State Office of Administrative Hearings

Shelia Bailey Taylor
Chief Administrative Law Judge

March 18, 2008

Les Trobman, General Counsel
Texas Commission on Environmental Quality
PO Box 13087
Austin Texas 78711-3087

Re: SOAH Docket No. 582-07-0863; TCEQ Docket No. 2006-1931-MSW; ***Application of Waste Management of Texas, Inc. For A Permit Amendement to Expand A Type I Municipal Solid Waste Landfill Facility (Permit No. MSW-66B)***

Dear Mr. Trobman:

The above-referenced matter will be considered by the Texas Commission on Environmental Quality on a date and time to be determined by the Chief Clerk's Office in Room 201S of Building E, 12118 N. Interstate 35, Austin, Texas.

Enclosed are copies of the Proposal for Decision and Order that have been recommended to the Commission for approval. Any party may file exceptions or briefs by filing the original documents with the Chief Clerk of the Texas Commission on Environmental Quality no later than April 7, 2008. Any replies to exceptions or briefs must be filed in the same manner no later than April 17, 2008.

This matter has been designated **TCEQ Docket No. 2006-1931-MSW; SOAH Docket No. 582-07-0863**. All documents to be filed must clearly reference these assigned docket numbers. Copies of all exceptions, briefs and replies must be served promptly on the State Office of Administrative Hearings and all parties. Certification of service to the above parties and an **original and eleven copies** shall be furnished to the Chief Clerk of the Commission. Failure to provide copies may be grounds for withholding consideration of the pleadings.

Sincerely,

William G. Newchurch Jr

Sarah G. Ramos
Administrative Law Judge

SGR/ed
Enclosures
cc: Service List

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AGENCY: **TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)**

STYLE/CASE: **APPLICATION OF WASTE MANAGEMENT OF TEXAS, INC.**

SOAH DOCKET NUMBER: 582-07-0863
TCEQ DOCKET NUMBER: 2006-1931-MSW

STATE OFFICE OF ADMINISTRATIVE HEARINGS

SARAH G. RAMOS
ADMINISTRATIVE LAW JUDGE

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SOAH DOCKET NO. 582-07-0863
TCEQ DOCKET NO. 2006-1931-MSW

APPLICATION OF WASTE MANAGEMENT OF TEXAS, INC.	§	BEFORE THE STATE OFFICE
FOR A PERMIT AMENDMENT TO EXPAND A TYPE I MUNICIPAL SOLID WASTE LANDFILL FACILITY (PERMIT NO. MSW-66B)	§	OF ADMINISTRATIVE HEARINGS

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	§	
	§	
FOR A PERMIT AMENDMENT TO EXPAND A TYPE I MUNICIPAL SOLID WASTE LANDFILL FACILITY (PERMIT NO. MSW-66B)	§	**OF**
	§	
	§	
	§	**ADMINISTRATIVE HEARINGS**

PROPOSAL FOR DECISION

I. INTRODUCTION

Applicant, Waste Management of Texas, Inc., seeks authorization for a lateral expansion of its municipal solid waste (MSW) landfill near New Braunfels, Texas (Permit No. 66-B), and to rename the facility the Mesquite Creek Landfill. The lateral expansion would change the property area from 96.07 acres to 244.12 acres and increase the waste disposal footprint from 79 acres to 163.5 acres with a vertical limit of 798 feet above mean sea level (ft/msl). The other 80.62 acres would be used for buffer zones, perimeter access roads, drainage facilities, and other operational areas.[1]

After considering the issues and evidence presented, Administrative Law Judge Sarah G. Ramos (ALJ) recommends that the Commission grant the application, with three modifications discussed in this Proposal for Decision (PFD). First, the ALJ recommends that Applicant be required to train its key site personnel about a rare species that has been sighted in the area. Second, Applicant should be required to conform its requested operating hours to those hours agreed upon in a settlement with Guadalupe County. Finally, the Applicant should submit its plans for the new entrance design prior to constructing the entrance, and the design should comply with line-of-sight standards established by American Association of State and Highway Transportation Officials (AASHTO).

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[1] App. Ex. 200 at 12-13.

Attorneys Bryan J. Moore and John A. Riley represented Applicant, and attorneys Lawrence Dunbar and James E. Bradley represented Protestant, TJFA, LP (TJFA). In addition to representing themselves, property owners Nancy Schwarzlose and John Holtman served as representatives for other landowners and residents in the area: the Holtman family, Sandra Taylor and Lilian Elbel, James and Vera Langford, and the Krueger-Westmeyer Families. They used the designation Citizens and Landowners of Comal and Guadalupe Counties (CCL). Garrett Arthur represented the Office of Public Interest Counsel (OPIC), and Anthony Tatu and Amie Richardson represented the Executive Director (ED). Guadalupe County, represented by Assistant County Attorney Robert Etlinger, was named as a party but withdrew its party status during the hearing, after it had reached a settlement agreement with Applicant about the facility's operating hours. Basically, that agreement allows Applicant to operate in the county from 4:00 a.m. to 8:00 p.m., Monday through Friday, and 4:00 a.m. through 3:00 p.m. on Saturday. It also provides a mechanism for operations on a temporary basis to meet the needs of governmental entities and citizens during an emergency.

TJFA argued that the application misrepresents facts, has an inaccurate geologic/hydrogeologic characterization, proposes inadequate groundwater monitoring, has improper controls for drainage, includes unstable waste disposal slope designs, has an inconsistent Site Operating Plan (SOP), has a dangerous entrance design, and ignores historical groundwater contamination. CCL was concerned about the adequacy of geologic and hydrogeologic investigations; possible impacts to the underground water supply; drainage into Mesquite Creek, which flows through Applicant's site, into nearby Freedom Lake, and downstream into York Creek; fire protections; the site entrance design; and the impact that continuous operations could have on the nearby residents.

OPIC agreed with Protestants on five points. Applicant proposed to excavate the expansion into Stratum IV beneath the site, but its monitor wells would go only into Stratum III. OPIC asked that the Draft Permit be amended to require Applicant to screen monitor wells at least as deep as

landfill excavation in the areas near those wells. Also, OPIC asked the Commission to require Applicant to place a monitoring well between the expansion unit and the proposed leachate evaporation pond. As proposed, the waste unit and leachate pond will share a monitoring well. After the Texas Parks and Wildlife Department recommended steps to be taken to protect a rare species, OPIC suggested that the provisions should be included in the SOP. OPIC also asked for the Draft Permit to be changed to reflect the operating hours contained in Applicant's settlement agreement with Guadalupe County. Finally, OPIC argued, Applicant should be required to document to TCEQ that the site entrance meets AASHTO standards.

II. NOTICE, JURISDICTION, AND PROCEDURAL HISTORY

No party contested notice and jurisdiction, and those issues are discussed only in the Proposed Order. The ED received the application on November 21, 2005, and declared it administratively complete on December 13, 2005. Thus, TCEQ's substantive rules in effect prior to March 27, 2006, apply to this proceeding. They are published in 30 TEX. ADMIN. CODE (TAC) ch. 330 (West 2006).

Notice of receipt of the application and intent to obtain a permit was published on December 19, 2005. The ED issued notices of deficiencies on February 3 and April 24, 2006, and declared the application administratively complete on July 14, 2006. Notice of the application and preliminary decision was published on August 29, 2006. The public comment period closed on September 28, 2006. On October 31, 2006, Applicant requested a direct referral for a contested case hearing. A public meeting was held on March 19, 2007, and the preliminary hearing was held on April 13, 2007. The ED filed his Response to Comment on June 28, 2007.

The hearing on the merits was held October 22-26 and 29, 2007. Two days of hearing were conducted at the New Braunfels Municipal Court, 1486 South Seguin Avenue, New Braunfels, Texas. The remainder of the hearing was conducted at the State Office of Administrative Hearings

(SOAH), 300 W. 15th Street, Austin, Texas. The record closed on January 18, 2008, after briefs were filed.

III. BACKGROUND

The facility is located at the southwest intersection of FM 1101 and Kohlenberg Lane, approximately five miles north of the intersection of FM 1101 and State Highway 46 and two miles east of I-35 in New Braunfels.[2] The street address for the current site is 1000 Kohlenberg Lane, New Braunfels, Texas, but a new entrance is planned in the expansion.

Don Smith, Applicant's Market Area General Manager, has 17 years experience in the solid waste industry and is responsible for Applicant's operations in the Central Texas area.[3] He said the existing landfill is solely in Comal County, but the expansion will be partly in Guadalupe County, which has no landfill.[4] The lateral expansion for which Applicant seeks a permit, to be designated as Unit 2, will not be physically connected to the areas that are already permitted, Units 1 and 3.[5]

Citing data provided by the Texas Association of Counties, Mr. Smith testified that Comal County and Guadalupe County are, respectively, the 12th- and 25th-fastest-growing counties in Texas. Comal County's population exceeds 95,000 people and occupies more than 560 square miles; Guadalupe County's population exceeds 100,000, and that county has more than 700 square miles.

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[2] The general location map is in App. Ex. 202 at 170.

[3] App. Ex. 100 at 3-4.

[4] App. Ex. 100 at 4-5.

[5] Tr. 18-19, 23.

As Mr. Smith explained, Applicant purchased the facility in 1988 from Comal County, which had operated it for ten years prior to the sale.[6] In 2003, the Commission granted permit MSW-66A to Applicant, which allowed Applicant to expand the site vertically to 798 ft/msl. Nevertheless, the landfill now has only about three-to-four years of remaining life. At an anticipated average disposal rate of 1,724 tons/day, the permit amendment Applicant seeks would add about 20.6 years to the facility's anticipated life.[7]

Scott Graves, lead engineer, was responsible for overseeing the application's preparation. He said that it meets all regulatory requirements.[8] Mr. Graves is an associate with GeoSyntec Consultants, Inc. (GeoSyntec), an engineering, consulting, and construction management firm. He holds a bachelor's degree in civil engineering from Iowa State University and a master's degree in civil engineer with a geotechnical emphasis from the University of Texas at Austin. He is a licensed professional engineer in Texas and several other states. Mr. Graves specializes in landfill permitting, design, and construction; and he has worked on more than 20 landfill sites as a professional engineer.[9] Along with GeoSyntec, Applicant retained Tetra Tech MM to prepare the groundwater sampling and analysis plan; S&B Infrastructure, Ltd. to prepare the wetlands and endangered and threatened species reports; and Horizon Environmental Services to conduct a cultural resource survey.[10]

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[6] Tr. 14.

[7] App. Ex. 100 at 5-6.

[8] App. Ex. 200 at 21.

[9] App. Ex. 200 at 4-6.

[10] App. Ex. 200 at 13-14.

IV. COMPLIANCE WITH REQUIREMENTS PERTAINING TO GEOLOGY AND HYDROGEOLOGY

CCL and TJFA argued that Applicant did not properly consider the geology and hydrogeology of the site, particularly considering the possible impacts to the groundwater supply. TJFA presented evidence indicating that even though the faults on the site are not active, the faults and resulting fractures may have more impact on groundwater than the application reflects.

A. Background Topography and Physiography

Applicant's Geology Report[11] includes evidence of the regional physiography and topography, as required by 30 TAC § 330.56(d)(1). As mandated by that rule, Applicant's Geology Report[12] included information about the regional physiography and topography, regional geology, active geologic processes, regional aquifers, subsurface conditions, and the existing and proposed groundwater monitoring systems. A MSW facility may not be located within 200 feet of a fault that has had displacement in Holocene time unless certain requirements are met.[13] Also, a facility may not be located in areas subject to differential subsidence or active geological faulting unless detailed faulting studies are submitted.[14]

The facility is located in the Blackland Prairie sub-province, which has a hilly to rolling prairie surface that covers deep clayey soils. It is the most western sub-province of the Gulf Coastal Plain physiographic province of Texas. Vegetation includes grasses, brush, and mesquite trees.

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[11] App. Ex. 202 at 1019-1020.

[12] App. Ex. 202 at 1012 *et seq.*

[13] 30 TAC § 330.303(a).

[14] 30 TAC § 330.303(b).

Natural hillsides are towards either end of the site (northwest and southeast) with a valley associated with Mesquite Creek, an intermittent stream, in the center.[15]

The highest pre-development ground elevation on the northern side of the facility is about 665 ft/msl; and the terrain slopes south, down to the valley in the center of the site.[16] The highest pre-development ground elevation on the southern side of the facility is approximately 712 ft/msl; and, again, the terrain slopes north to the valley in the middle. The lowest elevation of approximately 585 ft/msl occurs in the middle of the site, along the northern property boundary where Mesquite Creek leaves the property. From the creek's centerline to the closest limits of the landfill, it is approximately 250 feet for the exiting unit and 900 feet for the proposed unit. Natural surface slopes are gentle to rolling and range from about three to nine percent across the site.

The site is part of the Mesquite Creek Watershed. Mesquite Creek, an intermittent stream, passes through the site to Freedom Lake, which is approximately 0.3 miles to the east. The stream then flows to the northeast and enters York Creek approximately three miles northeast of the site. York Creek is a tributary of the San Marcos River and part of the Guadalupe River Basin.[17] The area's major drainage streams flow to the southwest and include the Guadalupe River, Comal River, Blanco River, San Marcos River, and Cibolo Creek. These rivers have perennial flow, while other streams in the area have intermittent flow for parts of their course.

Of the currently permitted areas on the site, Unit 3, which is not yet built, is on the westernmost side. Unit 1, which is nearly filled, is adjacent to Unit 3 to the east. The area for which Applicant seeks a permit, Unit 2, is on the easternmost side of the property.

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[15] App. Ex. 202 at 1019. The physiographic province map is in App. Ex. 202 at 1092.

[16] App. Ex. 202 at 1019-1020.

[17] App. Ex. 202 at 1019.

B. Geologic Faults in the Area

Applicant submitted a soils statement with data on fault areas, seismic impact zones, and unstable areas.[18] A landfill may not be located "within 200 feet of a fault that has had displacement in Holocene time,"[19] *i.e.*, within the most recent 11,000 years of the earth's history.[20]

1. Applicant's Evidence and Arguments

Janet Meaux, who holds bachelor's and master's degrees in geology, is a licensed professional geoscientist and was the groundwater scientist on GeoSyntec's application team. Ms. Meaux has worked as a geologist for almost 20 years and has conducted geologic or hydrogeologic examinations for MSW projects for more than eleven years.[21]

Section 4 of Ms. Meaux's Geology Report addresses whether there are any active geologic processes in the vicinity.[22] Applicant's 2002 amendment application for Permit MSW-66A mentioned two inactive faults, one in the existing site and one approximately 200 feet southwest of it. An older regional geologic map indicated another fault is southeast of the expansion area. None of the faults were active in Holocene time.[23]

The inactive fault in the existing site was discovered in 1990 near the northern site boundary in an area excavated for landfill development. Evidence of the fault was not apparent until the base

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[18] 30 TAC §§ 330.53(b)(10)(B) and 330.303-330.305.

[19] 30 TAC § 330.303(a).

[20] 30 TAC § 330.302(56).

[21] App. Ex. 400 at 4-5.

[22] App. Ex. 400 at 14; App. Ex. 202 at 1026.

[23] App. Ex. 202 at 1037.

of Stratum II was exposed, approximately ten feet below ground surface. The fault is in the oxidized claystone in Stratum III, underlying Stratum II on the upthrown side. The fault did not displace Stratum I or II, which indicated that the fault's movement ceased prior to Holocene time.[24] Applicant determined the southeast dip of the fault is 65 degrees from vertical, and the true dip is 22 degrees from vertical. The fault's strike is 46 degrees east of north, which is consistent with the trend of other faults within the Balcones fault zone.[25]

The 2002 application also discussed a possible fault southeast of the existing site, between the proposed expansion area and the current waste footprint. Aerial photographs identified a short linear feature approximately 1.25 miles northwest of the site, the trace of which, if extended, would cross the site. The linear feature was interpreted as an inferred fault, but Applicant could not determine the upthrown or downthrown side or extend the fault's trace southwest because the extension of the fault could not be identified from aerial photographs or from available soils data.[26]

A third fault is approximately 450 feet from the southwestern boundary of the expansion area. According to Ms. Meaux, this fault also was created in pre-Holocene time and also is in the Balcones fault zone.[27]

Ms. Meaux emphasized the absence of any fault – active or inactive – beneath the proposed expansion area.[28] The site is not located within ½ mile of an active fault, and no earthquake epicenters were identified within 20 miles of the facility.[29] Further, she said controlled, limited

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[24] App. Ex. 202 at 1038.

[25] App. Ex. 202 at 1038 and Drawing 4-6.

[26] App. Ex. 202 at 1038.

[27] App. Ex. 202 at 1039.

[28] Tr. 543-546; App. Ex. 400 at 16-17.

[29] App. Ex. 400 at 16.

groundwater withdrawals from the Edwards Aquifer, the lowermost aquifer, are not expected to cause subsidence, and there is no known oil and gas production or mineral extraction occurring in the vicinity.[30]

Applicant noted that TCEQ's rules are concerned only with the presence of *active* geologic faults – faults that have had active displacement within the last 11,000 years. Based on Ms. Meaux's subsurface investigation, Applicant argued that is no evidence of a fault – active or inactive – beneath the proposed expansion area.[31]

2. Protestants' Evidence and Arguments

TJFA's witness, H. C. Clark, holds master's and doctorate degrees in geophysics from Stanford University. He is professor emeritus at Rice University, where he taught for more than 30 years and has worked on various waste disposal projects. TCEQ's Commissioners recently appointed him to serve on TCEQ's Municipal Solid Waste Advisory Council.[32]

Dr. Clark expressed several concerns about the application. First, he said the geological study was inadequate, which led him to conclude the hydrogeologic characterizations were also inadequate. In his opinion, Applicant should have more completely examined the fault data from Unit 1 to plan its excavations for Unit 2. He agreed that no active fault passes through the site.[33] But he said Applicant overlooked the possible impact of the inactive fault's ability to transmit groundwater.[34]

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[30] App. Ex. 400 at 18.

[31] *Citing* Tr. 543-546; App. Ex. 400 at 16-17. Applicant's Subsurface Investigation report is included in Section 6 of the Geology Report, App. Ex. 202 at 1031-1035.

[32] TJFA Ex. 1 at 4.

[33] Tr. 833.

[34] TJFA Ex.1 at 7.

While the application acknowledges the inactive fault on the west side, Applicant ends its consideration of the fault's impact with the conclusion that the displacement is not as great as depicted in previous studies and has no effect on groundwater flow. Yet, in Dr. Clark's opinion, the depicted fault offset suggests that there should be an effect on groundwater flow. In 2001 and 2001, a contaminant was detected at unacceptable levels in an existing monitoring well, which indicated that the fault may play a role in transmitting groundwater.[35] Dr. Clark also testified that faults or fractures with near displacement or offset in the Balcones fault zone tend to create zones of enhanced fracturing, which would be expected to increase groundwater flow in and around faults.[36]

As Dr. Clark noted, fracture and fault trends in the area are, by and large, aligned with the northeast-trending Balcones fault zone. Both the geologic map and topography map show commensurate northeast stream alignments that would project through parts of Mesquite Creek and Units 1 and 2, he stated. The long cross-sections through the site could include more fault offsets than are shown for the fault mapped on the west side.[37] Based on Dr. Clark's testimony, TJFA and CCL argued that the geological and hydrogeological information in the application failed to comply with applicable rules because it did not adequately describe the site's geology and the inactive fault's impact on groundwater.

3. Applicant's Response

In response to Dr. Clark's concerns, Applicant noted that TCEQ's rules require oversight and documentation of the excavation of each disposal cell.[38] If data is insufficient, TCEQ may require

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[35] TJFA Ex.1 at 7.

[36] TJFA Ex. 1 at 12.

[37] TJFA Ex. 1 at 12-13.

[38] *Citing* 30 TAC §§ 330.205-330.206.

more data and prohibit waste disposal in the excavation until the data is reviewed and approved by the agency.[39]

4. ED's Evidence and Argument

ED witness John Austin Williamson, P.G., who serves in TCEQ's Waste Permits Division, testified that the application complies with the agency's geology and hydrogeology regulations, including site characterization and location restrictions.[40] He based his conclusions on the Geology Report, the Groundwater Characterization Report,[41] the Soil and Liner Quality Control Plan,[42] and the Groundwater Sampling and Analysis Plan (GWSAP).[43]

The ED determined that Applicant had identified faults, subsidence, and the potential for subsidence in the area, as required by TCEQ's rules.[44] The ED also highlighted Applicant's representation that Holocene faults are not located within a ½-mile radius of the site; as a result, the ED argued that a detailed fault study is not required and the regulatory location restrictions are satisfied.

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[39] *Citing* § 330.206(c).

[40] *See* ED Ex. 8 at 9.

