



FRIENDS *of* GREAT SALT LAKE

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June 19, 2019

Ty Howard
Director, Utah Division of Waste Management and Radiation Control
P.O. Box 144880
Salt Lake City, UT 84114-4880

RE: Promontory Point Resources Class I Permit Modification

Mr. Howard:

Thank you for this opportunity to submit a surreply regarding the Utah Division of Waste Management and Radiation Control's (Division) consideration of Promontory Point Resources, LLC's (PPR) permit modification request. Specifically, this surreply addresses PPR's January 15, 2019, reply to the public comments submitted to the Division on this matter (PPR's Reply or Reply).

As an initial matter, attached as Exhibit 1 is a letter from the President of Western Resource Advocates (WRA) clarifying WRA's role in the submission of the February 14, 2018 comment letter sent to the Division. As is made clear from the February 2018 submission and WRA's attached letter, WRA served in the capacity of legal counsel for FRIENDS of Great Salt Lake (FRIENDS) when submitting the February 2018 comments. As Ms. Calmes stated in the 2018 comment letter, she made those comments "on behalf of FRIENDS" as part of her role as staff attorney for WRA. Unfortunately, Ms. Calmes should have signed the letter in her capacity as WRA legal counsel for FRIENDS, rather than as staff attorney for WRA, so some confusion may be understandable. To be clear, WRA has acted as outside counsel for FRIENDS on a number of matters over the past decade, including several matters before the Executive Director of the Utah Department of Environmental Quality, as well as in state courts, including the Utah Supreme Court. If the Division needs additional clarification from WRA on this issue, FRIENDS would be happy to provide it.

FRIENDS is a non-profit organization that has, as its mission, the preservation and protection of the Great Salt Lake ecosystem as well as Great Salt Lake's watershed, and the organization seeks to increase public awareness and appreciation of the Lake through education, research, advocacy, and the arts. Our organization has long been involved in the protection and restoration of Great Salt Lake, its ecosystems and its watershed, advocating for ways in which the public may enjoy these resources by fishing, bird-watching, boating, photographing, hiking and studying these natural areas. FRIENDS includes members from businesses and industry that depend on and benefit from the Great Salt Lake ecosystem. On behalf of its members, FRIENDS frequently participates in agency processes, such as this one, that affect Great Salt Lake. FRIENDS considers

this participation to be critical to its mission and to be valuable as a means of influencing the administration of lands that will lead to the protection and preservation of the Greater Great Salt Lake watershed.

To begin, PPR's Reply to FRIENDS' comments constituted an insufficient and inappropriate cursory dismissal of the real concerns FRIENDS raised. Because PPR's Reply was so broad and demonstrated a complete lack of understanding regarding the danger that its landfill and its improper and inadequate monitoring system pose to Great Salt Lake through groundwater contamination, this surreply addresses these concerns and provides additional supporting data that demonstrate why PPR's dismissal of the risks was improper. PPR's failure to follow the administrative rules that govern this permit modification are also addressed in these comments, since that failure is directly related to the information commenters had access to when the February 2018 comments were submitted. In addition, PPR's Reply references and relies on significant new information that PPR submitted only after FRIENDS' and others' comments had been submitted. This surreply is therefore the appropriate forum for FRIENDS and others to respond to that new information.

In this surreply, FRIENDS will first address PPR's claim that the majority of comments are "beyond the scope and irrelevant to the Class I Permit modification" by pointing out why that is not the case. January 15, 2019 PPR Reply to FRIENDS (PPR Reply to FRIENDS) at 1. Second, FRIENDS will discuss the relevance and appropriateness of the exhibits that were specifically incorporated into the comments submitted by FRIENDS, and how the company's response to and dismissal of those exhibits is in error. Third, FRIENDS' will discuss the Hydrogeologic Study of Promontory Point Resources LLC Phase I Landfill Cell Permit Modification for Promontory Point Resources, LLC (2018 Hydrogeologic Study or Study) referred to by PPR in its Reply, including the deficiencies of that document. Finally, FRIENDS' will refute PPR's contention that the "locations, depths, and construction of the four new monitor wells installed as part of the Hydrogeologic Study meet the requirements of regulations contained in Utah Admin. Code R315-308-2." PPR Reply to FRIENDS at 2.

