August 28, 2012

BEFORE THE UTAH WATER QUALITY BOARD

IN THE MATTER OF: PR SPRING TAR SANDS PROJECT, GROUND WATER DISCHARGE PERMIT-BY-RULE, NO. WQ PR-11-001	Administrative Law Judge Sandra K. Allen

MEMORANDUM AND FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDED ORDER

TABLE OF CONTENTS

BEFORE THE UTAH WATER QUALITY BOARD
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF: PR SPRING TAR SANDS PROJECT, GROUND WATER DISCHARGE PERMIT-BY-RULE, NO. WQ PR-11-001	MEMORANDUM AND FINDINGS OF FACT, CONCLUSIONS OF LAW AND RECOMMENDED ORDER August 28, 2012 Administrative Law Judge Sandra K. Allen

MEMORANDUM

I. INTRODUCTION

On March 4, 2008, the Executive Secretary determined that a tar sands mining project in the Uintah Basin qualified for permit-by-rule status under Utah Admin. Code R 317-6-6.2(A)(25) based on the *de minimis* potential effect on ground water quality ("2008 Decision"). On February 15, 2011, the Executive Secretary determined that proposed changes to the tar sands mining project did not warrant modification or revocation of the 2008 Decision ("2011 Modification Decision"). Petitioner Living Rivers filed a challenge to the 2011 Modification Decision. However, this proceeding has not really been about the proposed modifications. Instead, this proceeding has focused on the *de minimis* potential effect of the project on ground water quality due to the absence of shallow ground water, a central basis for the 2008 Decision, as explained in Section IV. A. below. Living Rivers asks the Utah Water Quality Board ("Board") to find that the record lacks substantial evidence to support the finding of *de minimis* potential effect of the project on ground water, to reverse the 2011 Modification Decision and to

make the Division of Water Quality require U.S. Oil Sands, Inc. ("USOS") to file ground water discharge permit application and obtain a ground water discharge permit.

II. THE PARTIES AND THE HEARING

The petitioner is Living Rivers. The respondents are the Executive Secretary of the Water Quality Board (who may be referred to herein as Executive Secretary, Agency, Division of Water Quality, Division or DWQ) and USOS, formerly known as Earth Energy Resources, Inc. In accordance with the January 5, 2012, Stipulated Schedule, a two-day evidentiary hearing was held in this matter. Appearing for petitioner, Living Rivers, were Joro Walker and Charles R. Dubuc, Jr. Appearing for respondent, the Agency, was Paul M. McConkie. Appearing for respondent, USOS, were Christopher R. Hogle and M. Benjamin Machlis.

Presiding over the hearing was Sandra K. Allen, who was appointed as Administrative Law Judge ("ALJ") by the Executive Director of the Department of Environmental Quality to conduct this proceeding, review the evidence and legal arguments presented, and to make a recommended decision to the Board, which will make the final decision (dispositive action).

III. JURISDICTION

On May 8, 2012, Utah Senate Bill 21 went into effect. Under this bill, all final adjudicatory decisions will be made by the Executive Director and the Board will no longer be involved in making final decisions from ALJ recommended decisions. A question has arisen about the jurisdiction of on-going proceedings, like this one, that commenced before the May 8, 2012 effective date of Senate Bill 21.

Under Utah case law, once a judicial forum has acquired jurisdiction of a case, subsequent legislative action does not divest it of jurisdiction. See *National Parks and*

Conservation Ass'n v. Board of State Lands, 869 P.2d 909, 912 (Utah 1993) (reversed in part on other grounds); and *State v. Z.F.*, 2001 WL 422947 (Utah App.) (unreported) at *1. Accordingly, the Board is not divested of jurisdiction in this proceeding.

IV. RELEVANCE OF 2008 DECISION, EVIDENTIARY RECORD BASED ON DE NOVO PROCEEDING, BURDEN OF PROOF AND STANDARD OF REVIEW APPLICABLE TO FINAL BOARD DECISION

A. THE FACTORS CONSIDERED IN THE 2008 DECISION ARE RELEVENT TO THE 2011 MODIFICATION DECISION

To understand this recommended decision, it is helpful to understand the relationship between the 2008 Decision and the 2011 Modification Decision. The November 9, 2011, Order Denying Earth Energy Resources and Executive Secretary's Motion to Dismiss issued earlier in this proceeding set the stage by determining that Living Rivers could not directly challenge the 2008 Decision but could challenge the factors underlying it in contesting the 2011 Modification Decision. A summary follows.

The order rejected Living Rivers' argument that a direct challenge to the 2008 Decision, though not filed within 30 days as required by Utah Code Ann. § 64G-4-301(1)(a) and Utah Admin. Code R305-6-202(8) (formerly Utah Admin. Code R317-9-2(2)(a)), should be allowed on equitable grounds because the lack of notice (November 9, 2011, Order Denying Earth Energy Resources and Executive Secretary's Motion to Dismiss at 7). The order noted that Living Rivers did not cite any authority that demonstrated that either USOS or the Executive Secretary had any duty to notify Living Rivers of the 2008 Decision, and did not cite any authority that demonstrated that equitable tolling applies to toll deadlines under environmental permit statutes. *Id.* The order reasoned that there is a negatives inference, "created by the many

notice requirements in the DEQ's statutes and rules and the lack of any statutory or regulatory notice requirement applicable for this decision. *See, e.g.,* Utah Code Ann §§ 19-5-108(2) and 19-5-110(3), and Utah Admin. Code R317-2-3.5(e) and R317-6-6.5." *Id.* The order further reasoned that due to the costs and benefits of imposing significant additional notice requirements for the many determinations made by Department of Environmental Quality decision makers, those costs and benefits should be weighed in a forum other than an adjudication. *Id.* Therefore, the order concluded that the Board cannot, in the absence of legal authority and based only on policy arguments impose new procedural requirements for permitting." *Id.* at 8.

Nonetheless, affected third parties are authorized to bring a challenge to permitting decisions and nothing in the Utah Administrative Procedures Act or the Department of Environmental Quality's procedural rules would limit the ability of a third party to raise issues that were not considered by the Executive Secretary in the first instance, provided the information is relevant. *Id.* at 5, 6. In this case, all the new information alleged to challenge the 2011 Modification Decision related to factors that were identified by the DWQ as relevant to the 2008 Decision, thus potentially subject to challenge. *Id.* at 6. Therefore, though a direct challenge to the 2008 Decision was not allowed, the factors underlying the 2008 Decision have been the focus of this proceeding.

The 2008 Decision was based upon four relevant factors (Ex. IR-000036-37). First, the reagent [d-limonene] is generally non-toxic and volatile, and most of it will be recovered and recycled in the extraction process. *Id.* Second, the bitumen (tar) extraction will be done using tanks and equipment at the processing facility, no impoundments or process water ponds are planned, and most of the water used in the process will be recovered and recycled. *Id.* Third,

processed tailings will not be free-draining, will have moisture content in the 10 to 20 percent range, will not contain any added constituents that are not naturally present in the rock other than trace amounts of the reagent, Synthetic Precipitation Leachate Procedure testing indicated that leachate from precipitation through tailings would have non-detectable levels of volatile and semi-volatile organic compounds. *Id.* Fourth, available information on the hydrogeology of the area demonstrated the general absence of ground water to a depth of between 1,500 and 2,000 feet below the surface. *Id.* This proceeding has focused primarily on the fourth factor.

B. IN A DE NOVO PROCEEDING EVIDENCE OUTSIDE OF THE INITIAL AGENCY RECORD MAY BE INCLUDED IN THE FINAL EVIDENTIARY RECORD

Pursuant to Section 63G-4-208 of the Utah Code Ann. (West, 2009) the ALJ's findings of fact must be based exclusively on the evidence in the record in the adjudicative proceedings or on facts officially noted. The evidentiary record consists of the initial record, exhibits, video recorded and live testimony and the facts stipulated by the parties. See Utah Admin. Code R 305-6-208. Before the hearing, Living Rivers moved to exclude the USOS drilling and coring records because the drilling occurred several months after the 2011 Modification Decision so the USOS drilling and program evidence were not included in the Executive Secretary's review. This motion was denied in the May 8, 2012, Pre-Hearing Order because this proceeding is de novo, meaning that "the matter is tried anew, as if it had not been heard before and as if no decision had been previously rendered." *Black's Law Dictionary* at p. 392 (5th ed. 1979). Thus, whether the Executive Secretary considered the data in issuing the 2011 Modification Decision is not relevant.

