

SOAH DOCKET NO. 582-15-2082
TCEQ DOCKET NO. 2015-0069-MSW

APPLICATION OF 130 § BEFORE THE STATE OFFICE
ENVIRONMENTAL PARK, LLC § OF
FOR PROPOSED PERMIT NO. § ADMINISTRATIVE HEARINGS
2383 §

**ERRATA FOR TJFA, LP's & ENVIRONMENTAL PROTECTION IN THE
INTEREST OF CALDWELL COUNTY'S (and ALIGNED INDIVIDUAL
PROTESTANTS') REPLY TO RESPONSES TO CLOSING ARGUMENTS**

TO THE HONORABLE ADMINISTRATIVE LAW JUDGES KERRIE JO
QUALTHROUGH AND CASEY BELL:

Protestants today filed their Reply to Responses to Closing Arguments. Attached to that Reply brief was a document labeled Attachment A, which included excerpts from witness testimony that supported the arguments in Protestants' reply brief. Protestants' intention in including this Attachment was to create a single, convenient document that included all relevant testimony regarding certain issues addressed in the Reply Brief.

The Attachment A that was filed with Protestants' Reply Brief, however, is not the final document that was intended to be filed. In fact, it erroneously includes deposition testimony from Tracy Bratton. This document was included in error. The corrected version of Attachment A (without Mr. Bratton's testimony) is attached to this Errata.

To avoid confusion, Protestants are also refile, separately, their Reply Brief, with the corrected version of Attachment A.

Protestants regret the error.

Respectfully submitted,



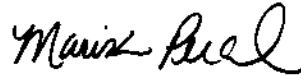
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CERTIFICATE OF SERVICE

By my signature, below, I hereby certify that a true and correct copy of the foregoing document has been served on the following attorneys of record by electronic mail, facsimile, or US Mail on this 22nd day of December, 2016.



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Attachment A

**Excerpts From Dr. Lauren Ross' Prefiled Testimony and Hearing Testimony, in
support of Protestants' Reply to Response to Closing arguments, Regarding
Reservoir 21 and the Dam¹**

Ex. P-5 (Dr. Ross' prefiled testimony), pp. 38-44:

Q: Where is the proposed 130 Environmental Park LLC landfill facility located in Caldwell County with respect to surface hydrology?

A: The proposed 130 Environmental Park LLC is located within the watershed of Dry Creek and an unnamed tributary to Dry Creek. It is proposed to be located upstream of the Plum Creek Floodwater Retarding Structure No. 21.

Q: Please describe the Plum Creek Floodwater Retarding Structure No. 21.

A: Plum Creek Floodwater Retarding Structure No. 21 was constructed in 1962 on Dry Creek, a tributary to Plum Creek, and five miles north of Lockhart, Texas. The dam is a homogeneous earthfill structure, 2,982 feet long and a maximum of 30 feet high. Front and back slopes are 2.5 horizontal to 1 vertical. Floodwater Retarding Structure No. 21 was constructed to provide flood control for storm runoff from the 5,075-acre upstream watershed. The original evaluated project life was 50 years. The dam was designed to temporarily store runoff from a 25-year frequency rainfall, or 5.45 inches of runoff from the contributing watershed, without flow through the earthen auxiliary spillway. This standard was based on Class A, low hazard conditions wherein a dam break would affect downstream agricultural land and facilities but not result in potential loss of life. The Dam Assessment Report, however, reclassified the dam as high hazard due to downstream urban development in the intervening years. The Texas Commission on Environmental Quality Simplified Breach Method predicted a 21-foot catastrophic flood breach wave with a maximum discharge of 54,660 cubic feet per second. Such a breach would place at risk 26 downstream houses, three Farm-to-Market roads and three county roads used by more than 6,000 vehicles daily. Based on Floodwater Retarding Structure No. 21's reclassification as a high hazard dam, the appropriate design standard would be temporary storage of the 100-year, 10-day storm without flow through the earthen auxiliary spillway, with (Protestants' Exhibit 5, p. 39) a drawdown of at least 85% of the temporary storage within 10 days, and capacity to the pass runoff from the Probable Maximum Precipitation (PMP) storm without overtopping. The current dam does not meet these high-hazard standards. Therefore the failure potential for this structure due to deficient hydrologic capacity is *"judged to be high."* Furthermore, a dam inspection by M&E Consultants (for Natural Resources Conservation Service) and a representative of