1. Relevance of FRIENDS' Comments

In its Reply, PPR mistakenly dismissed FRIENDS' comments as outside the scope of the Class I permit modification. PPR Reply to FRIENDS at 1. Specifically, the company stated that many of the comments "were beyond the scope of and irrelevant to the Class I Permit modification pertaining to the monitoring well relocations." *Id.* The company then implies that FRIENDS' comments pertain strictly to PPR's attempt to convert its landfill to a Class V facility rather than to the Class I modification request. *Id.* However, the company is mistaken in this assertion. While there are some regulatory differences between Class I and Class V landfills, those differences do not pertain to the concerns FRIENDS raised relating to protection of human health and the environment. The regulatory requirements protecting the Great Salt Lake ecosystem against contamination from the landfill through groundwater are identical for either a Class I or Class V landfill. It is therefore disingenuous for PPR to dismiss FRIENDS' concerns regarding groundwater contamination from the landfill as irrelevant to the pending permit modification request just because they may have originally been directed at the Class V permitting process. The information submitted to the Division by FRIENDS in its comments, including the

information contained in its exhibits, is directly pertinent to this modification request and must be considered by the Director in making his decision in this matter. PPR itself has stated that “the exact same standards” apply for a Class I and Class V landfill. *See, e.g.*, “Company abruptly withdraws bid to bring out-of-state industrial waste to a landfill it is building near the Great Salt Lake,” Salt Lake Tribune, Feb. 22, 2018, attached as Exhibit 2.

2. Relevance and Appropriateness of FRIENDS’ Comments and Exhibits

In its reply, PPR mistakenly dismissed FRIENDS’ comments related to the exhibits that were referenced and incorporated by reference in those comments. PPR Reply to FRIENDS at 1. PPR claimed to respond to each of the exhibits separately, but PPR failed to respond to FRIENDS’ comments relying on the exhibits. Basic principles of Utah administrative law dictate that comments submitted in administrative matters must support substantive claims not only with citations but also with the actual sources that are referenced and relied upon. As noted in Utah Admin. Code R305-7 and the Utah Administrative Procedures Act, “[i]t is not sufficient under Section 63G-4-201(3) to file a general statement of disagreement” in a matter before an administrative agency. *See* R305-7-203(4); *see also* Utah Code Section 63G-4-201(3) (requiring a statement of the facts and reasons forming the basis for relief). Rule 305-7-202(1) dictates that “if a public comment period is provided during the permit application process, a person who challenges a Permit Order, including the permit applicant, may only raise an issue or argument during the special adjudicative proceeding that: (a) the person raised during the public comment period; and (b) was supported with sufficient information or documentation to enable the Director to fully consider the substance and significance of the issue.”

Just because FRIENDS included exhibits along with its comments does not mean that FRIENDS’ comments should be dismissed or ignored. The exhibits were included to support FRIENDS’ specific comments on PPR’s inadequate groundwater monitoring proposal. PPR failed to respond to those concerns either directly to FRIENDS or indirectly in its responses to the authors of some of the exhibits. Specifically, PPR failed to adequately address FRIENDS’ concerns about: (1) the overall need for better hydrogeologic data, site evaluation, and studies to ensure protection of the Great Salt Lake ecosystem from contamination; (2) compliance with Utah Admin. Code R315-308-2(2) (requiring placement of groundwater monitoring wells at “appropriate locations to yield samples from the uppermost aquifer *and all hydraulically connected aquifers*”) (emphasis added); (3) whether the wells would perform their intended function to detect contamination due to the subsurface geology of the area; (4) evaluation of potential preferential pathways for leachate through fractures; (5) further study of the fragile microbialite fields and lakebed springs based on evidence suggesting a direct connection between groundwater under the landfill area and the lakebed where they form; (6) evidence indicating further study of the potential for earthquakes and fault-lines is needed; and (7) numerous reports of stormwater flooding onto the road and areas surrounding the landfill that potentially include Great Salt Lake (pictures included).

