

29. Applicant has provided complete information concerning required permits or construction approvals received or applied for in relation to the Application. (Ex. APP-202 at 11 and 18.)

30. The Executive Director has prepared a draft permit for Permit No. MSW-249D. (Ex. APP-206.)

31. Applicant included documentation that Parts I and II of the Application were submitted for review to the applicable council of governments. A review letter was requested from the local governments as appropriate for compliance with local solid waste plans. (Ex. APP-202 at 168; Ex. APP-217.)

32. The TCEQ calculated compliance histories and prepared a compliance history report for WMTX and the ACRD Facility in January 2008, once the agency determined the Application was technically complete. WMTX's compliance history was rated at 3.74 and the ACRD Facility's compliance was 38.14 according to these reports. In December 2008, TCEQ calculated the compliance histories for WMTX and the ACRD Facilities and rated them at 2.76 and 6.17 respectively. Accordingly, both WMTX and the ACRD Facility are classified as "average" performers in the report. (Ex. APP-100 at 11 – 12; Ex. APP-103; Ex. APP-104.)

33. All of the engineering, design, and operational plans and drawings in the Application were prepared to ensure that the Facility is designed and operated in a manner protective of human health, welfare, property, and the environment. (Ex. APP-200 at 40.)

WASTE ACCEPTANCE PLAN

34. The current maximum elevation of 740 feet above mean sea level at the Facility will be maintained. The expansion would extend the remaining life of the Facility to approximately 2025, depending on waste acceptance levels. (Ex. APP-202 at 12.)

35. The Facility accepts waste for disposal from both public and private entities in and around Travis County, Texas, and surrounding counties. The proposed expansion will not alter the current disposal patterns. The Facility will accept solid waste resulting from or incidental to, municipal, community, commercial, institutional, and recreational activities, including Class 2 and 3 industrial wastes, and approved special wastes. The design and operation of the Facility considers the characteristics of these waste types. (Ex. APP-202 at 12.)

36. The Application includes the estimated maximum annual waste acceptance rate for the Facility for five years, beginning in 2007. The Facility will accept an estimated 637,183 tons/year by the final full year of site operations, based on estimated waste acceptance rates. A population equivalent of 621,971 is estimated, based on an average disposal rate of 565,994 tons/year over the life of the site, assuming five pounds per person, per day and assuming a landfill in-place density of 0.6 tons per cubic yard. (Ex. APP-202 at 12 – 13.)

37. The Application includes a sequence of site development, which describes the pattern of waste disposal, site layout plans and a description of Facility infrastructure and buildings. (Ex. APP-202 at 13.)

38. Waste filling operations have been completed on the East Hill of the Facility and final cover has been constructed over this unit. As waste placement progresses on the West Hill, final cover will be placed in incremental phases to meet the 180 day requirement for a landfill unit that has reached final grade. (Ex. APP-202 at 14.)

39. Groundwater and landfill gas monitoring will be ongoing activities for the life of the site. Storm water accumulation on the top of the developed landfill units will be collected by add-on berms and swales placed on the cover of the landfill, routed to downchutes, perimeter channels, and then detention ponds. (Ex. APP-202 at 14.)

40. The Application includes a proposed Schedule of Development, a general excavation sequence, and a general filling sequence for the site. (Ex. APP-202 at 14 – 16; Ex. APP-202 at 16 – 17; Ex. APP-202 at 17.)

EXISTING CONDITIONS

41. A land use analysis was performed by RVi-Richardson for the expansion of the Facility and summarized in the Application. (Ex. APP-202 at 18 – 34.)

42. The majority of the Facility is located within the extraterritorial jurisdiction of the City of Austin, in Travis County, Texas, with the easternmost 200 feet of the existing site being within the city limits of Austin. The 200-foot strip is zoned DR and P-CO and the remainder of the site is not zoned, including the expansion area. (Ex. APP-202 at 18.)

43. Portions of the land located within a one-mile radius of the Facility are developed with a wide variety of commercial, industrial, residential, institutional and recreational uses. The area includes residential areas, a school, an historic site, recreational facilities, a day care, a golf course, ponds, and other landfills, as well as large portions of undeveloped "open" land. (Ex. APP-202 at 18.)

44. The Application includes population projections, growth trends, descriptions of specific uses of the properties within a one-mile radius of the Facility, and identification of structures and inhabitable buildings within a 500-foot radius of the property boundary. No known churches, hospitals, cemeteries, archeologically significant sites, or sites with exceptional aesthetic qualities were identified within one mile of the site. (Ex. APP-202 at 19 – 22.)

45. The closed Industrial Waste Unit (IWU) is a 10.36-acre unit within the site permit boundary located adjacent to and southwest of the closed East Hill section of the Facility. The IWU reportedly included four bulk liquid disposal ponds and two drum disposal

areas. The IWU received industrial waste during 1971 and 1972, and a clay cap in excess of 5-feet thick was constructed over the unit in 1973. WMTX manages this closed site separately from the ACRD and in accordance with requirements established under a voluntary agreement with the City of Austin that has TCEQ concurrence. The IWU is located hydraulically downgradient of units previously permitted under Permit No. MSW-249C and does not impact the design or operation of the proposed Facility. (Ex. APP-202 at 22 – 23.)

46. The proposed groundwater monitoring system is adequate to detect a release from the IWU. In the unlikely event of a release, MW-11, MW-30, and MW-51 will detect any release of contaminants from the IWU. (Trial Tr. at 1016:22 – 25; Trial Tr. at 1023:12 – 23; Trial Tr. at 1037:1 – 8; Trial Tr. at 989:1 – 25 (Winters).)

47. The Travis County Landfill/Phase I Area is a former Type 1 municipal waste disposal facility that is located south of the IWU, partially within the site permit boundary, that was closed in 1975. The Travis County Landfill/Phase I Area is located hydraulically downgradient of units previously permitted under Permit No. MSW-249C and does not impact the proposed design or operation of the proposed Facility. (Ex. APP-202 at 23.)

48. The proposed groundwater monitoring system is adequate to detect a release from the Travis County Landfill/Phase I Area. In the unlikely event of a release, MW-11 and WM-51 will detect any release of contaminants from the Travis County Landfill/Phase I Area. (Trial Tr. at 1023:12 – 23; Trial Tr. at 1016:22 – 25; Trial Tr. at 1017:1 – 15 (Winters).)

49. The Application includes a wind rose for the old Austin Municipal Airport for the period of January 1, 1984 to December 31, 1992, to illustrate prevailing wind direction. This wind rose indicates that the prevailing wind is from the south with an average wind speed of 7.99 knots, and calm winds 5.69% of the time. (Ex. APP-202 at 23.)

GEOLOGY AND HYDROGEOLOGY INVESTIGATIONS

50. The Facility is located in Travis County. The topography of Travis County decreases from west to east, with the greatest change in relief associated with the inactive Balcones Fault Zone. (Ex. APP-202 at 28.)

51. The Facility is located in the Blackland Prairie Physiographic Region, which is a somewhat dissected area east of the Balcones Fault Zone that is characterized by relatively flat grasslands with scattered mesquite trees. (Ex. APP-202 at 28.)

52. The natural surface relief in the Facility area is toward both the Walnut Creek and the Decker Creek drainage watersheds. Drainage features of the site are erosional valleys which generally transport surface water toward the southern, western, and eastern portions of the Facility. The Facility is also traversed by a regional drainage divide which runs through the eastern portion of this site. (Ex. APP-202 at 28.)

53. Prior to the initial development of the Facility, the maximum elevation was approximately 670 feet above mean sea level (ft-msl). The maximum current permitted elevation, which will not be increased by the proposed expansion, is 740 ft-msl. The minimum elevation of the Facility is approximately 532 ft-msl. (Ex. APP-202 at 1372.)

54. Surface water is used for domestic purposes more frequently than groundwater in the greater Austin area. When groundwater is used, it generally comes from an aquifer of Cretaceous age, and some groundwater is also obtained from the Quaternary age alluvium. (Ex. APP-202 at 1377.)

55. The most significant regional aquifers in the vicinity of the Facility are, in the order of their importance, the Cretaceous Edwards Limestone, the Cretaceous Trinity Group, and Quaternary alluvial deposits. There are no areas of recharge for the Edwards Aquifer or the Trinity Group within five miles of the Facility. There are recharge areas for the Quaternary Alluvial Deposits within five miles of the Facility. The regional aquifers in the vicinity of the Facility are not hydraulically interconnected on a local and regional scale. (Ex. APP-202 at 1377 – 1379; Ex. APP-800 at 15.)

56. The regional subsurface aquifers have been disrupted by faulting within the Balcones Fault Zone, which is located three miles northwest of the Facility. Flow rates vary laterally within each aquifer as the stratigraphy composing the aquifer is displaced by faults. This displacement has resulted in the restriction of groundwater flow, particularly in the Edwards and Trinity aquifers, which has resulted in high concentrations of dissolved solids. (Ex. APP-202 at 1377.)

57. The first significant aquifer underlying the site is the Edwards and associated limestones. The thickness and low permeability characteristics of this aquifer's overlying strata indicate that there is no reasonable concern for groundwater infiltrating through the Facility and into any aquifers underlying the site that may be used for human consumption. (Ex. APP-202 at 1377.)

58. The Facility is underlain by the Upper Cretaceous age Taylor Group. Beneath the site, the upper portion of the Taylor is comprised of weathered montmorillonitic clay with high shrink/swell potential and the clay is generally hard and occasionally contains shell fragments. Underlying the weathered material is the unweathered Taylor Group, which in the Facility area consists of calcareous claystone. Below the claystone is an unweathered marl layer. Based on regional data, the base of the Taylor Group in the Facility area is at a depth of approximately 700 feet below ground surface. (Ex. APP-202 at 28).

59. The Facility property is composed mainly of four soils series, the Austin, Ferris-Heiden, Heiden, and Houston Series. Areas of the Heiden Series soils are located along the eastern and western boundaries and in the central portion of the Facility, and are only moderately erodible. The majority of the Facility is composed of the Ferris-Heiden complex, which is erodible. Provided erosion and sedimentation control measures are implemented, erosion is not expected to adversely affect the operation of the Facility. (Ex. APP-202 at 1376.)