[41] App. Ex. 202 at 1726 *et seq.*

[42] App. Ex. 202 at 2152 *et seq.*

[43] App. Ex. 202 at 2250 *et seq.*; ED Ex. 3 at 2 and 9.

[44] ED Ex. 8 at 3.

5. OPIC's Argument

Particularly noting Ms. Meaux's opinion that the landfill needs no special design, construction, or operation limitations based on geology,[45] OPIC agreed with Applicant that the application complies with TCEQ's rules.

6. Analysis

The ALJ finds the Geology Report adequately describes faults in the area and shows no geologic processes are active on the site. The Commission's rules do not require detailed fault studies unless a landfill will be located in an area that has had displacement in Holocene time and Applicant's site has no such areas. Further, detailed fault studies were not required because there are is no differential subsidence or active geological faulting. As a result, Applicant has met its burden of proof on this issue. TJFA's concern about the impact of faults on groundwater is discussed in more detail in the following sections.

C. Uppermost Water-Bearing Zone

Protestants, TJFA and CCL, argued that Applicant failed to accurately investigate the hydrogeology of the site. They cited testimony from the ED's witness who testified that the upper portion of Stratum IV has the same fracturing as Stratum III and asserted that Stratum IV, not Stratum III, is the uppermost water-bearing zone. In the ALJ's opinion, Applicant met its burden of proving Stratum III is the uppermost water-bearing zone or aquifer.

[45] *Citing* App. Ex. 400 at 37.

1. Applicable Rules

As provided in the Commission's rule, soil borings must be

> sufficiently deep to allow identification of the uppermost aquifer and underlying hydraulically interconnected aquifers. Borings shall penetrate the uppermost aquifer and all deeper hydraulically interconnected aquifers and be deep enough to identify the aquiclude at the lower boundary. All the borings shall be at least five feet deeper than the elevation of the deepest excavation. In addition, at least the number of borings shown on the Table of Borings shall be drilled to a depth at least 30 feet below the deepest excavation planned at the waste management unit, unless the executive director approves a different depth . . . .[46]

The "uppermost aquifer" is the geologic formation nearest the natural ground surface that is an aquifer, including lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.[47]

Other TCEQ rules require an applicant to describe the geotechnical properties of the subsurface soil materials and discuss conclusions about the suitability of the soils and strata for the uses for which they are intended. Also, soil characteristics must be determined from at least one sample from each soil layer or stratum that will form the bottom and sides of the proposed excavation and from those that are less than 30 feet below the lowest elevation of the proposed excavation.[48]

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[46] 30 TAC § 330.56(d)(5)(A)(ii). Ms. Meaux said the term "uppermost aquifer" as used in this section is more described by engineers as the uppermost water-bearing zone. This PFD uses the terms interchangeably.

[47] 30 TAC § 330.2 (158).

[48] 30 TAC § 330.56(d)(5)(B) and (d)(5)(B)(i).

2. Stratigraphic Units

The stratigraphic units underlying Applicant's site, down to the maximum depth drilled, are[49]

Stratum	Corresponds To	Thickness	Composition	Fractures
I	uppermost fine-grained Quaternary deposits and ranges.	from 0 to 14.5 feet.	unsaturated brown to dark gray in color; medium to high plasticity clay that is stiff to hard in consistency.	
II	Quaternary-Tertiary Uvalde gravel.	north of the Comal-Guadalupe County line, is 1 to 9 ft., otherwise, is more than 10 ft. thick.	at the existing site, ranges from olive green, white, or gray limestone and/or chert gravel, occasionally in a clay or silty clay matrix, to firm, black clayey gravel. In the new area, is white clayey gravel to gravelly clay that is typically in a dark brown clay matrix.	
III	oxidized clays or claystones of the Lower Taylor Group.	At the existing site, from 18 to 58.5 feet. In the new area, 15 to 63 feet.	gray or brownish yellow to yellow in color; oxidized, very stiff to hard clay with thin bedding planes.	High angle clay, gypsum filled fractures, and calcite seams are more prevalent near the bottom of the stratum. Some fractures and calcite seams are water-bearing.

[49] Information in the table is taken from App. Ex. 202 at 180, 1036-1037 and 1064; App. Ex. 400 at 26-27 (Meaux); and Tr. 1082-1085 (Williamson).

IV	primarily unoxidized clay and/or claystone of the Lower Taylor Group.	not indicated by soil borings but geologic cross-section drawings show it is more than 200 feet thick.	dry calcerous green gray to dark gray oxidized clay or indurated claystone.	a few borings show evidence of fracturing and/or weathering.

3. Applicant's Evidence and Arguments

Ms. Meaux testified that GeoSyntec's subsurface investigations produced a well-developed boring grid that was distributed across the expansion area and from which Applicant was able to establish Stratum III as the uppermost aquifer.[50] She testified that Applicant's soil boring plan included 32 soil borings, eight prior borings within the existing landfill and 24 borings in the planned expansion.[51] Boring depths ranged from 59.0 to 185.0 feet below ground surface (ft/bgs) and terminated at approximately 635.50 to 499.39 ft/msl.[52] All borings were at least five feet below the deepest planned landfill excavation.[53] One of the existing borings and 16 of the GeoSyntec borings were advanced to 30 feet below, including five borings that were more than 50 feet below, the deepest planned excavation.[54]

After the borings were completed, GeoSyntec converted 15 of them to piezometers. When placing the piezometers, GeoSyntec put them at the top of Stratum IV and went ten feet up from

[50] App. Ex. 400 at 27-28; Tr. 505.

[51] App. Ex. 202 at 1033; Applicant's Boring, Piezometers, and Well Location Map is in App. Ex. 202 at 1093.

[52] App. Ex. 202 at 1034.

[53] App. Ex. 202 at 1033.

[54] App. Ex. 202 at 1033 and 1035.

there.[55] There were no reliable piezometer tests of Stratum IV.[56] Even though not all of the soil borings yielded groundwater, all of the piezometers produced groundwater.[57] The 15 piezometers were added to the existing network of five monitoring wells and five piezometers, and the remaining borings were sealed.[58]

Ms. Meaux determined that Stratum III is not hydraulically connected to an underlying aquifer.[59] In part, she based her conclusions on the fact that Cell 2 of the exiting landfill was excavated into Stratum IV, and the excavation did not yield water.[60] Also, even though some boring logs penetrated into Stratum IV and showed very weathered fractures, no water was detected in any of the fractures.[61]

On cross-examination, Ms. Meaux was asked about soil borings that indicated groundwater may be present in Stratum IV. The boring log for GB-19 shows Stratum IV was contacted at a depth of 74 ft/bgs, and at 98 ft/bgs, the driller reported a loss of water pressure.[62] Ms. Meaux agreed that the loss of water pressure meant water had gone into weathered areas in the soil.[63] Also, the driller's boring log for GB-21 showed Stratum IV was contacted at 74 feet, where the driller noted "water possible."[64] At 115 ft/bgs, the driller reported a loss of water formation in that boring, and at 99 to

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[55] Tr. 505.

[56] Tr. 510-511.

[57] Tr. 670.

[58] App. Ex. 202 at 1033-1035; App. Ex. 400 at 25.

[59] App. Ex. 400 at 27-28.

[60] Tr. 672-673.

[61] Tr. 552; 670-671.

[62] App. Ex. 202 at 1260.

[63] Tr. 547-548.

[64] App. Ex. 202 at 1270.

102 ft/bgs, the sample was "very weathered, soft, broken into many small pieces."[65] On GB-23, Stratum IV began at 54 ft/bgs, where there was a highly fractured zone for six inches.[66]

In spite of these boring logs, Ms. Meaux said the references to weathering in Stratum IV meant simply that the area was softer; there was no change in color to indicate oxygen or air had reached the weathered areas.[67] And she said there was much less evidence of weathering in Stratum IV than in Stratum III.[68]

Based on the borings logs and piezometer data, Ms. Meaux concluded that any liquid released from the landfill will percolate vertically through the upper, unsaturated portion of Stratum III. Once the liquid reaches a saturated condition, and because there are more horizontal fractures in the bedding planes at the base of Stratum III, the water will flow out along the Stratum III/IV contact.[69] If a release occurs in the few locations where the base grades are in Stratum IV, there is little potential for migration because, according to Ms. Meaux, Stratum IV is a confining bed with low hydraulic conductivity.[70] However, GeoSyntec did not put any piezometers into Stratum IV,[71] so she could not say with confidence what Stratum IV's horizontal hydraulic conductivity is.[72]

In summary, Ms. Meaux said Strata I through IV are not hydraulically connected to the Edwards Aquifer, the area's major regional aquifer and the lowermost aquifer beneath the site that

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[65] Tr. 548-550; App. Ex. 202 at 1270-1271.

[66] Tr. 551-552; App. Ex. 202 at 1281 and 1283.

[67] Tr. 488, 490.

[68] Tr. 485.

[69] App. Ex. 202 at 1740; Tr. 520-521, 535, 555, 669.

[70] App. Ex. 400 at 35-36.

[71] Tr. 553.

[72] Tr. 530.

is capable of providing usable groundwater. [73] The Lower Taylor Group, which includes Strata III and IV, is underlain by more than 200 feet of low permeability strata.[74] Overlying formations are too fine-grained and impermeable to yield sufficient quantities of groundwater to be utilized as aquifers.[75] While the surface topography varies, the Edwards Aquifer is more than 400 ft/bgs at any location.[76] Therefore, Ms. Meaux concluded that the subsurface is suitable for construction and operation of the facility, as designed.[77]

In response to Protestants' arguments that piezometers should have been installed in Stratum IV, Applicant argued that the boring logs, which penetrated through Stratum III and into Stratum IV, would have shown any groundwater movement between those strata. However, none of the 24 borings showed evidence of this groundwater movement. A single occurrence of a six-inch wet spot so far below dry bedrock in Stratum IV provided no support for TJFA's claim that Stratum IV may transmit groundwater. GeoSyntec's 24 borings showed a "very, very small amount" of fractures in Stratum IV, indicating that the stratum has little, if any, ability to transmit groundwater.[78] Consequently, Applicant concluded, its hydrogeology investigations were adequate and accurately determined Startum III as the uppermost aquifer.

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[73] App. 400 at 13.

[74] App. Ex. 400 at 27.

[75] App. 400 at 28.

[76] App. Ex. 400 at 13, 28-29; App. Ex. 202 at 1021, 1028, and 1094 (geologic cross sections).

[77] App. Ex. 400 at 31.

[78] *Citing* Tr. 473-474 (Meaux).

4. Protestants' Evidence and Arguments

In Dr. Clark's opinion, Applicant's field permeability tests did not fully evaluate the transmissive role of fractures at the site and the nature of the interface between Strata III and IV.[79] At certain points on the proposed expansion site, piezometers should have been placed into Stratum IV.[80] Dr. Clark was also concerned about the lack of evaluation of Unit 1. A lateral expansion proposal presents an opportunity to examine and measure how the landfill has worked in the geologic and hydrogeologic framework, he testified.[81] Dr. Clark stated that every effort should have been made to find early strata information, particularly because of a history of contamination at the site, but there is virtually no information about the original site.[82]

CCL and TJFA argued that Applicant failed to correctly and completely describe the geology of the site, especially the transition between Stratum III and Stratum IV, which are both in the Lower Taylor group. Groundwater movement will occur more quickly through the fractured part than in the unfractured parts of the clay/claystone, TJFA noted. By not including the upper portions of Stratum IV in its groundwater analysis, Applicant failed to correctly and completely characterize the geology of this site.

Applicant tested neither Stratum IV's groundwater flow direction and rate nor its horizontal hydraulic conductivity,[83] even though this information, according to Protestants, is required for portions of the uppermost aquifer that lie beneath or along the side of a unit's excavation.[84] If

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[79] TJFA Ex. 1 at 7, referring to App. Ex. 202 at 1012 *et seq.* (Geology Report) and at 1726 *et seq.* (Groundwater Characterization Report).

[80] Tr. 873-876.

[81] TJFA Ex. 1 at 10.

[82] TJFA Ex. 1 at 11.

[83] Tr. 553.

[84] Citing 30 TAC § 330.56(d)(5)(B)(ii).

excavation is to take place into Stratum IV as it is proposed to be, Applicant should have placed a piezometer there to monitor groundwater movement that might occur, CCL asserted. Ms. Meaux admitted that previous field tests conducted by others in Stratum IV under Unit 1 were unreliable for use in this application.[85] Therefore, Protestants seek denial of the application, arguing that the Groundwater Characterization Report is inadequate.

5. ED's Evidence and Argument

Mr. Williamson testified that the upper portion of Stratum IV has weathering and fracturing and is a transition zone that exhibits the same kind of hydraulic conductivity as Stratum III.[86] In Stratum IV, the horizontal hydraulic conductivity is faster than the vertical conductivity, he added.[87] Groundwater will move horizontally along the elongated soil particles, but if it hits a fracture, the water could follow the fracture.[88]

Even so, Mr. Williamson said Stratum III is the uppermost water-bearing zone because Stratum IV has very little water, and the lower portion of Stratum IV is a confining unit.[89] There are some fractures in Stratum IV, but it does not necessarily follow that groundwater moves between the fractures in that stratum, he said.[90] He based this conclusion on the Applicant's soil boring logs and noted that the only boring log showing moisture in Stratum IV was at a depth of 74 feet, in the transition from Stratum III to Stratum IV.[91]

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[85] Tr. 510-511.

[86] Tr. 1092, 1093, 1096-1097.

[87] Tr. 1088-1089, *citing* App. Ex. 202 at 1053 § 8.5.2.

[88] Tr. 1080.

[89] Tr. 1096-1097.

[90] Tr. 1097-1098.

[91] Tr. 1098, 1100-1102, *citing* App. Ex. 202 at 1270, boring GB-21.

Therefore, the ED determined that the landfill site will continue to comply with existing TCEQ rules regarding hydrogeology in the area. By operating according to the Draft Permit and TCEQ regulations, the landfill should not adversely affect human health or the environment.

6. OPIC's Evidence and Argument

Noting especially Ms. Meaux's testimony that the landfill needed no special limitations on design, construction or operation based on geology or hydrogeology, OPIC was persuaded that the application adequately complies with applicable standards.

7. ALJ's Analysis

The ALJ finds Applicant adequately analyzed data regarding the site's hydrogeology. The borings and permeability tests sufficiently characterized Stratum III as the uppermost water-bearing zone. The soil borings were as deep as required by TCEQ's rules. They penetrated Stratum III and were at least five feet deeper than the deepest planned excavation. Seventeen borings were 30 feet below the deepest planned excavation, and some were as deep as 50 feet below the surface.

Even though water from soil borings went into the fractures in Stratum IV, there was so little water in that stratum that it was reasonable to conclude that water does not move within the fractures identified there. As Mr. Williamson testified, the mere presence of fractures in Stratum IV does not prove groundwater moves between the fractures in the stratum. The only boring log showing moisture in Stratum IV was at a depth of 74 feet, in the transition from Stratum III to Stratum IV. Also, the more convincing evidence proved that there are no hydraulically interconnected aquifers beneath Stratum III. At the very least, Stratum IV is a confining unit at its base and is the aquiclude underneath the site.

V. GROUNDWATER MONITORING SYSTEM

The current groundwater monitoring network extends into Stratum III, and Applicant contended that none of its investigations indicated the need to extend the network into Stratum IV. Protestants and OPIC disagreed. Because portions of Units 1 and 2 will be excavated into Stratum IV and the pollutant pathway could be in this stratum,[92] Protestants argued that groundwater monitoring wells around these two units need to be screened below the excavation area and into Stratum IV in order to comply with 30 TAC § 330.231. However, the ALJ finds groundwater monitoring into Stratum III will meet regulatory requirements.

A. Monitoring Well Rules

TCEQ rule 30 TAC § 330.231(a) requires the groundwater monitoring system to have a sufficient number of monitoring wells installed at appropriate locations and depths to yield representative samples from the uppermost aquifer. Upgradient wells must be sampled to establish background groundwater quality, and downgradient wells must be installed to detect contamination in the uppermost aquifer as the contamination passes the point of compliance. When physical obstacles preclude installation of the groundwater monitoring wells at existing units, the wells may be installed at the closest practicable distance hydraulically downgradient from the relevant point of compliance that will ensure detection of groundwater contamination of the uppermost aquifer.

The point of compliance is a vertical surface

> located no more than 500 feet from the hydraulically downgradient limit of the waste management unit boundary, extending down through the uppermost aquifer underlying the regulated units, and located on land owned by the owner of the facility.[93]

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[92] Tr. 1109 (Williamson).

[93] 30 TAC § 330.2 (98).

As required by rule 30 TAC § 330.231(e), the groundwater monitoring design must be based on site-specific technical information that includes a thorough characterization of the

> aquifer thickness;
> groundwater flow rate;
> groundwater flow direction, including seasonal and temporal fluctuations in flow;
> effect of site construction and operation on groundwater flow direction and rates; and
> hydraulic characteristics of geologic materials above, within, and below the uppermost aquifer.[94]

Furthermore an applicant must submit and receive TCEQ's approval of its soils and liner evaluation report before waste can be placed in the evaluated excavation.[95] Documentation must be sufficient to assure that the potential for groundwater contamination is minimized,[96] and the engineer of record must perform all field sampling and be onsite during the liner system's construction and testing.[97]

B. Should Wells Be Screened Below Excavation into Stratum IV?

1. Applicant's Evidence

The proposed groundwater monitoring network is depicted in App. Ex. 202 at 1752. Applicant first proposes changes to the existing groundwater monitoring system that was developed for Units 1 and 3. Currently, Applicant has monitoring well (MW) 1 (an upgradient well), MW-2, MW3, MW-4, MW-6, MW-7, and MW-8. Applicant proposes to plug and abandon two of these wells – MW-7 and MW-8 – and to add three new wells – MW-7A, MW-8A, and MW-9 – in the southernmost area of Unit 1. MW-8A and MW-9 are to be located between MW-4 and MW-6 , and

[94] 30 TAC § 330.231(e)(1).

[95] 30 TAC § 330.206(a)-(c).

[96] 30 TAC § 330.206(c).

[97] 30 TAC § 330.205(a)(2), (c)(1), and (c)(2).

MW-7A will be located between MW-3 and MW-4. Ms. Meaux testified that MW-2 will be moved approximately 500 feet to the southwest to better serve as a downgradient well, and it will be renamed MW-2A.[98]

A second system is planned for the new area, Unit 2, with 12 downgradient wells and two upgradient wells. With the changes to the existing system and the addition of wells in the proposed expansion, the facility would have 22 monitoring wells in Stratum III.[99]

The seven downgradient groundwater monitoring wells in the existing facility monitoring network will form the point-of-compliance boundary for Units 1 and 3. The 12 downgradient groundwater monitoring wells in the expansion area monitoring network will form the point of compliance boundary for Unit 2.[100]

Ms. Meaux did not recommend any monitoring wells that would extend into Stratum IV.[101] The Edwards Aquifer is more than 400 feet below the lowest proposed excavation for the expansion,[102] Mr. Meaux noted. When considering the strata that separate the facility from the aquifer, including Stratum IV – which has a vertical hydraulic conductivity of 6.1×10^{-9} cm/sec. – and the estimated life of the facility (approximately 57 years),[103] Ms. Meaux determined it will take about 3,000 to 4,000 years for a constituent to move from the facility to the Edwards Aquifer.[104]

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[98] App. Ex. 202 at 1736, 1739, and 1752; App. Ex. 400 at 35-36.

[99] App. Ex. 400 at 35-36.

[100] App. Ex. 202 at 1738-1739, 1747-50, 1752; Tr. 641 (Meaux).

[101] Tr. 566.

[102] App. Ex. 400 at 29; App. Ex. 202 § 6.2 at 1035-1036. As previously discussed, the Edwards Aquifer is the first perennial aquifer below the elevation of the deepest excavation (App. Ex. 202 at 1035).

[103] This period of time includes the active phase and the closure period.

[104] App. Ex. 202 at 1035-1036; App. Ex. 400 at 29-30.

Thus, Applicant argued, there is no potential for landfill constituents to migrate from the facility to the underlying aquifer during the active life, closure, and post-closure periods.