¹ For ease of reference, Protestants have compiled relevant excerpts of Dr. Ross' testimony and Bob Harden's testimony that support the arguments in Protestants' reply to responses to closing arguments.

the Plum Creek Conservation District on November 3, 2009 found that grass cover on the dam and auxiliary spillway was poor due to drought and grazing. Poor vegetation cover due to drought and grazing increases the risk of soil erosion and further contributes to the failure potential of this dam, beyond its deficient hydrologic capacity.

Q: Do you have information about what it would take to rehabilitate the Floodwater Retarding Structure No. 21?

A: Yes. Based on information presented in a public hearing that I attended on February 3, 2016 hosted by the Plum Creek Conservation District, rehabilitation of Floodwater Retarding Structure No. 21 would consist of the following elements:

- a. Removing the existing principal spillway inlet and constructing a new principal spillway inlet tower and 42-inch discharge conduit. The principal spillway crest would be lowered approximately 5.94 feet to an elevation 500.0.
- b. The dam would be lengthened by 400 feet to the east to close off the existing auxiliary spillway. A new, 300-foot wide reinforced concrete auxiliary spillway with a crest elevation of 517.4 feet would be constructed.
- c. The top of the dam would be raised approximately 4.0 feet to elevation 526.5 feet.
- d. New rock riprap wave protection would be provided (presumably on the upstream dam face).
- e. Upstream and downstream embankment slopes would be flattened to slopes of 3 horizontal to 1 vertical.

The proposed improvements would provide a safer dam by beginning water evacuation behind the dam more quickly; and by providing a dam and spillway structure more resistant to failure through seepage, over-topping, and/or slope instability. The proposed flatter slopes would reduce the slope instability potential and allow increased rainfall infiltration and more robust vegetation during drought conditions. The proposed dam improvements are projected to cost \$6,285,600. The Natural Resources Conservation Service (NRCS) share of the total cost would be \$4,360,400. Local sponsors would be required to contribute \$1,925,200. Whether federal agencies would participate in the project's cost share beyond its original project life is questionable, as is the availability of funds from local sponsors.

Q: Do you have concerns regarding whether proposed improvements for Floodwater Retarding Structure No. 21 are consistent with findings in the Dam Assessment Report?

A: Yes. Information presented in the public hearing on February 3, 2016 failed to address whether proposed improvements for Floodwater Retarding Structure No.21 would achieve the design standards required for high-hazard dams. Specifically, there is no information documenting storage of the 100-year, 10-day storm without flow through the auxiliary spillway, drawdown of at least 85% of the temporary storage capacity within 10 days, or capacity to pass runoff from the Probable Maximum Precipitation storm without overtopping, as recommended in the dam assessment report. The preliminary Floodwater Retarding Structure No. 21 improvements design fails to account for construction of the proposed 202-acre 130 Environmental Park LLC Landfill and supporting facilities within this structure's contributing watershed. The Floodwater Retarding Structure No. 21 improvement design assumes that future development in the contributing watershed, including the proposed 130 Environmental Park LLC landfill will fully mitigate storm runoff impacts. This assumption, however, fails to address downstream flood protection for several reasons.

Q: Please explain why, in your opinion, this assumption fails to address downstream flood protection.