60. The Taylor Group, which directly underlies the site, is mainly a clay, calcareous claystone, and marl unit which crops out east of the Balcones Fault Zone. On the western portion of the Facility, the interface slopes generally to the west and on the central portion of the Facility, on either side of the drainage feature between the East and West Hills, it generally slopes southward and toward the drainage feature. On the eastern portion of the Facility, the interface slopes generally toward the east. (Ex. APP-202 at 30.)

61. The site is located within the Walnut Creek Watershed of the Lower Colorado River Basin. The major regional surface water features within the vicinity include Ferguson Creek, Walnut Creek, Harris Branch, Gilleland Creek, Decker Creek, and Walter E. Long Lake, which have several tributaries/branches scattered around the vicinity of the site. There are also scattered ponds located randomly within one mile of the site. (Ex. APP-202 at 31.)

62. There are no faults or surface expression of faults within a 3,000 foot radius of the Facility. Therefore, the site is not located within 200 feet of a fault that has experienced displacement during the Holocene Epoch extending from the end of the Pleisocen Epoch to the present. The nearest inactive fault is located approximately 2/3 of a mile west of the site. Subsidence in the Facility area is not expected because the site is situated in a bedrock terrain. (Ex. APP-202 at 29.)

63. The Facility and the proposed expansion area are not located within a seismic impact zone. A seismic impact zone is an area with a 10% or greater probability that the maximum horizontal acceleration in rock, expressed as a percentage of the earth's gravitational pull, will exceed 0.10g in 250 years. The Facility does not fall within an area in the United States where seismic effects need to be evaluated, as determined by the USGS. (Ex. APP-202 at 30, 1375.)

64. No unstable areas, as defined in 30 TEX. ADMIN. CODE §330.559, exist at, or adjacent to, the Facility. Unstable areas include poor foundation conditions, karst terrain or areas susceptible to mass movement. The Facility is not underlain by a soluble rock and therefore, no karst features are evidence at the Facility. The unweathered claystone is

relatively hard with no fracturing observed during subsurface investigations and geotechnical testing indicated the claystone exhibited an undisturbed permeability of 10^{-9} cm/sec. These foundation conditions are considered suitable for support of structural components of the Facility. There are no natural or man-made topographic features with any potential for mass movements of earth material. (Ex. APP-202 at 536 – 541: Ex. APP-202 at 1375.)

65. The Facility has a Stormwater Pollution Prevention Plan and WMTX has filed a Notice of Intent with the TCEQ. The Facility's TPDES multi-sector general permit number is TXR05N925. (Ex. APP-202 at 31; Ex. APP-202 at 105.)

66. There are no known existing or abandoned water, or crude oil, natural gas, or other wells associated with mineral recovery within the Facility. One water well was identified within a 500-foot radius of the site. The depth of the water well is 27 feet and it is designated as an irrigation well. (Ex. APP-202 at 23, 31.)

67. Only a small portion of the Facility is included in the limits of the 100-year floodplain according to the existing FEMA Flood Insurance Rate Maps. This floodplain is associated with a Walnut Creek tributary, which crosses the site along the northwestern boundary of the existing permitted area. Waste disposal operations are not proposed to occur within the 100-year floodplain area. (Ex. APP-202 at 32.)

68. A review of the "composite" floodplain map, developed considering the most conservative floodplain limits delineated on both the proposed FEMA and City of Austin floodplain maps, indicated that a portion of disposal cell WD-10 as permitted is located

within the 100-year floodplain. As a result, the footprint of disposal well WD-10 was reduced to remove it from the 100-year floodplain. (Ex. APP-202 at 33.)

69. Based on field observations and a review of US Geological Survey topographic maps and color infrared photography, federal jurisdictional "waters of the US" and state and City of Austin-defined wetlands are present at the Facility. A tributary along the western boundary of the proposed expansion area, and two small drainages that extend onto the site were identified as jurisdictional waters of the United States. The two small drainages identified as jurisdictional waters of the United States are considered hydrologically ephemeral. The proposed expansion will impact the northernmost drainage, but the impact will be less than $1/10^{th}$ of an acre, and therefore the project may be authorized by Nationwide Permit #39 and/or #43 without notifying the USACE. The wetland areas identified in the southwestern corner of the expansion area will not be impacted by the Facility, as they are within the tributary where no development is proposed. (Ex. APP-202 at 33.)

70. One pond in the north central portion of the proposed expansion area that meets the criteria for wetlands as established by the City of Austin will be impacted by the proposed expansion. This impact will be mitigated in accordance with the City of Austin Site Development Permit which requires that the area and a 150-foot Critical Environmental Feature buffer totaling 6.07 acres be mitigated. A 10.38 acre area that encompasses the proposed sedimentation/detention pond west of the expansion area will be used to mitigate the impacts of the expansion, and will be seeded with native grasses and plants in accordance with the "Restoration & Wetland Mitigation Plan." (Ex. APP-202 at 33.)

71. Thirteen water wells were identified within one mile of the Facility. Three groundwater wells are completed in the Terrace Deposits, which are not present on the Facility. One well is completed in the Edwards aquifer in the Balcones Fault zone where the aquifer is nonpotable due to high minerals content. The water source for one well was not reported, though based on the depth and location, appears to be completed in the Taylor Group. The remainder of the wells are completed in the Taylor Group which is known to yield very small quantities of water that is usually high in sulfate, chloride, and nitrate content. There is little concern for impact to these wells from the Facility because of the lengthy distance of the wells from the site and the soil liner and composite liner systems that are installed in the disposal cells that provide a low-permeability barrier to prevent the release of potential contaminants. In the unlikely event of a release, the low-permeability of the natural soils and rock hinder migration and the groundwater monitoring wells installed on the perimeter will detect the release. (Ex. APP-202 at 1384.)

72. The soil boring plans for the proposed expansion were approved by the Executive Director on December 7, 2004. The soil boring portion of the subsurface investigation was completed under the direction of a licensed Texas geoscientist using established field exploration methods, and all drilling was supervised by a licensed monitor well driller and a field geologist or engineer. (Ex. APP-202 at 1385; Ex. App.-202 at 1489; Ex. APP-800 at 19.)

73. Subsurface conditions at the Facility were evaluated using existing geological data generated from past field investigations and from field investigation activities performed in connection with the proposed expansion. (Ex. APP-202 at 1385.)

74. A total of 27 additional borings were advanced in the area of the currently permitted disposal cells WD-6 through WD-10 and in the proposed expansion area containing proposal cells WD-11 through WD-13. (Ex. APP-202 at 1390.)

75. The elevation of the deepest excavation ("EDE") for the entire Facility is approximately 480 feet-msl and has already occurred at the Facility. Of the 27 additional borings, 14 were drilled to a depth of 30 feet below the elevation of the deepest excavation. The remainder of these borings were advanced to at least five feet below the deepest excavation. (Ex. APP-202 at 1390.)

76. All borings were either completed as piezometers to provide groundwater elevation data or were plugged in accordance with 16 TEX. ADMIN. CODE §§ 76.702 and 76.1004. (Ex. APP-202 at 1391.)

77. These data are adequate to establish subsurface stratigraphy and to determine geotechnical properties of the soil and rocks beneath the Facility. (Ex. APP-202 at 1391.)

78. The first perennial aquifer below the site is the Edwards and associated limestones, which is approximately 1,300 feet below ground. In accordance with 30 TEX. ADMIN. CODE § 330.63(e)(4)(B), this aquifer does not need to be identified through borings because the travel time estimated for constituents to the aquifer was estimated to exceed 30,000 years. (Ex. APP-202 at 1392.)

79. Based on the historic and recent geologic investigations, four stratigraphic units, Stratum IA, Stratum IB, Stratum II, and Stratum III, exist beneath the Facility down to the maximum depth drilled, approximately 400 feet. The thickness of Stratum IA ranges

from 6 to 58 feet, Stratum IB ranges between 0 and 60 feet, Stratum II ranges between 39 and 116 feet. (Ex. APP-202 at 1392 – 1395.)

80. Stratum IA is described as stiff to hard, light brown to orange with occasional gray mottling, high plasticity clay. Small shells and calcareous nodules were frequent and crystallized gypsum seams of up to one-half (½) inch thick were occasionally found. (Ex. APP-202 at 1392.)

81. Stratum IB is described as hard, dark gray, high plasticity clay with traces of shells and occasional cracks infilled with gypsum and exhibiting mineralization as indicated by the brown coloration along the cracks. These cracks occur irregularly, and are oriented vertically, horizontally, and diagonally with respect to ground surface. (Ex. APP-202 at 1393.)

82. Stratum II is fresh to slightly weathered, dark gray, calcareous claystone. Fossilized shells and pyrite nodules were identified in some samples. Rock cores are generally free of joints, bedding planes, and discontinuities and the Rock Quality Designation was generally 100%. The top of Stratum II was found between an approximate elevation of 607 feet and 525 feet, with the average elevation found at approximately 545 feet. The material in Stratum II is very similar to Stratum IB, distinguished by the refusal of the penetration of a standard split spoon sampler. (Ex. APP-202 at 1394-1395.)

83. Stratum III is fresh to slightly weathered, light gray to white, marl. Rock cores are generally free of joints, bedding planes, and discontinuities and the Rock Quality Designation was generally 100%. The top of Stratum III was found between approximately elevation 497 feet and 453 feet. The average top of the stratum is

approximately 458 feet and the bottom of the stratum was not identified. (Ex. APP-202 at 1395.)

84. Groundwater at the Facility occurs primarily within the weathered portions of the clay unit and sometimes perched on top of the unweathered claystone of the Taylor Group. (Ex. APP-202 at 1396.)

85. Strata I through III are not hydraulically connected to the Edwards Aquifer. In the vicinity of the Facility, the 1,300 feet of subsurface materials that separate the Facility from the Edwards Aquifer are low permeability formations that do not transport appreciable amounts of groundwater. (Ex. APP-800 at 20.)

86. Monitoring well MW-5A was installed on April 25, 1994, and has been sampled since July 2, 1996. Groundwater level elevations in MW-5A have been anomalously high based on historical groundwater levels measured in the well and nearby wells. Field observations indicated the well was likely impacted by surface water runoff that flows down hill from the adjacent access road to the east and, therefore, the groundwater elevations in MW-5A were determined to be unrepresentative of actual conditions and not used to develop the potentiometric surface maps. (Ex. APP-202 at 1399.)