The de novo nature of agency review following a request for agency action is described in the November 9, 2011, Order Denying Earth Energy Resources and Executive Secretary's Motion to Dismiss. It states:

> It was the intention of the Utah Legislature in passing Utah Administrative Procedures Act ("UAPA") to provide all persons appearing before the agency with an opportunity to have trial-type procedures to resolve questions of fact. This was evident from the specific and significant procedural requirements for formal proceedings in UAPA (Utah Code Ann. §§ 63G-4-204 to 208) and from the requirement that an informal proceeding that did not provide those procedures would be reviewed de novo in district court. See Utah Code Ann. § 63G-4-402(1)(a).
>
> Initial orders of the Executive Secretary are exempt from UAPA under Utah Code Ann. § 63G-4-102(2)(k):
> (2) This chapter does not govern . . . (k) the issuance of a notice of violation or order under . . . Title 19, Chapter 5, Water Quality Act ... , except that this chapter governs an agency action commenced by a person authorized by law to contest the validity or correctness of the notice or order . . . .
>
> There is nothing in this provision to indicate that the Legislature intended that UAPA be used differently for persons challenging a decision under the Water Quality Act than it would for persons before other agencies that did not have an exemption for initial decisions. It is therefore necessary to infer that persons who are challenging a decision under the Water Quality Act do retain the right to trial-type procedures for resolving questions of fact -including facts not considered by the initial decision maker -and that any challenge must therefore be conducted as a de novo proceeding.
>
> November 9, 2011, Order Denying Earth Energy Resources and Executive Secretary's Motion to Dismiss at 2-3.

Consistent with the November 9, 2011, Order Denying Earth Energy Resources and Executive Secretary's Motion to Dismiss, Section 19-1-310, and as set forth in the May 8, 2012, Pre-Hearing Order, this proceeding was conducted de novo and the evidentiary record upon which the findings of fact herein are based includes the initial record, stipulated facts, exhibits, and video recorded and live testimony presented during the hearing on May 16 and 17, 2012.

C. BURDEN OF PROOF

The parties agreed that as the petitioner, Living Rivers has the burden of proof. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 1-2.) *See also Milne Truck Lines, Inc. v. Public Service Commission of Utah*, 720 P.2d 1373, 1379 (Utah 1986). The standard of proof in this administrative hearing is a preponderance of the evidence and requires the proponent of a contested fact to demonstrate that its existence is more likely than not. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3.)

D. APPELLATE STANDARD OF REVIEW APPLICABLE TO BOARD'S DECISION

Section 63G-4-403 provides that the standard applicable to an appellate court reviewing a board's dispositive action is whether, based on the record as a whole, the board has erroneously interpreted or applied the law or made a determination of fact that is not supported by substantial evidence when viewed in light of the whole record. See *Sierra Club v. Air Quality Bd.*, 2009 UT. 76, 226 P.3d 719. "Substantial evidence is that quantum and quality of relevant evidence that is adequate to convince a reasonable mind to support a conclusion." *Pen & Ink, LLC v. Alpine City*, 2010 UT App 203, ¶ 16, 238 P.3d 63 (quoting *Caster v. West Valley City*, 2001 UT App 212, ¶ 4, 29 P.3d 22. Substantial evidence is more than a "'mere scintilla of evidence," though "something less than the weight of the evidence." *Martinez v. Media-Paymaster Plus et al.*, 2007 UT 42, ¶ 35, 164 P.3d 384 (emphasis added); *Patterson v. Utah County Bd. of Adj.*, 893 P.2d 602, 604 n. 6 (Utah App. 1995).

V. STIPULATED ADMISSIONS OF FACT

Pursuant to the May 9, 2012, Joint Pre-Hearing Statement and Order, the parties stipulated to the following admissions of fact:

1. On February 8, 2011, USOS submitted a letter to DWQ regarding certain proposed modifications to its proposed tar sands mining process since USOS had received a permit-by-rule determination from DWQ in 2008. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3.)

2. The proposed operation for the PR Spring Tar Sands Project consists of open-pit mining of tar sands; extraction of bitumen using d-limonene; and storage of processed sands, processed fines and waste rock in the mine and two additional storage areas totaling 70 acres in size. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3.)

3. As a tar sands mining operation, the PR Spring Project will operate under a Notice of Intention for a Large Mining Permit (NOI M0470090) [IR-000043-372] required by the Utah Mined Land Reclamation Act (Utah Code Ann. § 40-8-13) and approved by the Utah Division of Oil, Gas and Mining. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3.)

4. Under Utah Admin. Code R647-4-109, the NOI must include "a general narrative description identifying . . . [p]rojected impacts to surface and groundwater systems . . . [and] actions which are proposed to mitigate [those] impacts." (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3.)

5. DWQ's records show that DWQ's Ground Water Protection Section was first contacted by USOS regarding the proposed PR Spring Project in October 2005. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3.)

6. On February 21, 2008, JBR Environmental Consultants, Inc., on behalf of USOS submitted to DWQ a Ground Water Discharge Permit-by-Rule Demonstration ("Demonstration") [IR-000003-35]. The Demonstration was provided to support USOS's request to DWQ for a determination that the PR Spring operation be considered as a permitted-by-rule facility under Utah Ground Water Protection Rules (Utah Admin. Code R317-6). (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3.)

7. DWQ accepted the Demonstration as USOS's permit-by-rule application. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4.)

8. The Demonstration requested a determination by DWQ that the proposed project meets the criteria to be permitted-by-rule under Utah Admin. Code R317-6-6.2(1) and R317-6-6.2(25). (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4.)

9. In a letter dated March 4, 2008, [IR-000036-37, also referred to as the 2008 Decision] DWQ communicated to USOS that the PR Spring Project should have a *de minimis* potential effect on ground water quality and qualifies for permit-by-rule status under Utah Admin. Code R317-6-6.2(25). (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4.)

10. The March 4, 2008 determination [2008 Decision] included four factors cited by DWQ in support of the permit-by-rule determination and language that "[i]f any of these factors change because of changes in your operation or from additional knowledge of site conditions, this permit-by-rule determination may not apply and you should inform the DWQ of the changes." (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3.)

11. Living Rivers did not contest the March 4, 2008 permit-by-rule Determination [2008 Decision] within 30 days of its issuance. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4.)

12. On February 8, 2011, USOS submitted a letter to DWQ outlining several proposed modifications and asking DWQ to confirm that none of the changes affected its permit-by-rule status. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 8.)

13. Between February 8, 2011 and February 15, 2011, DWQ conducted its review of the modifications. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4.)

14. On February 15, 2011, DWQ informed USGS by letter that it had considered the modifications and had determined "the proposed changes to the mining and bitumen extraction process do not change the March 4, 2008 permit-by-rule determination for having a *de minimis* potential effect on ground water quality and the project still qualifies for permit-by-rule under Utah Admin. Code R317-6-6.2.A(25)." (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4.)

15. On March 16, 2011, within 30 days of the DWQ's February 15,2011 letter to USOS, Living Rivers filed the subject Request for Agency Action/Petition to Intervene. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 5.)

16. During the summer of 2011, USOS drilled 180 core holes in the area of the project. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 5.)

VI. AGREED APPLICABLE PROPOSITIONS OF LAW

Pursuant to the May 9, 2012, Joint Pre-Hearing Statement and Order, the parties stipulated to the following applicable propositions of law:

1. Applicable ground water protection rules at Utah Admin. Code R 317-6, include a provision that "the following facilities are considered to be permitted by rule and are not required to obtain a discharge permit under R317 -6-6.1 or comply with R317-6-6.3 through R317-6-6.7, R317-6-6.9 through R317-6-6.11, R317-6-6.13, R317-6-6.16, R317-6-6.17 and R317-6-6.18: . . .

