DIRE Coalition . . . Don't Inject, RE-direct . . . because the situation is dire.
310 Piliwale Rd.
Kula, HI 96790

Overview: Supplemental Submission to EPA on Lahaina Injection Well UIC Permit 9/20/09

The following supplemental information is submitted on behalf of the DIRE Coalition of Maui with respect to the County of Maui's currently pending application for renewal of its underground injection permit under the federal Safe Drinking Water Act. This information supplements the testimony and accompanying written submission presented at the August 20, 2009, EPA hearing at the Lahaina Civic Center, as well as previous comments submitted by DIRE and its individual and group members. We continue to believe and have attempted to demonstrate in these and previous comments that the County of Maui has failed to bear its burden of persuasion of entitlement to a 10-year permit renewal at levels requested. Accordingly, the DIR Coalition petitions EPA not only to reject the request for a 10 year permit renewal but to limit any renewal permit to five years duration (given the 15 years already received by the county in fact under the existing permit) and to impose more stringent interim requirements (even than those proposed by EPA in its revised proposed permit) on injection in order to meet the Agency's responsibilities under the Clean Water Act, E.O. 13089, and other important authorities and protect Maui's environment and the health of its residents.

Overview: In the supplemental comments which follow, the DIRE Coalition makes the following points in addition to those made above and previously:

1. **EO 13089, 40 CFR 144.4(f) and 40 CFR 144.36(c) Require that EPA Limit the Duration and Interim Pathogen and Nutrient Releases Allowed Under Any UIC Permit That May Be Granted:** The UIC regulations at 40 CFR 144.4 make clear that any UIC permit that is granted must comply with a variety of other requirements beyond those specified in the Safe Drinking Water Act and its implementing regulations. These include Executive Orders (40 CFR 144.4). Executive Order 13089 on "Coral Reef Protection" requires "All Federal Agencies" [including the Environmental Protection Agency] to "(a) identify their actions that may affect U.S. coral reef ecosystems; (b) utilize their programs and authorities to protect and enhance the conditions of such ecosystems; and (c) to the extent permitted by law, ensure that any actions they authorize, fund, or carry out will not degrade the conditions of such ecosystems." Because the granting of a 10-year UIC permit for the Lahaina injection wells has clearly been demonstrated to contribute harmful nutrients that promote algae growth and harm coral reef ecosystems in West Maui, the Agency is required to use its authority under 40 CFR 144. _ (c) to limit the term of any permit it grants to the shortest period of time necessary to put in place necessary treatment upgrades and land-base reuse of wastewater and during the interim to restrict nutrient releases to the lowest levels achievable during that time.

2. **By its own terms, 40 CFR 144.4 is not an "exhaustive" list of the other federal laws that may be required to be considered before EPA may issue a UIC permit.** The Clean Water Act and the requirements of EO 13089 must be considered and complied with as well.

3. **Regardless of how section 144.4 is construed, the current record demonstrates persuasively that the County is now discharging pollution through the Lahaina injection wells into the ocean without an NPDES permit in violation of the Clean Water Act.** Given EPA's actual knowledge of the hydrological connection between the Lahaina injection wells and the release from those wells of pollutants into the ocean (and thus the knowledge of this Clean Water Act violation), EPA may not grant the UIC permit to allow the very behavior that violates the Clean Water Act until and unless the County agrees to a compliance schedule to obtain and meet all applicable requirements of an NPDES permit for these injection wells.

4. **The one state that has considered this specific issue – whether indirect discharges where injected "wastewater and affected groundwater will discharge to surface water after leaving the waste management area," are subject to NPDES permit requirements-- has concluded that NPDES permits are required.** While the Oregon interpretation is not binding on EPA or the County, it is deserving of weight in the Agency's determination of whether or not to grant a UIC permit without the county first committing to comply with the NPDES requirements of the Clean Water Act.

5. **The requirements of Section 307 of the Coastal Zone Management Act have not been satisfied. The proposed permit would be inconsistent with the policies and objectives of the Hawaii CZM plan. In the absence of meeting all applicable CZM requirements, EPA is prohibited by the Safe Drinking Water Act regulations (40 CFR 144.4(d)) from granting the 10-year permit that the County has requested and may not lawfully allow increases in total effluent volumes or in actual total nitrogen levels going into the wells.**

6. **Effect of the Mayor's Testimony: The Mayor's Testimony at the August 20 Hearing Makes Clear that Wastewater Effluent Promotes Algal Growth.** That algal growth is clearly known to be harmful to coral reefs. This must be considered when assessing the implications of EO 13089, the "significant nexus" Clean Water Act test under Rapanos, and for all other purposes of the DIRE Coalition's arguments and presentations.