87. Applicant has evaluated likely pathways for pollutant migration in the event that the liner system is penetrated. In the event of a release through a penetration of the primary barrier liner system, the most probable pathway for the migration of contaminants will be through groundwater transport at the interface of the weathered clay (Stratum I) and the unweathered claystone (Stratum II), the "Stratum I/II interface." Groundwater, where present, generally flows along this interface in subdued conformity to topography, which

varies across the site. The Edwards Aquifer is approximately 1,300 feet below the deepest excavation point of the Facility and the estimated travel time for constituents to the aquifer exceeds 30,000 years. (Ex. APP-202 at 2991.)

88. Some of the planned landfill cells extend below Stratum I/II interface and into the claystone, but data collected at the Facility indicates that continuous groundwater does not exist in the claystone layer and that it is not hydraulically connected to the Stratum I/II interface. The lower unweathered claystone of the Taylor Group – Stratum II beneath the site – was identified as the aquiclude for the uppermost aquifer. (Ex. APP-202 at 1404; Ex. APP-800 at 22.)

89. Applicant has characterized the regional and site-specific geology and groundwater conditions. (Ex. APP-202 at 1370-1404.)

GROUNDWATER MONITORING

90. The Facility currently operates a groundwater monitoring system for detection monitoring composed of 15 monitoring wells generally screened in the Stratum I/II interface. Groundwater monitoring has been conducted at the Facility since 1985 and is currently conducted on a semi-annual basis. The Facility will also install monitoring wells screened in Stratum II and convert specific existing piezometers currently screened in Stratum II to monitoring wells as part of the expansion approval. (Ex. APP-202 at 2991; Ex. APP-202 at 2994.)

91. A groundwater monitoring network was established down-gradient of the IWU and is sampled semi-annually to detect any release of contaminants from the IWU. The IWU

monitoring network consists of two wells and a piezometer that are screened at the Stratum I/II interface. Four additional monitoring wells and two piezometers are gauged to determine the potentiometric head in the vicinity of the IWU unit. If a potential release from the IWU in excess of Texas Risk Reduction Program levels to surface water is identified, groundwater samples from these gauging locations will be analytically tested. (Ex. APP-202 at 2993.)

92. To address concerns raised by the City of Austin, Watershed Protection and Development Review Department, Environmental Resource Management Division, WMTX conducted a voluntary investigation of the IWU located within the boundaries of the landfill. The results of this investigation were submitted to the Texas Natural Resource Conservation Commission ("TNRCC"), now the TCEQ, in the form of a report dated July 24, 2000, and entitled "Human Health Risk Evaluation Report, Closed Industrial Waste Unit, Austin Community Landfill." (Ex. APP-202 at 2993.)

93. WMTX has agreed to conduct a voluntary groundwater monitoring program around the IWU. WMTX's "Voluntary Groundwater Monitoring Plan for the Industrial Waste Unit at Austin Community Landfill" was submitted to the TCEQ on November 30, 2000. Under this voluntary groundwater monitoring program, groundwater samples are collected semi-annually from monitoring wells downgradient of the IWU and analyzed for inorganic and organic indicator parameters. WMTX agreed to implement monthly inspections of an on-site drainage ditch near the IWU to evaluate potential groundwater seeps into the ditch. If concentrations of the constituents detected in either program are at levels greater than applicable risk-based standards, then appropriate actions will be initiated. (Ex. APP-202 at 2993.)

94. Analytical data collected as a part of the voluntary IWU monitoring plan are compared to health-based standards established in accordance with the provisions of 30 TEX. ADMIN. CODE § 330.350. These evaluations have determined that the constituent levels in the groundwater, storm water, and soils are well below prescribed action levels and currently do not pose a potential threat to on-site or off-site receptors. (Ex. APP-202 at 2993.)

95. None of the Facility's groundwater monitoring wells are, or have ever been, in assessment monitoring or corrective action. Historical groundwater quality data indicate that all statistically significant changes over background of the inorganic parameters listed in the Groundwater Sampling and Analysis Plan ("GWSAP") have been addressed in an alternate source demonstration approved by the TCEQ. None of the statistically significant failures were found to be related to the Facility, but were attributed to natural variations in background water quality. Groundwater analyses indicate that there is presently no known plume of contamination that has entered the groundwater from the Facility. (Ex. APP-202 at 2994, 2998; Ex. APP-800 at 26.)

96. The proposed groundwater monitoring system was conservatively designed to be protective of human health and the environment and to provide early detection of any release of contaminants at the Facility. (Ex. APP-202 at 2999; Ex. APP-800 at 29.)

97. There are two discreet waste management units on the Facility, the East Hill and the West Hill, that are currently monitored by one approved groundwater monitoring system. The proposed groundwater monitoring system for the expanded Facility will be multi-unit. The two units are separated by a surface water drainage feature that transects the site and are approximately 10 feet apart at their closest points. On the central portion of

the Facility, the units are oriented approximately perpendicular to the general groundwater gradient, allowing monitoring wells placed generally along the south side of the site to form the point of compliance for both units. The point of compliance for each unit coincides with the drainage feature between them. On the west portion of the Facility, which includes the expansion area, the groundwater gradient is towards the west. A groundwater divide extends approximately north-south through the East Hill, resulting in a groundwater gradient towards the northeast on the east portion of the site. (Ex. APP-202 at 2999.)

98. The proximity of the individual units, hydrogeologic setting, site history, and engineering design of the units support the continued use of a multi-unit groundwater monitoring system at the Facility. (Ex. APP-202 at 3000.)

99. The Stratum I/II interface has historically been, and will continue to be, monitored at the Facility as the "uppermost aquifer" pursuant to TCEQ's regulations. The next aquifer nearest the Stratum I/II interface is the Edwards Aquifer. (Ex. APP-202 at 3000 – 3001.)

100. The proposed monitoring system will consist of a total of 31 monitoring wells that will monitor groundwater at the Stratum I/II interface. Twelve existing monitoring wells and 19 additional wells will comprise the proposed system. MW-15 will continue to be an upgradient well for the proposed monitoring system. In the area of the westernmost disposal cells, a total of 10 additional monitoring wells will be screened in Stratum II. These wells are comprised of four existing piezometers that will be converted into wells and six additional wells. WM-63D will be designated as an upgradient well for the system of wells within Stratum II. (Ex. APP-202 at 3003.)

101. On the west portion of the Facility, a total of 13 wells, consisting of four existing wells and nine new wells are proposed to monitor groundwater at the Stratum I/II interface. Additionally, a total of 10 wells, four existing piezometers and six new monitoring wells will be screened in Stratum II. (Ex. APP-202 at 3004.)

102. On the central portion of the Facility, a total of 10 monitoring wells will be located along the point of compliance in this area. These wells include six proposed wells and four existing wells. One upgradient well is also located on this portion of the site. (Ex. APP-202 at 3005.)

103. On the eastern portion of the Facility, a total of seven monitoring wells will be located along the point of compliance in this area. These wells include four proposed wells, and three existing wells. (Ex. APP-202 at 3006.)

104. The proposed monitoring wells will be activated after the expansion permit amendment is approved to collect intrawell background data. (Ex. APP-202 at 3006.)

105. The proposed monitoring wells will be properly screened to monitor the groundwater encountered at the monitored location. (Ex. APP-202 at 3007.)

106. The point of compliance established in the Application is appropriate. The proposed monitoring well system is adequate to detect a release from the Facility. (Ex. APP-800 at 29 – 30.)

107. The Groundwater Sampling and Analysis Plan ("GWSAP") contained in the Application provides procedures for collecting representative samples from groundwater monitoring wells and quality assurance/quality control procedures required to ensure valid analytical

results. The GWSAP also includes a methodology for establishing background water quality in each well and for comparison of the subsequent results to background values in the same well in order that any statistically significant increase may be detected. (Ex. APP-202 at 3013, 3088 – 3114.)

GROUNDWATER PROTECTION

108. The proposed expansion of the Facility is designed to be protective of groundwater. The design includes a composite liner system and a leachate collection system. The Application provides for quality control procedures to be employed during the construction and installation of the liner system in accordance with the Liner Quality Control Plan, and requires submission of a Soil Liner Evaluation Report ("SLER") and a Geomembrane Liner Evaluation Report ("GLER") to TCEQ detailing the final construction and lining of a new cell prior to the placement of any waste in that cell. (Ex. APP-202 at 917.)

109. The liner systems for the existing and proposed Subtitle D cells consist of two feet of compacted low-hydraulic conductivity soil, a 60-mil HDPE geomembrane liner, a leachate collection system of granular and/or geosynthetic drainage layers (these layers will consist of either (i) a geonet overlain by geotextile or single-sided geocomposite on the landfill bottom and a double-sided geocomposite on the side slopes, or (ii) granular drainage layer consisting of 1 foot of sand and protective geotextile on both the landfill bottom and the side slopes of the landfill), two feet of protective cover soil, perforated collection pipes encased in gravel and leachate collection sumps. The liners are

constructed on slopes designed to promote positive drainage to perforated collection pipes, where it is directed to the cell sumps for removal. (Ex. APP-202 at 917, 924.)

110. A portion of the proposed expansion will be located over a pre-Subtitle D area of the West Hill. In accordance with 30 TEX. ADMIN. CODE § 330.331(a), it will be necessary to install a liner and a leachate collection system over the existing waste and under the new waste. The associated design for the vertical expansion over the unlined area is referred to as the "piggyback." The proposed liner and leachate collection system for the piggyback area consists of a two foot protective cover soil, double-sided geocomposite drainage layer, 60-mil LLDPE geomembrane liner, textured on both sides, and a two-foot compacted clay liner. In addition, a grading layer may be placed on top of the existing intermediate cover over the existing waste prior to construction of the two-foot compacted clay liner to provide a smooth subgrade for construction of the compacted clay. The leachate collection system consists of perforated collection pipes placed in gravel-filled trenches located at the cell perimeters. In these areas, the cell base grades are sloped to drain toward a sump where two vertical manholes provide access for leachate removal. (Ex. APP-202 at 917, 924.)

111. Leachate collected from the piggyback liner area will be diverted to cell WD-11 via sheet flow. Inside cell WD-11, all leachate, including that from the piggyback liner, will be collected by the leachate collection pipe and conveyed to the cell WD-11 sump, where it will be further transmitted to storage or disposal areas. The final liner grade is 6.9% at minimum and greater than 15% in most areas, which ensures positive leachate drainage. (Ex. APP-202 at 920.)