25 facilities and modifications thereto which the Executive Secretary determines after a review of the application will have a *de minimis* actual or potential effect on ground water quality." Utah Admin. Code R317-6-6.2(A)(25).

2. Utah Admin. Code R317-6-1.19 defines "ground water" as "subsurface water in the zone of saturation including perched groundwater."

3. Living Rivers, as the petitioner, carries the burden of proof. See *Milne Truck Lines, Inc. v. Public Service Commission of Utah*, 720 P.2d 1373, 1379 (Utah 1986). The standard of proof in this administrative hearing is a preponderance of the evidence, and "requires the proponent of a contested fact to demonstrate that its existence is more likely than not." *Harken v. Southwest Corp. v. Board of Oil, Gas and Mining*, 920 P.2d 1176, 1182 (Utah 1996).

4. Living Rivers contends, and the other parties do not dispute, that the appellate standard set forth in the Administrative Procedures Act, Utah Code Ann. § 63G-4-403(4)(d), (g), (h), should be applied in this matter, and that standard allows relief to a party if the agency "erroneously interpreted or applied the law," based an action "upon a determination of fact . . . that is not supported by substantial evidence when viewed in light of the whole record before the court," or is "otherwise arbitrary or capricious." *See also Sierra Club v. Air Quality Bd.*, 2009 UT 76, ¶ 14; 226 P.3d 719.

VII. FACTUAL ISSUES PRESENTED

From the May 9, 2012, Joint Pre-Hearing Statement and Order, the factual issue presented for decision in this matter, based on the standard of review articulated above, is whether the Executive Secretary's *de minimis* finding pursuant to Utah Admin. Code R317-6-

6.2A(25) is supported by substantial evidence. The issue turns on the following two factual sub-issues:

1. Whether the record as it will exist before the Water Quality Board shows that ground water, as that term is defined in statutes and regulations, exists in the project area?[1]

2. If such ground water exists, does USOS's proposed operation present a greater than *de minimis* risk of effecting the quality of that ground water? The parties agree that if the answer to either of these questions is "no," then the Executive Secretary's decision has a reasonable basis and must be allowed to stand.

A. SUBSTANTIAL EVIDENCE IN THE RECORD SUPPORTS A FINDING THAT GROUND WATER HAS NOT BEEN LOCATED AND MAY BE ASSUMED ABSENT IN THE PROJECT AREA EXCEPT FOR A DEEP REGIONAL AQUIFER

1. The Project.

The project, which has not yet commenced, will initially consist of 213 acres leased from the State Institutional Trust Lands Administration, straddling the boundary between Uintah and Grand Counties, Utah (IR-000046-58). The project will consist of open-pit mining of tar sands, extraction of bitumen using d-limonene; and storage of processed sands, processed fines and waste rock in the mine and two additional storage acres, totaling 70 acres in size. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3, ¶ 2.) The mine is designed to extract tar as far as 150 feet below the surface (IR-000056, 000058).

[1] Living Rivers disagrees with the accuracy of factual sub-issue 1, and submitted what it believes to be a more accurate statement of the issue. However, I am satisfied with and accept the factual sub-issue 1 as stated above.

2. The Issue.

Although a zone of saturation known as the Mesa Verde aquifer at 1500 to 2000 feet below surface (IR-000007) is in the project area, Living Rivers has not alleged and has produced no evidence that the project presents a threat to the deep, regional aquifer. As revealed by the testimony of geologists Robert Herbert, Mark Novak, Robert Bayer, Gerald Park and Elliot Lips, the issue has been the presence of shallow ground water that may be affected by the project. "The primary premise of this [*de minimis*] determination was the absence of ground water in the project area to a depth of 1,500 and 2,000 feet below ground surface." (Ex. 102 at 5, IR-000036-37.)

3. Definition of Ground Water.

Ground water is defined as "subsurface water in the zone of saturation including perched ground water." Utah Admin. Code R317-6-1.19. The "zone of saturation" means "[t]he zone in which the functional permeable rocks are saturated with water under hydrostatic pressure. Water in the zone of saturation will flow into a well, and this is called ground water." (Ex. 312 (citation and emphasis omitted).)

4. Substantial evidence in the record supports a finding that shallow ground water has not been located and may be assumed absent in the project area.

There is substantial evidence in the record before the Board to support the *de minimis* finding based on the failure to locate and apparent absence of shallow ground water in the project area. (Ex. 102, IR-00001-630); Hrg. Tr: 108-243; 346-376.) The evidence includes:

a. The 2011 USOS drilling and coring program consisting of 180 borings to depths up to 305 feet, including a dense grid of 55 borings in the initial three pit mine area, and water test wells ranging in depth from 1780 to 2610 feet (Hrg. Tr: 56, 102, 104-105, 351-354, 382-383, Ex. 305);

b. Site visits, including personal observations by professional geologist Gerald Park (Hrg. Tr: 95, 137-38, 377-78, 383-384, 390, 392-93) and June 2008 DWQ field visit (Hrg. Tr: 136-140; IR-000038);

c. Division of Oil, Gas and Mining well log records (Ex. 102 at 5, IR 000006-7);

d. 25 exploratory borings drilled to depths of 150 feet (Ex. 102 at 5, Hrg. Tr: 127-128);

e. Water rights review (Ex. 102 at 5, IR at 000006-8);

f. Division of Water Rights Well Log which was dry to 1940 feet (Ex. 104; Hrg. Tr: 146-151); and

g. The hydrogeological setting of the project site (Ex.102 at 6, 9).

5. The 2011 Drilling and Coring Evidence.

The most compelling evidence showing the absence of ground water is the USOS 2011 drilling program. During the summer of 2011, USOS drilled 180 holes in and around the mine site, with a dense grid of 55 holes within the project area, up to 305 feet in depth, which is more than twice the depth to which USOS will mine. (Hrg. Tr: 56, 102, 104-105, 351-354, 382-383, Ex. 305). The drilling was conducted, in part, to determine the presence or absence of ground water (Hrg. Tr: 385-386). It is reasonable to assume that the means and methods utilized were adequate to yield signs of ground water, if there were any (Hrg. Tr: 349 - 354). The drillers and the geologists who manned the drill rigs were instructed to watch for and record any signs of ground water (Hrg. Tr: 349 – 354, 385-386). No ground water was encountered, and no sign of it was recorded (Hrg. Tr: 349-354, 385-386).

The 2011 water well drilling also provides substantial evidence of the absence of ground water that would be affected by the project. In 2011, USOS drilled five holes near the project

area to depths below 1,500 feet to serve its water needs for the project and encountered ground water in only one at a depth of over 1,830 feet (Hrg. Tr: 146-50, 366-67, 387-88).

The 2011 drilling program is strong evidence of the absence of ground water that may be affected by the project (Hrg. Tr: 386). Division of Water Quality witness, Robert Herbert, testified: "I have never seen a project with this much and extensive drilling to determine the presence or absence of ground water." (Hrg. Tr: 102.) Mr. Herbert testified that the 2011 drilling program rules out shallow ground water at the project based on the "extensive array of borings that they [USOS] drilled and the depths of them in conjunction with the previous available information . . . . I've never seen a site or project with that many borings or the density of the borings for the proposed mine site." (Hrg. Tr: 104.) Mr. Herbert testified that it is highly unlikely that the drilling would have missed a perched aquifer (Hrg. Tr: 104-105).

Living Rivers attempted to impeach the 2011 drilling program evidence with the testimony of Elliot Lips but his testimony was ineffectual in overcoming the 2011 drilling data, which provides substantial evidence of the absence of shallow ground water at the site (Hrg. Tr: 269-284). For example, Mr. Lips contended that the 2011 drilling did not support the absence of ground water because it was done by "advanced casing" (Hrg. Tr: 262). USOS witness, Robert Bayer, testified that the 2011 drilling was not conducted by advance casing (Hrg. Tr: 350). Another example is Mr. Lip's testimony that drillers and geologists were not told to look for small quantities of water (Hrg. Tr: at 261). This testimony was refuted by witnesses who were personally present when the instructions were given (Hrg. Tr: 337, 385).