2. Protestants' Evidence and Arguments

Dr. Clark said the proposed groundwater monitoring system is inadequate because Applicant did not properly consider how groundwater moves more quickly through the geological fractures than is described in the application.[105] Specifically, he testified that MW-3 should be screened lower or an additional well should be installed next to MW-3 and screened into Stratum IV below the excavation.[106]

During 2001 and 2002, the contaminant 1,1-dichloroethylene (1,1-DCE) was detected four times in MW-3 at Applicant's site. Even though the contaminant has not been detected since December 2002, the three detections prove that the compound moved rapidly through the groundwater system, and the soils have significantly higher permeability than Applicant suggests.[107] Given the the groundwater flow velocity required for contaminant to travel to the well, Applicant did not adequately calculate the groundwater flow velocity in the application, Dr. Clark concluded. Data from the fault examinations should have be used to plan or adjust the location of adjacent monitor wells, in Dr. Clark's opinion.[108]

As previously mentioned, TJFA argued that the soil borings in this area were not properly investigated even though water was lost during drilling. The only information regarding groundwater movement in Stratum IV came from permeability tests previously conducted before Applicant built Unit 1. TJFA noted Ms.'s Meaux's testimony in which she said that these tests were

[105] TJFA Ex. 1 at 5, 9-10, *citing* TCEQ rules 30 TAC §§ 330.56(e)(4) and 330.235.

[106] Tr. 892-895.

[107] TJFA Ex. 1 at 8 and 10.

[108] TJFA Ex. 1 at 13.

unreliable.[109] Accordingly, Protestants asserted that the proposed groundwater monitoring system is unacceptable, because it failed to thoroughly characterize the aquifer thickness-groundwater flow rate; groundwater flow direction; effect of site construction and operation on groundwater flow direction and rates; and hydraulic characteristics of geologic materials above, within, and below the uppermost aquifer, as required by 30 TAC § 330.231(e)(1). In addition, they claim that the Applicant cannot know how deep the well screening around Unit 2 must be to detect groundwater contamination in the uppermost aquifer, as required by 30 TAC § 330.231(a)(2), without adequate information about Stratum IV.

3. ED's Evidence and Arguments

Mr. Williamson agreed with Applicant that Stratum III is the uppermost water-bearing zone, has greater vertical and horizontal hydraulic conductivity compared to the other shallow strata, and is the geologic unit most likely to serve as a pollutant migration pathway.[110] On the other hand, small portions of the landfill will be excavated into Stratum IV, and that stratum could possibly be a pathway for pollutants. It would be preferable for Applicant to screen MW-3 at least as deep as the landfill excavation, he added.[111] But because MW-3 is an existing well, the ED did not ask Applicant to make any changes to it.[112] In addition, the ED relied on Applicant's determination that contaminants have no potential to migrate to the Edwards Aquifer during the active life, closure, and post-closure care periods and found Applicant had validly designated Stratum III as the contaminant migration pathway.

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[109] Tr. 510.

[110] ED Ex. 8 at 7; Tr. 1109; App. Ex. 202 at 1055-1056.

[111] Tr. 1109, 1112-1113.

[112] Tr. 1112-1113.

4. OPIC's Argument

Citing the testimony of Dr. Clark and Mr. Williamson, OPIC recommended that the Applicant's proposed groundwater monitoring system be changed to require the screening depth of MW-3, as well as all other monitoring wells, be at least as deep as the landfill excavation in the area of the applicable wells.

5. ALJ's Analysis

Applicant's data and testimony proved that Stratum IV is not the uppermost water-bearing zone. Applicant has excavated into that stratum but the excavation did not yield groundwater. Because it does not contain enough water to be considered a water-bearing zone, Applicant is not required to monitor it. In addition, given the extensive soil borings and documentation of resulting findings, Applicant complied with 30 TAC § 330.231(e) in demonstrating the hydraulic characteristics of that stratigraphic unit.

Even though Mr. Williamson determined that the upper portions of Stratum IV could possibly be a contaminant pathway, the unit is so dense that the lower portion is a confining unit. As Mr. Meaux testified, contaminants that do reach Stratum IV will not reach the Edwards Aquifer for 3,000 to 4,000 years. Thus, the ALJ also finds that Applicant proved, by a preponderance of the evidence, that the proposed groundwater monitoring system will be adequate under 30 TAC § 330.231(a) if monitoring wells are screened into Stratum III.

C. Leachate Ponds and Unit 2

TCEQ requires the groundwater monitoring program to include consistent sampling and analysis procedures designed to ensure that monitoring results provide an accurate representation of groundwater quality at the background and downgradient wells, in compliance with 30 TAC

§ 330.231(a)-(c). The GWSAP must be protective of human health and the environment.[113] The owner or operator

> shall establish background groundwater quality in hydraulically upgradient wells or in background wells for each of the monitoring parameters or constituents required in the groundwater monitoring program . . . downgradient groundwater data shall not be adjusted by subtracting background groundwater data.[114]

If hydrogeologic conditions do not allow the owner or operator to determine which wells are hydraulically upgradient or if sampling at other wells will provide a better indication of background groundwater quality than is possible from upgradient wells, the owner or operator may sample wells that are not hydraulically upgradient to determine background groundwater quality.[115]

1. Protestants' Evidence and Arguments

TJFA criticized the application because no wells are proposed to be located between Unit 2 and the leachate evaporation ponds.[116] The Unit 2 downgradient monitor wells will be downgradient of both the landfill component of that unit and proposed leachate evaporation ponds.[117] According to Dr. Clark, this will make it more difficult to determine whether any detected contamination originates from the leachate evaporation ponds, Unit 2, or both.[118] Dr. Clark suggested that the pond and Unit 2 should each be monitored separately.[119]

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[113] 30 TAC § 330.233(d).

[114] 30 TAC § 330.233(e).

[115] 30 TAC § 330.231(a)(1).

[116] App. Ex. 202 at 1752, Drawing 5-1, Applicant Groundwater Monitoring Network; Tr. 1133.

[117] TJFA Ex. 1 at 5.

[118] TJFA Ex. 1 at 14; Tr. 1132-1134 (Williamson).

[119] TJFA Ex. 1 at 14.

Citing Ms. Meaux's and Mr. Williamson's testimony about the lack of space available between the leachate ponds and Unit 2 to properly install a monitoring well, CCL asked that other aspects of the design be adjusted to accommodate a well where it is needed.

2. Applicant's Evidence and Arguments

John Hultman, who holds bachelor's and master's degrees in geology and is a professional geoscientist in Texas, is a senior consultant for Tetra Tech MM.[120] He and his associates designed Applicant's GWSAP.[121] In Mr. Hultman's opinion, the procedures outlined in the GWSAP will allow Applicant to detect any release, assess the situation, and take any necessary corrective actions to protect human health and the environment.[122] Henry Kerfoot, a senior chemist with GeoSyntec,[123] stated that if contaminants are detected in the monitoring wells, Applicant could test the evaporation ponds for the contaminants to determine whether they came from the leachate ponds or from the waste unit itself.[124]

3. ED's Evidence and Arguments

The ED determined monitoring wells should not be required between Unit 2 and the leachate evaporation ponds. Mr. Williamson said the absence of a monitoring well between Unit 2 and the leachate evaporation ponds will make it harder to determine the source of any contaminants, but he also said that isotope studies could be used to try and differentiate the two sources of leachate.[125]

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[120] App. Ex. 600 at 4.

[121] App. Ex. 600 at 7. The GWSAP is in App. Ex. 202 at 2250 *et seq.*

[122] App. Ex. 600 at 11; Tr. 699-702.

[123] Tr. 1181; App. Ex. 800.

[124] Tr. 1200.

[125] Tr. 1134-1135.

4. OPIC's Evidence and Argument

OPIC agreed with TJFA that a monitoring well should be placed between Unit 2 and the proposed leachate evaporation ponds.

5. ALJ's Analysis

The ALJ finds that no monitoring well is required between Unit 2 and the leachate evaporation ponds. TCEQ requires consistent sampling and analysis procedures so that groundwater quality is accurately represented. Applicant adequately demonstrated that it will, with the wells planned, be able to detect any contaminants released and take necessary corrective actions. As Mr. Kerfoot testified, Applicant will be able to test the leachate evaporation ponds for the contaminants to determine their source. In essence, Mr. Williamson agreed with this conclusion. While the absence of a well between Unit 2 and the leachate evaporation ponds will place more of a burden on Applicant to identify the origin of a contaminant, Mr. Williamson also said that isotope studies could be used to try and differentiate the two sources of leachate.[126] Accordingly, the ALJ finds that no wells should be required between Unit 2 and the leachate evaporation.

D. Will Unit 3 Have Sufficient Monitoring Wells?

Similarly, TJFA noted that no upgradient well is proposed specifically for Unit 3, and the only downgradient well is MW-6, which also serves as the downgradient well for Unit 1. As such, any contamination detected by MW-6 could not be properly attributed to the correct disposal unit.[127] Therefore, TJFA asked the Commission to require additional monitoring wells around Unit 3 so that contaminants can be detected and attributed to the unit from which they came.

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[126] Tr. 1134-1135.

[127] Citing Tr. 635 (Meaux).

Applicant argued that no upgradient well is needed specifically for Unit 3. TCEQ's rules require the installation of "background" wells at a facility "to allow determination of the quality of groundwater that has not been affected by leakage from a unit,"[128] but the rules require neither separate background wells for each disposal unit nor background wells that are necessarily upgradient wells. Instead, the rules require background wells to be *hydraulically* upgradient of the facility.

Applicant has designated MW-1 as an upgradient well since its installation at the existing facility in 1992.[129] Because groundwater elevations are highest in the vicinity of MW-1 and decrease across the existing site toward well MW-6,[130] the point of compliance well for Unit 3,[131] MW-1 has served, and should continue to serve, as the background well for the existing facility, including Unit 3.

Applicant did not dispute that a leachate release from either Unit 1 or Unit 3 may initially flow in the same direction, depending on the area of the units from which the release originates.[132] On the other hand, Applicant argued that MW-6 will sufficiently monitor both units.[133] If a detection is made and confirmed, determining the exact origin of the release will be the focus of assessment monitoring, but Applicant is not required to confirm the origin of a release until one is confirmed.

The ALJ finds that MW-1 will provide background water quality for both Units 1 and 3 and that MW-6 will adequately serve as the downgradient well for both units. As previously discussed,

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[128] 30 TAC § 330.231(a)(1).

[129] App. Ex. 202 at 1048, 1054, 1065, 1321-22, 1736, 1739, 1747; Tr. at 602 (Meaux).

[130] App. Ex. 202 at 1054.

[131] Tr. at 641 (Meaux).

[132] *Citing* Tr. 598, 629-634 (Meaux); Tr. 1128-1131 (Williamson).

[133] Citing Tr. 598-634-635 (Meaux).

unless an Applicant is placed in assessment monitoring, it is not required to identify the specific source of contamination. The more convincing evidence supported Applicant's argument that MW-6 will adequately detect contaminants from both units. If more information is needed to identify the source of contaminants, the Commission can require that information through its assessment monitoring process.

E. Should MW-2 Be Replaced with MW-2A?

Applicant proposes to replace MW-2 with well MW-2A. Ms. Meaux testified that MW-2 is functioning as an upgradient well, not as a true downgradient well, the purpose it was intended to serve.[134] Based on the testimony in the record and the groundwater information in the application, Applicant argued that well MW-1 should retain its designation as an upgradient well, and MW-2 should be replaced with a true downgradient well, MW-2A. Wells along Kohlenberg Lane are neither required nor necessary, Applicant contended.

Based on the site's topography, TJFA said MW-2 is actually downgradient from an area further northeast and adjacent to Kohlenberg Lane near its intersection with FM 1101 (in the vicinity of piezometer [PZ] 1 and PZ-11).[135] CCL argued that, unless monitoring wells are installed along Kohlenberg Road, the facility will not be protective of human health.

For the ED, Mr. Williamson testified that groundwater does not always move by topographic means. Based on the potentiometric maps, he said water would not move from PZ 1 towards PZ-11 in the direction of Kohlenberg Lane.[136] Instead, it would move side-gradient with a slight emphasis back toward the landfill site.[137]

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[134] App. Ex. 202 at 1739; Tr. 599-600, 603-604, 608, 677-678 (Meaux).

[135] Tr. 607 (Meaux), 1125 (Williamson), App. Ex. 202 at 1752, Drawing 5-1.

[136] Applicant's potentiometric surface maps is in App. Ex. 202 at 1105.

[137] Tr. 1126-1127.

In the ALJ's opinion, the evidence demonstrates that MW-2 is functioning as an upgradient well. Because MW-1 provides background water quality, it is reasonable for Applicant to replace MW-2 with a downgradient well. Further, based on Mr. Williamson's testimony that water flows side gradient and slightly toward the landfill site, the ALJ agrees with Applicant that it is not necessary to place a monitoring well along Kohlenberg Road.

F. Will Wells Adjacent to Unit 1 Be Influenced by Water in Ponds A and B?

According to TJFA, sedimentation collection/stormwater Ponds A and B, located adjacent to Unit 1, act as retention ponds where water is stored for long periods of time. Thus, samples taken from wells near these ponds could be diluted and not properly show groundwater contamination from the landfill.[138] Ms. Meaux said the water in Pond A could possibly influence MW-2A, a nearby monitoring well.[139] Based on this statement, TJFA argued that Ponds A and B should be lined so that the surface water contained within them will not interfere with or influence groundwater movement or sampling.

Applicant pointed out that Ms. Meaux's response regarding Pond A influencing MW-2A was based on the premise that existing Pond A is a retention pond.[140] But Mr. Graves testified that Ponds A and B are detention ponds, designed to detain water temporarily and release it at a controlled rate.[141] In fact, he said Pond B is "really just a wide ditch."[142] It was not incorporated into the stormwater pond design model due to its small size and minimal storage capabilities, and its primary

[138] *Citing* 30 TAC § 330.231(a)(2); Tr. 591-592.

[139] Tr. 618-619.

[140] *Citing* Tr. 586-587.

[141] Tr. 75, 84.

[142] Tr. 137-138.

function is to serve as a sediment trap for higher frequency storms.[143] Ms. Meaux agreed. She said the ponds will have sloping bottoms, so as to funnel water to the pond outlet, and they will not retain water indefinitely.[144] In addition, she calculated Stratum III's vertical hydraulic conductivity to be 3.18×10^{-8} cm/sec. which demonstrates that it would take a very long time for water in the storm water ponds to percolate through Stratum III.[145]

Based on the evidence, the ALJ agrees with Applicant that Ponds A and B are not designed to retain water for long periods of time and will not influence the wells that monitor the area. While Ms. Meaux said there was a possibility that the stored water in Pond A could influence MW-2A, the more convincing evidence demonstrates that this result is unlikely since the ponds are designed for detaining, rather than retaining, water. Stratum III's low vertical hydraulic conductivity adds further assurance that the water will not influence MW-2A.

G. Was Applicant Required to Provide an Assessment Monitoring Report?

Rule 30 TAC § 330.235 requires assessment monitoring whenever a statistically significant change from background water quality has been detected for a constituent listed in TCEQ's rules. If a statistically significant change from background is detected, a landfill operator must establish an assessment monitoring program.[146]

MW-3 is located between existing Unit 1 and Mesquite Creek. The contaminant 1,1-DCE was detected at MW-3 four times during 2001-2002.[147] Three of the times, the level of groundwater contamination detected was at or above 0.007 milligrams per liter, which is the maximum

[143] App. Ex. 202 at 1857.

[144] Tr. 687.

[145] Tr. 686.

[146] 30 TAC § 330.234(d).

[147] Tr. 1136-1137 (Williamson); TJFA Ex. 3 at 9 (Clark).

containment level for 1,1-DCE.[148] Another time, the level was 0.0069.[149] However, none of the detections were confirmed in new samples taken within a month or two of each initial detection,[150] and Applicant was not placed in an assessment-monitoring status based on the detections. The contaminant has not been detected at the landfill since December 2002.[151]

During Applicant's rebuttal case, Mr. Kerfoot testified that, based on data from MW-3 and the gas probes near the well, the 1,1-DCE detections were due to landfill gas migration.[152] He described the landfill gas collection system as a series of wells placed in the waste to withdraw gas formed from decomposing organic matter. As gas pressure builds within the waste, the pressure pushes the gas through any permeable zone that might be in contact with the pressure. The gas then migrates laterally or even downward towards a place where it can be vented to the atmosphere.[153] The landfill gas collection system for the existing unit began operating in May 2002.[154] If landfill gas migration and its contact with groundwater in the vicinity of MW-3 caused the 1,1-DCE detection, it appears that the gas collection system abated the 1,1-DCE release, Mr. Kerfoot testified.[155]

Dr. Clark testified that the presence of 1,1-DCE was a statistically significant change from zero and should have triggered TCEQ's requirement for assessment monitoring.[156] In addition,

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[148] 30 TAC § 330.200(d)(8) (Table 1).

[149] TJFA Ex. 1 at 9-10.

[150] Tr. 1136-1137.

[151] Tr. 1141; TJFA Ex. 1 at 9-10.

[152] Tr. 1187-1188.

[153] Tr. 1190.

[154] Tr. 1193; App. Exs. 801-803.

[155] Tr. 1193-1994; App. Ex. 801.

[156] TFJA Ex. 3 at 10.

Dr. Clark said the rapid movement of the contaminant through the fracture-based groundwater system has important meaning for the hydrogeologic characterization of the expansion and indicates that Applicant did not fully evaluate the site.[157] Applicant's evidence did not contradict the fact of the 1-1, DCE detection; Mr. Kerfoot showed only that the contamination occurred before and during landfill gas exceedances.[158] Since 1-1,DCE has been detected at unacceptable levels and regardless of intermediate re-sampling results, Applicant should have included an assessment study and plume depiction in the application, TJFA argued.[159]

Although Mr. Williamson, testifying for the ED, agreed that 30 TAC § 330.235 does not provide an exception to the described assessment monitoring, he said most operators provide in their GWSAPs for re-sampling to confirm a detection. If a detected contaminant is not confirmed through re-sampling and if the GWSAP allows for re-sampling before a detection is confirmed, the ED does not require assessment monitoring.[160]

The ALJ was not convinced that the 1,1-DCE detections required Applicant to provide an assessment monitoring report. Had the detections been confirmed through re-sampling, assessment monitoring would have been required. But 1,1-DCE was not confirmed, and as Mr. Williamson testified, no assessment monitoring was instituted. Thus, Applicant was not required to submit an assessment monitoring report.

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[157] TJFA Ex. 3 at 10.

[158] App. Ex. 803.

[159] TJFA Ex. 3 at 10.

[160] Tr. 1140-1141.

H. Do TCEQ Rules Permit Recirculation of Contaminated Water?

TJFA noted that Applicant proposes to pump water from the leachate storage tanks into the leachate evaporation ponds across the creek next to Unit 2[161] and then to recirculate the water from the evaporation ponds onto Unit 2.[162] Since the recirculated water would necessarily include a mixture of leachate and contaminated water, which is not allowed to be recirculated onto a landfill unit,[163] they claim this procedure would violate rule 30 TAC § 330.56(o)(2), which provides that contaminated surface water and groundwater may not be placed in or on the landfill unit.

The application's leachate and contaminated water collection system is designed to collect and transport leachate and contaminated water via a piping system to storage tanks or evaporation ponds. Leachate and contaminated water will be co-mingled in a storage tank.[164] But Mr. Graves testified that leachate will be recirculated only on landfill areas that have a "prescriptive Subtitle D liner system." These areas include Unit 3, which has already been permitted but not yet built, and if the application is approved, Unit 2.

Contrary to TJFA's allegations, Applicant said it does not propose to recirculate contaminated water through the landfill. While commingling of leachate and contaminated water in storage tanks is provided for in the application, that storage is in full compliance with TCEQ's rules, Applicant argued. Applicant said it recognizes that commingled leachate and contaminated water cannot be recirculated through the landfill.[165] Indeed, the application expressly states that "recirculation of contaminated water (including contaminated water mixed with leachate) is not

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[161] App. Ex. 202 at 2556, Drawing 15-1; Tr. 230.

[162] Tr. 225-226.

[163] App. Ex. 202 at 2546.

[164] App. Ex. 202 at 1810-1811; Tr. 237-238.

[165] 30 TAC § 330.56(o)(2).

permitted."[166] Any leachate that is stored with contaminated water will be disposed of properly, pursuant to TCEQ's regulations and the application.[167] As Mr. Smith testified, Applicant has a demonstrated record of compliance with TCEQ's rules and fully appreciates its obligation to operate the Mesquite Creek Landfill in compliance with those rules.[168]

The ALJ notes that the Commission's rule affirmatively allows leachate recirculation onto a waste disposal unit if the unit has a liner that meets the requirements of 30 TAC § 330.299(a)(2). That rule requires a composite liner consisting of two components: the upper component consisting of a minimum 30-mil flexible membrane liner and the lower component composed of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. Therefore, any leachate recirculation must be on a unit with this type of liner. Based on the evidence, the ALJ finds that Applicant does not propose to improperly recirculate leachate.