Also misplaced is PPR’s dismissal of comments by the Great Salt Lake Advisory Council and Compass Minerals as untimely. These comments were properly incorporated by reference in FRIENDS’ comments, with permission from the authors of those comments, and apply specifically to the Class I groundwater permitting action under review. The dates and addressees on the

comment letters are irrelevant. However, the information in the comment letters attached as exhibits to FRIENDS' comments is directly relevant to this permitting action, was included by FRIENDS to support valid and important deficiencies with the groundwater monitoring wells under review, and was thus properly before the Division. Since PPR bypassed its opportunity to dispute or deny the facts as stated in the Great Salt Lake Advisory Council and Compass Minerals letters, the Director should consider those statements of facts to be true for the purposes of this matter.

Additionally, since PPR failed to include in the record any response to Dr. Baxter's comment letter, the Division should assume that PPR does not object to the facts as stated in Dr. Baxter's letter and also should consider those statements of facts to be true for the purposes of this matter.

3. Deficiencies of PPR's Response to FRIENDS through Its Referenced 2018 Hydrogeologic Study

a. Procedural Objections

First, as a procedural matter, PPR did not submit the 2018 Hydrogeologic Study to the Division until December 20, 2018. This was over one year after submitting its permit modification application, almost one year after the close of the public comment period on the modification, and more than two months *after* the wells in question were constructed without Division approval. *See* Exhibit 3, PPR Permitting Timeline. PPR reported that the wells were "drilled, constructed, and developed" from October 8 to October 14, 2018, even though the permit request for the wells remains unapproved. 2018 Hydrogeologic Study, APPENDIX A: Construction and Testing Report for the Promontory Point Monitor Wells Box Elder County, Utah, at 6.

PPR relied on the Study in an attempt to justify its monitoring system, well placement, and decision not to conduct further review or evaluation of the landfill site or the monitoring system. However, the Study was never available for review by FRIENDS, the Division, or any of the other commenters as part of the application or during the public comment period. This is a violation of the Utah Administrative Code, section R315-310-4(2)(b) ("[A] permit application...shall contain a geohydrological assessment of the facility"); *see also* R315-311-3. Because of this violation and the associated procedural failure, FRIENDS requests that the Director re-open the public comment period to allow the general public to review and comment on the Study, which is the pivotal document supporting PPR's modification request. It contains PPR's justifications, studies, and rationale for the groundwater monitoring system that is under review in this permitting action. If the public comment period is not re-opened, as allowed under Utah's administrative law, FRIENDS reserves the right to raise issues connected with the Study in any future challenge to this permitting action, since it was not available when FRIENDS submitted its original comments. *See* Utah Code Ann. § 19-1-301.5(6)(e) (allowing judicial review of issues "not reasonably ascertainable before or during the public comment period").

Without waiving its options, FRIENDS attempts to respond to the Study in this surrepley and to raise its substantive concerns and objections to the Study as a pivotal part of PPR's Reply, which is the subject of this surrepley. However, this response cannot replace the input, analysis and data

that the Division would have received if there had been a proper procedural opportunity for full public comment on the Study after the public had access to these documents.

b. Substantive Objections

That the 2018 Hydrogeologic Study is deficient on its face is evident by the Division's two separate requests to PPR for clarifications and additional information on April 5, 2019 and May 14, 2019. As part of those requests for information, the Division asked PPR to "demonstrate that releases will be adequately detected with only three downgradient wells" and suggested that "this could be accomplished through Monte Carlo modeling of random releases with forward particle tracking within the framework of a simple, analytical groundwater flow model." April 5, 2019 Division letter to PPR, at 4, # 19 (attached as Exhibit 4). The Division reiterated this request in its May 14, 2019 letter to PPR, at 2 (attached as Exhibit 5) ("The Division agrees that groundwater modeling is not required by the Rule however, a groundwater flow and transport model, built on the basis of the interface of the hydrogeologic components listed in 40 CFR 258.51, could help ensure appropriate well spacing and the number of wells needed to detect potential releases."). The request for modeling was only one of 24 separate concerns/clarifications that the Division sought from PPR regarding the 2018 Hydrogeologic Study.