6. The geology of project area.

Also presented were relevant publications, core logs and topographic maps. According to this evidence, as well as the Executive Secretary's and USOS's expert testimony on the hydrogeology of the area, the geology is not conducive to the presence of ground water that may be impacted by USOS's project (Hrg. Tr: 354-358, 388-390, 142-146, Ex. 102, Ex. 103, IR-000406-482). The project is located on an interfluve between two drainages, which isolates the mine site and limits any recharge to just the small amount of precipitation that falls directly on the site, most of which will be lost to evapotranspiration (Hrg. Tr: 120-124, 130-136, 143, 150, 354-358, Ex. 102 at 5, 6, 12, 13, IR-000042). The subsurface consists mostly of interbedded and impermeable shale, siltstone, and mudstone (Hrg. Tr: 303, 380). "[E]very sand zone is wholly or partially saturated with bitumen, almost every one. So in other words, we have no recharge area and an effect of the areas covered with a tar roof." (Hrg. Tr: 356.) The hydrogeology evidence presented during the hearing supports and explains the absence of ground water that may be impacted by the project.

7. Professional Inspections.

Evidence of professional inspections in and near the project area was presented (Hrg. Tr: 95, 137-138, 377-378, 384, 392-393). Professional geologist, Gerald Park testified on behalf of USOS that he has searched for signs of ground water ever since he started going to the project site in 2005 and has never found any. Mr. Park testified that he has been to the project area over 40 times and has stayed in the project area for 30 days during one stretch and almost five months during another, and has been there in every month of the year but January (Hrg. Tr: 377). Mr. Park testified that he was present when a DWQ team visited the project site in June of 2008 in an

attempt to investigate the seeps in Figure 7 (IR-000127) (Hrg. Tr: 392). Mr. Park testified there was "a little bit of dampness in each place" but they were not flowing and there was no ground water to sample (Hrg. Tr: 392-394). The professional geologist who testified on behalf of Living Rivers, Elliot Lips, also visited the site, and he reported no sign of any ground water based on his visit (Hrg. Tr: 270).

8. Initial Record References: DOGM Well Log Records, 25 Exploratory Borings, Water Rights Review.

Evidence was also presented concerning Division of Oil, Gas and Mining oil and gas logs, 25 exploratory borings, and a water rights review. (Ex. 102 at 5.) Logs of eleven oil and gas wells within 3.3 miles of the mine site, all drilled to depths of over 1,000 feet contain no indication of ground water, except for one entry, which noted an occurrence of ground water at 1,266 feet (Hrg. Tr: 127, 359-360, IR 000006-7). By rule, Division of Oil, Gas and Mining well logs must identify ground water if any is encountered (Hrg. Tr: 359-360; Utah Admin. Code R649-3-6(2.6). In addition, no ground water was discovered through exploratory borings drilled to depths of 150 feet through the Upper Parachute Creek Member and tar sands contained in the Lower Douglas Creek Member of the Green River Formation or through a water rights review. (Ex. 102 at 5, citations omitted).

9. Living River's Evidence.

Living Rivers' failed to provide any direct evidence of the existence of shallow ground water. Living Rivers' evidence consisted of references to water right applications and statements in the NOI (*see, e.g.,* IR-75, 80, 82-83, and 127), the Demonstration (*see, e.g.,* IR-00006) and a 2007 JBR memorandum (*see, e.g.,* Ex. 203 at Ex. A.) regarding "Water Right 49-1567 on Earth Energy Lease – Spring Investigation" near the project area.

Living Rivers offered the testimony of Elliott Lips, a professional geologist, who highlighted references in the Initial Record to support the presence of ground water. For instance, Mr. Lip's March 16, 2012, *Prepared Supplemental Testimony*, Ex. 203 at 5, quotes the USOS *Notice of Intention to Commence Large Mining Operations* (NOI) [IR-000043-000372] filed with Division of Oil, Gas and Mining in 2009 as follows: "The NOI states that '[n]earby springs or seeps (shown on Figure 7) [IR 000127] provide evidence of very localized, shallow groundwater, likely representing isolated perched aquifers . . . . pg. 30 [IR-000075]."

The most persuasive evidence presented regarding the "seeps" was the testimony of professional geologist Gerald Park, which was based upon his seven years of personal observations and experience at and near the site (Hrg. Tr: 377,378). According to Mr. Park's personal observations, the "seeps" represent water runoff from precipitation events and are unrelated to ground water (Hrg. Tr: 381).

Living Rivers also identified water right application no. 49-1567 but this application was "rejected" in an August 7, 2008, Order of the State Engineer, which found the application to be "not physically or economically feasible." (Ex. 310 at 2.) Repeated efforts by USOS's consultants and a DWQ monitoring team to locate a water source for that application were unsuccessful (IR-000007).

10. Living Rivers has not proven that the *de minimis* finding is unsupported.

There is substantial evidence in the record before the Board to support the *de minimis* finding based on the absence of shallow ground water in the project area. (Ex. 102, IR-000001-630; Hrg. Tr: 108-243, 346-376). Living Rivers presented no direct evidence supporting the presence of shallow ground water in the project area. The record does not show that it was

unreasonable for DWQ to rely upon the information provided by USOS in the 2008 Demonstration (IR-000003-35) or the February 2011 correspondence with USOS with regard to the proposed modifications, or that DWQ's reliance upon the information provided in those materials was fatal to the February 2011 modification determination.

B. USOS' PROPOSED OPERATION DOES NOT PRESENT A GREATER THAN *DE MINIMIS* RISK OF AFFECTING THE QUALITY OF GROUND WATER

The second sub-issue is "*if such ground water exists*, does USOS's proposed operations present a greater than *de minimis* risk of effecting the quality of that ground water." (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 6.) (Emphasis added.) Since there is substantial evidence that ground water is not present, or at the very least, is so scarce that it has not been found after extensive effort to find it, this sub-issue does not warrant extensive attention.

Nonetheless, USOS did present evidence that its process will recover over 99 percent of the d-limonene, leaving only trace amounts in tailings, which will be dried, mixed handled and placed through means and mechanism to ensure that the remaining amounts of residual d-limonene will quickly evaporate, especially in the semi-arid, windy, high plateau on which the mine will be situated (Hrg. Tr: 296, 302-303, 313-318, 378; Transcript of Edward L. Handl April 27, 2012, Testimony(Handl Tr.) 79-81).

The conditions imposed by the *de minimis* determination also limit the project's risk to ground water quality. The March 8, 2008, permit-by-rule determination letter states: "If any of these factors [forming the basis for the determination] change because of changes in your operation or from additional knowledge of site conditions, this permit-by-rule determination may not apply and you should inform the DWQ of the changes. If future project knowledge or experience indicates that ground water quality is threatened by this operation, the Executive

Secretary may require that you apply for a ground water discharge permit. . . ." (IR-000037.) One condition is that the tailings will be further analyzed once the project begins (Ex. 102 at 14, Hrg. Tr: 205). A second condition is that USOS must report ground water if it encounters any (Hrg. Tr: 60). Given the scarcity of ground water and the conditions imposed by the *de minimis* determination, Living Rivers did not show the project will have a greater than *de minimis* risk of affecting the quality of that ground water.

Living Rivers evidence about the risk posed by the project tailings to ground water consisted of testimony from Dr. William Johnson. Dr. Johnson testified how the re-distribution of the processed tar sands to the land surface area of the PR Spring Mine would pose an increased risk of exposure to carcinogenic compounds through two mechanisms: 1) increases in the aqueous concentrations of carcinogenic compounds; and 2) increases in the rate of transport of carcinogenic compounds in ground water (Ex. 200 at 3).