VI. ADEQUACY OF GROUNDWATER AND SURFACE WATER PROTECTION PLAN AND DRAINAGE PLAN

A. Issues Related to Drainage

TJFA claimed that increasing the volume of runoff at discharge point E may result in significant alteration of drainage patterns downstream of the facility. It also asserted that unless Applicant analyzed current flooding on neighboring properties and the impact on downstream points, Applicant could not demonstrate whether the landfill's development will alter drainage patterns. Based on Applicant's evidence that flow velocity and peak discharge rates will be reduced by the use of stormwater retention ponds, the ALJ finds Applicant met its burden of proving drainage patterns will not be significantly altered.

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[166] App. Ex. 202 at 2546.

[167] 30 TAC § 330.56(o)(3); App. Ex. 202 at 2545-2546, 2552-2553.

[168] App. Ex. 100 at 9 (Smith).

1. Commission Rules and Guidance Document

Rules 30 TAC §§ 330.55(b)(5)(D) and 330.56(f)(4)(A)(iv) require an applicant to demonstrate in its Site Development Plan that natural drainage patterns will not be significantly altered as a result of the proposed landfill development. In June 2004, the Commission issued Technical Guidance Document RG-417, "Guidelines for Preparing a Surface Water Drainage Plan for a Municipal Solid Waste Facility."[169] Although the document is not intended to be used as a rule or Commission policy, it is designed to assist applicants in complying with the rules.[170] According to the document, determination of whether drainage patterns have been significantly altered is made on a case-by-case basis and based on professional judgment.[171] Typical methods by which an applicant may meet its burden of proof on this issue include demonstrating that:

- There is no increase in volume at a discharge point.
- The additional volume will be released at a rate that will not significantly affect the downstream receiving water body. For example, the total volume increase may be 30 percent more for the post-development condition, compared to the pre-development condition. However, this increase may be demonstrated to be "not significant" if it can be shown that the additional volume of water will be released at a rate that will not adversely affect the downstream water body.
- Storm water retention ponds will be used.
- Any change in the volumes of water discharged from the permit boundary discharge points will not have a significant adverse effect on downstream water rights and uses.[172]

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[169] App. Ex. 209.

[170] App. Ex. 202 at 2.

[171] App. Ex. 209 at 3.

[172] App. Ex. 209 at 4.

2. Applicant's Evidence and Argument

Applicant's pre- and post-development runoff volumes are provided in Part III, Attachment 6 of the application.[173] Mr. Graves testified that the storm water analysis complies with the requirements in 30 TAC § 330.56(f).[174] He explained that increased volumes of storm water runoff resulting from the landfill's development will be detained and discharged at the site's drainage points in a controlled manner; runoff will not significantly alter natural drainage patterns.[175] At all discharge points, peak flow will be reduced by the use of the ponds or through other methods. Mr. Graves said he is confident there will be no significant impact to drainage patterns.[176]

In the pre-development condition,[177] storm water is being discharged at point E at a peak discharge rate of 43 cubic feet per second (cfs).[178] The proposed detention ponds and other storm water management features will reduce this peak discharge rate from 43 cfs to 21 cfs.[179] Mr. Graves determined that the maximum flow velocity for storm water discharging from point E will be significantly reduced, from 4.25 feet per second (ft/s) to 3.55 ft/s.[180] Thus, the peak flows will be reduced by almost one-half from the natural conditions to the post-development conditions.[181]

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[173] App. Ex. 202 at 1820, Table 3.5.1-3.

[174] App. Ex. 202 at 43.

[175] Tr. 345-346.

[176] Tr. 203-204; 347-348.

[177] App. Ex. 202 at at 47; Tr. 74-75.

[178] App. Ex. 202 at 1820, Table 3.5.1-2.

[179] App. Ex. 202 at 1820, Table 3.5.1-2; Tr. 297, 346-347, and 352.

[180] App. Ex. 202 at 1821, Table 3.5.1-5.

[181] Tr. 352.

In response to TJFA's cross-examination, Mr. Graves acknowledged the importance of determining the timing of storm water discharge because storm water leaving the site would combine with that occurring off-site.[182] But, he could not state how deep the water in the natural drainage course would rise in response to various flood events[183] or whether the surrounding properties currently flood when it rains.[184] Nevertheless, Mr. Graves said the landfill's storm water discharge would not hurt surrounding properties because he has designed the drainage plan to have lower peak flows during a 25-year, 24-hour storm event than the site currently has.[185]

Applicant argued that it had demonstrated the proposed increase in storm water runoff volume at point E would not significantly alter natural drainage patterns. While the volume of storm water discharging at point E would increase following the proposed development, that increased storm water would be detained (*i.e.*, attenuated) by the detention ponds and released at the facility boundary at lower peak-flow rates and velocities than those occurring today or in the natural drainage condition. Therefore, Applicant contended, the application demonstrated that natural drainage patterns will not be significantly altered as a result of the proposed landfill development. Furthermore, Applicant argued that an analysis of storm water discharges downstream of the facility is not relevant to any statutory or regulatory requirement.

3. TJFA's Arguments

TJFA argued that the landfill design in which drainage from certain areas is to be diverted away from its natural pathways and redirected towards others would create a significant increase in run-off volume at discharge point E.[186] Even though Mr. Graves said the increased run-off volume

[182] Tr. 290-291.

[183] Tr. 351.

[184] Tr. 352.

[185] Tr. 352-353.

[186] App. Ex. 202 at 1819, Table 3.5.1-1, and at 1820, Table 3.5.1-3.

at discharge point E would not be significant because the associated peak discharge would be reduced at that point,[187] he agreed that the discharge is an important factor because storm water leaving the site would combine with storm water occurring off-site. Since Mr. Graves did not know the timing and quantity of storm water leaving discharge point E as it would combine with storm water off-site and and downstream, TJFA concluded that Mr. Graves could not have accurately determined the landfill's drainage impact.

4. ED's Evidence and Argument

A senior general engineering specialist for TCEQ, Pladej Prompuntagorn, reviewed the application. Mr. Prompuntagorn holds a bachelor's degree in chemical engineering with a minor in environmental engineering. Since 1987, he has worked in a variety of positions that required him to develop and analyze environmental data.

In Mr. Prompuntagorn's opinion, Applicant's surface drainage plan demonstrated that no existing or natural drainage patterns would be significantly altered as a result of the proposed facility expansion.[188] Relying on the application and testimony from Mr. Graves and Mr. Prompuntagorn, the ED agreed with Applicant that it had met all regulatory requirements related to surface water protection and drainage.

5. OPIC's Argument

OPIC also determined the Applicant had met its burden of proving the proposed landfill expansion will not significantly alter natural drainage patterns.

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[187] Tr. 346-348.

[188] ED Ex. 3 at 21.

6. ALJ's Analysis

The ALJ finds that the application complies with the Commission's guidelines as well as with the applicable rule. The June 2004 guidelines acknowledge that an increase in volume may be mitigated by controlling the rate of discharge. With its drainage plan, Applicant successfully demonstrated how it will mitigate the change in storm water volume by holding the water in its detention ponds or diverting the water to other areas and controlling the discharge rate. As a result, natural drainage patterns would not be significantly altered as a result of the proposed landfill expansion, and the facility's construction and operation should have no significant adverse effect on downstream water rights and users.

In addition, *In the Matter of the Application of Blue Flats Disposal, L.L.C., for Proposed Permit No. MSW-2262*, SOAH Docket No. 582-98-1390, TNRCC Docket No. 98-0415-MSW (Jan. 2, 2001), the Commission determined that the issue of whether the receiving body of water is affected is to be addressed at the point of discharge, not by analyzing any points downstream of the proposed facility as suggested by TJFA. Analyzing the same rule language as in this case, the ALJs in *Blue Flats* concluded it might be appropriate to examine drainage impacts "beyond the permit boundary of the proposed landfill."[189] The Commission disagreed. It specifically rejected the ALJs' Proposed Findings of Fact related to off-site analysis of stormwater or surface-water drainage "because Commission rules and precedent require that the determination of significant alteration be made at the permit boundary, not off site."[190] That issue was revisited and confirmed by the TCEQ in *In re Application of North Texas Municipal Water District for Municipal Solid Waste Permit No. MSW-2294*, SOAH Docket No. 582-02-3386, TCEQ Docket No. 2002-0745-MSW (Finding of Fact No. 105 and Conclusion of Law No. 27) (October 20, 2003).[191]

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[189] *Blue Flats* Proposal for Decision at 31.

[190] *An Order Denying the Application of Blue Flats Disposal, L.L.C., for Permit No. MSW-2262* at 8 ("Explanation of Changes to the ALJs' Proposed Findings of Fact and Conclusions of Law") (January 2, 2001).

[191] *See also North Texas Municipal Water District* Proposal for Decision at 29.

Therefore, Applicant successfully demonstrated that natural drainage patterns would not be significantly altered as a result of the proposed landfill expansion. The application complies with 30 TAC § 330.56(f)(4)(A)(iv).

B. ISSUES RELATED TO FLOODING

1. Applicable Rules

The TCEQ rules require an applicant to identify whether a landfill will be located within a 100-year floodplain.[192] Floodplains are lowland and relatively flat areas adjoining inland and coastal waters, that are inundated by a 100-year flood.[193] An applicant must indicate the source of all floodplain data and "include a copy of the relevant Federal Emergency Management Agency (FEMA) floodplain map, if used, or the calculations and maps used where a FEMA map is not available."[194] No solid waste disposal and treatment operations are permitted in areas located in a flood way as defined by FEMA.[195] The landfill design may not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in the washout of solid waste so as to pose a hazard to human health and the environment.[196]

2. Protestants' Arguments

CCL argued the application is deficient in its failure to fully consider the impact the landfill will have on Mesquite Creek, Freedom Lake, and York Creek. CCL argued that by placing the landfill in a floodplain, Applicant will endanger the citizens who live along those bodies of water.

[192] 30 TAC § 330.56(f)(3), 30 TAC § 330.56(f)(4)(B)(i), and 30 TAC § 330.301.

[193] 30 TAC § 330.2(48).

[194] 30 TAC § 330.56(f)(4)(B)(i).

[195] 30 TAC § 330.56(f)(4)(B)(iii).

[196] 30 TAC § 330.301.

As characterized by TJFA, Applicant failed to determine the 100-year floodplain of Mesquite Creek as it passes through the site. Applicant relied on the FEMA floodplain map[197] to conclude the site is not within the floodplain, but the map fails to specifically identify whether or not the site is in the 100-year floodplain associated with Mesquite Creek. And the creek, which run through Applicant's site, is within Freedom Lake's flood pool. Mr. Graves admitted that Mesquite Creek would spill out of its normal banks during a 100-year flood, an indication of the presence of a floodplain.[198] TJFA argued that FEMA does not study, identify, and map the floodplain of every creek or stream in the country, and neither Mr. Graves nor Mr. Prompuntagorn knew whether or not FEMA had analyzed the floodplain for this creek. Therefore, TJFA concluded, Applicant was required to conduct its own floodplain analysis in order to comply with TCEQ's rules.

Mr. Graves did not conduct a floodplain analysis, but he performed a hydraulic analysis of the stream and determined the landfill will not significantly restrict a 100-year flood as it passes through the site in Mesquite Creek.[199] But, TJFA argued, the calculations were inadequate because, Mr. Graves did not consider the downstream features, such as Kohlenberg Lane and Freedom Lake, when developing them.[200] For these reasons, TJFA seeks denial of the application.

3. Applicant's Evidence and Arguments

Applicant acknowledged that Mr. Graves did not independently determine whether the site is in a 100-year floodplain.[201] But referring to the FEMA map,[202] Mr. Graves testified that neither

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[197] App. Ex. 202 at 182 and 631.

[198] Tr. 381-382.

[199] Tr. 158-162; App. Ex. 202 at 2107 *et seq.*

[200] Tr. 158-163; 172-173; 177, 179-180.

[201] Tr. 177.

[202] App. Ex. 202 at 182.

the landfill's existing nor proposed expansion areas are within FEMA's 100-year floodplain designation.[203] The use of a FEMA map to determine floodplain information is common in the industry, and TCEQ typically accepts such maps as reliable sources for floodplain information, he added.[204]

Moreover, Mr. Graves identified two drainage features on the site that are important to consider in regard to possible flooding: Mesquite Creek and the Freedom Lake flood pool. Mesquite Creek flows east-northeast along the southern boundary of the existing facility, and Mesquite Creek flows across the middle of the proposed expansion.[205] The central portion of the site, where Mesquite Creek flows, is within the flood pool of the downstream Freedom Lake, and Freedom Lake is about 2,260 feet downstream from the facility.[206] Two storm water ponds, one existing and one proposed, will be partially within the upper elevations of the flood pool. Mr. Graves said there are two extremes related to these features that could happen during a 100-year flood: (1) if Freedom Lake is relatively empty when the flood event occurs, the flood in Mesquite Creek would pass through the facility without being impeded by the downstream lake; or (2) the storm could cause the water in Freedom Lake to back up onto the facility property.[207]

If a 100-year storm causes waters in Freedom Lake to back up onto the property,[208] water will backflow into the stormwater ponds through their principal spillway pipes.[209] Also, the earthen

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[203] App. Ex. 200 at 48.

[204] Tr. 151.

[205] App. Ex. 200 at 49.

[206] Tr. 207-208.

[207] App. Ex. 200 at 49.

[208] App. Ex. 200 at 49.

[209] App. Ex. 200 at 50.

berms surrounding Pond 1 will slightly reduce Freedom Lake's flood storage volume, and excavation to create the pond itself will add even more storage.

Mr. Graves said the elevation of a rise related to a 100-year storm would be 600 to 602 ft/msl, and that level is well below the planned elevation of expansion-related embankments.[210] The central portion of the site, where Mesquite Creek flows, is within the flood pool of the downstream Freedom Lake. Freedom Lake has a spillway elevation of 603.1 ft/msl, and the flood pool elevation at the site is 605.1 ft/msl. Applicant plans to build up the perimeter road surrounding the existing landfill adjacent to Mesquite Creek to a minimum elevation of 608.1 ft/msl to provide three feet of freeboard above the Freedom Lake flood pool.[211] In performing his calculations, Mr. Graves did not consider the impact of features downstream of the site because, he reasoned if a downstream feature such as Kohlenberg Lane or Freedom Lake causes water to back up onto Mesquite Creek, then the downstream feature – not the landfill – would have restricted the flow.[212] Based on these plans, Mr. Graves concluded that expansion would not restrict the flow of a 100-year flood event nor allow flood waters to encroach on the waste disposal areas.

Applicant argued that the applicable regulatory requirements regarding floodplains were satisfied with the introduction of the FEMA map that showed the site was not located in a 100-year floodplain. Moreover, Applicant relied on Mr. Graves' calculations to argue that the landfill would not reduce the storage capacity of the Freedom Lake flood pool; the perimeter areas have sufficient freeboard extending above the flood pool; and no waste disposal operations are proposed within the flood pool.

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[210] App. Ex. 200 at 49-50.

[211] App. Ex. 200 at 52.

[212] Tr. 163-165, 172, 185, 195.

4. ED's Evidence and Arguments

Relying on the FEMA map, Mr. Prompuntagorn agreed that no waste disposal units exist or are proposed within the 100-year floodplain,[213] even though the central portion of the site, where Mesquite Creek flows, is within the flood pool of the downstream Freedom Lake. But, Mr. Prompuntagorn said Freedom Lake has a low outlet structure, which means the water levels prior to the 100-year storm will be low.[214] Pond 1 is designed to have culverts that drain at the bottom of the pond. Storm water entering the pond from the flood pool through culverts or from landfill storm water run-off will be discharged at a slower rate than in pre-development conditions. To add more storage capacity, Pond 1 will be excavated mostly outside Freedom Lake's flood pool.[215]

In light of this evidence, Mr. Prompuntagorn concluded the landfill will not restrict the flow of a 100-year flood, reduce the flood pool's temporary water storage capacity, or result in washout of solid waste so as to pose a hazard to human health or the environment;[216] and the ED argued that the application complies with pertinent TCEQ rules.

5. OPIC's Argument

OPIC highlighted testimony regarding the acceptable use of a FEMA map to determine floodplain information and noted that the map does not show the site is located within a

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[213] ED Ex. 3 at 19.

[214] ED Ex. 3 at 20-21.

[215] ED Ex. 3 at 20.

[216] ED Ex. 3 at 19.

floodplain.[217] The landfill will not significantly restrict the flow of a 100-year flood,[218] reduce the floodplain's temporary storage capacity,[219] or require the construction of any levees or other improvements for protection from a 100-year flood.[220] Based on this evidence, OPIC concluded that the application satisfies TCEQ requirements regarding flooding.

6. ALJ's Analysis

The ALJ finds Applicant met its burden of proof on the floodplain issues. Indeed, the relevant rules indicate that a FEMA map is acceptable to establish floodplain parameters, and Mr. Graves said it is customary and generally acceptable to TCEQ to rely on the FEMA map to determine floodplain areas.

While Mr. Graves admitted that Mesquite Creek has floodplain characteristics and is within Freedom Lake's flood pool, his calculations adequately demonstrated that the landfill design will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in the washout of solid waste so as to pose a hazard to human health and the environment.

Also, the ALJ was not convinced that Applicant was required to consider the impact on downstream Kohlenberg Lane and Freedom Lake in developing the stream hydraulic analysis, particularly because the peak discharge coming from Applicant's property will be lowered through development. Consequently, Applicant has demonstrated that the site will handle the runoff required. In the ALJ's opinion, the evidence demonstrated that the landfill would comply with requirements regarding protections from flooding.

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[217] *Citing* ED Ex. 3 at 20.

[218] *Citing* Tr. 162.

[219] *Citing* App. Ex. 200 at 51.

[220] *Id.* at 51-52.

VII. COMPLIANCE WITH GEOTECHNICAL REQUIREMENTS, INCLUDING SLOPE STABILITY

The application contains a series of slope stability analyses that indicate the relative stability of excavation slopes and constructed soil slopes for the landfill. Applicant offered the testimony of Dr. Beth Ann Gross, who stated that the waste slopes proposed for the facility will be stable. CCL and TJFA argued that the slope stability analysis is deficient and the waste slopes will not be stable. Based on the evidence, the ALJ concludes that Applicant established that the slopes will be stable.

A. Applicable Rules

Slope stability is addressed in the TCEQ's rules only peripherally. Rule 30 TAC § 330.205 (a) and (e) requires that, absent the ED's prior approval of alternate construction procedures, "all constructed soil liners shall be keyed into an underlying formation of sufficient strength to ensure stability of the constructed lining." Factors to consider in evaluating the liner system include foundation conditions, the liner system's weight, ballast, surrounding soils, testing to determine whether the system will uplift, and areas that may be susceptible to mass movement.[221] Rule 30 TAC § 330.305 defines an unstable area as a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of a landfill's structural components responsible for preventing releases from the landfill. Owners or operators of a landfill located in an unstable area must demonstrate that the integrity of the structural components will not be disrupted.[222]

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[221] 30 TAC §§ 330.203(a), (b) and(d); and 330.305.

[222] The owners and operators must consider, at a minimum, on-site or local soil conditions that may result in significant differential settling; geological or geomorphologic features; and human-made features or events (both surface and subsurface). 30 TAC § 330.305.

B. Applicant's Evidence and Arguments

Dr. Gross, Ph.D., P.E., prepared the slope stability analysis, in which she evaluated the potential for portions of the landfill foundation or rows to move.[223] She is a professional engineer in ten states, including Texas, and her doctorate is in geoenvironmental engineering.[224] Dr. Gross calculated factors of safety, which indicated how safe the waste slope design was.[225] She said a factor of safety is a ratio of resisting forces compared to driving forces. If the driving forces are greater than the resisting forces, there will be some movement, even if it is only minimal slippage or slump, until the mass that was moved becomes stable.[226] When waste is placed too steep or too high, the waste can move along the liner system upon which it is placed.[227] Minimum acceptable safety factors for slope stability depend on project-specific conditions and uncertainties.[228]

Dr. Gross said she used a lower safety factor when parameters showed more stability.[229] The target calculated factor of safety for interim conditions is 1.25 and for long-term conditions is 1.5, but for Unit 1, she used a 1.25 factor of safety for final landfill slopes because project-specific liner testing and measured strength parameters demonstrated the safety of this slope. However, for large-displacement strengths, she used a 1.0 target safety factor for short-term conditions and 1.15 for

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[223] Tr. 725.

[224] App. Ex 500 at 3-6.

[225] Tr. 748. The minimum strength values for the linger and final cover systems are incorporated into the Soil and Liner Quality Control Plan (SLQCP), App. Ex. 202, Attach. 10 at 2152 *et seq.* and the Site Development Plan, Attach. 12 at 2321 *et seq.*

[226] Tr. 748-749.

[227] Tr. 727.

[228] App. Ex. 202 at 1622.

[229] Tr. 761.

long-term conditions.[230] For all conditions evaluated, Applicant's calculated factor of safety was greater than or equal to the minimum target factor of safety.