7. **A Number of Additional Articles and Reports Support the DIRE Coalition's Concern about the Harmful Effects of Nutrients being Released into the Ocean and their Deleterious Effect on Coral Reef Ecosystems.** Looked as a whole, the record underscores the need for EPA to restrict any permit granted and for the County to curtail injection at the Lahaina plant as soon as possible and to obtain an NPDES permit for the discharges through the wells into the ocean.

8. **On the current record considered as a whole, it would be "arbitrary, capricious, an abuse of discretion, [and] not otherwise in accordance with law" for EPA to grant a 10-year permit for continued injection of wastewater effluent at the Lahaina Wastewater Treatment Plant, to allow higher levels of effluent and nutrient to flow into the wells and into the oceans than is occurring currently, and to fail to insist on the County obtaining an NPDES permit for the discharges through the wells into**

the ocean. The Mayor's testimony at the August 20 hearing in favor of ending injection wells as soon as possible and reusing the water underscores this point.

9. **The Lahaina News Has Editorialized "Get Rid of Injection Wells".** Public testimony and record submissions – over 200 of them – have been unanimous as well – in opposing the granting of a 10-year permit and in favor of more stringent limits on effluent and nutrient loadings to be allowed into the wells in the interim before the wells are shut down.

Supplemental Submission for EPA Record on Lahaina Injection Well Permit

The following supplemental information is submitted on behalf of the DIRE Coalition of Maui with respect to the County of Maui's currently pending application for renewal of its underground injection permit under the federal Safe Drinking Water Act. This information supplements the testimony and accompanying written submission presented at the August 20, 2009, EPA hearing at the Lahaina Civic Center.

1. **EO 13089: Executive Order 13089 Requires Any Renewal of the Lahaina Permit to Be as Short a Duration as Feasible before Adequate Treatment and Reuse Can Be Implemented and That The Most Stringent Controls Feasible Be Placed on the Nitrogen, Phosphorus and Pathogens in the Effluent Going into the Wells in the Interim**

We call your attention to Executive Order 13089 – "Coral Reef Protection," June 11, 1998 - http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1998_register&docid=fr16jn98-142.pdf. That Executive Order applies to ''U.S. coral reef ecosystems.'' This is defined in Section 1 (a) to mean "those species, habitats, and other natural resources associated with coral reefs in all maritime areas and zones subject to the jurisdiction or control of the United States (e.g., Federal, State, territorial, or commonwealth waters), including reef systems in the south Atlantic, Caribbean, Gulf of Mexico, and Pacific Ocean." Clearly, the coral reef systems of West Maui fall within this definition.

Section 2 of EO 13089 states,

> "**Sec. 2.** *Policy.* (a) All Federal agencies whose actions may affect U.S. coral reef ecosystems shall: (a) identify their actions that may affect U.S. coral reef ecosystems; (b) utilize their programs and authorities to protect and enhance the conditions of such ecosystems; and (c) to the extent permitted by law, ensure that any actions they authorize, fund, or carry out will not degrade the conditions of such ecosystems."

This provision of the Executive Order is mandatory – as evidenced by the word "shall". The Environmental Protection Agency is clearly a "Federal agency" within the meaning of EO 13089. For the reasons stated in our previous submissions and those of our allied member groups, including our submission on August 20, 2009, and considering the amount of nitrogen that may be allowed to enter the wells and the ocean under a 10-year permit, EPA's decision on the Lahaina injection well permit undoubtedly "may affect [the] US coral reef ecosystem" of West Maui. It follows then that the requirements of section 2 (b) and (c) of EO 13089 apply to

the current Lahaina injection well permit proceeding, unless one of the exceptions of section 3 apply. Neither of these exceptions does apply, nor has the County even claimed that they do. *Thus, EPA is required to follow the requirements of Section 2 (b) and (c) of EO 13089 in the Lahaina injection well permit decision.*

Specifically, EPA clearly has the "authority" under 40 CFR 144.36 (c) to grant a UIC permit for a period less than 10 years. Each additional year of a permit will allow more algae-promoting nutrients to go down the wells in Lahaina and into the ocean and thus more degradation of the "coral reef ecosystem" of West Maui. That is what the Division of Aquatic Resources of the State of Hawaii has written in its submissions to this record and that is what the record as a whole demonstrates. As indicated in Point #4 below, the Mayor's own statement at the August 20, 2009 hearing – that she wants to use the nitrogen in the wastewater effluent to grow algae for energy – makes this abundantly clear. *Therefore, the Regional Administrator (Director) is required by EO 13089 to use this authority under 40 CFR 144.36(c) not to grant the full 10 year permit requested by the County.* Instead, the time allowed should be the shortest time reasonably necessary to put in place alternative wastewater treatment and reuse plans and facilities and by this means better "protect . . . the coral reef ecosystem" of West Maui. *In addition, these provisions of EO 13089 require the Director to impose interim conditions on the permit to reduce to the maximum extent feasible the levels of nitrogen, phosphorus, and pathogens that are allowed in the effluent that goes into the wells and then into the ocean.*

These requirements of EO 13089 are further underscored by Section 3 of that Executive Order, which requires federal agencies "whose actions affect U.S. coral reef ecosystems . . . [to] provide for implementation of measures . . . reducing impacts from pollution." EO 13089 thus imposes an affirmative duty on the Director to protect coral reef ecosystems from land-based "pollution" such as the Lahaina wastewater effluents.