In response to Dr. Johnson's January 20, 2012, pre-filed testimony, Mark Novak stated that it "would not change my *de minimis* determination based on the 2000 feet of unsaturated zone." (Ex. 102 at 14.) (Emphasis added.) In addition, Mr. Novak testified that "Living Rivers' contention wrongly assumes that process water contained in the tailings will discharge directly to ground or surface water, ignoring the fact that tailings will be buried in unsaturated conditions, and that disposal of organic wastes in unsaturated soils is a standard treatment used in a great variety of applications with wastes from domestic, municipal, agricultural, and remediation sources (Ex. 102 at 15). In his rebuttal videotaped testimony given on April 20, 2012, Dr. Johnson acknowledged that his testimony assumed a saturated system, meaning that the tailings would be in contact with ground water, and that he had not evaluated the hydrogeology of the

project site. "If it doesn't come into contact with water, my concern is a nonissue." (Transcript of William Johnson April 20, 2012, Testimony (Johnson April Tr.) 29.)

Living Rivers is also critical of the leachability testing reported in the USOS permit-by-rule request (IR-000003-35). In reviewing the permit-by-rule request for DWQ, Mr. Novak was concerned with compounds that could leach out of the tailings upon contact with rain water so he requested USOS to determine the leachability of contaminants in the tailings using the Synthetic Precipitation Leaching Procedure ("SPLP"), and to analyze the SPLP leachate for parameters of concern (Ex. 102 at 13). The permit-by-rule request reported using Toxicity Characteristic Leaching Procedure (TCLP Method 1311) and (SPLP Method 8270C/3510C and GC/MS 8260B), as well as leaching procedures using other solvents (EPA Method 8015B/3545), on unprocessed tar sands, processed sands and processed fines (IR- 000012). The Demonstration stated: "All sample results-before and after processing- show that both volatile and semi-volatile organics were below detection in the leachate, confirming that the organics present are among the lease mobile." (IR-000014.) The Demonstration also noted some lab errors with the leachability tests but explained the reasons those errors would not undercut the test results. (IR-000014.) Although Living Rivers criticized reliance on the leachability testing because of the lab errors, according to the lab that conducted the tests, the results are reliable (Hrg. Tr: 371-372; Ex. 313). On this point, Living Rivers did not present any evidence which would cast doubt on the certification from the lab. Therefore, the record does not show that the leachability tests that were performed by USOS and accepted by DWQ to determine the toxicity of the leachate would be a basis for remanding the *de minimis* determination.

Because DWQ is requiring USOS to undertake additional leachability testing on the generated tailings once USOS begins operations, (Ex. 102 at 14), Living Rivers argues that the Executive Secretary based his permit-by-rule determination on incomplete data. However, confirmatory testing such as required in this case is part of the typical ongoing review associated with permit-by-rule determinations under Utah Admin. Code R317-6-6.2C that provides:

> The submission of an application for a ground water discharge permit may be required by the Executive Secretary for any discharge permitted by rule under R317-6-6.2 if it is determined that the discharge may be causing or is likely to cause increases above the ground water quality standards or applicable class TDS limits under R317-6-3 or otherwise is interfering or may interfere with probable future beneficial use of the ground water.

Thus, the requirement for additional testing does not signify an inadequate basis for the *de minimis* finding. The record does not show that testing of the actual tailings when they are produced would not be adequate.

VIII. CONTESTED ISSUES OF LAW

Pursuant to the May 9, 2012, Joint Pre-Hearing Statement and Order, the parties agreed that the contested issues of law are:

1. Whether, in determining under Utah Admin. Code R317-6-6.2(A)(25) that the PR Spring facility and operations will have no more than a *de minimis* actual or potential effect on ground water quality, the Executive Secretary erroneously interpreted or applied the law.

2. Has Living Rivers shown that it is entitled to its requested relief?

A. THE EXECUTIVE SECRETARY DID NOT ERRONEOUSLY INTERPRET THE LAW

1. Applicable Law.

Section 19-5-107(1)(a) of the Utah Water Quality Act provides that: "Except as provided in this chapter or rules made under it , it is unlawful for any person to discharge a pollutant into waters of the state . . . ." There are two rules that govern the discharge of pollutants into the ground water. The first is Utah Admin. Code R317-6-6.1 that requires a discharge permit issued by the Executive Secretary. Utah Admin. Code R317-6-6.1.A provides:

> No person may construct, install, or operate any new facility or modify an existing or new facility, not permitted by rule under R317-6-6.2, which discharges or would probably result in a discharge of pollutants that may move directly or indirectly into ground water . . . without a ground water discharge permit from the Executive Secretary. [Emphasis added.]

The second rule that governs the discharge of pollutants into the ground water is Utah Admin Code R317-6-6.2 that relieves a facility from obtaining a discharge permit under Rule 317-6-6.1 if the facility falls within one of the categories identified in the rule. One such category is when the Executive Secretary determines that the facility will have a *de minimis* effect on ground water after the Executive Secretary reviews the application of the facility. Utah Admin. Code R317-6-6.2A(25) provides:

> Except as provided in R317-6-6.2.C, the following facilities are considered to be permitted by rule and are not required to obtain a discharge permit under R317-6-6.1 or comply with R317-6-6.3 through R317-6-6.7, R317-6-6.9 through R317-6-6.11, R317-6-6.13, R317-6-6.16, R317-6-6.17 and R317-6-6.18:
>
> . . .
>
> 25. facilities and modifications thereto which the Executive Secretary determines after a review of the application will have a *de minimis* actual or potential effect on ground water quality.

A permit-by-rule determination made by the Executive Secretary may be withdrawn and the Executive Secretary may require a facility to submit an application for a ground water

discharge permit if the Executive Secretary determines that the discharge may cause increases above the ground water quality standards or may interfere with probable future beneficial use of the ground water. Rule R317-6-6.1.C provides:

> The submission of an application for a ground water discharge permit may be required by the Executive Secretary for any discharge permitted by rule under R317-6-6.2 if it is determined that the discharge may be causing or is likely to cause increases above the ground water quality standards or applicable class TDS limits under R317- 6-3 or otherwise is interfering or may interfere with probable future beneficial use of the ground water.

2. Context.

The Executive Secretary determined that the PR Spring project qualifies for permit-by rule status under Rule R317-6-6.2A(25) (2008 Decision). The Executive Secretary determined that USOS's proposed changes to the project do not affect his original decision that the operations would have a *de minimis* effect on ground water (2011 Modification Decision). Living Rivers has requested agency action to revoke the 2011 Modification Decision and to make the Executive Secretary require USOS to submit an application for a ground water permit under Utah Admin. Code R317-6-6.3 and to obtain a ground water discharge permit under Rule 317-6-6.1.

3. Discussion.

The Executive Secretary did not erroneously interpret or apply the law in determining under Utah Admin. Code R317-6-6.2(A)(25) that the PR Spring project will have no more than a *de minimis* actual or potential effect on ground water quality. The Executive Secretary presented the testimony of Robert Herbert and Mark Novak, both professional geologists with substantial ground water regulatory experience within the Division of Water Quality to explain

the rationale for the *de Minimis* finding. Mr. Herbert and Mr. Novak made five critical points in support of the decision.

First, there are two ways to regulate discharges to ground water; through a ground water permit under Rule 317-6-6.1 or through a permit-by-rule under Rule 317-6-6.2 (Hrg. Tr: 49). A permit-by-rule discharge under Utah Admin. Code R317-6-6.2(A)(25) may be considered regulated for two reasons. First, the proposed discharge is subject to review before a permit-by-rule determination is issued. Second, the determination may be withdrawn and the applicant may be required to file a ground water discharge permit application pursuant to Utah Admin. Code R317-6-6.2.C, "if it is determined the discharge may be causing . . . increases above the ground water quality standards . . . or otherwise . . . may interfere with probable future beneficial use of ground water." Therefore, a permit-by-rule determination does not mean a discharge is unregulated.