FRIENDS finds PPR's refusal to take any action beyond the bare minimum requirements of the regulations, even when requested by the Division, to run afoul of the law and to validate the concerns FRIENDS covered in its comments. Utah law requires a landfill owner to provide "evidence that the . . . treatment or disposal" of waste "will not be done in a manner that may . . . pose a substantial present or potential hazard to . . . the environment." Utah Code § 19-6-108(9). In addition, an owner must provide information the Director feels is necessary to ensure that its groundwater monitoring system is adequate to protect a complex hydrogeological system. Utah Admin. Code R315-308-2(2)(b). Almost all of the comments on the permit modification expressed that the hydrogeology of the landfill location is complex and that weaknesses in the monitoring system will seriously impact Great Salt Lake. These concerns put the burden on PPR to show it will not pose a substantial hazard to the environment. Flat out refusal of the Division's request for more information certainly does not meet that burden. FRIENDS has attached and incorporates by reference a letter that it sent the Division further outlining these concerns, which are directly relevant to the scope of this surreply. *See Exhibit 6; see also Section 4 below.*

Expert Analysis of Dr. Gregory Carling

In addition to the deficiencies of the Study that the Division identified in its requests to PPR, information previously provided to the Division and to PPR about the complexity of the hydrogeology of the area encompassing the landfill also points to the many gaps in information that exist related to the groundwater monitoring system. These gaps are not addressed by either PPR's response to FRIENDS and other commenters or by the 2018 Hydrogeologic Study. As just one example, in its comments, FRIENDS expressed concern about the adequacy of the system and stated that more information and evaluation is needed before the location, number, and adequacy of the monitoring wells can be determined. FRIENDS referenced and attached Exhibits that

validated and provided important information about these concerns. *See, e.g.*, FRIENDS Comments at 2-6 and the associated Exhibits A at 3; B at 2; and C at 2. PPR's Reply merely referenced the Hydrogeologic Study and repeated its claim that it met minimum regulations: "The locations, depths, and construction of the four new monitor wells installed as part of the Hydrogeologic Study meet the requirements of regulations contained in Utah Admin. Code R315-308-2."

After review of the Hydrogeologic Study that PPR cited as justification to dismiss FRIENDS' concerns, FRIENDS is submitting analyses and additional information that demonstrates the Study does not have the depth or breadth necessary to allay concerns about groundwater contamination. This additional information is included for the record and as part of this surreply to further demonstrate the inadequacy of PPR's monitoring system, PPR's Reply, and the 2018 Hydrogeologic Study to meet regulatory requirements.

Dr. Gregory Carling noted that there is evidence for an active groundwater system beneath the landfill site, and that the shoreline springs and saline marshy areas on the west side of Promontory Point indicate groundwater connections between the land and these areas. Great Salt Lake Institute White Paper (White Paper), June 8, 2018, at 13 (attached as Exhibit 7); *see also* email from Division to Dr. Baxter re: receipt of White Paper (attached as Exhibit 8). Again, because the requirements to protect the environment by avoiding contamination of ground water, especially in complicated hydrogeologic situations, are identical for both a Class I and a Class V facility, the information presented by Dr. Carling is directly relevant to this permit modification request.