A: Existing soils at the proposed landfill site are primarily Wilson gravelly loam, with 1 to 5 percent slopes. The Natural Resource Conservation Service Web Soil Survey describes their saturated hydraulic conductivity rating as 8×10^{-5} centimeters per second. The available water capacity for these soils is 0.13 centimeters per centimeter, and the available water storage is 19 centimeters in the soil profile from 0 to 150 centimeters. By contrast, the proposed final cover system for the landfill will include a flexible membrane cover. This flexible membrane layer, consisting of 40-mil thick linear low-density polyethylene, would limit infiltration into the proposed landfill subsurface, compared to existing conditions, and limit the available water capacity of the final landfill cover. Both of these factors would increase storm runoff volume from the site compared to current conditions.

The proposed landfill design includes a perimeter drainage system designed to convey runoff from the 25-year and 100-year rainfall events. Detention ponds are proposed to provide storage to mitigate landfill impacts on downstream receiving channels. The landfill design, however, fails to account for the following factors:

- Final cover drainage swales and chutes are designed to convey the 25-year, 24-hour peak flow rates. These peak flow rates, however, fail to account for decreases in times of concentration over the landfill surface that will change the timing of runoff in Floodwater Retarding structure No. 21 reservoir.**
- Protestants' Exhibit 5-Y shows that detention ponds and drainage structures are proposed to be located either close or immediately adjacent to the FEMA-mapped 100-year floodplain. Given the limitations of both floodplain mapping, and of the**

100-year flood design standard, there is a significant probability of flood encroachment of the proposed drainage facilities over the 44-year projected facility life and the 30-year post closure period. The probability of a flood equal to or greater than the 100- year flood during the projected 44-year landfill operational life is 36 percent. The probability of a flood equal to or greater than the 100-year flood during the projected landfill operational life plus 30-year post-closure period is 52 percent. In other words, there is a better than 50-50 chance of a flood greater than the 100-year flood, with more extensive inundation and erosion during the landfill operational life and post-closure period. A landfill storm runoff retention berm failure during flood conditions would further exacerbate flooding downstream.

- Hydraulic modeling for the proposed landfill was accomplished based on a downstream boundary condition resulting from a maximum water surface elevation in Reservoir No. 21 of 518.9 feet. There is no analysis, however, of the effect of raising the dam top from 4.0 feet to 526.5 feet, or constructing a new auxiliary spillway with a crest elevation of 517.4 feet on the hydraulic modeling. These changes may result in higher upstream elevations and increased risk of landfill drainage structure erosion and/or inundation.
- Protestants' Exhibit 5-Z: Comparison of Detention Pond Berm Elevations and 100-Year Water Elevations compares applicant's calculated maximum water surface elevation and perimeter berm elevation to the 100-year water elevation in adjacent streams. Elevation differences of more than 13 feet are predicted where segments of the floodplain and pond berm boundaries are virtually collinear (see Ponds 1 and 2, for example). Differences of this magnitude indicated that it may not be possible to construct berms for the proposed detention ponds without incursions into the 100-year flood plain. These incursions will reduce flood storage behind Floodwater Retarding Structure No. 21.

Q: Do you have concerns regarding the reliability of the proposed landfill detention ponds?

A: Yes. Flood storage capacity within the proposed landfill detention ponds must be maintained to achieve no increase in peak runoff from the proposed landfill. There are factors, however, that limit indefinite maintenance of the proposed flood storage capacity. Stormwater management basins, including flood detention basins require regular maintenance to function as designed. This maintenance includes repairing eroded berms, removing sediment, maintaining outfall clearance, and controlling vegetation to maintain berms. After the landfill is closed, however, the landfill operator would only be obliged to maintain the proposed landfill site and structures for 30 years. Furthermore, the post-closure care period may be shortened by the TCEQ if 130 Environmental Park LLC, submits the required certification with supporting documents, signed by an independent registered professional engineer. Without maintenance, the detention basins are unreliable for continuing to function as designed. Further, existing water availability for

the proposed landfill operations is limited. To the extent that proposed detention storage would be used to store water and supplement the available water supply, the flood mitigation capacity of the proposed ponds would be impaired.

Q: Do you have any concerns regarding the potential impacts from erosion and sedimentation?