Second, regulating the discharge through a permit-by-rule determination instead of through a ground water permit is appropriate for this project because ground water is so scarce in the project area that none can be found to monitor. (*See* Factual Issue discussion above and Hrg. Tr: 118.) Mr. Herbert testified, "[if] there is no ground water to monitor as points of compliance, then you really cannot have a ground water discharge permit because there is nothing to monitor for ground water to be affected." (Hrg. Tr: 49.) Mr. Novak also spoke of the necessity of sufficient quantities of ground water to establish protection levels for a ground water discharge permit (Hrg. Tr: 118, 165-168). Although Mr. Novak testified that he could not rule out "minimal" amounts of ground water at the site, he also testified that all evidence at the site shows

that ground water is not present in sufficient quantity to monitor or to show adverse effects from the permitted facility (Hrg. Tr: 173-174).

Third, Mr. Herbert testified that a permit-by-rule does not assume that no discharge is occurring but is instead based on available information reviewed by the DWQ that the operation will have a *de minimis* effect on ground water quality (Hrg. Tr: 83-85). Living River's witness, Dr. Johnson, testified about the potential polluting effects of a bitumen d-limonene compound, but acknowledged that his calculations assumed a saturated system (Johnson April Tr: 77). Dr. Johnson stated "[if] it doesn't come into contact with water, my concern is a nonissue." (Johnson April Tr: 29). Mr. Novak testified that Dr. Johnson's testimony about the potential polluting effects of a bitumen d-limonene mixture did not change his opinion at all about the *de mimimis* impact to ground water because of the 2000 feet of unsaturated zone. (Ex. 102 at 14.)

Fourth, the application requirements for a ground water permit under Rule 317-6-6.3 have been satisfied except for those that pertain to ground water monitoring (Hrg. Tr: 222-235.) Thus, the remedy sought by Living Rivers to force USOS to file a ground water application would serve no purpose.

Fifth, there is a re-opener in the 2008 Decision that provides that if any ground water is discovered, a ground water permit may be required (Hrg. Tr: 140-141, 243, IR-000036-37). This re-opener is supported by Rule R317-6-6.1.C that authorizes the Executive Secretary to require a permit-by-rule facility, like the PR Spring Facility, to submit an application for a ground water discharge permit if the Executive Secretary determines that the discharge may cause increases above the ground water quality standards or may interfere with probable future beneficial use of the ground water. Therefore, though a permit-by-rule does not have a five year renewal

requirement like a ground water permit, it is nonetheless subject to review, (Hrg. Tr: 205), if for instance, ground water is encountered or if the leachability tests after operations commence indicate that compounds may leach out of the tailings upon contact with rain water.

Living Rivers' argument that the Executive Secretary acted contrary to law by not requiring a ground water discharge permit to protect all ground water, regardless of quantity, is not supported by law. Rule R 317-6-1.19 defines ground water as "subsurface water in the zone of saturation including perched ground water." (Emphasis added.) The "zone of saturation" means "[t]he zone in which the functional permeable rocks are saturated with water under hydrostatic pressure. Water in the zone of saturation will flow into a well, and is called ground water." [Ex. 312 (citation and emphasis omitted).] The USOS drilling program results illustrate the absence of this zone of saturation.

B. LIVING RIVERS HAS NOT SHOWN THAT IT IS ENTITLED TO THE REQUESTED RELIEF

Living Rivers has not shown that it is entitled to the requested relief. Living Rivers has not proven that the Executive Secretary's findings of *de minimis* potential effect of the project on ground water is unsubstantiated, arbitrary and capricious or contrary to law.

IX. RECOMMENDED DECISION

These Findings of Fact, Conclusions of Law, and Order constitute the ALJ's recommended decision.

A. FINDINGS OF FACT

These Findings of Fact are based exclusively on the evidence of record in the adjudicative proceedings:

1. In October, 2005, the DWQ was first contacted regarding a tar sands project proposed by USOS (formerly known as Earth Energy Resources, Inc.), known as the PR Spring Tar Sands Project. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3, ¶ 5.)

2. The project, which has not yet commenced, will initially consist of 213 acres leased from the State Institutional Trust Lands Administration, straddling the boundary between Uintah and Grand Counties, Utah (IR-000046, Ex. 5a.) The project will consist of open-pit mining of tar sands, extraction of bitumen using d-limonene; and storage of processed sands, processed fines and waste rock in the mine and two additional storage acres, totaling 70 acres in size. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3, ¶ 2.)

3. As a tar sands mining operation, the project will operate under a Notice of Intention for a Large Mining Permit (NOI M0470090) required by the Utah Mined Land Reclamation Act (Utah Code Ann. § 40-8-13) and approved by the Utah Division of Oil, Gas & Mining. Under Utah Admin. Code R647-4-109, the NOI must include "a general narrative description identifying . . . [p]rojected impacts to surface and groundwater systems . . . [and] actions which are proposed to mitigate [those] impacts." (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3, ¶¶ 3-4.)

4. There is a September 1, 1999, Memorandum of Understanding Between Utah Division of Oil, Gas and Mining and Utah Department of Environmental Quality for Mining Operations that provides for coordination between the Division of Oil, Gas and Mining and DWQ concerning water quality aspects of mining and reclamation activities. (Ex.107).

5. On February 21, 2008, JBR Environmental Consultants, Inc., on behalf of USOS, submitted to DWQ a Ground Water Discharge Permit-by-Rule Demonstration (IR-000003-35).

The Demonstration was provided to support USOS's request to DWQ for a determination that the project be considered as a permitted-by-rule facility under Utah Admin. Code R317-6-6.2(A). The DWQ accepted the Demonstration as USOS's permit-by-rule application. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 3-4, ¶¶ 6-7).

6. In a letter dated March 4, 2008, DWQ communicated to USOS that the proposed mining and bitumen extraction should have a *de minimis* potential effect on ground water quality and qualifies for permit-by-rule status under Utah Admin. Code R317-6-6.2(A)(25). (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4, ¶ 9, and Ex. IR-000036-37.)

7. The DWQ March 4, 2008, permit-by-rule decision letter identified four relevant factors forming the basis for the decision:

- First, the reagent [d-limonene] is generally non-toxic and volatile, and most of it will be recovered and recycled in the extraction process;
- Second, the bitumen extraction will be done using tanks and equipment at the processing facility, no impoundments or process water ponds are planned, and most of the water used in the process will be recovered and recycled;
- Third, processed tailings will not be free-draining, will have moisture content in the 10 to 20 percent range, will not contain any added constituents that are not naturally present in the rock other than trace amounts of the reagent, Synthetic Precipitation Leachate Procedure testing indicated that leachate from precipitation through tailings would have non-detectable levels of volatile and semi-volatile organic compounds; and
- Fourth, available information on the hydrogeology of the area demonstrated the general absence of ground water to a depth of between 1,500 and 2,000 feet below the surface.

(IR-000036-37.)

8. The permit-by-rule determination provided that "[i]f any of these factors change because of changes in your operation or from additional knowledge of site conditions, this

permit-by-rule determination may not apply and you should inform the DWQ of the changes." (IR-000037.)

9. The permit-by-rule provision in Rule R317-6-6.2.C provides that "[t]he submission of an application for a ground water discharge permit may be required by the Executive Secretary for any discharge permitted by rule under R317-6-6.2 if it is determined that the discharge may be causing or is likely to cause increases above the ground water quality standards or applicable class TDS limits under R317- 6-3 or otherwise is interfering or may interfere with probable future beneficial use of the ground water."

10. Under Utah Code Ann. § 63G-4-301(1)(a) and Utah Admin. Code R305-6-202(8) (formerly Utah Admin. Code R317-9-2(2)(a)), Living Rivers had 30 days, until and including April 3, 2008, to file a request for agency action to contest the determinations set forth in the March 4, 2008, letter (IR-000036-37).

11. Living Rivers did not contest the March 4, 2008, permit-by-rule determination [2008 Decision] within 30 days of its issuance. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4, ¶ 11.)