Dr. Carling notes that there needs to be sufficient groundwater flow year-round to sustain the marshes, meaning that a significant amount of annual groundwater flow from beneath the landfill exists. *Id.* Dr. Carling also points to the high density of microbialites on the lakebed west of Promontory which depend on the minerals and nutrients provided by seeps along faults in the lakebed. *Id.*

Dr. Carling points to the presence of "highly- to intensely-fractured/jointed" quartzite beneath the landfill, and states that any contamination reaching the bedrock could be quickly transported to the groundwater and thus to Great Salt Lake. *Id.* at 14. He suggested that prior to construction of a landfill, the bedrock aquifer system needs to be characterized, including doing a seismic survey, mapping of the water table and aquifers and determining the hydraulic conductivity of the bedrock aquifer. *Id.* The fact that PPR has already improperly constructed portions of the landfill is irrelevant to the validity of Dr. Carling's suggestion. The 2018 Hydrogeologic Study does not contain a seismic survey or mapping of the water table and aquifers.

Dr. Carling goes on to note that the installation of three downgradient wells is not sufficient to rule out these concerns or to ensure adequate detection of groundwater contamination. *Id.* He suggests nested monitoring wells surrounding the landfill, with well screens at multiple depths, as a more robust system. *Id.* Because of the existence of fractures, he states that if the wells are not deep enough and only sample one depth, contaminated groundwater could travel through the

fractured bedrock below screening levels and more rapidly than predicted directly into Great Salt Lake. *Id.*

Expert Analysis of Dr. Robert Baskin

In addition to Dr. Carling's comments, attached to this surreply as Exhibit 9 is an expert review of the 2018 Hydrogeologic Study. The review was conducted by Dr. Robert Baskin (Baskin Review). Dr. Baskin is an emeritus hydrologist with the U.S. Geological Survey, and he is a respected expert on the hydrology and geology of Great Salt Lake and Promontory Point in particular. *See* Exhibit 10 with Dr. Baskin's curriculum vitae.

As Dr. Baskin notes, while the technical aspects of the 2018 Hydrogeologic Study may have met minimum requirements, the Study was insufficient to provide an the understanding of the complicated geology and groundwater system in the area needed to design an effective groundwater monitoring system. Baskin Review at 1. Dr. Baskin's analysis indicates that even additional information and understanding of the hydrogeology may not be sufficient to avoid contamination from the landfill. *Id.* As outlined in detail below, Dr. Baskin points to several major areas of concern: A) the documented geologic fracturing in the area makes prediction of contaminate pathways nearly impossible; B) the minimal information that was provided in the Study indicates a direct and troubling hydrogeologic connection between groundwater beneath the landfill and Great Salt Lake; C) any contamination from a landfill leak would move southwest and either discharge into Great Salt Lake or the Compass Minerals canal; 4) the fracturing in the area means contamination could travel to Great Salt Lake in a matter of days or weeks rather than the extended predictions of the Study; and, 5) the Study and the current system of downgradient monitoring wells are insufficient to ensure that the landfill will not become a hazard to Great Salt Lake.

A. The Geologic Fracturing in the Area Makes Prediction of Contaminate Pathways Nearly Impossible

Regarding the highly fractured rock formations in the area, Dr. Baskin – who points out that Great Salt Lake is one of the world's most complex hydrogeological systems – notes that Promontory Point lies at the junction of the Carrington Fault and two sections of the Great Salt Lake Fault. *Id.* He states that Promontory Point is composed of intensely folded and highly-fractured rock formations, as well as numerous springs that feed into Great Salt Lake. *Id.* He goes on to cite the various portions of the Study that support those conclusions. *Id.* at 1-3. Dr. Baskin points out that while the Study notes that the geography in the area is “highly- to intensely fractured/jointed,” this information should have, but did not, raise concerns about the location of the landfill. *Id.* at 3.

As part of the basis for his concern, Dr. Baskin points to numerous studies that have warned of the dangers to groundwater from landfills located on or near fractured bedrock. *Id.* He first cites to H. Haitjema, “Ground Water Hydraulics Considerations Regarding Landfills,” *Water Res. Bull.* 27(5):791-796 (1991) for the proposition that “[a]n extreme example of...aquifer heterogeneity...is flow through fractured rock. The design of monitoring well systems in such an environment is a nightmare and usually not more than a blind gamble.” Cited in GF Lee & A Jones-Lee, “A Flawed Technology of Subtitle D Landfilling of Municipal Solid Waste,” 2015, at

30. (attached as Exhibit 11). He further cites to Lee & Lee for the proposition that “[t]he presence of fractured bedrock, fissures, cavernous calcareous strata, and non-isotropic lenticular aquifers (such as former river beds) make the monitoring of groundwater for incipient leachate pollution highly unreliable and virtually impossible.” Lee & Lee, 2015, at 29 (Exhibit 11).