112. The leachate collection and removal system ("LCRS") is designed to limit the maximum leachate depth over the liner to less than 30 centimeters, in accordance with 30 TAC 330.331(a)(2). The LCRS was designed considering the leachate flow from the piggyback liner area. (Ex. APP-202 at 920.)

113. Minimization of leachate and contaminated water will be achieved primarily by best management practices ("BMP") to minimize rainfall runoff contacting waste at the working face and by minimizing the amount of water passing through or otherwise emitted from waste. Practices utilized to minimize leachate and contaminated water include landfill construction methods, surface water management practices, and cover practices. (Ex. APP-202 at 922.)

114. The LCRS on the cell floor area is designed to limit the maximum depth on the bottom liner to less than 30 centimeters by allowing monitoring of head levels and timely recovery of leachate. Analyses performed using the Hydraulic Evaluation of Landfill Performance ("HELP") show that for the maximum drainage path distance to a leachate collection pipe (740 feet), the leachate head does not exceed the thickness of the high hydraulic conductivity geosynthetic drainage layer (.2 inches) for the geocomposite drainage option, and the leachate head does not exceed 30 centimeters for the granular soil drainage option. (Ex. APP-202 at 925.)

115. To limit leachate ponding on the protective cover, the gravel surrounding the leachate collection system pipes will extend through the protective cover forming chimney drains along the centerline. No more than approximately 10% of the gravel will be smaller than the diameter of the perforations in the leachate collection pipes. (Ex. APP-202 at 925.)

116. Perforated six-inch HDPE leachate collection pipes will be installed in gravel-filled chimney drains along the centerline of each cell at a grade of 1% for removal of leachate from the drainage layer. The leachate collection pipes discharge into sumps located near the base grade low points of each cell. The long-term settlement analysis indicates that the minimum post-settlement grade along the leachate collection pipe would be 0.98%. (Ex. APP-202 at 926.)

117. The leachate collection pipes in disposal cells WD-8 through WD-13 will consist of six-inch SDR-17 or 21 HDPE pipe. No portion of the leachate piping system is designed to penetrate the composite liner. (Ex. APP-202 at 926.)

118. The leachate collection pipes will be encased in gravel, and the gravel will be wrapped in a geotextile filter. Cleanouts will be provided adjacent to the riser pipes to allow access to the leachate collection pipe and will be constructed of six-inch diameter non-perforated HDPE pipe joined to the perforated collection pipe in the sump. (Ex. APP-202 at 926.)

119. Leachate entering the drainage layer and collection pipes is subsequently discharged into collection sumps located near the base grade low points of each cell, at the toe of the slideslope, where it is pumped to temporary holding tanks or to the leachate evaporation pond. Sump inverts are approximately three feet below the leachate collection pipe invert to allow accumulation of leachate. The capacity of the sumps was calculated to be approximately 4,000 gallons. Under worst-case conditions and assuming no pumping discharge, the sump is anticipated to be filled in approximately three hours. The sumps will be constructed of compacted low hydraulic conductivity soil, a geosynthetic clay liner, 60-mil HDPE liner and washed gravel with no more than 10% of the gravel smaller

than the perforations in the pipes. The gravel is encased in a geotextile wrap and covered by a 24-inch protective layer. (Ex. APP-202 at 926.)

120. Sump riser pipes are located along the disposal area perimeter to provide a means of monitoring leachate levels and for lowering hoses and submersible pumps into the collection sumps. The risers consist of 18-inch diameter SDR 17 HDPE pipe, of which the lower portion of the riser within the sump is perforated by 3/8-inch diameter holes that allow leachate to flow to the pumps. A geotextile and/or granular bedding will be placed between the pipe and the HDPE geomembrane liner to prevent damage to the liner. (Ex. APP-202 at 927.)

121. The leachate collection system is designed to maintain a head of less than 30 centimeters on the liner system. The current pumps are set such that leachate is typically conveyed via pipes directly into the leachate evaporation pond. (Ex. APP-202 at 927.)

122. Leachate recovered from pre-subtitle D and subtitle D sumps will be transferred from the leachate evaporation pond by (i) piping to a recirculation network in the landfill, (ii) via tanker to a recirculation area or transported off site, and (iii) by piping to an evaporation pond and then to a sanitary sewer system. Leachate pumped into tanker trucks will be disposed of off-site at a TCEQ-approved treatment facility. (Ex. APP-202 at 928.)

123. Collected leachate is stored in a permitted geomembrane-lined evaporation pond that is located between the East Hill and the West Hill. A minimum of five consecutive days of storage capacity is desirable and will be maintained to the extent practicable. One foot of freeboard for the 25-year, 24-hour rainfall event shall be maintained in the leachate evaporation pond. (Ex. APP-202 at 927 – 928.)

124. In disposal cells containing a standard Subtitle D liner system and leachate collection system, leachate and gas condensate may be recirculated back into the waste. Leachate recirculation may consist of spray application during dry conditions using portable tanks at the active face, injecting leachate through a perforated pipe or well buried in the refuse, or discharging leachate in an area excavated into waste and backfilled with highly permeable material. (Ex. APP-202 at 928).

125. The Liner Quality Control Plan ("LQCP") specifies materials, equipment, and construction methods for the construction of the disposal units. The LQCP details installation methods and quality control testing and reporting for flexible membrane liners, provides guidance necessary for testing and reporting evaluation procedures for the person preparing the SLER and/or the GLER, and describes implementation procedures. It specifies materials and locations for sidewall dewatering and ballasting and guidance for preparation and submission of the Ballast Evaluation Report ("BER"). (Ex. APP-202 at 1088 – 1121.)

126. The LQCP includes measures that will be taken to protect the liner and leachate collection systems during construction below the seasonal high groundwater table. Control of groundwater during excavation and liner system construction is not anticipated to be a problem. The wells are dry in much of the future construction area, and since soil will be excavated gradually for use as a daily/intermediate cover and as a borrow source for clay liner construction, the groundwater zone will be partially dewatered, lowering the potentiometric surface. In addition, much of the recharge area for the shallow unit has been removed as a result of landfill development upgradient of the future cells. The soils in Strata I are poorly permeable and the rock was generally free from joints and

discontinuities, and therefore, it is anticipated that no groundwater will be visible and hydrostatic pressures will take a long period of time to build below the liner system. (Ex. APP-202 at 1113.)

DRAINAGE AND FLOODPLAIN ANALYSES

127. The Facility as designed in the Application will comply with all applicable TCEQ drainage requirements. All liquids resulting from the operation of solid waste facilities will be disposed of in a manner that will not cause surface water or groundwater pollution. Leachate, gas condensate, contaminated surface water, and contaminated groundwater will not be discharged into waters of the state or nation, including wetlands, in violation of any requirements of 30 TEX. ADMIN. CODE § 330.15(h), Section 26.121 of the Texas Water Code, the Clean Water Act, or the National Pollutant Discharge Elimination System requirements. (Ex. APP-202 at 921.)

128. Design and operational procedures will minimize the contact between waste and rainfall runoff. The primary method of contaminated water control is to manage rainfall runoff to prevent uncontaminated water from becoming contaminated through contact with waste or daily cover soil at the active working face. During cell construction and site development, BMPs, including, berms, culverts, pumps, pipes, and hoses, grading of areas outside the excavation areas, sumps, detention ponds and staged development will be used to control and minimize any contact between surface waters and solid waste. Rainfall runoff that does become contaminated will be managed and disposed of in accordance with applicable regulations. Uncontaminated water may be used for site operations, evaporate naturally, or be discharged offsite as authorized under TCEQ

permits and the Facility's Multi-Sector General Stormwater Permit Stormwater Pollution Prevention Plan ("SWPPP"). (Ex. APP-202 at 922; Ex. APP-202 at 610.)

129. The Facility Surface Water Drainage Report contained in the Application shows the locations, details, and typical sections of the surface drainage controls at the Facility. Drainage from the developed landfill is designed to maintain the existing drainage patterns and to prevent significant drainage impacts. (Ex. APP-202 at 594.)

130. Proposed stormwater drainage patterns for the Facility have been revised from the pre-development conditions, however, the surrounding existing drainage patterns will not be adversely altered as a result of landfill construction. The 25-year, 24-hour storm event was used to compute the peak flow rates, discharge volumes, velocities, and water surface elevations. In addition, in accordance with City of Austin requirements, the 100-year, three-hour storm event was used to size the perimeter channels and the sedimentation and detention pond, resulting in a conservative design for these drainage features. (Ex. APP-202 at 598.)

131. Applicant used the Hydrologic Engineering Center Hydrologic Modeling System ("HEC-HMS") to calculate the existing peak flows and volumes resulting from the 25-year recurrence interval storm to calculate storm water discharges for existing conditions and post-development conditions. Post-development flow rates are less than or equal to existing flow rates at all control points except for one, which increases slightly. Peak flow rates have been reduced due to the redirection of flow, increased flow path, and attenuation from the proposed sedimentation and detention pond. Therefore, increases in

discharge volumes from existing to post-development will be released at rates that will not adversely alter existing drainage patterns. (Ex. APP-202 at 599.)

132. The Application includes structural designs for all proposed collection, drainage, and detention facilities, and depictions of typical cross-sections and ditch grades, flow rates, water surface elevations, velocities, and flowline elevations along the entire length of the drainage structures. (Ex. APP-202 at 598 – 600; Ex. APP-202 at 617 – 627.)

133. The goal of the Erosion and Sedimentation Control Plan is to provide effective erosional stability to top dome surfaces and external embankment side slopes during all phases of landfill operation, closure, and post-closure care period, in accordance with 30 TEX. ADMIN. CODE § 330.305. This plan incorporates interim controls, such as diversion berms and slope interrupters, that will be used during phased landfill development to minimize erosion on top dome surfaces and external embankment side slopes with immediate cover. (Ex. APP-202 at 602.)

134. Best management practices will be utilized during landfill operations to meet the soil stabilization and stormwater diversion requirements, and temporary erosion and sedimentation controls will be implemented on intermediate cover areas within 180 days after the intermediate cover construction is completed, in accordance with 30 TEX. ADMIN. CODE § 330.165(c). (Ex. APP-202 at 602 – 604.)

135. Permanent stormwater management controls include seeding, add-on berms and channels, downchutes, slope contouring, perimeter channels, detention and sedimentation ponds, and discharge control structures. To stabilize the final cover soil, a six inch thick

top soil layer that is capable of supporting native vegetation growth will be installed on the final cover surfaces. (Ex. APP-202 at 607.)