12. On February 8, 2011, USOS submitted a letter to DWQ outlining several proposed modifications to its operations and asking DWQ to confirm that none of the changes affected its permit-by-rule status. (*Id.* at 3, ¶ 1; 4, ¶ 12; IR-000373-384.)

13. On February 15, 2011, DWQ informed USOS by letter that it had considered the modifications and had determined that "the proposed changes to the mining and bitumen extraction process do not change the March 4, 2008 permit-by-rule determination [2008

Decision] for having a *de minimis* potential effect on ground water quality and the project still qualifies for permit-by-rule under Utah Admin. Code R317-6-6.2A(25)." (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 4, ¶ 14; IR-000404-45).

14. On March 16, 2011, within 30 days of the DWQ's February 15, 2011 letter to USOS, Living Rivers filed the subject Request for Agency Action/Petition to Intervene. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 5, ¶ 15).

15. The parties agree that the factual issue presented for decision in this matter is whether the Executive Secretary's *de minimis* finding pursuant to Utah Admin. Code R317-6-6.2A(25) is supported by substantial evidence. (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 6; *May 8, 2012, Pre-Hrg. Order* at 3.) A sub-issue is whether the record shows there is "ground water" in the subject area. *Id.* Another sub-issue is if such ground water exists, whether the tailings from the project will have a greater than *de minimis* risk of affecting the quality of that ground water. *Id.*

16. Under Utah Admin. Code R317-6-1.19, "ground water" means "subsurface water in the zone of saturation including perched ground water." Rule 317-6 does not define the "zone of saturation" but the U.S. Geological Survey defines it as "[t]he zone in which the functional permeable rocks are saturated with water under hydrostatic pressure. Water in the zone of saturation will flow into a well, and is called ground water." [Ex. 312 (citations and emphasis omitted).] The zone where ground water occurs is an aquifer. Utah Admin. Code R317-6-1.1 and Hrg. Tr: 49.

17. There can be subsurface water outside the zone of saturation. This subsurface water does not qualify as "ground water" under Utah Admin. Code R317-6-1.19.

18. There is a substantial basis in the record to conclude that there is a zone of saturation known as the Mesa Verde aquifer at 1500 to 2000 feet below surface level. (Hrg. Tr: 127.)

19. There is a substantial basis in the record to conclude that ground water in the project area above the regional Mesa Verde aquifer is generally absent and has not been located in connection with the permitting by rule of this project as shown from the Division of Oil Gas and Mining well log records (IR-000003-35, Hrg. Tr: 359-360), 25 exploratory borings drilled to depths of 150 feet (Ex. 102 at 5, Hrg. Tr: 127-128, IR-000043-372), water rights review (IR-000003-35, IR-000043-372;), the USOS 2011 drilling and coring program (Ex. 303, 304, 305, Hrg. Tr: 107, 335, 337, 338, 383-390).

20. During the summer of 2011, USOS drilled 180 holes in and around the mine site, with a dense grid of 55 holes within the project area, up to 305 feet in depth, which is more than twice the depth to which USOS will mine. (Hrg. Tr: 56, 102, 104-105, 351-354, 382-383, Ex. 305). The drilling was conducted, in part, to determine the presence or absence of ground water. (Hrg. Tr: 386). It is reasonable to assume that the means and methods utilized would have yielded signs of ground water, if there were any (Hrg. Tr: 386). The drillers and the geologists who manned the drill rigs were instructed to watch for and record any signs of ground water (Hrg. Tr: 386). No ground water was encountered, and no sign of it was recorded (Hrg. Tr: 386). The 2011 drilling and coring program is strong evidence of the absence of ground water that may be impacted by the project (Hrg. Tr: 386).

21. In 2011, USOS drilled deep holes for a water well to serve its project. USOS drilled five holes near the project area to depths below 1,500 feet, and only one encountered ground water at a depth of over 1,800 feet (Hrg. Tr: 387, 380).

22. Also presented were relevant publications, core logs and topographic maps. According to this evidence, as well as the Executive Secretary's and USOS's expert testimony on the hydrogeology of the area, the geology is not conducive to the presence of ground water that may be impacted by USOS's project. The project is located on an interfluve between two drainages, which isolates the mine site and limits any recharge to just the small amount of precipitation that falls directly on the site, most of which will be lost to evapotranspiration. The subsurface consists mostly of interbedded and impermeable shale, siltstone, and mudstone. Although zones of sandstone exist, they are saturated with bitumen. The hydrogeology evidence presented in the hearing strongly supports the absence of ground water that may be impacted by the project.

23. Evidence of professional inspections in and near the project area was presented. A DWQ monitoring team visited the project area to look for signs of ground water, such as seeps or springs, and found none. Professional geologist Gerald Park has extensive personal experience at the site. He has searched for signs of ground water at the site ever since he started going there in 2005, and he has never found any. The professional geologist who testified on behalf of Living Rivers, Elliot Lips, also visited the site, and he reported no sign of any ground water based on his visit.

24. Living Rivers' failed to provide any direct evidence of the existence of shallow ground water. Living Rivers' evidence consisted of references to water right applications and

statements in the NOI (*see, e.g.,* IR-75, 80, 82-83, and 127), the Demonstration (*see, e.g.,* IR-00006) and 2007 JBR memorandum (*see, e.g.,* Ex. 203 at Ex. A.) regarding "Water Right 49-1567 on Earth Energy Lease – Spring Investigation" near the project area.

25. The most persuasive evidence presented regarding the "seeps" was the testimony of professional geologist Gerald Park, which was based upon his seven years of personal observations and experience at and near the site. According to Mr. Park's personal observations, the "seeps" represent water runoff from precipitation events and are unrelated to ground water (Hrg. Tr: 381).

26. The water right application on which Living Rivers relies – Application to Appropriate Water Number 49-1567 – was "rejected" in an August 7, 2008, Order of the State Engineer, which found the application to be "not physically or economically feasible." (Ex. 310 at 2.) Efforts by USOS's consultants and a DWQ monitoring team to locate a water source for that application were unsuccessful (IR-000007).

27. Living Rivers presented the testimony of Dr. William Johnson, who opined that residual d-limonene in the tailings from USOS's operations will make the residual bitumen compounds in the tailings 1,440 times more soluble than they are in their natural state but his testimony fell short as he acknowledged that his solubility and mobility calculations were premised on immediate entry of the byproduct into groundwater. When queried on the likelihood of the processed tailings ever coming into contact with ground water, Dr. Johnson acknowledged that his calculations were assuming a saturated system and that he could not speak as to the likelihood of contact of the mixture with surface water or ground water as he did not evaluate the hydrogeology of the site (Johnson April Tr: 6-77.)

28. The record does not show that the leachability tests that were conducted were fatally flawed due to violations of testing protocols. On this point, Living Rivers did not present any evidence which would cast doubt on the certification from the lab as to the usefulness of the data.

29. The record does not show that the leachability tests that were performed by USOS and accepted by DWQ to determine toxicity of the leachate generated by the reagent would be a basis for remanding the *de minimis* determination, and as to why testing of the actual tailings when they are produced would not be adequate.

30. The record does not show that it was unreasonable for DWQ to rely upon the information provided by USOS in the 2008 Demonstration (IR-000003-35) or the February 2011 correspondence with USOS with regard to the proposed modifications (IR-000373-403), or that DWQ's reliance upon the information provided in those materials was fatal to the February 2011 modification determination (IR-000404-405).

31. USOS is required to undertake additional testing on its tailings, as requested by DWQ, once USOS begins operations. (Ex. 102 at 14; Hrg. Tr: 205.) Such testing is part of the typical ongoing review associated with permit-by-rule determinations under Utah Admin. Code R317-6-6.2C that provides "[t]he submission of an application for a ground water discharge permit may be required by the Executive Secretary for any discharge permitted by rule under R317-6-6.2 if it is determined that the discharge may be causing or is likely to cause increases above the ground water quality standards or applicable class TDS limits under R317- 6-3 or otherwise is interfering or may interfere with probable future beneficial use of the ground water."