Dr. Baskin also cites to Lee & Lee, “Groundwater Quality Monitoring at Lined Landfills: Adequacy of Subtitle D Approaches,” for the proposition that an “incomplete or unreliable assessment of the geological features of the subsurface system, and complex hydrology can further reduce the probability that the typical groundwater monitoring well array will intercept any plume of leachate-contaminated groundwater at the point of compliance for the MSW landfill monitoring program.” Lee & Lee, 1993, at 10 (attached as Exhibit 12). As a side note, the issue of fracturing and the difficulties it poses for protecting against landfill contamination was also raised in Compass Minerals’ comments on this permitting action as well as in FRIENDS’ Comments with support from Exhibits A and C (Westminster College and Great Salt Lake Advisory Council). See Compass Comments at 2; FRIENDS’ February 2018 comments at 3-4 and associated Exhibits A and C.

In the Reply, PPR addresses these complex concerns with the following inadequate explanation:

The Hydrogeologic Study provides data on the groundwater quality and interprets the connection between groundwater beneath the site and the causeway. Bedrock was not intercepted during the drilling of the new wells as bedrock exists at a depth below the first aquifer. As such, groundwater flow beneath the landfill is not within fractured bedrock, but rather it is dominated by advective flow from higher to lower head potential in the first aquifer that is contained in the fanglomerate deposits, which indicate larger hydraulic conductivities than the fractured bedrock. Although previous reports indicated that bedrock is intensely fractured where exposed at the ground surface, PPR’s findings showed that where fractures were encountered in drilling the Production Well, they appeared to be filled with clay or mineralization. Monitor Well MW-5, which is screened in bedrock, also indicates low hydraulic conductivity.

PPR Reply to Compass Minerals at 2. Dr. Baskin explains why this Reply is inadequate:

While the findings of the contractors and subject matter experts hired by Promontory Point Resources LLC (PPR), repeatedly describe the characteristics in the Study area as “highly- to intensely fractured/jointed,” they seem to ignore their own Study results Just because a fault or fracture system can’t be identified at land surface doesn’t mean there isn’t a fault or fracture system below the surface.

Baskin Report at 3. PPR’s drilling of a few wells is not adequate to eliminate the documented concerns about fracturing, and the Director should deny the permit modification based on this issue alone. If PPR’s system were protecting drinking water, the Study PPR has conducted would never be considered adequate. And yet the consequences of groundwater contaminating

the surrounding Great Salt Lake ecosystem would cause catastrophic results that are in many ways as significant as the contamination of drinking water.

B. The Minimal Information PPR Provided Indicates a Direct and Troubling Hydrogeologic Connection Between Groundwater Beneath the Landfill and Great Salt Lake

Dr. Baskin points out that the Study oversimplified the velocity of groundwater flow in the area because of the presence of fractures and that greater-than or less-than normal precipitation could change the speed at which groundwater moves through the system: “Any potentially harmful contaminant that breaches landfill containment could spread significantly faster—ten times or more—than the 0.01 ft/day to 9 ft/day cited in the report and could be impossible to stop or recover. . . . At these speeds, contaminants could reach the GSL within days rather than years, and with sampling only scheduled to occur semi-annually, contamination could easily reach the GSL and continue undetected for weeks or months.” Baskin Review at 4. Baskin also expresses concern because the Study occurred over a short period of time after years of relatively low precipitation. *Id.* Regarding groundwater flow, Dr. Baskin notes that the Study consistently shows that groundwater in the area generally moves in the direction of Great Salt Lake, from higher elevations towards the Lake, and that the Study clearly points to the connection between the groundwater that flows under PPR’s property and Great Salt Lake. *Id.*