136. Applicant has developed an Inspection, Maintenance and Restoration Plan to ensure the continued operation of the collection, drainage, and storage facilities as designed. All temporary and permanent drainage facilities will be inspected weekly and after a significant rainfall event, in accordance with the SWPPP. In the event of a washout or failure, the drainage system will be restored and repaired pursuant to 30 TEX. ADMIN. CODE §330.305(g). Landfill cover soils will be inspected on a weekly basis and after a significant rainfall event, pursuant to the SWPPP, for areas of erosion, exposed waste, or other damage. During post-closure maintenance, the final cover will be inspected quarterly. (Ex. APP-202 at 610-611.)

137. The Erosion and Sedimentation Control Plan also incorporates BMPs to ensure minimal impacts to water quality. Run-on and runoff controls for active disposal areas will be utilized to minimize the potential for stormwater contamination. The working face of the active disposal area will be encompassed by a run-on berm (top berm) and a runoff berm (toe berm) for the purpose of segregating potentially contaminated and non-contact stormwater. These containment berms are designed to accommodate the 25-year, 24-hour storm, the equivalent of an eight-inch rainfall event. The top berm is designed to accommodate upstream watersheds that flow towards the working face and divert the collected uncontaminated stormwater around the working area for discharge through a permitted stormwater outfall. The toe berm is designed to accommodate storage of stormwater that has potentially contacted the open working face. (Ex. APP-202 at 603.)

GEOTECHNICAL INVESTIGATION

138. Geotechnical test results of the soils beneath the expansion property are consistent with the previous geotechnical investigations of the soils beneath the permitted landfill area. The Stratum IA soils are stiff to hard, brown, high plasticity clay. Stratum IB is hard, dark gray, high plasticity clay with mineralized cracks infilled with gympsum. Stratum II is fresh to slightly weathered, dark gray, very weak to weak calcareous claystone. Stratum III is fresh, light gray to white, weak marl. (Ex. APP-202 at 910 – 912.)

139. Based on the geotechnical investigation, the Facility soils consist of heavily over-consolidated clays underlain by rock and will provide a suitable foundation for the landfill Facility. The subsurface soils possess low hydraulic conductivity, will not settle excessively, and will remain stable during the excavation, operations, and final-filled configurations. (Ex. APP-202 at 912.)

140. Stratum I soil is suitable for soil liner material, as demonstrated by the successful use for a compacted soil liner having a hydraulic conductivity less than $1x10^{-7}$ cm/s. Stratum I soil should be suitable for use in final cover system construction as well because requirements of the final covers oil layer permeability are not greater than the cell liner. Laboratory permeability tests demonstrate that Stratum II soils should also be suitable for use in construction of the liner system and final cover system. (Ex. APP-202 at 912 – 913.)

141. Applicant performed foundation settlement analysis to evaluate the performance of the landfill with respect to settlement stability. Settlement of the liner system after closure of the landfill was estimated using finite element analyses, with the geometry of the final

filled landfill and underlying clay represented by finite element mesh. The program Sigma-W was used to estimate the increase in stress within the clays and resulting settlements along the liner system. The settlement analyses indicate that the maximum total settlement of the clay layer is approximately 0.12 feet and the minimum post-settlement slope is 0.98%. (Ex. APP-202 at 913.)

142. Applicant evaluated the settlement of the existing waste beneath the piggyback liner to determine the post-settlement liner slope and induced strains in the liner system. The existing waste in the piggyback expansion area is over 10 years old. Currently, there are soil stockpiles averaging approximately 10-feet thick overlying the old waste in most of the piggyback area, which will be removed to prepare for a uniform base grade for the new liner system. The existing waste settlement consists of two parts: (i) secondary compression and (ii) the primary settlement caused by new waste and final cover. The settlement analyses indicate that the maximum settlement of the piggyback liner is estimated to be 5.3 feet at a location with approximately 80 feet of waste in-place and approximately 40 feet of new waste. Differential settlement is expected to occur in the piggyback liner area, however, the post-settlement liner grade is 6.9% at minimum and greater than 15% in most of the area. (Ex. APP-202 at 918-919.)

143. Applicant analyzed the proposed piggyback liner system to determine induced tensile strain due to differential settlement of existing waste and the formation of a localized depression beneath the liner. Results, utilizing the settlement analysis results, show that the proposed liner system will be mainly under "compression" and a very limited length of the upper portion will experience a maximum tensile strain of 0.58%. (Ex. APP-202 at 919.)

144. Applicant analyzed the proposed piggyback liner system to determine the impact of localized depression on the liner integrity. Topographic maps from 1998 to 2006 indicate that there was no significant depressions that occurred in the existing waste in the piggyback area and, due to the age of the waste, the formation of significant localized depressions in the future is not expected. However, to account for this possibility, an analysis was performed considering a depression occurring over a 60-foot radius and approximately five-feet deep, resulting in a calculated tensile strain on the liner of 0.46%. The calculated strain is less than the minimum allowable strain of the liner system components. (Ex. APP-202 at 919.)

145. Applicant performed slope stability analyses using limit equilibrium methods to assess the stability of the proposed landfill. Stability of the proposed excavated landfill sideslopes, stability of the protective cover on landfill sideslopes, stability of the interior waste slopes, overall stability of final filled landfill, and stability of the final cover system were evaluated. The critical surface analysis indicates a minimum factor of safety equal to 2.9 for the excavated slopes, which will increase as waste is placed within landfill cells. Results of the stability analysis for the pond excavation slopes indicate a minimum factor of safety equal to 3.2. Analyses of the stability of the cell sideslope liner system indicate that the factor of safety for a 3H:1V slope (worst-case slope) is 1.6, which will also increase as waste is placed within the cell. Analyses of the stability of interior waste slopes, performed using worst case conditions, indicate that, the factor of safety against sliding is greater than 1.4 for all conditions analyzed. This factor of safety is considered adequate for temporary conditions. When textured geomembrane and double-sided geocomposite are used on the cell floor, continuous 3H:1V waste slopes without benches

have a minimum factor of safety against sliding of 2.12. Stability analyses, performed using worst-case geometry, indicate that the final waste slopes will be stable with a minimum factor of safety of 1.58. A stability analysis of the final cover liner system was performed to estimate the potential for sliding to occur following closure of the landfills by analyzing the worst-case section. The analyses indicate that, provided the geocomposite drainage layer is adequate to convey drainage without building up pore water pressures in the geocomposite, the factor of safety against sliding will be approximately 1.6. For all conditions evaluated, the calculated minimum factor of safety is considered adequate. Therefore, the Facility will be stable if designed and constructed as proposed in the Application. (Ex. APP-202 at 913 – 916.)

146. Applicant performed stability and liner system strain analyses to support the piggyback liner design. The analyses of the stability of protective cover on the piggyback liner, using worst case conditions, indicate that the factor of safety is 2.1 without vehicle breaking force and 1.6 under a vehicle breaking force, which will increase as waste is placed within the cell. Stability of the interior waste slope associated with the piggyback liner was analyzed for the condition when operational sequence VI is completed. The results of these analyses indicate that the factor of safety against sliding is 1.46. As waste placement reaches its final grades, the piggyback liner will be buttressed by waste placed west of the liner, producing a more stable configuration than during waste filling. The minimum factors of safety in the piggyback liner area are 7.04 and 8.21 for sliding and circular failure mechanisms respectively. For all conditions evaluated, the calculated factor of safety is considered adequate and, therefore, the piggyback liner will be stable if designed and constructed as proposed in the Application. (Ex. APP-202 at 917 – 918.)

LANDFILL GAS MANAGEMENT

147. A Landfill Gas Management Plan has been developed for the Facility to outline the procedures for monitoring the presence of landfill gas along the Facility permit boundary and to monitor the potential for gas accumulation within on-site structures. The purpose of the plan is to provide the methodology whereby landfill gas will be managed to mitigate the potential for methane to exceed 1.25 percent by volume in on-site structures, or exceed five percent methane by volume at the point of compliance. Engineering systems, including liner and cover systems, and gas vent or extraction systems will limit, eliminate, or control the movement of landfill gas to desired locations for collection. Within the proposed expansion area, gas moving laterally will encounter the liner system that extends along the sides and will be directed upward. It is anticipated that the amount of gas migrating past this liner system will be minimal. (Ex. APP-202 at 3148.)

148. Permit boundary monitoring will consist of sampling of permanently installed gas monitoring probes on a quarterly or more frequent basis if necessary. In addition, barhole sampling may be used to supplement data collected from the monitoring probes. There will be, as a general guide, at least one permanent probe installed along the permit boundary of newly constructed cell areas prior to placement of waste in that cell. The Facility's monitoring network consists of permanent gas monitoring probes and continuous gas monitors in on-site structures. A horizontal cut-off trench and horizontal gas collection trenches are also used to correct and mitigate historic gas migration. (Ex. APP-202 at 3148.)

149. The Facility currently utilizes 25 probes for landfill gas monitoring around the perimeter of the existing Facility. Two existing probes will be relocated, three existing probes will be plugged and abandoned, and four additional probes will be added as new cells are constructed and waste placement in those cells is initiated. Proposed perimeter probes will be spaced at no more than 1,000 feet apart along the expansion area. The proposed depths of the new gas monitoring probes are based on the maximum depth of waste within 1,000 feet of the proposed probe. The Application also proposes that the new probes be constructed with the screened interval extending to depth of liner. (Ex. APP-202 at 3149.)

150. The spacing between gas probes P-9 and P-10 on the south portion of the Facility between the East Hill and West Hill is approximately 3,000 feet, due to (i) a considerable decrease in topography and geologic conditions on the west end of the East Hill and, (ii) the presence in this area of the closed Travis County Landfill/Phase I Area (MSW-684) and the absence of off-site receptors in this area. (Ex. APP-202 at 3149.)

151. The TCEQ previously approved a permit modification request to not place a gas probe west of the Horizontal Cut-off Trench because of a decrease in topography and due to the geologic conditions which provide a preferential flow path that daylights in the topographic low. (Ex. APP-202 at 3149.)