C. ED's Evidence and Arguments

Although Mr. Prompuntagorn said he had no particular expertise regarding slope stability,[231] he testified that the ED generally accepts 1.25 as a minimum slope safety factor.[232] However, a staff engineer went to a class on slope stability, and afterwards advised Mr. Prompuntagorn that, for a large displacement, a factor of 1.0 is acceptable.[233] Relying on the engineer's advice, Mr. Prompuntagorn determined Applicant's slope stability calculations complied with TCEQ's rule and showed the liners would have an underlying formation of sufficient strength to ensure the lining's stability.[234]

Citing Mr. Prompuntagorn's testimony, the ED characterized Applicant's calculated safety factors as conservative and determined that Applicant had demonstrated its proposed final cover slopes would be stable under the conditions analyzed.[235] According to the ED, the landfill site will continue to comply with TCEQ rule 30 TAC § 330.205(e).

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[230] App. Ex. 202 at 1622.

[231] Tr. 1010, 1013, 1018.

[232] Tr. 1011, Tr. 1014-1018.

[233] Tr. 1012-1013.

[234] ED Ex. 3 at 22; 30 TAC § 330.205(a).

[235] *Citing* ED Ex. 3 at 22; App. Ex. 202 at 1620 *et seq.* (Slope Stability Analysis).

D. Protestants' Arguments

Protestants asserted the waste slope will be unstable. Since the ED's policy is to require a 1.25 minimum acceptable safety factor for slope stability, they claim the Applicant should not be allowed to build slopes based on lower safety factors. Even though Mr. Prompuntagorn said a large displacement slope could have a lower factor and be safe, he could not identify the source of his information, other than to say a TCEQ staff person had attended a seminar where this was discussed. And Dr. Gross could not identify a guideline from which she determined what a minimum factor of safety would be; instead, she said she relied on a range of documents without naming a particular one.[236] Thus, Protestants argued, the application does not provide competent information to show that the landfill slopes will be stable.

E. OPIC's Arguments

OPIC determined that Applicant had met the geotechnical requirements, including those pertaining to slope stability. In particular, OPIC relied on Mr. Prompuntagorn's determination that the slope stability analysis was sufficient.

F. ALJ's Analysis

The ALJ finds Applicant's slope stability analysis demonstrated that the waste slopes will be stable. The Commission's rule requires soil liners to be keyed into an underlying formation of sufficient strength to ensure stability of the constructed lining. Applicant considered the required factors in developing its SLQCP and demonstrated through Dr. Gross's testimony that liner system will have adequate foundation conditions, weight, ballast, and surrounding soils so that it will not uplift. Dr. Gross was a well-qualified witness, and her testimony on the slope stability calculations was credible. Her expert opinion was sufficient to prove the point, without the offering of the

[236] Tr. 742, 746.

documents she relied on, especially when there was no evidence to contradict her opinion. Therefore, the ALJ finds Applicant has met its burden of proving compliance with geotechnical requirements, including slope stability.

VIII. ADEQUACY OF SOP AND FACILITY ENTRANCE DESIGN

A. Operating Hours

TCEQ rule 30 TAC § 330.118 provides that operating hours within the 7:00 a.m. to 7:00 p.m. span do not require specific approval. The ED may approve alternate operating hours for special occasions, special purpose events, holidays, or other special occurrences.[237] Don Smith, Applicant's Market Area General Manager, testified that Applicant does not intend to accept waste 24 hours a day, seven days a week, but wants the flexibility allowed by those operating hours to be able to serve the community in the event of an emergency or equipment failure.[238] Therefore, Applicant requests and the Draft Permit provides that "receipt of waste and for all landfill related operations at this municipal solid waste facility shall be Monday through Sunday, 24 hours per day."

To minimize any impact to surrounding landowners that the longer operating hours could have, Applicant plans to have a minimum 125-foot buffer between the perimeter boundary of the proposed expansion area.[239] No unloading, processing, storage, or disposal activities will occur within the buffer zone.[240] Further, Applicant's SOP outlines screening provisions that will provide an additional buffer against any light or noise when facility operations are conducted after dark.

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[237] App. Ex. 202 at 2847; Tr. 34.

[238] Tr. 34-37, 39-40 (Smith).

[239] Ex. App. Ex. 200 at 38 (Graves); Ex. App. Ex. 202 at 2850 and 998.

[240] Ex. App. Ex. 200 at 38 (Graves); Ex. App. Ex. 202 at 2850.

CCL is strongly opposed to the requested operating hours because of the impact continuous operations would have on nearby residents. CCL's fact witnesses were concerned about lights, noise, and traffic if the facility is operated 24 hours a day.[241] Further, they noted that the settlement agreement between Guadalupe County and Applicant provides in Section 2.2:

> Under the Proposed Permit, WMT [Waste Management of Texas] has requested and intends to extend its Landfill operations hours from 4:00 a.m. to 8:00 p.m., Monday through Friday and 4:00 a.m. through 3:00 p.m. on Saturday. In the event of emergency conditions or a disaster declared by the President, the Governor, or the County Judge of Guadalupe or Comal County, WMT may extend its hours of operation on a temporary basis to meet the needs of the local, state, federal governments and/or citizens. If WMT intends to change its hours of operation on a permanent basis, WMT will notify the County at least twenty (20) days in advance of the change, provide the reason(s) for the change, and obtain the County's approval, which shall not be unreasonably withheld.[242]

CCL argued that, since Applicant is a party to this agreement, the Draft Permit should include the limitations stated in the agreement.

TJFA contended that extended operating hours are not needed because the landfill has been operating for almost 30 years under standard operating hours,[243] and Applicant does not intend to actually accept waste 24 hours a day, seven days a week.[244] Moreover, Applicant has entered into a settlement agreement with Guadalupe County in which the operating hours requested in the application have been changed.[245]

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[241] Ex. CCL 1 at 3 (Schwarzlose); Ex. CCL 2 at 3 (Langford); Ex. CCL 3at 3 (Taylor); Ex. CCL 4 at 3 (Holtman).

[242] CCL Ex. 5 at 2.

[243] Tr. 36-37 (Smith).

[244] Tr. 35.

[245] CCL Ex. 5.

The ED's witness, Mr. Prompuntagorn, testified that he was generally aware of the settlement agreement between Applicant and Guadalupe County, but he did know the details of it.[246] If the agreement limits the operating hours, the permitted operating hours should be limited to what is stated in the agreement,[247] Mr. Prompuntagorn added.[248] In its brief, the ED said Applicant has not filed a request to change the proposed operating hours of 24 hours a day, seven days a week, and the ED recommended approval of the continuous operating hours.

Noting Mr. Prompuntagorn's testimony that the Draft Permit should reflect any limitation agreed to in the settlement document, OPIC asked that the the Draft Permit be changed to reflect those operating hours.

The ALJ recommends that the Draft Permit be changed to include the operating hours in the settlement agreement. Even though Applicant plans buffer zones around the premises, continuous operations could be disturbing to nearby residents. The operating hours in the settlement agreement provides Applicant with several more hours per day for landfill activities than the current SOP does, and there was no evidence that normal operations demand longer hours. As TJFA point out, Applicant has been operating for many years from 7:00 a.m. to 7:00 p.m. In the event of an emergency, Applicant can request the ED's permission to extend its hours on a temporary basis. There was no evidence indicating the waste management operations demand longer hours. As a result, the ALJ recommends a change to the Draft Permit that would permit Applicant to operate in accordance with the settlement agreement's terms.

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[246] Tr. 1033.

[247] Tr. 1034.

[248] Tr. 1035.

B. Fire Protection

A landfill's SOP must identify the fire protection standards to be used and state how personnel will be trained.[249] The owner or operator must have sufficient on-site equipment "to place a six-inch layer of earthen material to cover any waste not already covered with six inches of earthen material within one hour of detecting a fire."[250]

A table in Applicant's fire protection plan[251] describes a working face of 400 by 400 feet as the typical maximum, and Applicant will have enough equipment on hand to cover a 200 by 200 foot area.[252] Thus, TJFA argued that the proposed equipment can cover only one-half of the landfill's typical working face, and Applicant failed to demonstrate it will comply with the rule. TJFA asked the Commission to require more equipment or to limit the size of the working face to match the fire-fighting needs.

TJFA also noted that the SOP requires coordination with the local fire department.[253] But the application does not list the name of the fire department in the area, and Applicant's witness on this issue, Scott Graves, could not name that fire department. Similarly, CCL asserted it is essential for Applicant have sufficient equipment and manpower on-site to fight any fires.

Mr. Graves testified that Applicant plans to cover portions of the working face with soil throughout the day, as filling operations are completed in one area of the working face and expanded

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[249] 30 TAC § 330.114(6).

[250] 30 TAC § 330.115.

[251] App. Ex. 202 at 2829-2842.

[252] App. Ex. 20 at 2839-2840.

[253] App. Ex. 202 at 2837.

into another.[254] Only part of the working face will be uncovered at any given time.[255] To calculate the amount of equipment necessary, Mr. Graves used an area of 200 by 200 feet, which amounts to half a day's typical uncovered working face.[256]

Applicant plans to have a CAT 627F scraper for excavating and transporting soil and a CAT D7 bulldozer for moving and placing soil and waste or functionally-equivalent equipment.[257] This equipment can move 810 cubic yards of soil in an hour, which is less than the 740 cubic yards needed to cover a 200 by 200 feet area in one hour.[258]

If facility personnel plan to operate with a larger-than-planned uncovered area, Mr. Graves said they will need to run the example equipment calculation in the SOP to determine whether the additional equipment will be needed to comply with the rule.[259] The SOP affirms that Applicant will add equipment as necessary to meet operational requirements.[260]

Applicant noted that the SOP also requires site employees to be trained in control of small fires and to promptly extinguish them. Further, the SOP requires employees to contact the local fire

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[254] Tr. 254.

[255] Tr. 254; App. Ex. 202 at 2840.

[256] Tr. 254-256; App. Ex. 202 at 2840-2841.

[257] App. 202 at 2829, Table IV-3; Applicant will also have a 2,500 gallon water truck on site. App. 202 at 2830-2831.

[258] App. 202 at 2840-2841.

[259] App. Ex. 202 at 2829-2830.

[260] App. Ex. 202 at 2830-2831.

department by calling 911, if they deem it necessary,[261] and to contact the local fire department "immediately" by telephoning 911 if their fire-fighting methods cannot extinguish the fire.[262]

Mr. Prompuntagorn agreed with Applicant's proposal of having one bulldozer and one scraper or compactor on site as an acceptable minimum for a working face of 200 by 200 feet.[263] And he emphasized that the entire working face will not be uncovered at one time. Based on the SOP and testimony, the ED found the planned fire-fighting equipment will be sufficient.

OPIC also was persuaded by the SOP and testimony offered by Mr. Graves and Mr. Prompuntagorn that the proposed equipment will be acceptable for protecting an area of 200 by 200 feet in the event of a fire.

The ALJ finds Applicant met its burden of proof on this issue. Mr. Graves' testimony adequately clarified the SOP's statement regarding a typical working face. No other witness contradicted his testimony regarding the practice of covering the working face throughout the day. Therefore, based on his calculations, facility personnel should be able to cover the open part of the working face with six inches of soil within one hour. The ALJ also acknowledges that Applicant has committed to coordinate with the appropriate local fire department and can later determine whether the same department that currently serves Applicant or another one will provide service in the future.

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[261] App. Ex. 202 at 2838.

[262] App. Ex. 202 at 2839.

[263] Tr. 1033.

C. Texas Department of Parks and Wildlife Recommendation

A landfill may not be used or operated in a manner that endangers the environment.[264] If an MSW application may involve endangered species, the Commission must solicit comments from, and consider information provided by, the Texas Parks and Wildlife Department (TPWD).[265] Neither a facility, nor the manner in which it is operated, can destroy or adversely modify the critical habitat of endangered or threatened species or cause or contribute to the taking of them.[266] For this case, the distinction between a species defined as endangered or threatened[267] as compared to those species defined as rare is important. The Commission is required to consider a facility's possible impact on endangered or threatened species but not rare species.[268]

In this case, the Mountain Plover, a rare, migrating bird, is the species of interest. Mountain Plovers nest on high plains, shortgrass prairies, and in shallow depressions during their breeding season. When they are not breeding, the species can be found on shortgrass plains and bare, plowed fields.[269]

Applicant's expert, Barbara Castille with S&B Infrastructure, Ltd., conducted the endangered-and-threatened-species assessment for the existing facility and the proposed expansion area. Ms. Castille has bachelor's and master's degrees in biology and a second bachelor's degree

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[264] 30 TAC § 330.5(a)(3)(a).

[265] 30 TAC § 330.11(i).

[266] 30 TAC § 330.53(b)(13)(B); 30 TAC § 330.129.

[267] 30 TAC § 330.2(41).

[268] 30 TAC § 330.53(b)(13)(B).

[269] App. Ex. 202 at 567.

in industrial hygiene, is a member of the Society of American Military Engineers, and has 19 years experience in documenting delineations of wetlands and jurisdictional waters.[270]

Ms. Castille conducted field investigations at Applicant's site on March 31, 2003, December 8-9, 2003; March 16, 2004; and February 28, 2005.[271] She identified no critical habitat areas and concluded that the habitat on the landfill property, including the expansion area, does not support threatened, endangered, or rare species.[272] In gathering data for the species assessment, Ms. Castille found that the Mountain Plover was sighted in the general area in 1978 and last observed in 1993. The sighting documentation she reviewed was described as accurate within a 1.5 mile radius, and that radius did not include the facility.[273]

The U.S. Fish and Wildlife Services (USFWS) confirmed that the site is not located within a designated critical habitat of federally-listed threatened or endangered species. But USFWS suggested that persons with biological expertise review the project's potential to affect species *being considered* for possible addition to the threatened-and-endangered-species list, or "candidate" species.[274] While candidate species currently have no legal protection, the USFWS asked to be allowed to provide technical assistance to help avoid or minimize adverse effects. "Addressing these species at this stage could better provide for overall ecosystem health in the local area and may avert potential future listing," USFWS suggested.[275]

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[270] App. Ex. 300 at 4-5.

[271] App. Ex. 202 at 640.

[272] App. Ex. 202 at 167, 640-646, 2861 and App. Ex. 300 at 22

[273] App. Ex. 202 at 567.

[274] App. Ex. 202 at 559-561 (received by Applicant on Aug. 18, 2005).

[275] App. Ex. 202 at 560.

On the state level, TPWD responded to Ms. Castille's species inquiry. By letter dated October 12, 2005, Danny Allen, in TPWD's Wildlife Habitat Assessment Program, Wildlife Division,[276] asked Ms. Castille to

> . . . note that the Mountain Plover's winter range includes Central Texas and they are known to frequent plowed fields and areas of disturbance. In addition, Mountain Plovers have been previously sighted in the general area near the landfill. . . The Mountain Plover is listed as a rare species and measures implemented to avoid impacts to the species at this time could prevent the listing of the species in the future.
>
> . . .
>
> In addition to the Mountain Plover, other migratory birds species are known to nest in disturbed areas, near stock tanks, and near other water features and must be dealt with in a manner consistent with the Migratory Bird Treaty Act (MBTA). The MBTA implicitly prohibits intentional and unintentional take of migratory birds, including their nests and eggs, except when authorized under a U.S. Fish and Wildlife . . . permit
> . . .

Mr. Allen recommended four steps to protect the Mountain Plover:

- landfill personnel should be educated about Mountain Plovers so that adverse impacts to the species are avoided;
- land clearing activities should not be conducted during the general bird nesting season, from March to August, to avoid adverse impacts to nesting birds;
- vegetated buffers should be maintained along the riparian corridors to minimize adverse impacts to valuable ecosystems; and
- disturbed areas within the project should be re-vegetated with specific native plant species to reduce the potential for soil erosion and to provide habitat for native wildlife species; and upon reaching capacity, an area should be re-claimed with native plant species.[277]

[276] App. Ex. 202 at 581-582.

[277] App. Ex. 202 at 582-583.

Ms. Castille agreed with these recommendations and added that it was fair to say they should be included in the SOP.[278] She plans to discuss them with Applicant nearer the time construction is to begin, when more information will be disseminated and coordinated for endangered species.[279] But Applicant has not told her it will implement the recommendations, and they are not presently included in the application.[280]

Applicant also relied on another TPWD letter, dated December 6, 2005, from Julie C. Wicker, Environmental Review Assistant, in the same program as Mr. Allen. Ms. Wicker wrote, "TPWD does not anticipate significant adverse impacts to rare species from project activities." But she recommended that Applicant take precautions to avoid impact if, during construction, rare species, natural plant communities, or special features are found in the project area.[281]

Applicant argued that it is not necessary to include TPWD's recommendations in the SOP because the Mountain Plover is not an endangered or threatened species. No law or regulation prohibits MSW construction that would impact rare species, and TPWD anticipated no significant adverse impacts to rare species from project activities. Indeed, as Ms. Castille testified, the proposed expansion area includes no habitat conducive to the presence of any threatened or endangered species. Applicant also asserted that TPWD's recommended procedures could significantly hinder landfill operations, and they are not legally required to achieve or maintain compliance with applicable law.

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[278] Tr. 445.

[279] Tr. 405-409.

[280] Tr. 425, 446.

[281] App. Ex. 303 at 1-2.

TJFA highlighted the Commission rule that prohibits the use or operation of a landfill in a way that endangers the environment.[282] Since both Ms. Castille and Mr. Prompuntagorn believe the TPWD recommendations should be in the SOP, it follows that the recommended procedures would protect the environment. Therefore, TJFA asked the Commissioners to add TPWD's four recommendations to the SOP.

In the ED's opinion, Applicant has complied with all applicable regulations relating to endangered or threatened species because the application demonstrated that the landfill site is not a habitat for protected species. Thus, no additions are needed for the SOP.

On the other hand, Mr. Prompuntagorn testified that landfill personnel should be educated about Mountain Plovers so they can minimize adverse impacts to the species.[283] He also thought the SOP should require Applicant to re-vegetate and re-claim disturbed areas with site-specific native plant species,[284] but he said this is already a typical landfill practice.[285]

Based on Mr. Prompuntagorn's and Ms. Castille's testimony, OPIC supported the incorporation of TPWD's recommendations into the application. OPIC emphasized TPWD's suggestion that measures should be taken to avoid impacts to the Mountain Plover in order to prevent the listing of the species as endangered or threatened in the future. According to OPIC, the recommendations are important for present and future protection of wildlife and ecosystems at the landfill. For these reasons, OPIC asked that all four of TPWD's recommendations be included in the landfill's construction plan and SOP.

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[282] 30 TAC § 330.5.

[283] Tr. 1038.

[284] Tr. 1039.

[285] Tr. 1069.

Applicant correctly argues that no law or rule *specifically* requires protection of a rare species. What remains are the two general provisions, one that prohibits the operation of a municipal solid waste facility in a manner that endangers the environment and the other that requires consideration of TPWD's comments. Based particularly on the evidence from TPWD, Ms. Castille, and Mr. Prompuntagorn, the ALJ finds the SOP should require Applicant, as part of regular training, to instruct its key site personnel about Mountain Plovers so that adverse impacts to the species may be avoided.

Applicant already plans to train its key personnel in waste management procedures, health and safety procedures, contingency plans, and permit requirements. Thus, it would not be an onerous task to discuss, during these training sessions, a rare species that has been sighted in the area and appropriate protective measures to be taken if the species is sighted during land clearing activities.

As for TWPD's recommendations regarding re-vegetating closed areas, the SOP already requires covering inactive areas with 12 inches of intermediate cover with the top six inches capable of sustaining native plant growth. Also, the area must be seeded or sodded following installation of cover and plant growth,[286] and final cover must be maintained with vegetation.[287] If incorporated into the SOP as written, the language TPWD suggests could be confusing because almost any actively-worked area could be considered "disturbed." The timing of re-vegetation would not be clear. Thus, the ALJ suggests no changes regarding vegetation in the SOP.

Finally, the ALJ does not recommend a restriction on land clearing activities during bird-nesting season. The term "land clearing activities" could encompass various types of landfill operations and imply that no work could take place during bird nesting season, which is half the year. If key site personnel are trained about the Mountain Plovers, they should be able to find ways to complete landfill work without violating the Migratory Bird Treaty Act.

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[286] App. Ex. 202 at 2866-2867.

[287] App. Ex. 202 at 2868.