32. USOS is required to notify DWQ of information on subsurface conditions and encountered water, if any and should evidence of shallow ground water be discovered USOS is required to notify and coordinate with the DWQ to further investigate the presence of ground water (Hrg. Tr: 60).

33. The record does not show that USOS's proposed modifications considered in the 2011 Modification Decision (IR-000404-405) will cause the project to have a greater than *de minimis* actual or potential effect on ground water quality. The operational modifications considered consist of:

a. removal of the stabilizer component that was originally planned as part of the cleaning emulsion used for bitumen extraction;

b. the use of a horizontal belt filter and a disk filter, rather than a shale shaker or similar device, to de-water tailings sands and fines;

c. the increase in size of two overburden/interburden storage areas from 25 acres each to 34 acres and 36 acres; and

d. the use of the two storage areas to dispose of tailings.

(IR-000373-385.)

34. Living Rivers did not claim, or present any evidence, that removal of the stabilizer component from the cleaning emulsion and the different de-watering devices will increase the project's impact on ground water quality.

35. Living Rivers presented no evidence that the increase in the storage areas' sizes and use of those areas to dispose of tailings will increase the project's impact on ground water quality. Living Rivers' expert witness, Elliott Lips, testified that he did not think that the storage areas will cause any ground water contamination. (Ex. 202 at 23.)

36. Based on the standard of review articulated herein, the Executive Secretary's determination of the project's *de minimis* potential effect on ground water and the 2011 Modification Decision are supported by substantial evidence when viewed in light of the whole record.

37. Living Rivers has not proven that it is entitled to the relief requested in its Request for Agency Action.

B. CONCLUSIONS OF LAW

1. The Board has jurisdiction to take dispositive action on this Memorandum and Findings of Fact, Conclusions of Law and Recommended Order ("Recommended Decision").

2. Utah Admin. Code R317-6-6.2A(25) provides:

> Except as provided in R317-6-6.2.C, the following facilities are considered to be permitted by rule and are not required to obtain a discharge permit under R317-6-6.1 or comply with R317-6-6.3 through R317-6-6.7, R317-6-6.9 through R317-6-6.11, R317-6-6.13, R317-6-6.16, R317-6-6.17 and R317-6-6.18:
>
> . . .
>
> 25. facilities and modifications thereto which the Executive Secretary determines after a review of the application will have a *de minimis* actual or potential effect on ground water quality.

(Ex. 101; May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 5, ¶ 1.)

3. Rule R317-6-6.2.C provides:

> The submission of an application for a ground water discharge permit may be required by the Executive Secretary for any discharge permitted by rule under R317-6-6.2 if it is determined that the discharge may be causing or is likely to cause increases above the ground water quality standards or applicable class TDS limits under R317-6-3 or otherwise is interfering or may interfere with probable future beneficial use of the ground water.

4. For purposes of Utah Admin. Code R317-6-6.2A(25), "ground water" means "subsurface water in the zone of saturation including perched ground water."

(May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 5, ¶ 2 (quoting Utah Admin. Code R317-6-1.19.)

5. Living Rivers may not directly contest the Executive Secretary's 2008 Decision because such a challenge is time barred. Utah Code Ann. § 64G-4-301(1)(a) and Utah Admin. Code R305-6-202(8) (formerly Utah Admin. Code R314-6-2(2)(a)).

6. The parties agreed on page 5, ¶ 3 of the May 9, 2012, Joint Pre-Hearing Statement and Order that Living Rivers, as the petitioner, carries the burden of proof. *See Milne Truck Lines, Inc. v. Public Serv. Comm'n of Utah*, 720 P.2d 1373, 1379 (Utah 1986). The parties also agreed in the same paragraph of the May 9, 2012, Joint Pre-Hearing Statement and Order that the standard of proof in this administrative hearing is a preponderance of the evidence, and "requires the proponent of a contested fact to demonstrate that its existence is more likely than not." *Harken v. Southwest Corp. v. Board of Oil, Gas and Mining*, 920 P.2d 1176, 1182 (Utah 1996).

7. Living Rivers contends, and the other parties do not dispute, that the appellate standard set forth in the Administrative Procedures Act, Utah Code Ann. § 63G-4-403(4)(d), (g), (h), should be applied in this matter, and that standard allows relief to a party if the agency "erroneously interpreted or applied the law," based an action "upon a determination of fact . . . that is not supported by substantial evidence when viewed in light of the whole record before the court," or is "otherwise arbitrary or capricious." (May 9, 2012, Jt. Pre-Hrg. Stmt. and Order at 5-6, ¶ 4.)

8. This proceeding is de novo, meaning that evidence that was not before the Executive Secretary when he made factual determinations may nevertheless be considered as evidence supporting such determinations.

9. Based on the record as a whole, in determining under Utah Admin. Code R317-6-6.2(A(25) that the PR Spring facility and operations will have no more than a *de minimis* actual or potential effect on ground water quality, the Executive Secretary did not erroneously interpret or apply the law.

10. The Executive Secretary's finding of the *de minimis* potential effect of the project on groundwater and the 2011 Modification Decision are supported by substantial evidence when viewed in light of the whole record.

11. Living Rivers has failed to show that it is entitled to the requested relief.

X. RECOMMENDED ORDER.

Based on the initial record, the Request for Agency Action and the evidence presented in this proceeding, I recommend that the Board adopt the Recommended Decision and enter an order affirming the Executive Secretary's determination of the project's *de minimis* potential effect on ground water and the 2011 Modification Decision and denying the relief sought by Living Rivers in its Request for Agency Action.

XI. NOTICE OF OPPORTUNITY TO COMMENT

Parties *may* file comments to this Recommended Decision with the Board within ten business days of issuance in accordance with the requirements of Rule 305-6-215(2)(b) of the Utah Admin. Code. Comments shall cite to the specific parts of the record which support the comments and shall be limited to 20 pages. Parties are *not* required to file comments. To file comments with the Board, a party should send the comments to board counsel, the Executive Secretary and the Administrative Proceedings Records Officer. The service information for counsel to the Board is included in the attached Certificate of Service. In addition, a party

should serve its comments on the other parties in this matter. Finally, pursuant to Rule 305-6-216(1), the parties shall be granted time before the Board to present oral argument regarding the Recommended Decision regardless of whether comments are filed with the Board.

DATED this 28th day of August, 2012.

Sandra K. Allen
Administrative Law Judge

CERTIFICATE OF SERVICE

I hereby certify that on this 28th day of August, 2012, I caused a copy of the foregoing *Memorandum and Findings of Fact, Conclusions of Law and Recommended Order* to be served/filed by electronic mail (unless otherwise indicated) to the following:

PETITIONERS

Joro Walker
Charles R. Dubuc, Jr.
Western Resource Advocates
I50 South 600 East, Suite 2A
Salt Lake City, UT 84102
jwalker@westernresources.org
rdubuc@westernresources.org
Counsel for the Living Rivers

ADMINISTRATIVE PROCEEDINGS RECORDS OFFICER
160 East 300 South
Salt Lake City, Utah 84111
DEQAPRO@utah.gov

WATER QUALITY BOARD

Kimberlee McKewan
Assistant Attorney General
P.O. Box 144840
195 North 1950 West, 1st Fl.
Salt Lake City, UT 84114-4840
kmcewan@utah.gov
Counsel for Water Quality Board

Walter Baker, P.E.
Executive Secretary
Water Quality Board
195 North 1950 West
P.O. Box 144870
Salt Lake City, UT 84114-4870
wbaker@utah.gov

RESPONDENTS

Paul McConkie
Assistant Attorney General
P.O. Box 140873
160 East 300 South
Salt Lake City, UT 84114-0873
pmcconkie@utah.gov
Counsel for the Executive Secretary

A. John Davis
Christopher R. Hogle
M. Benjamin Machlis
HOLLAND & HART
222 South Main Street, Suite 2200
Salt Lake City, UT 84111
AJDavis@hollandhart.com
CRHogle@hollandhart.com
MBMachlis@hollandhart.com
Counsel for U.S. Oil Sands, Inc.

Shane R. Bebbemellow