Dr. Baskin notes that the hydrogeologic connection between groundwater beneath the landfill and Great Salt Lake is consistently demonstrated throughout the Study. *Id.* at 5. In addition, this connection is supported by physical measurements conducted by PPR and by statements throughout the Study that support this conclusion. *Id.* Again, Baskin notes that PPR’s Study is not sufficient to address these risks. “[T]he three downgradient groundwater monitoring locations are not sufficient to ensure either a lack of fractures under the landfill or that contaminants from leaks in the landfill, whether from the sump or from leaks in the liner itself, will be detected.” *Id.* at 7.

C. Any Contamination from a Landfill Leak Would Move Southwest and Either Discharge into Great Salt Lake or the Compass Minerals Canal

Dr. Baskin states that while there seems to be some conjecture by PPR on several potential discharge locations of the groundwater, the Study provides no evidence to support its assertions, and no samples or discharge sites were investigated or identified in the Study. *Id.* at 5. He finds that there is no question that groundwater flowing under the landfill site will discharge along the margins of the Lake and into the Lake. *Id.* He further notes that the Study never addressed the origin of the active springs south of the brine canal or whether leakage from the brine canal was, in fact, occurring. *Id.* Dr. Baskin states that the direct connection between groundwater in the monitoring wells and Great Salt Lake is further evidenced by the fact that water levels in several of the monitoring wells mimic changes in Great Salt Lake water levels. *Id.* at 5.

Dr. Baskin notes the importance of identifying the location of groundwater discharges to understand the characteristics of the hydrogeologic system. *Id.* In spite of that, he states that the Study made no attempt to identify these locations and makes only unfounded conjectures that the

groundwater flow may be blocked from reaching Great Salt Lake. *Id.* Dr. Baskin states that when a breach in the landfill containment system occurs, contaminated fluid will either discharge into Great Salt Lake or into the Compass Minerals canal, and could cause significant harm to either or both. *Id.*

D. The Study and the Downgradient Monitoring Wells are Insufficient to Ensure that the Landfill Will not Become a Hazard to Great Salt Lake

Dr. Baskin points out the shortfalls of the Study, along with the important finding that fragile microbialite beds and a saline meadow lie directly west of the landfill. *Id.* at 5. The combination of poor evaluation and great consequences raises great concerns. *Id.* at 5-7. He specifically points to the proximity of these areas in relationship to the landfill. *Id.* Numerous sources have examined the general dangers of a fractured subsurface in landfill locations, as well as the specific findings of extensive fracturing in this landfill area. These findings make the flow direction of the groundwater from the landfill and the Study's failure to investigate groundwater discharge locations reason for real concern. *Id.* Based on this, he concludes that the three downgradient monitoring locations are insufficient to ensure the landfill will not become a hazard to Great Salt Lake.

The combination of the fractured nature of the land under and surrounding the landfill, the flow direction of the groundwater from the landfill into GSL, and the Study's failure to investigate groundwater discharge locations provides strong evidence that the Study is insufficient to ensure the landfill will not become a hazard to the GSL or parts of its ecosystem at some point in the future.

Id. at 7. In conjunction with this conclusion, Dr. Baskin points to Lee & Lee, 2015, at 35, for the recommendation that:

[R]egulatory agencies, as part of the permitting of a proposed landfill, [should] conduct a site-specific evaluation of the ability of the proposed monitoring well array to detect leachate-polluted groundwaters at the point of compliance all along the downgradient edge of the landfill from leaks that occur from holes, rips, tears or points of deterioration in the HDPE liner. In making this evaluation it should be assumed that the leak would occur through a two-foot long area at any point in the landfill footprint, including especially near the downgradient edge of the landfill.

Id. PPR has not prepared for or considered this type of potential leak.