D. Site Entrance

The current site entrance is off Kohlenberg Lane in Comal County, and the proposed entrance is on the same road but across the Guadalupe County line. Applicant acknowledged that the proposed site entrance, which is near a bend and at a "dip" in the road,[288] may not comply with AASHTO's[289] line-of-sight standards. Those standards require approximately 70 meters of sight distance before a turn.[290]

TCEQ's rules prohibit operation of a MSW facility in a manner that endangers human health and welfare.[291] They also require an applicant to provide sufficiently complete, accurate, and clear data so as to "provide assurance" that operations will not pose a "reasonable probability" of adverse effects on the health, welfare, environment, or physical property of nearby persons[292] and require "all design requirements"[293] to conform with the Texas Engineering Practice Act.[294] Contrasted with these stricter requirements, another rule requires only a "generalized design" of all site entrance roads from public access roads to be depicted on a plan or figure in the application.[295] Applicant argued that finer design precision is expected only after a site is built because a permit holder must submit an "as-built set of construction plans and specifications" after construction.[296]

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[288] App. Ex. 214; Tr. 1172 (Graves).

[289] American Association of State and Highway Transportation Officials.

[290] App. Ex. 214; Tr. 1160-1163; 1171-1173 (Graves).

[291] 30 TAC § 330.5(a)(3).

[292] 30 TAC § 330.51(b)(2).

[293] 30 TAC § 330.51(b)(1).

[294] 30 TAC § 330.51(d).

[295] 30 TAC § 330.56(a)(2).

[296] 30 TAC § 330.58.

According to Mr. Graves, Applicant's permit engineer, the proposed site entrance plan was not designed with AASHTO standards in mind, and he was not certain whether it meets those standards. But, he added, it is "pretty close." If any change is required, the entrance would need to be moved only a short distance north along Kohlenberg Road, and he said this would not change the access routes to the facility.[297]

During rebuttal testimony, Mr. Graves presented a new plan by which the site entrance could be relocated in an attempt to comply with those standards.[298] He committed to using a final site entrance design that will meet AASHTO standards.[299] Applicant agreed that, prior to construction of the site entrance, it will submit documentation to TCEQ showing that the entrance will meet AASHTO standards. When asked whether a permit modification will be required if the proposed entrance is moved, Mr. Graves said TCEQ determines that on a case-by-case basis, depending upon how far the entrance is moved.[300]

Mr. Prompuntagorn did not send a deficiency notice to Applicant based on the site entrance location, but after hearing Mr. Grave's testimony, he expressed concern that other drivers might not see a truck leaving the site.[301]

Because the application does not definitively show that the proposed site entrance will comply with AASHTO sight distance standards, OPIC recommended that Applicant be required to demonstrate compliance. OPIC suggested that this can be accomplished with documentation to TCEQ prior to construction of the entrance.

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[297] Tr. 259-260, 1160-1165 and 1171-1173; App. Ex. 202 at 1001 (Drawings 1-4); App. Ex. 214.

[298] App. Ex. 214.

[299] Tr. 1165; 1173-1174.

[300] Tr. 336-337, 1177.

[301] Tr. 1023.

CCL argued that the current site is not safe to those traveling on Kohlenberg Road, and the traffic danger will be even greater with increased volume from the expanded site. Similarly, TJFA asserted, that allowing Applicant to file a design with TCEQ after the permit is issued would create a "finality" problem because the Protestants will have no opportunity to contest the safety of the new design.

The ALJ recommends an addition to the Draft Permit requiring Applicant to submit an entrance design prior to the entrance's construction that demonstrates compliance with AASHTO's line-of-sight standards. While it is true that the application had to include sufficient data to show the design will not pose adverse effects on nearby persons or property owners, there are steps in the filing and approval process that allow for more design precision. Applicant has committed to modifying the design and informing TCEQ's Staff of those design changes before the entrance is constructed. In the ALJ's opinion, such a change will be minor, and the permit will not lack finality if Applicant is allowed to submit the new entrance design after the application is approved. As Mr. Graves testified, the entrance will need to be moved only a short distance, if at all, along the same road used in the present design, and this will not change access routes to the facility.

IX. HOW SHOULD TRANSCRIPT COSTS BE APPORTIONED?

The Commission's rule governing the allocation of reporting and transcription costs, 30 TAC § 80.23(d)(1), requires consideration of

(A) the party who requested the transcript;
(B) the financial ability of the party to pay the costs;
(C) the extent to which the party participated in the hearing;
(D) the relative benefits to the various parties of having a transcript;
(E) the budgetary constraints of a state or federal administrative agency participating in the proceeding;
. . . and
(G) any other factor which is relevant to a just and reasonable assessment of costs.

According to information filed from Kennedy Reporting Service, Applicant was assessed $15,192 for reporting transcription costs. Of that total cost, $8,999.05 was for daily delivery of the transcript, which Applicant requested. A transcript was of benefit to all the parties, but the ALJ finds that Applicant should bear this portion of the expense because having daily transcripts was not necessary in order for the parties to write their closing briefs. Also, Applicant will be the primary beneficiary of the application's approval.

Moreover, it is reasonable to divide the the remaining cost of $6,192.95 between Applicant and TJFA. Both of those parties participated significantly in the hearing. While the issue of the financial ability was not directly addressed, TJFA's representative in this matter, Bobby Gregory, owns the Texas Disposal Systems Landfill (TDSL), a MSW facility in southern Travis County. Thus, it is reasonable to assume that TJFA has the financial ability to pay a portion of the transcript costs.

As statutory parties to the proceeding who cannot appeal the Commission decision, the ED and OPIC, by rule cannot be assessed reporting or transcription costs.[302]

Given that Protestant CCL is comprised of individual landowners whose financial means are, presumably, more limited than those of the corporate parties and given that CCL did not participate significantly in the questioning of witnesses at the hearing, Applicant did not propose to allocate any portion of the reporting and transcription costs to CCL, and the ALJ agrees with that reasoning.

Therefore, the ALJ recommends that transcription costs of $3,096.47 be assessed to TJFA and $12,095.53 be assessed to Applicant.

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[302] TEX. WATER CODE ANN. §§ 5.228, 5.273(a), 5.275, and 5.356; 30 TAC § 80.23(d)(2).

X. CONCLUSION

In conclusion, although the Protestants raised reasonable concerns regarding the application, the ALJ recommends that the permit amendment be granted. With the modifications suggested, the permit amendment will comply with the Health & Safety Code and the Commission's rules on geologic, hydrogeologic, groundwater monitoring, drainage, and geotechnical conditions. In summary, the ALJ recommends three modifications to the Draft Permit: (1) to conform the operating hours to Applicant's agreement with Guadalupe County; (2) require key site personnel to receive training regarding the Mountain Plover; and (3) require Applicant to submit, prior to construction, the entrance design showing compliance with AASHTO standards. The Proposed Order contains findings of fact and conclusions of law discussed in the PFD and others that were not disputed.

SIGNED March 18, 2008.

Sarah G. Ramos

SARAH G. RAMOS
ADMINISTRATIVE LAW JUDGE
STATE OFFICE OF ADMINISTRATIVE HEARINGS

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AN ORDER Granting the Application for Permit No. MSW-66B to Waste Management of Texas, Inc., TCEQ Docket No. 2006-1931-MSW, SOAH Docket No. 582-07-0863

On _____, the Texas Commission on Environmental Quality (Commission or TCEQ) considered the application of Waste Management of Texas, Inc. (Applicant) for Permit No. MSW-66B to authorize Applicant to laterally expand the existing Comal County Landfill in Comal County and into Guadalupe County, Texas, and to rename the facility the Mesquite Creek Landfill. Sarah G. Ramos, Administrative Law Judge (ALJ) with the State Office of Administrative Hearings (SOAH), presented a Proposal for Decision (PFD), which recommended that the Commission grant the application for Permit No. MSW-66B. After considering the ALJ's PFD, the Commission adopts the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT

General Findings/Procedural Issues

1. The Applicant is Waste Management of Texas, Inc., 9708 Giles Lane, Austin, Texas 78754.

2. The facility is the Comal County Landfill, to be renamed the Mesquite Creek Landfill (Mesquite Creek Landfill), and is owned and operated by Applicant.

3. The facility is located at the southwest intersection of FM 1101 and Kohlenberg Lane, approximately five miles north of the intersection of State Highway 46 and FM 1101 and

approximately two miles east of the I-35 Kohlenberg Road exit, north of the City of New Braunfels in Comal County.

4. The street address for the current site is 1000 Kohlenberg Lane, New Braunfels, Texas, but a new entrance is planned in the expansion.

5. The facility is an existing Type I Municipal Solid Waste (MSW) landfill consisting of approximately 96 acres and permitted pursuant to Permit No. MSW-66A.

6. Of the currently permitted areas on the site, Unit 3, which is not yet built, is on the westernmost side. Unit 1, which is nearly filled, is adjacent to Unit 3 to the east. The area for which Applicant seeks a permit, Unit 2, is on the easternmost side of the property.

7. Applicant has sufficient property rights in the facility to ensure right of entry until the end of the post-closure care period.

8. Applicant filed Application No. MSW-66B (application), which requests an amendment of Permit MSW-66A to laterally expand the existing 96-acre facility to approximately 244 acres and into Guadalupe County. The application proposes to expand the actual area of waste disposal from approximately 79 acres to approximately 164 acres.

9. The facility is currently authorized to accept municipal solid waste, Class 2 and Class 3 industrial solid waste, special waste as defined by 30 TEX. ADMIN. CODE (West 2006) (TAC) § 330.2 , and Class 1 industrial waste that is Class 1 only because of asbestos content.

10. Scott M. Graves, P.E., a professional engineer registered in Texas, affixed his seal to all engineering plans and drawings and on the application cover pages.

11. The application was initially submitted to the TCEQ on November 18, 2005.

12. On December 13, 2005, the Executive Director (ED) issued notice that the application was deemed administratively complete, and on August 23, 2006, the ED issued notice that the application was found technically complete.

13. The Notice of Receipt of Application and Intent to Obtain Municipal Solid Waste Permit Amendment containing the information specified in 30 TAC § 39.11 was published on December 19, 2005, in the *San Antonio Express News*.

14. The Revised Notice of Application and Preliminary Decision for a Municipal Solid Waste Permit Amendment containing the information required by 30 TAC § 39.11 was published on August 29, 2006, in the *New Braunfels Herald-Zeitung* and the *Seguin Gazette-Enterprise*.

15. The Notice of Hearing containing the information specified in 30 TAC § 39.11 was published on March 12 and 13, 2007, in the *New Braunfels Herald-Zeitung*, the *Seguin Gazette-Enterprise*, and the *San Antonio Express News*.

16. A combined notice including the Notice of Receipt of Application and Intent to Obtain Permit, Notice of Application and Preliminary Decision, Notice of Public Meeting, and Notice of Hearing was issued by TCEQ on March 8, 2007, and published on March 12 and 13, 2007, in the *New Braunfels Herald-Zeitung*, the *Seguin Gazette-Enterprise*, and the *San Antonio Express News*.

17. On March 9, 2007, the TCEQ Chief Clerk mailed the Notice of Hearing on the application to the then-identified participants to the proceeding, to other potentially affected persons identified in the application, to various state and local agencies and officials, to state legislators for the district in which the facility is located, and to other persons specified in 30 TAC § 39.13. Potentially affected persons receiving notice generally included those landowners whose property was within one mile of the facility.

18. The preliminary hearing was conducted on April 13, 2007, at the New Braunfels Municipal Court, 1486 South Seguin Avenue, New Braunfels, Texas 78130.

19. The following persons were named as parties to the proceeding: Applicant, the ED, the Office of Public Interest Council (OPIC); TJFA, L.P. (TJFA); the City of New Braunfels; Guadalupe County; and Concerned Citizens and Landowners (CCL) (representing Nancy Schwarzlose, the Holtman family, Sandra Elbel Taylor and Lilian Schriewer Elbel, James F. and Vera B. Langford, and the Krueger-Westmeyer families). Guadalupe County was named as a party but withdrew its party status during the hearing, after it had reached a settlement agreement with Applicant about the facility's operating hours.

20. A contested case hearing on the application was conducted on October 22-29, 2007, at the offices of the State Office of Administrative Hearings, William Clements Building, 300 West 15th Street, Suite 502, Austin, Texas 78701 and the New Braunfels Municipal Court, 1486 South Seguin Avenue, New Braunfels, Texas 78130.

Sufficiency of Permit Application and Draft Permit

21. There are no site-specific conditions that require special design consideration.

22. Applicant coordinated with all appropriate agencies, officials, and authorities that may have a jurisdictional interest in the application.

23. Applicant has provided complete information concerning permits or construction approvals received or applied for.

24. The ED has prepared a draft permit for Permit No. MSW-66B.

Geology and Hydrogeology Investigations

25. The facility is located along the western edge of the Gulf Coastal Plain physiographic province, in the Blackland Prairies subprovince.

    a. The Gulf Coastal Plain is located south of the Balcones Fault Zone, which trends northeast-southwest across north central Comal and Guadalupe Counties and separates the Gulf Coastal Plain from the Edwards Plateau.

    b. The Blackland Prairies subprovince is the westernmost subprovince within the Gulf Coastal Plain and is characterized by a hilly to rolling prairie surface covering deep clayey soils.

26. The topography of the area surrounding the facility is composed of two natural hillsides towards the northwest and southeast ends of the site, which are separated by a valley associated with Mesquite Creek in the middle of the site.

    a. The highest natural ground elevation on the northern side of the facility is approximately 665 feet above mean sea level (ft/msl); and on the southern side, it is 712 ft/msl.

    b. The lowest natural ground elevation of approximately 585 ft/msl occurs in the middle of the site, along the northern site boundary, which is the point at which Mesquite Creek leaves the site.

    c. There are no topographic features such as floodplains, which, if present, would limit the development of the site as an MSW landfill.

27. The regional geology of the facility's surrounding area consists of Cretaceous, Tertiary, and Quaternary-age limestone, marls, calcareous marine clays, and fluvial deposits. Below the veneer of alluvium and undifferentiated gravel (Uvalde Gravel) are the Cretaceous-age Lower Taylor, the Austin Chalk or Austin Group, the Eagle Ford Group, the Washita Group, the Edwards Group, and the Trinity Group.

28. The Edwards Aquifer is the principal regional aquifer in the facility's vicinity and for the entire New Braunfels region.

a. The Edwards Aquifer comprises the Edwards Limestone and the overlying Georgetown Limestone.

b. The overlying Gulfian Series formations have a low permeability and are too clayey to be used as an aquifer.

c. The Quaternary terrace deposits overlying the facility yield insufficient water to be considered an aquifer. The facility is located south of the freshwater part of the Edwards Aquifer in an area characterized by high sulfate and dissolved solids concentrations.

29. In the facility's vicinity, the Lower Taylor Group, Austin Chalk, Eagle Ford Shale, Del Rio Clay, and Buda Limestone serve as an aquitard, separating the ground surface from the top of the Edwards Aquifer.

30. The facility is located in a geologically stable area that is not subject to active geologic faulting, differential subsidence, or seismic movement.

a. The facility is not near an active fault area, and no surface expressions or differential subsidence that has had displacement in Holocene time were identified within 200 feet of the facility.

b. No earthquake epicenters were identified within 20 miles of the facility.

c. No subsidence is expected from withdrawal of water from the Edwards Aquifer.

d. The facility is not subjected to any natural or man-induced events that could reactivate the pre-Holocene inactive faults.

31. One inactive fault was identified on the existing landfill area in 1990 near the northern site boundary in an area excavated for landfill development.

a. The faults' vertical displacement is approximately 40 to 50 feet and the displacement affects only the contact between Strata III and IV.

b. The fault does not displace Stratum I or II; therefore, the movement of the fault ceased before deposition of Stratum II, indicating that the fault has been inactive during Holocene time.

32. Two additional potential faults, 200 feet and 450 feet southeast of the facility, were identified in previous geologic studies of the existing landfill.

a. The 200-foot potential fault is an inferred fault and geologic studies show that no fault is present in th proposed expansion area.

b. The 450-foot fault has not experienced movement in Holocene time, as indicated by its consistency with other faults in the Balcones Fault Zone, which is pre-Holocene in age.

33. The facility's pre-development surface had low relief, with slopes ranging from approximately 3% to 9%.

a. Excessive erosion due to surface-water processes such as overland flow, channeling, and gullying is not anticipated.

b The waste disposal limits of the currently permitted landfill and proposed expansion are not located in a 100-year floodplain; therefore, excessive erosion by fluvial processes associated with meandering stream channels should not occur within the waste footprint.

34. Nineteen wetlands were identified at the facility, including both the existing and the expansion areas.

a. Eight of the 19 identified wetlands are jurisdictional waters of the United States (jurisdictional waters). Of these eight waters, four are also state wetlands regulated by TCEQ.

b. Six of the eight identified jurisdictional waters will be impacted by the proposed expansion and, if so determined by the United States Army Corps of Engineers (USACE), will require permitting and likely require mitigation before these waters can be disturbed.

c. At present, the USACE has not determined over which jurisdictional waters it will exercise jurisdiction and has also not indicated a time frame for its determination.

35. A revised USACE Nationwide Permit 14 Pre-Construction Notification was submitted to the USACE on June 7, 2007, for the unavoidable impact to approximately 0.10 acres of jurisdictional waters due to the expansion of the road crossing over Mesquite Creek, and the USACE granted the Nationwide Permit 14 on September 14, 2007.

36. In the vicinity of the facility, the upper Edwards Aquifer units are approximately 500 to 600 feet below the ground surface.

a. Three water wells were identified within one mile of the facility. Two of these wells are 600 and 650 feet deep and are screened in the Edwards Aquifer.

b. The use of the 600-foot well is not specified, and the 650-foot well has been plugged.

c. The third well is 36 feet deep and documented as being completed in the Uvalde Gravel and used for domestic purposes.

37. Subsurface conditions at the facility were evaluated using existing geologic data generated from past field investigations and from field investigations performed in October 2004 through September 2005, in connection with the proposed expansion.

a. A total of 65 soil borings were drilled at the facility, 24 of which relate to the expansion area.

b. Completed depths ranged from 28 ft/bgs to 185 ft/bgs.

c. Boring samples were taken at discrete intervals and continuously.

38. The elevation of the deepest excavation (EDE) for the entire facility is 560 ft/msl and has already occurred at the facility. It is located at the Unit 1, Phase III, Cell 2 sump.

a. Of the eight previous borings proposed as part of the application, seven were drilled to a depth at least five feet below the EDE, and one was drilled to a depth at least 30 feet below the EDE.

b. All 24 of the expansion area soil borings were advanced to a depth of at least five feet below the EDE, 16 borings were drilled to a depth of at least 30 feet below the EDE, and five were completed to elevations more than 50 feet below the EDE.

39. Fifteen of the expansion area soil borings were advanced and completed as piezometers.

40. Monthly groundwater level data were collected from March 2005 to September 2005 from existing and newly installed piezometers and groundwater monitor wells.

41. Based on the historic and recent geologic investigations, four stratigraphic units, Strata I through IV, exist beneath the site down to the maximum depth drilled, approximately 187 ft/bgs.

a. Stratum I is generally 0 to 14.5 feet thick, the thickness of Stratum II ranges from 1 to nine feet, and Stratum III is approximately 15 to 63 feet thick.

b. No soil borings penetrated the entire Stratum IV, but it is approximately 200 feet thick at the facility.

42. Stratum I corresponds to the uppermost fine-grained Quaternary deposits; it is mostly continuous in the existing site except where removed by landfill excavation activities.

a. In the expansion area, Stratum I was encountered in 20 of the 24 borings. Stratum I is an unsaturated brown to dark gray, medium-to-high plasticity clay with a stiff-to-hard consistency.

b. In two borings, 0.5 and 1.0 feet of gravelly clay was present between 0.5 and 3.5 ft/bgs.

43. Stratum II corresponds to the Quaternary-Tertiary Uvalde Gravel.

a. In the existing area, Stratum II ranges from olive green, white or gray limestone and/or chert gravel, occasionally in a clay or silty clay matrix, to firm black clayey gravel.

b. In the expansion area, Stratum II is clayey gravel to gravelly clay.

c. A one-foot thick gravel stratum was observed in one soil boring at approximately one ft/bgs.

44. Stratum III corresponds to the oxidized clays or claystones of the Lower Taylor Group, which was previously referred to as the Navarro Group.

a. Stratum III ranges in thickness between 18 and 58.5 feet at the existing site and between 15 and 63 feet at the expansion area.

b. Stratum III is characterized by a gray or brownish yellow to yellow oxidized, very stiff -to-hard clay with thin bedding planes.

c. The base of Stratum III was not encountered in every boring.

d. High angle clay, gypsum filled fractures, and calcite seams are more prevalent near the bottom of Stratum III.

e. Some of the fractures and calcite seams are water-bearing.

45. Stratum IV corresponds to the primarily unoxidized clay and/or claystone of the Lower Taylor Group.

a. Stratum IV is typically a dry, calcareous, green gray to dark gray clay or claystone across the entire site.

b. A few borings in Stratum IV contained evidence of fracturing and/or weathering.