152. The drainage feature that exists between the East and West Hills on the Facility runs south along the west side of the closed Travis County Landfill/Phase I Area. The elevation in the bottom of this drainage feature becomes lower than the lowest disposal cell bottoms of the East and West Hills approximately 400 feet south of the permit

boundary, providing a natural vent to atmosphere for any gas that may migrate southward from the Facility. (Ex. APP-202 at 3149.)

153. The Travis County Landfill/Phase I Area, which was closed in the late 1970s, is located within the space between P-9 and P-10, east of the drainage feature, and encroaches on the Facility property. It is not feasible or advisable to install wells through the waste of the closed Travis County Landfill/Phase I Area. (Ex. APP-202 at 3149.)

154. The Facility has constructed an approved gas collection and control system ("GCCS"), designed to actively extract landfill gas from wellheads placed in the waste. The GCCS will include landfill gas collection wells, a landfill gas collection system that includes gas headers, pumps, etc., or a landfill gas blower-flare station where methane gas is ignited and destroyed. Ongoing expansion of the GCCS will be performed based on previously stated requirements and existing components will be maintained, replaced or expanded at the Facility as system requirements change. The collection system will be installed in phases based on waste placement, landfill sequencing and regulatory requirements. (Ex. APP-202 at 3158 – 3161.)

155. The piggyback liner system to be constructed over an area of the West Hill will interfere with gas wells W-5, W-6, and W-7. Prior to construction of the piggyback liner system, these three existing wells will be abandoned. The wells will be cut and capped below the ground surface and any laterals to these wells will be cut and capped to remove the wells from the vacuum system. Gas wells W-5, W-6, and W-7 will be reinstalled east of their current location and along the eastern side of the piggyback liner system. (Ex. APP-202 at 3158.)

CLOSURE AND POST-CLOSURE

156. The Application includes a Final Closure Plan describing the steps that will be undertaken to close each filled disposal unit, a general schedule for final closure, a description of the final cover system, and the methods used to install the cover. (Ex. APP-202 at 3270; Ex. APP-202 at 3271 – 3277.)

157. The Application includes a Final Cover Quality Control Plan that specifies quality assurance and quality control closure activities for final cover placement. (Ex. APP-202 at 3272; Ex. APP-202 at 3294 – 3317.)

158. The Application includes a Post-Closure Plan incorporating plans for final cover system monitoring and maintenance, leachate management, gas management, and groundwater sampling and analysis for the long term post-closure care of the Facility. (Ex. APP-202 at 3326; Ex. APP-202 at 3326 – 3333.)

159. The Application includes closure and post-closure cost estimates, providing for annual updates, financial assurance, and cost estimates for corrective action. (Ex. APP-202 at 3334 – 3368.)

SITE OPERATING PLAN

160. The entire Application, including the site development plan, Site Operating Plan ("SOP"), final closure plan, post-closure care maintenance plan, landfill gas management plan, and any other required plan, will be placed into the site operating record of the Facility and will become operational requirements for the Facility. All information

placed in the operating record of the Facility will be retained for the life of the Facility, including the post-closure care maintenance period. (Ex. APP-202 at 3374.)

161. The Facility is permitted to operate from 9:00 p.m. Sunday through 7:00 p.m. Saturday, and, if necessary, from 7:00 a.m. to 4:00 p.m. on Sunday. (Ex. APP-202 at 3394.)

162. The SOP was prepared to address operating requirements for a range of acceptance rates between 0 and 500,000 tpy, from >500,000 to 700,000 tpy, and from >700,000 to 950,000 typ. The Facility will maintain records to document the annual waste acceptance rate and, whenever this rate exceeds the rate estimated in the Application, not due to a temporary occurrence, the Facility will file an application to modify the permit application within 90 days of exceedance. (Ex. APP-202 at 3376 – 3378.)

163. The SOP includes descriptions of the functions and minimum qualifications for each category of key personnel to be employed at the Facility and supervisory personnel in the chain of command, including a description of general instructions the operating personnel should follow and applicable training requirements to be followed. (Ex. APP-202 at 3378 – 3380; Ex. APP-202 at 3383.)

164. The SOP includes a table listing the minimum number, size, type, and function of the equipment that will be available on-site at the Facility for use based on waste acceptance rates and other operations requirements. (Ex. APP-202 at 3381 – 3382.)

165. The SOP includes a fire protection plan incorporating fire protection standards and site personnel training requirements. The fire protection plan provides guidelines for landfill personnel to minimize the potential for fires and instructions for controlling small fires.

The fire protection measures in the SOP specifically address potential fires at the landfill working face, vehicles or equipment, on-site facility structures, diesel and oil storage areas, liquid waste solidification basins, and whole tire staging areas. (Ex. APP-202 at 3388 – 3392.)

166. The SOP includes a Special Waste Operational Plan, which lists special wastes, as defined by 30 TEX. ADMIN. CODE § 330.171, that will be accepted and the procedures to be utilized when handling the special wastes at the Facility. (Ex. APP-202 at 3408 – 3414.)

167. Class 2 industrial solid wastes, as defined in TEX. ADMIN. CODE § 335.506, and Class 3 industrial solid wastes, as defined in TEX. ADMIN. CODE § 330.507, may be accepted at the Facility (except for prohibited wastes listed on page 3385 of the Application), provided disposal of these wastes does not interfere with proper operation of the Facility. These types of wastes will be treated as typical municipal solid waste. (Ex. APP-202 at 3414.)

168. Class 1 regulated asbestos-containing material may be accepted for disposal within the fill area and is specifically approved for this Facility. Procedures regarding acceptance and handling of asbestos-containing material are outlined in the Regulated Asbestos Containing Material Handling Plan. (Ex. APP-202 at 3414; Ex. APP-202 at 3440 – 3453.)

169. The SOP includes a prohibited waste detection and prevention program to prevent the disposal of unauthorized waste at the Facility. This program requires Applicant to post signs regarding prohibited wastes; provide customers with a written list of prohibited

wastes; provide vehicle drivers of incoming waste from transfer stations and transfer station operators with a written list of prohibited wastes; screen waste streams; conduct random inspections of incoming loads; reject loads that are suspected of containing prohibited waste; train staff to observe each load that is disposed at the facility; maintain records of all inspections; train appropriate facility personnel responsible for inspection; notify TCEQ and any local pollution agency with jurisdiction of any incident regarding receipt or disposal of regulated hazardous waste or PCB waste; and remedy any incident involving the acceptance or disposal of prohibited waste at the Facility. (Ex. APP-202 at 3384 – 3388.)

170. Access to the Facility will be controlled using artificial barriers, including a perimeter fence and a gated entrance. The gated entrance provides complete access restriction when the Facility is not open, but allows sufficient access for vehicles to maneuver through the gate when the Facility is open. Landfill users will be required to stop at the gatehouse and conduct appropriate business transactions prior to proceeding to the disposal areas. In order to prevent the entry of animals and scavenging, and to discourage unauthorized persons from entering the Facility, a six-foot chain-link fence and/or barbed wire fence or a mesh wire fence along all boundaries will protect the Facility perimeter. (Ex. APP-202 at 3392-3393.)

171. The SOP provides that the unloading of waste will be restricted to the active working face and that the working face will be confined to as small an area as practical. There may be more than one working face in operation each day, and the maximum number of working faces that may be open at any time is five. The maximum size of the total working area will not exceed 60,000 square feet. A trained employee will be present at

the scale house at all times during operating hours to monitor all incoming loads of waste, and to direct traffic to the appropriate unloading area. (Ex. APP-202 at 3393 – 3394.)

172. The SOP specifically prohibits solid waste unloading, storage, disposal, or processing operations from occurring within any easement, buffer zone, or right-of-way that crosses the Facility. (Ex. APP-202 at 3395.)

173. The SOP provides that the working face will be maintained and operated in a manner to control windblown solid waste and will be covered daily. A minimum of six inches of "daily" compacted cover soil will be placed over all exposed waste at the end of each working day or at least every 24 hours. Portable and stationary litter fences will be used to aid in the control of windblown material. (Ex. APP-202 at 3395.)

174. The Site Manager will take the necessary steps to ensure that vehicles hauling waste to the site properly secure the load in order to prevent the escape of any part of the load by blowing or spilling. The Site Manager, will, as necessary, post signs at the site entrance requiring incoming loads to be enclosed or covered, report offenders to the Travis County Sheriff's office, add litter control surcharges, or take other similar measures. Windblown waste and litter scattered throughout the Facility, along fences and access roads within two miles of the Facility, and at the gate, will be picked up by facility personnel once a day on the days the Facility is in operation and returned to the active working face of the disposal area. (Ex. APP-202 at 3395; Ex. APP-202 at 3398.)

175. The SOP provides that required landfill markers and benchmarks will be maintained so they are visible. (Ex. APP-202 at 3396 – 3398.)

176. The SOP includes an odor management plan that uses a combination of identifying the sources of odor and methods to minimize or eliminate those odors. Methods to achieve these objectives include waste and leachate handling procedures, timely placement of cover materials, the elimination of ponded water, and gas control. Upon identification of an offensive odor at the Facility, the Site Manager will initiate one or more corrective actions listed in the odor management plan. (Ex. APP-202 at 3399 – 3401.)

177. The SOP provides that vector control will be achieved through proper compaction of the waste and the use of daily and intermediate cover, minimizing the working face, eliminating ponded water and, if necessary, application of appropriate chemicals using appropriate health and safety practices. The Application includes a Bird Control Plan that utilizes non-lethal bird control measures, such as pyrotechnics, bird distress calls, and propane cannons, to discourage birds at the site. (Ex. APP-202 at 3401; Ex. APP-202 at 3478 – 3480.)

178. The SOP specifies procedures to minimize the tracking of mud and trash by vehicles entering or exiting the Facility onto public roadways. Vehicles will traverse all-weather site access roads and exit via a long paved road allowing for excess mud to be removed before reaching the public roadway. The Facility may also utilize an on-site wheel wash facility as necessary for trucks exiting the site. Additionally, tracked mud and associated debris at the access to the Facility and on the public roadway will be removed at least once per day on days when mud and associated debris are being tracked onto the public roadway. On site access roads will be inspected daily and mud will be removed as necessary to prevent tracking onto roads outside the Facility. (Ex. APP-202 at 3401.)

179. The SOP provides that dust from on-site and other access roads will be controlled to avoid becoming a nuisance to surrounding areas by the use of an on-site water truck. Pickup of litter and debris on and around on-site roads and ditches will be conducted on a daily basis when the Facility is operating. On-site and access roadways will be maintained on a regular basis and inspected approximately every two months. (Ex. APP-202 at 3402.)