A: Yes. Vegetation clearing and regrading associated with construction and operation of the proposed landfill and associated drainage system and detention ponds will result in erosion. The landfill application is vague and noncommittal regarding which specific construction-phase erosion and sedimentation controls would be implemented. Furthermore, the application's erosion calculations fail to account for portions of the landfill cover that will be occupied by drainage berms that are steeper than the assumed four horizontal to one vertical slopes in the erosion calculations. Proposed Floodwater Retarding Structure No. 21 improvements fail to account for increases in flood flows associated with sedimentation into either the proposed landfill drainage system or into Floodwater Retarding Structure No. 21 flood pool. (Protestants' Exhibit 5, p. 44)

Q: Do you have an opinion about the potential consequences if the proposed improvements to the Floodwater Retarding Structure No. 21 are not completed?

A: Yes. The proposed landfill storm runoff management system is not designed to control runoff for the Probable Maximum Precipitation event, which is the design storm event for a high-hazard dam. Adequate design of Floodwater Retarding Structure No. 21 improvements to meet this standard must consider, therefore, the hydrologic impacts of the proposed landfill during these design conditions. If the proposed improvements to Floodwater Retarding Structure No. 21 are not funded and completed, the proposed landfill will increase the risk of downstream flooding because:

- The current Floodwater Retarding Structure No. 21 design has not been shown to mitigate increased runoff during the Probable Maximum Precipitation event;
- Construction of the proposed landfill runoff management and drainage facilities will likely encroach into the existing 100-year flood plain;
- There is an increased risk of storm runoff drainage system failure compared to flood mitigation provided by the existing natural landscape;
- Landfill construction is likely to result in increased sediment in the Floodwater Retarding Structure No. 21 reservoir; and
- The maintenance period for the landfill storm water management system is limited to 30 years and, with TCEQ approval, could be even shorter.

Ex. P-5, pp. 46-47:

“Failure to account for the effect of existing wetland features and ponds in hydrologic calculations, as required by FEMA standard policies

Q: Is there a requirement to account for storage in determining existing site runoff?

A: Yes. Existing storm runoff storage on the proposed landfill site affects discharge. The proposed landfill will alter the hydrologic characteristics of its footprint. Based on the landfill application, there are currently eight open-water stock ponds or natural water features on the site. Altogether they occupy more than 20 acres. There are additionally 46 emergent wetlands that have been identified onsite. Both the open-water and wetland features provide existing upstream and supplemental flood storage within the Floodwater Retarding Structure No. 21 contributing watershed. This storage would be eliminated by the proposed regular landfill contours, graded to efficiently drain water from its surface. Even though wetland features were deemed isolated by the Applicant and not regulated as waters of the United States, they still have a significant hydrologic storage impact on downstream flows. The Federal Emergency Management Agency has established program standards for flood risk analysis and mapping activities in adherence to National Flood Insurance Program requirements. Those standards have been published as a FEMA policy and are included here as Protestants’ Exhibit 5-AF: Federal Insurance and Mitigation Administration Policy. Standard SID # 81 on page 16, effective as of November 1, 2009 requires ineffective and non-conveyance areas must be designated to reflect the actual conditions (such as topography and surface roughness) as closely as practical. The site stock ponds, water features and emergent wetland would constitute such ineffective and non-conveyance areas.

Q: Has the applicant considered the existing ponds and wetlands on the site in performing their hydrologic analysis?

A: Not that I can tell.

Excerpts from Lauren Ross’ Hearing Testimony, Supporting Claims Made in the Reply Brief regarding impacts to the reservoir and dam:

Tr. V.6, p. 1365:

Q [by Magee]: Okay.

A [by Dr. Ross]: Mr. Magee, can I go back and -- I also meant to say an answer to a previous question that another reason why they’re important is because they are upstream of the reservoir No. 21, and so sediment into that reservoir will decrease its flood capacity.

Q: So when I asked why was this important to have such plans, you'd like to amend that answer and include that?

A: Right.