46. At the facility, groundwater was encountered in the lower portion of Stratum III between 578 and 665 ft/msl.

a. Of the four units investigated, Stratum III is the uppermost stratum which consistently yielded groundwater and contained the greatest occurrence of fractures and variations in cementation to provide the most likely migration pathway if a release from the landfill were to occur.

b. All 15 of the installed piezometers consistently contained sufficient quantities of water for groundwater sampling purposes.

c Because Stratum III is capable of yielding representative samples of groundwater that could identify a potential release from the landfill, it is considered the uppermost aquifer (30 TAC § 33.231[a]).

47. Hydraulic gradients and groundwater flow directions observed at the facility appear to be controlled by surface topography and the elevation of the Stratum III/IV contact.

a. Groundwater elevations in the existing site and expansion area are lowest adjacent to Mesquite Creek and highest near the site's topographic highs in the northeastern corner (for the existing landfill) and the southern boundary (for the expansion area).

b. Groundwater elevations depict a consistent pattern over time with only slight changes in groundwater flow direction.

c. Recharge to Stratum III likely occurs as infiltration during periods of high precipitation.

d. No noteworthy seasonal changes in the groundwater flow patterns are apparent.

48. The uppermost aquifer is not hydraulically connected with the underlying Edwards Aquifer.

a. Monitoring wells and piezometers in Stratum IV were dry or contained insufficient quantities of groundwater for sampling purposes, and the unit has relatively low permeability.

b. In the vicinity of the facility, Stratum IV is approximately 200 feet thick and underlain by approximately 200 to 300 feet of low-permeability clays.

c. Stratum IV and the underlying clays are, collectively, the lower aquitard or confining unit for Stratum III.

49. The most likely pathways for pollutant migration from the landfill are within the saturated base of Stratum III and along the Strata III/IV contact.

a. Stratum III is the main stratum intersected by the liner system side slopes and base.

b. Neither the inactive fault in the existing site nor Mesquite Creek appear to be potential pathways for pollutant migration.

c. Any contaminant released from the landfill would move at the same rate and direction as the groundwater beneath the facility.

d. Because the horizontal and vertical hydraulic conductivities decrease with depth, there is no potential for landfill constituent migration from the facility to the Edwards Aquifer during the active life, closure, and post-closure care periods.

Groundwater Monitoring

50. The facility currently operates a groundwater monitoring system for detection monitoring composed of seven monitoring wells generally screened in Stratum III.

51. Groundwater monitoring has been conducted at the facility since February 1992 and is currently conducted on a semi-annual basis.

52. 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 TCEQ.

a None of the statistically significant failures were found to be related to the facility, but were attributed to natural variations in background water quality.

b. No statistically significant changes over background for the organic compounds have triggered assessment monitoring in any well at the facility nor any corrective action.

53. Groundwater analyses indicated that there is presently no known plume of contamination that has entered the groundwater from the facility.

54. Groundwater and flow directions at the permitted facility and lateral expansion area are consistent with flow mainly toward the Mesquite Creek area, which is centrally located between the existing and proposed waste footprints.

a. The proposed groundwater monitoring system for the facility is comprised of two physically separate groundwater monitoring systems that collectively serve as the groundwater monitoring system for the entire site.

b. All 22 of the monitoring wells in the proposed groundwater monitoring network are or will be completed in Stratum III.

55. The existing facility monitoring network will use a total of eight monitoring wells, one upgradient and seven downgradient; four of the currently permitted monitoring wells will remain, one permitted monitoring well will be moved 500 feet to the southeast to make it a downgradient well, and three new monitoring wells will be installed downgradient.

56. The expansion area's monitoring network has two upgradient wells and 12 downgradient wells for a total of 14 groundwater monitoring wells.

57. Three of the piezometers installed as part of this application will be converted to wells and 11 new monitoring wells will be installed along the perimeter of the expansion property.

58. A relevant point of compliance has been established for each portion of the groundwater monitoring system.

a. The seven downgradient groundwater monitoring wells in the existing facility monitoring network will form the point-of-compliance boundary for Units 1 and 3.

b. The 12 downgradient groundwater monitoring wells in the expansion area monitoring network will from the point of compliance boundary for Unit 2.

59. The proposed monitoring wells will be:

- activated after the permit amendment is approved to collect intra-well background data;
- properly screened to monitor the groundwater encountered at the monitored location;
- able to detect a release from the facility.

60. The GWSAP provides for collecting representative samples from groundwater monitoring wells and quality assurance/quality control procedures required to ensure valid analytical results; it also includes methodology for establishing background water quality in each well and for comparison of the subsequent results to background values in the same well so that any statistically significant increase may be detected.

Groundwater Protection

61. The proposed expansion of the facility is designed to be protective of groundwater.

a. Quality control procedures will be used during the construction and installation of the liner system.

b. A Soil and Liner Evaluation Report (SLER) and/or a Geomembrane Liner Evaluation Report (GLER) will be submitted to TCEQ detailing the final construction and lining of a new disposal cell prior to the placement of any waste in that cell.

62. The composite liner system for Unit 2, the area of proposed expansion, will consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec overlain by a minimum 60-mil high-density polyethylene (HDPE) geomembrane, a leachate drainage layer of either geocomposite (geonet bonded to geotextiles) or geotextile, and a minimum 2-foot thick protective soil layer.

63. The un-built but permitted Unit 3 will have either the same liner system proposed for Unit 2 or an equivalent alternate that uses a geosynthetic clay liner instead of the compacted soil layer.

64. For Units 2 and 3, leachate percolating through the waste will be collected in a drainage layer constructed above the liner and will flow by gravity to a leachate collection corridor or sideslope chimney drain.

a. The leachate collection system materials are expected to be chemically resistant to the anticipated leachate and of sufficient strength to prevent collapse of the leachate collection drainage layers due to the pressures exerted by overlying materials.

b. The leachate collection components are designed to function through the active life, scheduled closure, and post-closure care period.

c. The proposed leachate collection corridors, centrally located within each phase of Unit 2 and within Unit 3, will collect leachate from the floor drainage layer and convey it to the leachate collection sumps.

d. The leachate collection corridor will consist of either granular drainage media encased within a geotextile filter or a perforated six-inch diameter HDPE SDR-11 pipe embedded within a granular drainage media encased within a geotextile filter.

e. Collected leachate within each phase will be carried to the leachate collection sump located at the low point of the phase.

f. The leachate collection system for Units 2 and 3 is designed to maintain a head of less than 30 cm (12 inches) over the liner system.

g. Leachate recovered from sumps will be pumped directly into a tanker truck and disposed off site at a TCEQ-approved treatment facility, recirculated, or pumped through a force main system to leachate evaporation ponds or other on-site storage or treatment facilities.

65. Leachate will be recirculated only on landfill areas that have a liner that complies with 30 TAC § 330.299(a)(2).

66. The minimum strength values for the liner and final cover systems are incorporated into the Soil and Liner Quality Control Plan (SLQCP).

67. A factor of safety is a ratio of resisting forces compared to driving forces.

68. When waste is placed too steep or too high, the waste can move along the liner system upon which it is placed. Minimum acceptable safety factors for slope stability depend on project-specific conditions and uncertainties.

69. Applicant's targeted slope safety factors for interim conditions is 1.25, and for long-term conditions, it is 1.5.

70. For Unit 1, a 1.25 targeted factor of slope safety for final landfill slopes is appropriate based on project-specific liner testing and measured strength parameters demonstrating the safety of this slope.

71. For large-displacement strengths, a 1.0 target factor of safety is appropriate for short-term conditions and 1.15 for long-term conditions.

72. The SLQCP specifies materials, equipment, and construction methods for the compacted soil liners; details installation methods and quality control testing and reporting for the 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.

73. Liner excavations will extend into Stratum III and portions of the liner may be constructed below the seasonal high water table.

a. Stratum III is of such low permeability that groundwater cannot move sufficiently to exert a force that would damage the liner.

b. Should localized sweeps or wet areas occur during excavation, the affected areas will be over-excavated and backfilled/compacted with competent material.

c. If fracture water is observed in the clay and claystones during construction which could exert an uplift force on the liner, an evaluation will be made regarding the magnitude of groundwater present and, if needed, the construction of liner systems will incorporate short-term groundwater control and ballasting as described in the SLQCP.

d. If short-term liner stability is needed, long-term liner stability will be accomplished by the presence of soil and/or waste ballast.

e. After construction of the liner and placement of ballast, the pressure relief/de-watering system will be terminated.

Drainage and Floodplain Analyses

74. The facility is designed and will be constructed to prevent the discharge of any solid wastes or pollutants adjacent to or into waters of the State of Texas or the United States, non-point source pollution of the waters of the United States, and discharge of dredged or fill material into waters of the State of Texas or the United States in violation of Section 404 of the Clean Water Act.

75. Surface water controls at the proposed expansion will be designed to prevent rainfall run-off from coming in contact with leachate or refuse, maintain natural drainage patterns, and minimize erosion.

76. The Groundwater and Surface Water Protection Plan and Drainage Plan shows the locations, details, and typical sections of the surface drainage controls at the facility consisting of drainage benches and terraces, channels, detention ponds, culverts, berms, and other facilities.

77. Applicant has received Texas Pollutant Discharge Elimination System (TPDES) Multi-Sector Permit No. TXR05K953, in compliance with the federal Clean Water Act § 402, as amended, and the National Pollution Discharge Elimination System.

78. No contaminated water will be discharged without authorization by TCEQ and in accordance with the TPDES permit.

79. The landfill will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment.

a. The waste disposal limits of the facility are located outside the 100-year floodplain, as shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Community Panel Number 4854630130C (1986).

b. The central portion of the site associated with Mesquite Creek is within the flood pool of the downstream Freedom Lake.

c. The permitted waste disposal limits and the expansion area's waste disposal areas, perimeter roads/berms, and leachate evaporation pond areas do not extend into the Freedom Lake flood pool.

d. Two storm water ponds are partially within the upper elevations of this flood pool, but are designed to allow backflow into the ponds during a flood event through their principal spillway pipes so as not to change the flood storage capacity of Freedom Lake.

e. Flood protection levees or other improvement to provide protection from the 100-year flood are not necessary.

80. There will be no nonpoint source of pollution that will violate any requirement of any areawide or statewide water quality management plan approved under the federal Clean Water Act.

81. Applicant will use working face berms, drainage benches, or a combination of the two to control and minimize any contact between surface waters and solid waste.

82. Run-off from undeveloped, closed, or final or intermediate covered portions of the site will be controlled using berms, channels, and storage pond areas to prevent flow onto the active portion of the landfill during the peak discharge from the 24-hour, 25-year storm.

a. Uncontaminated water may be used for site operations, evaporated naturally, or discharged offsite as authorized under TCEQ and TPDES permits.

b. A Storm Water Pollution Prevention Plan has been developed and implemented for the construction and operation of the facility.

83. The entire site is part of the Mesquite Creek Watershed.

a. The natural site condition consists of five drainage basins.

b. The pre-development watershed condition incorporates the currently permitted surface water management system within the 96-acre permit area, and the remainder of the watershed area is the same as the natural site condition, including offsite areas and the proposed expansion area.

c. The post-development condition will maintain similar drainage patterns to the natural site and pre-development conditions.

d. For all three conditions (natural, pre-development, and post-development), five locations were identified to represent the points of concentrated discharge of storm water from the site.

84. The natural drainage patterns will not be significantly altered as a result of the landfill development; an increase in run-off volume will occur for three discharge points, but the post-development discharge rate will be less than the pre-development discharge rate.

85. The surface water management system design with its perimeter drainage channels, storm water ponds, and diversion berms will be used during development and operation of the

facility and will ultimately transport sediments from the final cap or interim cover slopes to storm water ponds.

86. Best management practices will be used to further minimize soil erosion and sedimentation during the development and operational periods.

87. Applicant's drainage facility maintenance plan consists of periodic inspections of surface water facilities and repair of those which have been impacted by erosion or other causes; provisions of the Erosion and Sediment Control Plan will be incorporated into the drainage facility maintenance plan, as appropriate.

Geotechnical Investigation

88. Stratum I soil is suitable for soil liner and infiltration layer material, as demonstrated by the successful construction over a portion of the existing facility of a cover system infiltration layer having a hydraulic conductivity less than 1×10^{-7} cm/sec.

89. Strata III and IV soils will be suitable for use in liner system and final cover system construction; the hydraulic conductivities for Strata III and IV ranged from 2.8×10^{-8} to 3.5×10^{-8} cm/sec.

90. The facility will be stable if designed and constructed as proposed in the application.

91. For all conditions evaluated, the calculated factor of safety is greater than or equal to the minimum target factor of safety.

92. Since positive drainage will be maintained, calculated foundation settlements beneath the landfill are considered acceptable.

a. The highest differential settlements along the leachate collection corridor will occur where the corridor is underlain by the thickest, most compressible materials, *i.e.*, the Stratum III clays, and the differential loads along the corridor are the greatest.

b. The minimum calculated post-settlement slope for the evaluated sections in Units 1, 2, and 3 is 0.4%.

Site Operating Plan

93. The entire application – including the site development plan, Site Operating Plan (SOP), final closure plan, post-closure care plan, landfill gas management plan, and any other required plan – will be placed into the facility's site operating record and will become operational requirements for the facility.

94. All information placed in the operating record of the facility will be retained for the life of the facility, including the post-closure period.

95. After Applicant requested authorization to operate its facility 24 hours a day, seven days a week, it entered into a settlement agreement with Guadalupe County by which it agreed to conduct operations on Monday through Friday from 4:00 a.m. to 8:00 p.m. and on Saturday form 4:00 a.m. to 3:00 p.m., unless an emergency requires extended operating hours.

96. Even though Applicant plans buffer zones around the premises, continuous operations could be disturbing to nearby residents.

97. The operating hours in the settlement agreement will provide Applicant with several more hours per day for landfill activities than Applicant currently has.

98. Applicant has been operating for many years with fewer operating hours than those described in the settlement agreement.

99. Applicant's operating hours should be limited to those stated in its agreement with Guadalupe County.

100. During emergency conditions, Applicant may seek the ED's approval of alternate operating hours.

101. Actual facility operating hours in effect at any given time will be posted at the entrance.

102. Applicant will cover portions of the working face with soil throughout the day, as filling operations are completed in one area of the working face and expanded into another.

103. Only part of the working face will be uncovered at any given time.

104. Applicant must have sufficient on-site equipment to place a six-inch layer of earthen material on any uncovered waste within one hour of detecting a fire.

105. Special waste will be received at the facility in accordance with the Special Waste Acceptance Plan and the permit.

106. Class 1 regulated asbestos-containing material will be accepted for disposal within the fill area and is specifically approved for this facility. Procedures regarding acceptance and handling of asbestos are outlined in the Asbestos Management Plan.

107. Wastes specifically prohibited from landfill disposal will not be accepted for disposal.

108. The SOP contains procedures to ensure that regulated hazardous and PCB wastes will not be accepted at the facility.

109. To prevent the disposal of unauthorized waste at the facility, the SOP provides that the Applicant will post signs regarding hazardous and other unacceptable wastes, screen incoming waste at the gate or offsite before disposal, provide personnel training, reject haulers carrying unauthorized wastes, and perform random sampling in accordance with the random inspection procedures for the facility.

110. Access to the facility will be controlled using artificial barriers, including a perimeter fence and a gated entrance.

a. The gated entrance will restrict access when the facility is not open, but allow sufficient access for vehicles to maneuver through the gate when the facility is open.

b. The perimeter fence will consist of chain-link fence at least five feet in height.

111. The unloading of waste will be restricted to the active working face, and the working face will be confined to as small an area as practical.

112. A trained employee will be present at the entrance at all times during operating hours to monitor all incoming loads of waste and will direct traffic to the appropriate unloading area.

113. The working face will be maintained and operated in a manner to control windblown solid waste.

a. Daily cover or the approved equivalent, litter fences, and litter collection will be employed to protect the working face from prolonged exposure.

b. A minimum of six-inches of daily cover will be used in order to prevent disease vectors, control windblown debris and odors, reduce the possibility of fire, prevent scavenging, and improve the operation of the facility.

114. Solid waste unloading, storage, disposal, or processing operations may not take place within any easement that crosses the site or within any buffer zone.

115. The landfill operator 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.

116. The operator will, as necessary, post signs at the landfill entrance requiring loads to be covered or enclosed and stating the potential consequences for non-compliance, including assessing litter control surcharges.

117. On a daily basis during daylight hours when the facility is in operation, all public roads and rights-of-way serving the facility will be inspected and cleaned of spilled materials and wind blown waste for a distance of two miles in either direction from any entrance used for the delivery of waste to the site. This litter pick-up area will extend along Kohlenberg Lane, FM 1101, and Schwarzlose Lane.

118. The landfill manager will ensure that no unit of the landfill violates any applicable requirements of the approved state implementation plan under the federal Clean Air Act.

a. The facility has applied for a TCEQ Title V General Operating Permit and is operated in accordance with a TCEQ Air Permit by Rule Registration O. 50924 for the landfill gas flare.

b. No open burning of waste will be permitted on-site.

119. Applicant will institute 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.

120. Vector control will be achieved through application of daily cover, eliminating ponded water, minimizing the working face, and if necessary, application of appropriate chemicals using appropriate health and safety practices. Non-lethal bird control measures such as pyrotechnics, baiting and decoys, may be used to discourage birds at the site.

121. Applicant will minimize the tracking of any mud and trash by vehicles entering or exiting the facility onto public roadways. Vehicles will traverse all-weather site access roads and paved site entrance roads allowing for mud to be removed from the vehicle.

122. No scavenging will be permitted.

123. Salvaging will be allowed with specific authorization from the landfill manager in accordance with the SOP, but will not be allowed to interfere with prompt sanitary disposal of solid waste or to create a public health nuisance.

124. Landfill gas will be monitored and controlled in accordance with the Landfill Gas Management Plan.

125. Ponding of water over waste areas will be minimized and eliminated.

a. The area in which the ponding occurred will be filled in and regraded within seven days of the occurrence.

b. Ponded water from an area with at least 12-inches of intermediate cover will be pumped or otherwise removed to the facility's drainage system.

c. The ponding prevention plan will use high density compaction during placement of the wastes along with constructing and maintaining proper cover and slope on all areas to prevent ponding over waste areas.

126. The SOP prohibits discharge of contaminated water without specific written authorization from TCEQ; water that has become contaminated by contact with the working face or with leachate shall be segregated from uncontaminated surface and groundwater and properly managed.

Transportation

127. The roadways in the vicinity of the facility are adequate to handle the existing and projected future traffic.

a. Access to the facility is provided via FM 1101 to Kohlenberg Lane.

b. FM 1101 is primarily accessed from the south via Highway 46, from the west via I-35 to Kohlenberg Road, or from the north via Highway 123.

c. FM 1101 is a 24-foot wide, two-lane undivided, asphalt-paved road. Kohlenberg Lane is an approximately 22-foot wide, two-lane, undivided, asphalt-paved road.

128. Applicant notified the Texas Department of Transportation regarding the proposed expansion, and the agency determined that the impact on the surrounding area roadways as a result of the proposed expansion would be minimal.

129. The current site entrance is off Kohlenberg Lane in Comal County, and the proposed entrance is on the same road but across the Guadalupe County line.

130. The proposed site entrance, which is near a bend and at a dip in the road, may not comply with line-of-sight standards established by the American Association of State and Highway Transportation Officials, which require approximately 70 meters of sight distance before a turn.

131. Applicant agreed that, prior to construction of the new site entrance, it will submit documentation to TCEQ showing that entrance will meet AASHTO standards.

132. Prior to constructing the proposed new site entrance, Applicant will submit its design to the Executive Director, and the entrance must meet the line-of-sight requirements established by the American Association of State and Highway Transportation Officials

133. The U.S. Department of Transportation Federal Aviation Administration issued a "Determination of No Hazard to Air Navigation" for the lateral expansion and for the currently permitted landfill.

Land Use

134. The land use information provided in the application contains the technical information specified in 30 TAC § 330.53(b).

135. The United States Department of the Interior Fish and Wildlife Service confirmed that the facility is not located within designated critical habitat of any federally-listed threatened or endangered species.

136. The Mountain Plover, a bird species identified as rare, previously has been sighted in the general area near the landfill.

137. Mountain Plovers are known to frequent plowed fields and areas of disturbance.

138. While the Texas Parks and Wildlife Department (TPWD) does not anticipate adverse impacts to any threatened or endangered species from the proposed project activities, TPWD recommended measures to avoid impacts to the Mountain Plover that could prevent the listing of the species in the future.

139. The TPWD's recommendation included educating landfill personnel about Mountain Plovers so that adverse impacts to the species are avoided.