180. The SOP prohibits scavenging, the uncontrolled and unauthorized removal of materials at any point in the solid waste management system. Salvaging or recycling of materials such as metals and white goods will be allowed with specific authorization from the Site Manager or designated alternate if the activity is supervised by site personnel, but will not be allowed to interfere with prompt sanitary disposal of solid waste or to create public health nuisances. (Ex. APP-202 at 3402.)

181. The SOP specifies procedures for landfill gas monitoring and control in accordance with the Landfill Gas Management Plan, Attachment 6 to Part III of the Application. (Ex. APP-202 at 3403.)

182. The SOP provides that waste will be thoroughly compacted by landfill compaction equipment in lifts approximately two feet in thickness. (Ex. APP-202 at 3405.)

183. The SOP specifies that ponding water over waste areas will be minimized and eliminated as required. Ponding on the landfill site must be eliminated and the area in which the ponding occurred will be filled and regraded within seven days of the occurrence. The ponding prevention plan will use high density compaction during the placement of wastes

along with constructing and maintaining proper cover and slope on all areas to prevent ponding over waste areas. (Ex. APP-202 at 3407 – 3408.)

184. The SOP specifies that a conspicuous sign measuring a minimum four feet by four feet will be maintained at the Facility entrance and state in letters at least three inches high, the name of the site, the type of site, the hours and days of operation, and the TCEQ permit number. The sign will list one or more emergency 24-hour contact phone numbers and the local emergency fire department number. (Ex. APP-202 at 3394.)

185. The SOP specifies that in the expansion area, a minimum buffer zone of 125 feet will be maintained between solid waste processing and disposal activities and the Facility boundary, with the exception of a portion of the buffer zone adjacent to and west/northwest of the northernmost extent of Disposal Cell WD-13. For all previously permitted and filled areas, a minimum buffer distance of 50 feet will be maintained. (Ex. APP-202 at 3395.)

186. The SOP provides that a minimum of six inches of compacted earthen cover or approved alternate daily cover (ADC) will be placed over the working face or active disposal areas at the end of each working day or at least once every 24 hours to control vectors, fires, odors, windblown litter or waste, and scavenging, and the procedures to be followed when applying the daily cover. All areas that have received waste but will be inactive for longer than 180 days will be provided with intermediate cover or final cover. Intermediate cover will include six inches of suitable earthen material that is capable of sustaining native plant growth and will be seeded, sodded, or otherwise stabilized following its application in order to control erosion. The intermediate cover will consist,

in total, of 12 inches or more of suitable earthen material. Final cover system, including the erosion control structures, will be maintained during and after construction. The SOP provides for erosion control and inspection procedures of the cover. (Ex. APP-202 at 4305 – 3407.)

187. The SOP provides for visual screening of deposited waste by maintaining existing vegetation in the buffer zones and an approved landscaping design. During night operations, lighting will be oriented so that it does not face residences along the boundary of the site and trucks will not queue onto public roads. (Ex. APP-202 at 3415.)

188. The SOP includes procedures for leachate and gas condensate recirculation for disposal cells containing a standard Subtitle D liner system. Recirculation may consist of spray application during dry conditions using a portable tank at the active face, injecting leachate through a perforated pipe or well buried in the refuse, or discharging leachate in an area excavated into waste and backfilled with highly permeable material. Condensate from the gas collection system will be collected in collection sumps located on the landfill footprint as part of the GCCS and Facility leachate storage systems may be used and combined with leachate for on-site management, recirculation, or off-site disposal. The application of leachate and/or condensate will be applied so as not to cause ponding, accumulation, "popouts," or other operational problems. (Ex. APP-202 at 3415.)

TRANSPORTATION

189. Access to the Facility is provided via the existing driveway on Giles Road. The primary access routes to the landfill are via Giles Road, Johnny Morris Road, and US 290. Giles Road consists of four lanes divided by a grass median and the entrance road to the facility

is at least 50 feet wide. Applicant conducted a traffic analysis to evaluate the impact of the landfill expansion on traffic in the vicinity of the Facility. Based on this evaluation, there are no existing or future restrictions of the main access roadways within one mile of the Facility that would prevent safe and efficient operations for both the landfill-generated traffic as well as other vehicles in the area. (Ex. APP-202 at 24 – 26.)

190. The access roadways within one mile of the Facility do not have weight or height restrictions that would limit access to the Facility and will operate at acceptable levels of service throughout the estimated life of the expanded Facility. (Ex. APP-500 at 10.)

191. Applicant notified the Texas Department of Transportation ("TxDOT") regarding the proposed expansion and the agency responded that they have no objections to the traffic analysis conducted. (Ex. APP-202 at 26.)

192. The Air Traffic and Airport Safety and Standards Branches of the Federal Aviation Administration issued a Determination of No Hazard to Air Navigation for the lateral expansion and for the currently permitted landfill. (Ex. APP-202 at 27, 422 – 423.)

Land Use

193. The land use information provided in the Application contains the information specified in 30 TEX. ADMIN. CODE § 330.61(g) and (h) and 30 TEX. ADMIN. CODE § 330.59(c).

194. The proposed expansion of the Facility does not represent a material change in existing and historical land use patterns and relationships. (Ex. APP-300 at 19.)

195. There has been continuous, sustained growth in the vicinity of the Facility during nearly the entire time the Facility has been in operation. This area has been one of the fastest growing areas in Travis County since 1990. (Ex. APP-300 at 19; Ex. APP-302 at 6; APP-302 at 10.)

196. The City of Austin has only two designated zones: the Desired Development Zone and the Drinking Water Protection Zone. If the Facility is located within the City of Austin, it must be located either in the Desired Development Zone or the Drinking Water Protection Zone. Within the City of Austin limits, the Desired Development Zone is the appropriate zone to place a landfill facility. (Trial Tr. at 1878:4 – 18 (White); Trial Tr. at 2012:21 (Guernsey).)

197. The Facility is designed and will be operated in a manner to protect human health, welfare, property, and the environment. (Ex. APP-200 at 40; Ex. APP-202 at 2999; Ex. APP-800 at 29)

198. Applicant performed a threatened and endangered species assessment at the Facility, which included the entire expansion area and a portion of the existing Facility that was undeveloped as a landfill. The assessment identified no federally-listed species in the area of the site and the possibility of one state-listed species on the site. The Facility exhibits a marginal habitat for the Texas horned lizard as they have been occasionally observed in eastern Travis County in similar habitats. However, no lizards were observed during the field reconnaissance at the Facility. (Ex. APP-202 at 3402 – 3403.)

199. The U.S. Fish and Wildlife Services ("USFWS") and the Texas Parks and Wildlife Department ("TPWD") were contacted regarding the possible presence of threatened,

endangered, or sensitive species and natural communities in the immediate vicinity of the site. The USFWS had no concerns related to the proposed expansion project. The TPWD offered general comments and information regarding migratory birds. A migratory bird management plan and a plan to protect the Texas horned lizard were created and included in the Application. Therefore, the expansion will have no effect on any federal or state listed species, or critical habitats. (Ex. APP-202 at 3402 – 3403; Ex. APP-202 at 348 –390.)

REPORTING AND TRANSCRIPTION COSTS

200. The costs for recording and transcribing the pre-hearing conference and the hearing on the merits by a court reporter total $23,506.90. This includes all transcription costs for the original and two copies of the transcript and all costs associated with expedited transcription, production of condensed versions, and other usual costs associated with recording and transcribing hearings.

201. Applicant, WMTX was represented by counsel and has demonstrated that it has the financial ability to pay a portion of the reporting and transcription costs.

202. Protestant TJFA was represented by counsel and has demonstrated that it has the financial ability to pay a portion of the reporting and transcription costs.

203. The City of Austin was represented by counsel and has the financial ability to pay a portion of the reporting and transcription costs.

204. Travis County was represented by counsel and has the financial ability to pay a portion of the reporting and transcription costs.

205. OPIC is a statutory party that cannot be assessed reporting or transcription costs.

206. The Executive Director's participation in the hearing was not mandated by statute, but was limited to providing information to complete the administrative record.

207. Protestant Northeast Neighbors Coalition was represented by counsel and has demonstrated that it has the financial ability to pay a portion of the reporting and transcription costs.

OTHER REMAINING ISSUES

208. With respect to all other contested issues and all unrefuted issues, the Application and the remainder of the evidentiary record contain sufficient factual information regarding the landfill's design and operation to satisfy all applicable statutory and regulatory requirements.

Attachment 2

II. CONCLUSIONS OF LAW

1. The Commission has jurisdiction over the disposal of municipal solid waste and the authority to issue this permit under TEX. HEALTH & SAFETY CODE ANN. § 361.061.

2. Notice was provided in accordance with TEX. HEALTH & SAFETY CODE ANN. § 361.0665, 30 TEX. ADMIN. CODE §§ 39.5 and 39.101.

3. SOAH ALJs have jurisdiction to conduct a hearing and to prepare a Proposal for Decision on contested cases referred by TCEQ. TEX. GOV. CODE § 2003.47.

4. Applicant submitted a complete permit amendment application, as required by TEX. HEALTH & SAFETY CODE ANN. §§ 361.066 and 361.068, that demonstrates that Applicant will comply with all relevant aspects of the Application and design requirements as provided in 30 TEX. ADMIN. CODE §§ 330.71(a) and 330.57(d).

5. The Application was processed and the proceedings described in this Order were conducted in accordance with applicable law and rules of the TCEQ, specifically 30 TEX. ADMIN. CODE § 80.1 *et seq.*, and the State Office of Administrative Hearings, specifically 1 TEX. ADMIN. CODE § 155.1 *et seq.*, and Subchapter C of the TEX. HEALTH & SAFETY CODE ANN. Chapter 361.

6. The evidence in the record is sufficient to meet the requirements of applicable law for issuance of such permit, including the Solid Waste Disposal Act, TEX. HEALTH & SAFETY CODE ANN. Chapter 361, and 30 TEX. ADMIN. CODE Chapter 330.

7. The expansion of the proposed Austin Community Recycling and Disposal Facility, if constructed and operated in accordance with the Solid Waste Disposal Act, 30 TEX. ADMIN. CODE Chapter 330, and the Draft Permit, will not adversely affect public health or the environment.