Excerpts From Bob Harden's Prefiled Testimony Supporting Protestants' Reply to Responses to Closing Arguments, Regarding Reservoir 21 and the Dam

Ex. P-9 (Harden's prefiled testimony), pp. 21-23:

Q: Is there an existing reservoir at the Landfill site?

A: Yes. If you look at the southern area of the Landfill property boundary shown on Exhibit 9-E, you will see that the Soil Conservation Service Site 21 Reservoir is located downstream of the Landfill site. This reservoir was originally constructed and classified as a NRCS low hazard dam. Recently, NRCS has now classified the reservoir as a high hazard dam due to additional home construction and human presence downstream of the reservoir. With this added hazard classification, the reservoir requires greater safety restrictions to protect human health and welfare.

Q: In your opinion, is there a potential for the Landfill to impact this reservoir?

A: Yes. The Landfill, as designed, will increase rainfall-runoff downstream of the Facility in a manner that contradicts the design standards of that reservoir.

Q: In your opinion, how does the potential impact of the Landfill on this reservoir constitute a hazard to human health and welfare?

A: Due to changes in land cover of the Facility, the total runoff volume increases. The storm water ponds are not designed to retain this volume increase in runoff. The increased runoff from the Landfill will potentially cause the floodwaters stored in the reservoir to more frequently flow over the top of the dam, and also increase the time it takes to drain the floodwater to be ready for a new flood event. Each of these issues is a specific design standard for the reservoir. So, the increased runoff from the Landfill Facility increases the chance of a dam breach and dam failure with subsequent potential loss of human life downstream of the reservoir. In my opinion, the lack of retaining runoff volumes does not comply with TAC §330.63(c)(1)(D)(iii) which requires an analysis to demonstrate that existing drainage patterns will not be adversely altered as a result of the proposed Landfill development.

Q: Does the application address the Landfill effects on the design standards of Reservoir 21?

A: No, the application contains no discussion or analysis that addresses this concern.

Ex. P-9, pp. 24-26:

Q: So, what are your overall conclusions with regard to the application?

A: The design of the Landfill Facility appears to be an overly “fit” or overly calculated design relative to the natural surface water system. What I mean by this is the Facility uses as much space as is possible up to and near the boundary of the existing floodplain over a large portion of the perimeter of the Facility. It appears to be an attempt at a calculated solution rather than a careful approach.

When modeling a surface water system, the models employed have degrees of uncertainty in the model inputs that are assumed by the engineer. More conservative assumptions lead to larger storm water ponds, greater flood elevations and greater flood plain delineations, while less conservative assumptions lead to less safety factor in Facility design. As I have discussed, the Applicant has not justified several of its assumptions in its drainage analysis and flooding analysis, including its assumptions regarding the nature of contributing flow channels and the unit hydrograph utilized. Considering that the Applicant has not justified the assumptions underlying its analysis, the Applicant has not demonstrated compliance with the TCEQ regulations related to drainage and flooding.

But, what is far more important in hydrologic design and Facility siting is to consider the potential for unknown events, changed conditions in the future, the hazard potential, and inherent variability in hydrology to arrive at a hydrologic design that provides a suitable level of protection for safeguarding the health, welfare, property, and the environment. Often, it is best to design for “what could go wrong” rather than trying to “exactly calculate” a hydrologic model to fit regulatory requirements. In this case, there are several natural conditions present that give rise to greater concerns. These include:

- (1) just downstream, the presence of Plum Creek Reservoir 21 and the associated and documented safety concerns of this reservoir,
- (2) The greater rainfall runoff volumes from the Facility that do not comply with the design standards of the reservoir and increase the chance of dam failure.
- (3) The large extent of the Facility boundary adjacent to the existing floodplain,
- (4) the inevitability of the floodplain to expand over time with greater degrees of urbanization,
- (5) Landfill site access is limited to only one road that would be at risk in a large future flood event and associated safety concerns for emergency personnel accessibility to the site,
- (6) the close proximity of drainages located downhill of the Landfill, and
- (7) the potential for pollution into these drainages to occur and be unmonitored by the groundwater monitoring system.