4. The New Monitoring Wells Fail to Meet the Requirements of Division Regulations.

In its reply, PPR makes the inaccurate assertion that “[t]he locations, depths, and construction of the four new monitor wells installed as part of the Hydrogeologic Study meet the requirements of regulations contained in Utah Admin. Code R315-308-2.” PPR Reply to FRIENDS at 2. In taking this position, PPR fails to acknowledge that it has squarely placed the cart before the horse in this matter by first installing the wells without the Director's approval, and only then attempting to

justify that installation through the 2018 Hydrogeologic Study. Further, PPR has rebuffed the Division's requests to conduct additional studies of the site conditions to justify its groundwater monitoring system. PPR is clearly expecting the Director to bless an inadequate and unsupported monitoring system. Contrary to what PPR cites as its excuse in this instance, federal regulations identify the Division Director, rather than the company, as having the authority to make determinations as to "[t]he number, spacing and depth of monitoring systems," 40 CFR 258.51(a), based on "site-specific technical information," 40 CFR 258.51(d)(1), and on the experience and expertise of the Division. By "proactively" installing the wells without approval, PPR has attempted to preempt any decision on the part of the Division regarding the "number, spacing and depth" of the wells. Additionally, PPR's actions defy the Director's exercise of discretion to require additional information that will ensure the number, spacing, and depth of the wells in this "complicated hydrogeologic setting" is sufficient to protect Great Salt Lake from landfill contamination. *See* Utah Admin. Code R315-308-2(2)(b).

In fact, the Division informed PPR about the level of detection it feels is necessary to ensure the landfill will not impact Great Salt Lake, and that the 2018 Hydrogeologic Study showed that the current groundwater system was insufficient to ensure this level of detection. The Division informed PPR that "the downgradient dimension of the cell is too large to ensure adequate detection in the event of a release at 95% of the time." This is the basis for the Division's request that PPR conduct modeling. April 5, 2019 Division Comments to PPR at 4, # 19. Given the location of the landfill and the high stakes if contamination does reach the Lake, FRIENDS submits that 100% detection should be required. However, rather than acknowledge the authorized request by the Division, PPR responds that the spacing between the downgradient wells is "appropriate," April 24, 2019 PPR Response at 11, and declines to conduct the modeling because it feels it is being unfairly treated. The company then incorrectly refutes the Division's authority for this request by stating that "[n]either modeling of well placements nor a 95 percent detection rate at the landfill is required by UAC 315-308 or any other law or regulation." April 24 Response, at 12. As noted above, the Director has both the authority and the responsibility to require the company to provide whatever information he deems necessary in order to make a proper decision.

In response to PPR's unwillingness to comply with its request for modeling, the Division countered that it would be appropriate for PPR to undertake "a groundwater flow and transport model, built on the basis of the interface of the hydrogeologic components listed in 40 CFR 258.51." May 14, 2019 Division Comments to PPR, at 2. Once again, rather than acknowledge the appropriateness of the Division's request, the company responded with a cavalier "[w]e disagree with the suggestion by the DWMRC," May 22, 2019 PPR Response, at 3, followed by the complaint that "[s]uch modeling is not required and has never been performed in Utah for the permitting of a Class I or Class V Landfill." May 22 Response, at 3-4. The company then stated: "In our opinion, it is impractical, arbitrary and unreasonable to conduct groundwater modeling for the stated purpose." May 22 Response, at 4. FRIENDS notes the obvious that no other landfill in Utah has been constructed on the shores of the largest and most ecologically and economically important saltwater lake in the Western Hemisphere.

It is clear not only from the expert testimony submitted by FRIENDS in this surreply, but by PPR's dismissive Reply to comments and refusal to honor the Division's requests for

information and modeling, that the new monitoring wells fail to meet the requirements of Division regulations. We therefore ask the Director to deny PPR's permit modification request.

Yours,

A handwritten signature in black ink, appearing to read "Rob Dubuc". The signature is fluid and cursive, with a large initial "R" and "D".

Rob Dubuc

General Counsel, FRIENDS of Great Salt Lake