8. The Draft Permit No. MSW-249D, as prepared by the TCEQ staff, includes all matters required by law.

9. If the Facility is operated in compliance with the Draft Permit and otherwise applicable law, issuance of the Draft Permit will not adversely affect the environment nor will it adversely affect the public health or welfare.

10. The approval of the Application and issuance of Permit No. MSW-249D, will not violate the policies of the State of Texas, as set forth in § 361.002(a) of the Solid Waste Disposal Act, to safeguard the health, welfare, and physical property of the people of Texas, and to protect the environment by controlling the management of solid waste.

11. The contents of the permit to be issued to the Facility meet the requirements of the Texas Solid Waste Disposal Act, TEX. HEALTH & SAFETY CODE ANN. §§ 361.086(b) and 361.087.

12. WMTX's compliance history ranking was properly classified as "average" under 30 TEX. ADMIN. CODE Chapter 60.

13. The TCEQ is not prohibited by TEX. HEALTH & SAFETY CODE ANN. § 361.122 from issuing Permit No. MSW-249D.

14. Applicant has submitted documentation of compliance with the NPDES program under the federal Clean Water Act Section 402, as amended, as required by 30 TEX. ADMIN. CODE § 330.51(b)(5).

15. As required by 30 TEX. ADMIN. CODE §§ 330.61(k)(3), 330.61(i)(4), and 330.61(i)(5) Applicant has submitted documentation of coordination with TCEQ for compliance with the federal Clean Water Act Section 402, the Federal Aviation Administration for

compliance with airport location restricts, and the Texas Department of Transportation for traffic and location restrictions.

16. Applicant has submitted wetland determinations required by applicable federal, state, and local laws as required by 30 TEX. ADMIN. CODE §§ 330.61(m).

17. Applicant has submitted Endangered Species Act compliance demonstrations under state and federal laws as required by 30 TEX. ADMIN. CODE §§ 330.61(n), 330.551, and 330.63(b)(5).

18. Applicant has submitted a review letter from the Texas Historical Commission as required by 30 TEX. ADMIN. CODE §§ 330.61(o).

19. The Application conforms to the applicable requirements of the Engineering Practice Act, TEX. REV. CIV. STAT. ANN. art. § 3271a, as provided in 30 TEX. ADMIN. CODE § 330.57(f).

20. Part I of the Application meets the technical requirements of 30 TEX. ADMIN. CODE §§ 305.45, 330.57(c)(1), and 330.59.

21. Part II of the Application meets the technical requirements of 30 TEX. ADMIN. CODE §§ 305.45, 330.57(c)(2), and 330.61.

22. The Site Development Plan, which supports Parts I and II of the Application, meets the requirements of 30 TEX. ADMIN. CODE §§ 330.63 and 330.61.

23. Part III of the Application meets the requirements of 30 TEX. ADMIN. CODE §§ 330.45, 330.57(c)(3), and 330.63.

24. Part IV of the Application, the SOP, meets the requirements of 30 TEX. ADMIN. CODE §§ 330.57(c)(4) and 330.127.

25. Applicant has shown that it will comply with the operational prohibitions and requirements in 30 TEX. ADMIN. CODE §§ 330.5, 330.111 - 330.139.

26. The Application includes adequate provisions to prevent the ponding of water over waste on the landfill, in compliance with 30 TEX. ADMIN. CODE § 330.167.

27. Applicant has thoroughly investigated whether active geologic faults are present at the Facility, as required by 30 TEX. ADMIN. CODE § 330.56(d)(3)(A).

28. Applicant submitted a geology report that complies with 30 TEX. ADMIN. CODE § 330.63(e).

29. The Application contains the required information regarding the effect of Facility construction on groundwater flow required by 30 TEX. ADMIN. CODE § 330.403(e)(1).

30. The Application meets the requirements of 30 TEX. ADMIN. CODE §§ 330.63(b)(4), 330.401, 330.403, 330.405, and 330.407, concerning groundwater protection.

31. The groundwater sampling and analysis plan meets the requirements set forth in 30 TEX. ADMIN. CODE §§ 330.56(k) and 330.63(f), and Subchapter J of Chapter 330.

32. Applicant has demonstrated that existing drainage patterns will not be adversely altered as a result of the proposed landfill development, as required by 30 TEX. ADMIN. CODE § 330.63(c)(D)(iii) and 330.305.

33. The landfill gas monitoring system complies with 30 TEX. ADMIN. CODE § 330.159.

34. Applicant has demonstrated compliance with applicable TPDES storm water permitting requirements.

35. Applicant has demonstrated compliance with the location restrictions set forth in 30 TEX. ADMIN. CODE §§ 330.345, 330.347, 330.553, 330.555, 330.557, and 330.559.

36. Applicant has submitted information regarding closure and post-closure that demonstrates compliance with the requirements of 30 TEX. ADMIN. CODE §§ 330.63(h), (i), 330.457, 330.461, 330.463, and 330.465.

37. Applicant has submitted information regarding financial assurance that complies with 30 TEX. ADMIN. CODE §§ 330.63(j) and 330.501 - 330.509.

38. Applicant has listed all permits or construction approvals received or applied for under any program listed in 30 TEX. ADMIN. CODE § 305.45(a)(7).

39. The SLQCP complies with 30 TEX. ADMIN. CODE §§ 330.63(d)(C)(3) and (4)(G), and 330.339.

40. Applicant has provided sufficient information concerning its acceptance or disposal of "special waste," as defined by 30 TEX. ADMIN. CODE § 330.3.

41. Applicant has demonstrated compliance with 30 TEX. ADMIN. CODE § 330.171 regarding disposal of special wastes.

42. Applicant has provided information concerning the disposal of industrial wastes and demonstrated compliance under 30 TEX. ADMIN. CODE § 330.173.

43. Applicant is not proposing to site a new MSW landfill or lateral expansion within five miles of an airport serving turbojet or piston-type aircraft, as confirmed in correspondence with the Federal Aviation Administration and in compliance with 30 TEX. ADMIN. CODE §§ 330.61(i)(5) and 330.545.

44. As required by TEX. HEALTH & SAFETY CODE § 361.069, the Facility is compatible with surrounding land uses.

45. Section 363.066 of the TEX. HEALTH & SAFETY CODE does not affect The Solid Waste Disposal Act, under which the Commission may supersede any authority granted to or exercised by the council of governments.

46. The Commission has determined that the Facility is compatible with the applicable regional solid waste management plan, pursuant to TEX. HEALTH & SAFETY CODE § 361.062.

47. The methods specified in the SOP comply with the MSW rules to prevent the creation of any nuisance, as defined by 30 TEX. ADMIN. CODE § 330.3(95).

48. The buffer zones established by Applicant between the edge of fill and the Facility boundary are compliant with the MSW rules, including 30 TEX. ADMIN. CODE §§ 330.141(b).

49. Applicant has provided sufficiently detailed information regarding the operational methods to be utilized at the Facility when using daily cover and its preventative effect on vectors, fires, odors, windblown waste and litter, and scavenging, as required by 30 TEX. ADMIN. CODE § 330.165(a) and (b).

50. The methods specified in the SOP for the control of windblown waste and litter comply with the MSW rules, including 30 TEX. ADMIN. CODE §§ 330.127 and 330.139.

51. Applicant has provided adequate information related to transportation in compliance with 30 TEX. ADMIN. CODE § 330.61(i).

52. The IWU stopped accepting waste prior to October 9, 1991 and, therefore, the only regulatory requirements that apply to the IWU are the limited closure and post-closure care provisions of 30 TEX. ADMIN. CODE §§ 330.5, 330.453, and 330.463. The applicable closure requirements have been satisfied and, therefore, the IWU is not a relevant

consideration for this Application, pursuant to 30 TEX. ADMIN. CODE § 330.5(e) and 18 TEX. REG. 1485, 1487 (Mar. 9, 1993.)

53. The proposed groundwater monitoring system adequately monitors the IWU and protects human health and the environment in compliance with 30 TEX. ADMIN. CODE §§ 330.63(b)(4), 330.401, 330.403, 330.405, and 330.407.

54. The Travis County Landfill/Phase I area stopped accepting waste prior to October 9, 1991 and, therefore, the only regulatory requirements that apply to Travis County Landfill/Phase I area are the limited closure and post-closure care provisions of 30 TEX. ADMIN. CODE §§ 330.5, 330.453, and 330.463. The applicable closure requirements have been satisfied and, therefore, the Travis County Landfill/Phase I area is not a relevant consideration for this Application, pursuant to 30 TEX. ADMIN. CODE § 330.5(e) and 18 TEX. REG. 1485, 1487 (Mar. 9, 1993.)

55. The proposed groundwater monitoring system adequately monitors the Travis County Landfill/Phase I area of the Facility and protects human health and the environment in compliance with 30 TEX. ADMIN. CODE §§ 330.63(b)(4), 330.401, 330.403, 330.405, and 330.407.

56. Pursuant to the authority of, and in accordance with, applicable laws and regulations, the requested permit should be granted.

57. Pursuant to 30 TEX. ADMIN. CODE §§ 80.23(d)(2), OPIC may not be assessed any portion of the transcript and reporting costs.

58. For the reasons set out in the Findings of Fact, the court reporting and transcript costs should be apportioned equally between Applicant and Protestants.

Attachment 3

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, IN ACCORDANCE WITH THESE FINDINGS OF FACT AND CONCLUSIONS OF LAW THAT:

1. Permit No. MSW-249D for a Type 1 MSW landfill is hereby issued to Waste Management of Texas, Inc., as set out in Draft Permit No. MSW-249D.

2. The Applicant shall pay 50% of transcription costs, and Protestants shall pay the remaining 50%.

3. The Commission adopts the Executive Director's Response to Public Comment in accordance with 30 TEX. ADMIN. CODE § 50.117.

4. The Chief Clerk of the Commissions shall forward a copy of this Order to all parties and issue the attached permit as changed to conform to this Order.

5. All motions, requests for specific Findings of Fact or Conclusions of Law, and other requests for general and specific relief, if not expressly granted, are denied for want of merit.

6. If any provision, sentence, clause, or phrase of this Order is for any reason held to be invalid, the invalidity of any portion shall not affect the validity of the remaining portions of this Order.

7. The effective date of this Order is the date the Order is final, as provided in 30 TEX. ADMIN. CODE § 80.273 and TEX. GOV'T CODE ANN. § 2001.144.