Reporting and Transcription Costs

140. Applicant will be the primary beneficiary of the application's approval.

141. Applicant and TJFA participated significantly in the hearing.

142. TJFA's representative in this matter, Bobby Gregory, owns the Texas Disposal Systems Landfill, a MSW facility in southern Travis County.

143. As a statutory parties to the proceeding who cannot appeal the Commission's decision, the ED and OPIC, by rule, cannot be assessed reporting or transcription costs. TEX. WATER CODE ANN. §§ 5.228, 5.273(a), 5.275, and 5.356; 30 TAC § 80.23(d)(2).

144. The ED's participation was limited to providing information to complete the administrative record.

145. Protestant CCL is comprised of individual landowners whose financial means are, presumably, more limited than those of the corporate parties, and CCL did not participate significantly in the questioning of witnesses at the hearing.

146. Applicant was billed $15,192 in reporting transcription costs for the preliminary hearing and hearing on the merits.

147. Of that total cost, $8,999.05 was for daily delivery of the transcript, which Applicant requested.

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 TAC §§ 39.5 and 39.101, and TEX. GOV'T CODE ANN.§§ 2001.051 and 2001.052.

3. SOAH has jurisdiction to conduct a hearing and to prepare a Proposal for Decision. TEX. GOV'T CODE ANN. § 2003.47.

4. Applicant submitted a complete permit amendment application, as required by TEX. HEALTH & SAFETY CODE ANN. §§ 361.066 and 361.068, which demonstrated that Applicant will comply with all relevant aspects of the application and design requirements as provided in 30 TAC §§ 330.4(m) and 330.51(b)(1).

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 TAC § 80.1 *et seq.*,

and the State Office of Administrative Hearings, specifically 1 TAC § 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 the Draft Permit, as modified by this Order, including all requirements of the Solid Waste Disposal Act, TEX. HEALTH & SAFETY CODE ANN. Chapter 361, and 30 TAC Chapter 330.

7. The expansion of the proposed Mesquite Creek Landfill, if constructed and operated in accordance with the Solid Waste Disposal Act, 30 TAC Chapter 330, and the Draft Permit as modified by this Order, will not adversely affect public health and welfare, physical property of the people of Texas, or the environment.

8. The application conforms to the applicable requirements of the Engineering Practice Act, TEX. REV. CIV. STAT. ANN. art. § 3271a, as provided in 30 TAC § 330.51(d) and 22 TAC § 131.166.

9. Applicant should be required to pay the cost of daily delivery.

10. The remaining cost of $6,192.95 should be equally divided between Applicant and TJFA.

11. Transcription costs of $3,096.47 should be assessed to TJFA and $12,095.53 should be assessed to Applicant.

12. Prior to construction of the new site entrance, Applicant should submit documentation to TCEQ showing that the entrance will meet AASHTO standards.

13. The SOP should provide that, as part of regularly scheduled training, Applicant will instruct its key site personnel about Mountain Plovers so that adverse impacts to the species may be avoided.

14. The facility's operating hours should be Monday through Friday from 4:00 a.m. to 8:00 p.m. and Saturday from 4:00 a.m. to 3:00 p.m., unless an emergency requires extended operating hours.

15. Pursuant to the authority of, and in accordance with, applicable laws and regulations, the requested permit should be granted.

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-66B for a Type I MSW landfill in Comal and Guadalupe Counties, Texas, is hereby issued to Waste Management of Texas, Inc., as set out in Draft Permit No. MSW-66B, with the following modifications:

    a. the facility's operating hours shall be Monday through Friday from 4:00 a.m. to 8:00 p.m. and Saturday from 4:00 a.m. to 3:00 p.m., unless an emergency requires extended operating hours;

    b. prior to construction of the new site entrance, Applicant shall submit documentation showing that the entrance will meet AASHTO standards;

    c. as part of regularly scheduled training, Applicant will instruct its key site personnel about Mountain Plovers so that adverse impacts to the species may be avoided.

2. The Applicant shall pay $12,095.53 of the transcript costs, and TJFA shall pay the remaining $3,096.47.

3. The Chief Clerk of the Commission shall forward a copy of this Order to all parties and issue the attached permit as changed to conform to this Order.

4. All other 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.

5. 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.

6. The effective date of this Order is the date the Order is final, as provided by 30 TAC § 80.273 and TEX. GOV'T CODE ANN. § 2001.144.

ISSUED:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

_____

Buddy Garcia, Chairman
For the Commission

THE STATE OF TEXAS
COUNTY OF TRAVIS
I hereby certify that this is a true and correct copy of a Texas Commission on Environmental Quality document, which is filed in the permanent records of the Commission.
Given under my hand and the seal of office on JAN 25 2007

LaDonna Castanuela, Chief Clerk
Texas Commission on Environmental Quality

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PERMIT FOR MUNICIPAL
SOLID WASTE MANAGEMENT FACILITY
issued under provisions of Texas
Health & Safety Code Ann.
Chapter 361 (Vernon)

MSW Permit No. 66B

Name of Permittee and Site Owner:	Waste Management of Texas, Inc. 1000 Kohlenberg Lane New Braunfels, Texas 78130
Facility Name:	Mesquite Creek Landfill
Classification of Site:	Type I Municipal Solid Waste Management Facility

The permittee is authorized to store, process, and dispose of wastes in accordance with the limitations, requirements, and other conditions set forth herein. This amended permit is granted subject to the rules and orders of the Commission and laws of the State of Texas and it replaces any previously issued permit. Nothing in this permit exempts the permittee from compliance with other applicable rules and regulations of the Texas Commission on Environmental Quality. This permit will be valid until canceled, amended, or revoked by the Commission, or until the site is completely filled or rendered unusable, whichever occurs first.

APPROVED, ISSUED AND EFFECTIVE in accordance with Title 30 Texas Administrative Code Chapter 330.

ISSUED DATE:

_____
For the Commission

Table of Contents
Comal County & Guadalupe County
Mesquite Creek Landfill
MSW Permit No. 66B

PART NO. 1

I. Size and Location of Facility

A. The Mesquite Creek Landfill is located in Comal County and Guadalupe County, Texas, at the southwest corner of Farm-to-Market Road (FM) 1101 and Kohlenberg Lane, approximately 5 miles north of the intersection of State Highway 46 and FM 1101. The site is approximately two miles east of the I-35 Kohlenberg Road exit, north of the City of New Braunfels.

B. The legal description is contained in Part I of the application found in Attachment A of this permit.

C. Coordinates and Elevation of Site Permanent Benchmark:

Latitude:	N 29° 44' 19.9"
Longitude:	W 98° 01' 30.3"
Elevation:	618.18 feet above mean sea level (msl)

II. Facilities and Operations Authorized

A. Days and Hours of Operation

The operating hours for receipt of waste and for all landfill related operations at this municipal solid waste facility shall be Monday through Sunday, 24 hours per day.

B. Wastes Authorized at This Facility

The permittee is authorized to dispose of municipal solid waste; construction-demolition waste; non-hazardous industrial solid waste that is Class 1 only because of asbestos content; Class 2 and 3 non-hazardous industrial solid waste; and certain special wastes as defined in 30 Texas Administrative Code (30 TAC) §§330.2(137), 330.136, and 330.137(b); and other waste as approved by the Executive Director. The permittee will not be able to accept waste materials other than those mentioned above, and those waste streams that are expressly prohibited by 30 TAC Chapter 330. The acceptance of the special wastes indicated in Part IV of the application (in Attachment A of this permit) is contingent upon such wastes being handled in accordance with 30 TAC §330.136, and in accordance with the listed and described procedures in Part IV of the application (in Attachment A of this permit), subject to the limitations and special provisions provided herein.

C. Wastes Prohibited at This Facility

The permittee shall comply with the waste disposal restrictions set forth in 30 TAC §330.5(e). Hazardous waste from any source other than from conditionally exempt small-quantity generators, waste streams that are expressly prohibited by 30 TAC Chapter 330, and any other wastes not identified in Section II.B of this permit, shall not be accepted for disposal at this facility.

D. Waste Acceptance Rate

Authorized solid waste may be accepted for disposal at this site at the initial rate of 371,000 tons-per-year (approximately 1,316 tons-per-day based on 282 days-per-year of operation) and increasing over time to a maximum acceptance rate of 595,000 tons-per-year (approximately 2,110 tons-per-day based on 282 days-per-year of operation). The actual yearly waste acceptance rate is a rolling quantity based on the sum of the previous four quarters of waste acceptance.

E. Waste Volume Available for Disposal

The total available waste disposal capacity of the landfill is approximately 20.2 million cubic yards. This capacity is based upon the information contained in Section 1.2 and Appendix A of Part III of the application (in Attachment A of this permit), and is the sum of the current waste in place(approximately 3.1 million cubic yards as of March 2005), the remaining permitted capacity (approximately 3.1 million cubic yards as of March 2005), and the additional capacity obtained through the lateral landfill expansion authorized under this permit as amended (approximately 14 million cubic yards). The estimated life of the site is approximately 26.6 years.

F. Facilities Authorized

The permittee is authorized to operate a Type I municipal solid waste landfill that utilizes a combination of area excavation and aerial fill subject to the limitations contained herein. All waste disposal activities under this permit are to be confined to the following facilities, which shall include disposal units, structures, appurtenances, or improvements: access roads, dikes, berms, and temporary drainage channels, permanent drainage structures, detention ponds, landfill gas management system, contaminated water management system, final cover, ground-water monitoring system, landfill liner system, leachate collection system, and other improvements.

G. Changes, Additions, or Expansions

Any proposed facility changes must be authorized in accordance with the Texas Commission on Environmental Quality (TCEQ) permit amendment or modification rules, 30 TAC Chapters 305 and 330.

III. Facility Design, Construction, and Operation

A. Facility design, construction, operation, and/or maintenance must comply with the provisions of this permit; 2005 Commission Rules, including 30 TAC §§330.51 through 330.58, 330.62 through 330.64, 330.111 through 330.139, 330.200 through 330.206, 330.230 through 330.238, 330.41 through 330.242, 330.250, 330.253 through 330.256, 330.280 through 330.281, 330.283 through 330.284, and 330.300 through 330.305; special provisions contained in this permit; and Parts I through IV of the application found in Attachment A of this permit, and shall be managed in a manner to protect human health and the environment.

B. The entire waste management facility shall be designed, constructed, operated, and maintained to prevent the release and migration of any waste, contaminant, or pollutant beyond the point of compliance as defined in 30 TAC §330.2(98), and to prevent inundation or discharge from the areas surrounding the facility components. Each receiving, storage, processing, and disposal area shall have a containment system that will collect spills and incidental precipitation in such a manner as to:

1. Preclude the release of any contaminated runoff, spills, or precipitation;

2. Prevent washout of any waste by a 100-year storm; and

3. Prevent run-on into the disposal areas from off-site areas.

C. The site shall be designed and operated so as not to cause a violation of:

1. The requirements of §26.121 of the Texas Water Code;

2. Any requirements of the Federal Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements of §402, as amended, and/or the Texas Pollutant Discharge Elimination System (TPDES), as amended;

3. The requirements under §404 of the Federal Clean Water Act, as amended; and

4. Any requirement of an area wide or statewide water quality management plan that has been approved under §208 or §319 of the Federal Clean Water Act, as amended.

D. Contaminated water shall be handled, stored, treated, disposed of, and managed in accordance with 30 TAC §330.55(b)(6), 30 TAC §330.56(o), and Part III, Attachment 15 of the application (in Attachment A of this permit). Other methods may be considered for approval as a modification to this permit.

E. Best management practices for temporary erosion and sedimentation control shall remain in place until sufficient vegetative cover has been established to control and mitigate erosion on areas having final cover. Vegetative cover will be monitored and maintained throughout the post-closure care period in accordance with Part III, Attachment 13 of the application (in Attachment A of this permit).

F. Storm water runoff from the active portion of the landfill shall be managed in accordance with 30 TAC §§330.55(b)(3) and 330.133(b), and as described in Part III of the application (in Attachment A of this permit).

G. All facility employees and other persons involved in facility operations shall be qualified, trained, educated, and have a level of experience commensurate with their duties. The permittee shall comply with 30 TAC §330.52(b)(9) and as described in Part I of the application (in Attachment A of this permit). The permittee shall further ensure that personnel are familiar with safety procedures, contingency plans, the requirements of the Commission's rules and this permit, commensurate with their levels and positions of responsibility, in accordance with Part III and Part IV of the application (in Attachment A of this permit). Facility employees involved in facility operations shall obtain the appropriate level of operator certification as required in the statute and applicable regulations.

H. The facility shall be operated to minimize bird populations using appropriate control procedures and best management practices. An increase in bird activity that is deemed to be hazardous to safe aircraft operations by the Federal Aviation Administration will result in prompt mitigation actions.

IV. Financial Assurance

A. Authorization to operate the facility is contingent upon compliance with provisions contained in this permit and maintenance of financial assurance in accordance with 30 TAC Chapter 330, Subchapter K and 30 TAC Chapter 37.

B. Within 60 days after the date of issuance of this permit, the permittee shall provide financial assurance instrument(s) for demonstration of closure of the landfill in accordance with 30 TAC §§330.253(d)(6) and 330.281. The closure cost estimate of $2,769,983 (2005 dollars) is based on estimates as described in Part III, Attachments 8 and 12 of the application (in Attachment A of this permit). The financial assurance instrument shall be in an amount that includes the inflation factors for each calendar year following 2005 until the year the permit is issued.

C. Within 60 days after the date of issuance of this permit, the permittee shall provide financial assurance instrument(s) for demonstration of post-closure care of the landfill in an amount for the entire landfill facility. The post-closure care cost estimate of $4,767,109 (2005 dollars) is based on estimates as described in Part III, Attachments 8 and 13 of the application (in Attachment A of this permit). The financial assurance instrument shall be in an amount that includes the inflation factors for each calendar year following 2005 until the year the permit is issued.

D. The owner and/or operator shall annually adjust closure and/or post-closure care cost estimates for inflation within 60 days prior to the anniversary date of the establishment of the financial assurance instrument pursuant to 30 TAC §§330.281 and 330.283, as applicable.

E. If the facility's closure and/or post-closure care plan is modified in accordance with 30 TAC §305.70, the permittee shall provide new cost estimates in current dollars in accordance with 30 TAC §§330.253(d)(6), 330.254(b)(3)(D), 330.281, and 330.283, as applicable. The amount of the financial assurance mechanism shall be adjusted within 45 days after the modification is approved. Adjustments to the cost estimates and/or the financial assurance instrument to comply with any financial assurance regulation that is adopted by the TCEQ subsequent to the issuance of this permit shall be initiated as a modification within 30 days after the effective date of the new regulation.

V. Facility Closure

Closure of the facility shall commence:

A. Upon completion of the disposal operations and the site is completely filled or rendered unusable in accordance with Part III, Attachment 7 of the application (in Attachment A of this permit);

B. Upon direction by the Executive Director of the TCEQ for failure to comply with the terms and conditions of this permit or violation of State or Federal regulations. The Executive Director is authorized to issue emergency orders to the permittee in accordance with §§ 5.501 and 5.512 of the Water Code regarding this matter after considering whether an emergency requiring immediate action to protect the public health and safety exists;

C. Upon abandonment of the site;

D. For failure to secure and maintain an adequate bond or other financial assurance as required; or

E. Upon the permittee's notification to the TCEQ that the landfill will cease to accept waste and no longer operate at any time prior to the site being completely filled to capacity.

VI. Site Completion and Closure

The landfill shall be completed and closed in accordance with 30 TAC §330.250 and the applicable portions of 30 TAC §§330.253 through 330.256. Upon closure, the permittee shall submit to the Executive Director documentation of closure as set out in 30 TAC §330.253. Post-closure care and maintenance shall be conducted in accordance with Part III, Attachment 13 of the application (in Attachment A of this permit), for a period of 30 years or as otherwise determined by the Executive Director pursuant to 30 TAC §330.254(b).

VII. Standard Permit Conditions

A. Parts I through IV, as described in 30 TAC §330.51(a), which comprise the Permit Application for MSW Permit No. 66B are hereby made a part of this permit as Part No. 2: Attachment A. The permittee shall maintain Parts I through IV of the application and Part V, as described in 30 TAC §330.51(a), at the facility and make them available for inspection by TCEQ personnel. The contents of Part III of the application in Attachment A of this permit shall be known as the "Approved Site Development Plan," in accordance with 30 TAC §§330.54 and 330.55. The contents of Part IV of the application in Attachment A of this permit shall be known as the "Approved Site Operating Plan," in accordance with 30 TAC §§330.57 and 330.114.

B. Part No. 3: Attachment B, consisting of minor amendments, modifications, and corrections to this permit, is hereby made a part of this permit.

C. The permittee shall comply with all conditions of this permit. Failure to comply with any permit condition may constitute a violation of the permit, the rules of the Commission, and the Texas Solid Waste Disposal Act, and may be grounds for an enforcement action, revocation, or suspension.

D. A pre-construction conference shall be held pursuant to 30 TAC §330.64(c) prior to beginning any construction within the permit boundary to ensure that all aspects of this permit, construction activities, and inspections are met. Additional pre-construction conferences may be held prior to the opening of the facility.

E. A pre-opening inspection shall be held pursuant to 30 TAC §330.64(d).

F. The permittee shall monitor sediment accumulations in ditches and culverts on a quarterly basis, and remove sedimentation to re-establish the design flow grades on an annual basis or more frequently if necessary to maintain the design flow.

G. The tracking of mud off-site onto any public right-of-way shall be minimized.

H. In accordance with 30 TAC §330.7(a), the permittee shall record in the deed records of Comal County and Guadalupe County, a metes and bounds description of all portions within the permit boundary on which disposal of solid waste has and/or will take place. A certified copy of the recorded document(s) shall be provided to the Executive Director in accordance with 30 TAC §330.7(b).

I. Daily cover of the waste fill areas shall be performed with soil that has not been in contact with waste or with an alternate daily cover which has been approved in accordance with 30 TAC §§330.133(c) and 305.70. Intermediate cover, run-on, and runoff controls shall not be constructed from soil that has been scraped up from prior daily cover or which contains waste.

J. During construction and operation of the facility, measures shall be taken to control runoff, erosion, and sedimentation from disturbed areas. Erosion and sedimentation control measures shall be inspected and maintained at least monthly, or more frequently as represented in Part IV of the application (in Attachment A of this permit), and after each storm event that meets or exceeds the design storm event. Erosion and sedimentation controls shall remain functional until disturbed areas are stabilized with established permanent revegetation. The permittee shall maintain the on-site access road and speed bumps/mud control devices in such a manner as to minimize the buildup of mud on the access road and to maintain a safe road surface.

K. In complying with the requirements of 30 TAC §330.123, the permittee shall consult with the local District Office of the Texas Department of Transportation or other authority responsible for road maintenance, as applicable, to determine standards and frequencies for litter and mud cleanup on state, county, or city maintained roads serving the site. Documentation of this consultation shall be submitted within 30 days after the permit has been issued.

L. The permittee shall retain the right of entry onto the site until the end of the post-closure care period as required by 30 TAC §330.62(b).

M. Inspection and entry onto the site by authorized personnel shall be allowed during the site operating life and until the end of the post-closure care period as required by §361.032 of the Texas Health and Safety Code.

N. The provisions of this permit are severable. If any permit provision or the application of any permit provision to any circumstance is held invalid, the remainder of this permit shall not be affected.

O. Regardless of the specific design contained in Attachments A and B of this permit, the permittee shall be required to meet all performance standards required by the permit, the regulations, and as required by local, state, and federal laws or ordinances.

P. If differences arise between these permit provisions (including the incorporated Parts I through IV of the application in Attachment A of this permit) and the rules under 30 TAC Chapter 330, the permit provisions shall take precedence.

Q. The permittee shall comply with the requirements of the air permit exemption in 30 TAC §106.534, if applicable, and the applicable requirements of 30 TAC Chapters 106 and 116.

R. All discharge of storm water will be in accordance with the U.S. Environmental Protection Agency NPDES requirements and/or the State of Texas TPDES requirements, as applicable.

VIII. Incorporated Regulatory Requirements

A. To the extent applicable, the requirements of 30 TAC Chapters 37, 281, 305, and 330 are adopted by reference and are hereby made provisions and conditions of this permit.

B. The permittee shall comply with all applicable federal, state, and local regulations and shall obtain any and all other required permits prior to the beginning of any on-site improvements or construction approved by this permit.

IX. Special Provisions

None

PART NO. 2

Attachment A

Parts I through IV of the permit application effective with the date on the permit.

PART NO. 3

Attachment B

Minor amendments, corrections, and modifications may be issued for MSW Permit No. 66B.

The minor amendment, modification, or correction document prepared and executed with an approval date shall be attached to this attachment. There is no limitation on the number of these documents that may be included in Attachment B of this permit.