Moreover, we point out that the "authorities" that EPA has under existing law to reduce "impacts from pollution," "to protect and enhance [US coral reef ecosystems]," and "not degrade the conditions of such ecosystems" are not merely those under the Safe Drinking Water Act; they include authorities that EPA has under the Clean Water Act, including (a) the authority to require an NPDES permit for any point source that discharges pollution to the oceans, and (b) the authority to require other necessary actions under the watershed management requirements of that Act. We specifically endorse the views of Robin Knox in this regard.

Executive Orders are to be given the full force and effect of law, unless they are inconsistent with federal legislation or the US Constitution or plainly without any constitutional or statutory authority. *Dames & Moore v. T. Regan,* 453 U.S. 654 (1981); *Building and Construction Trades Dep't, AFL-CIO, et al. v. Allbaugh,* 295 F. 3rd 28 (DC Cir. 2002) -- http://www.ll.georgetown.edu/federal/judicial/dc/opinions/01opinions/01-5436a.html.

In the present situation, the issuance of EO 13089 clearly was within the President's authority as indicated by the statutes cited in the preamble to the Order. Moreover, the application of Sections 2 (b) and (c) to the Lahaina Injection Well permit proceeding would not be inconsistent with federal constitutional or statutory law. See: http://www.nepa.gov/nepa/regs/eos/eo13089.html.

Of particular importance for the Lahaina Injection Well permit is the fact that EO 13089 was issued in part on the basis of the authority of the Coastal Zone Management Act -- 16 U.S.C. 1451, *et seq*. and that the Coastal Zone Management Act is one of the Acts listed in EPA's Safe Drinking Water Act regulations (40 CFR 144.4) "that may apply to the issuance of permits under these rules. When any of these laws is applicable, its procedures must be followed. When the applicable law requires consideration or adoption of particular permit conditions or requires the denial of a permit, those requirements also must be followed." The Executive Order is both authorized by law and mandatory as it pertains to terms and conditions of EPA permits that "may affect coral reef ecosystems." That includes the Lahaina Injection Well permit, as the record as a whole so powerfully documents.

In this regard, see also 40 CFR 144.4(f), which provides that "Executive Orders" are among the legal requirements that are "applicable" and must be followed. If EPA is to follow the mandates of EO 13089, it must (a) limit the duration of the permit to the minimum time necessary to manage the wastewater differently than placing in injection wells (e.g., to put in place appropriate treatment upgrades and land-base wastewater effluent reuse systems), and (b) limit the amount of nutrients going into the wells in the interim, so that no more than current levels of effluent, total nitrogen, and phosphorus, are allowed, and so that other means to further reduce these levels are achieved as soon as feasible; and (c) require the County to obtain an NPDES permit and meet necessary effluent and water quality standards, including the objectives and policies of the Hawaii Coastal Zone Management Program described below.

2. <u>By its own terms, 40 CFR 144.4 is not an "exhaustive" list of the other federal laws that may be required to be considered before EPA may issue a UIC permit. The Clean Water Act and the requirements of EO 13089 must be considered as well.</u>

Section 144.4 of 40 CFR states in part,

> "The following is a list of Federal laws that may apply to the issuance of permits under these rules. When any of these laws is applicable, its procedures must be followed."

This provision does not say that this is "an exhaustive," "comprehensive," or "complete" list. It is simply "a list of Federal laws [then in existence] that may apply." Nor does it say, this is "the" list of Federal laws that may apply. Thus, it follows that a plain meaning reading of the regulation is that other federal laws – not specifically listed in 144.4 – including those adopted after promulgation of 144.4 -- may also apply to the issuance of a UIC permit. See: *Thomas Jefferson Univ. v. Shalala*, 512 U.S. 504, 512, 114 S. Ct. 2381, 2386, 129 L.Ed.2d 405 (1994) ("[W]e must defer to the [agency's] interpretation unless an "alternative reading is compelled by the regulation's plain language....' ") (quoting *Gardebring v. Jenkins*, 485 U.S. 415, 430, 108 S. Ct. 1306, 1314, 99 L.Ed.2d 515 (1988)).

By the same token, see *Legal Enforcement Assistance Foundation v. USEPA*, No. 95-6501 (11th Cir. 1997), note 12. In that footnote, the Court indicated that a list of problems identified in the House Committee Report which caused Congress to determine that the UIC program was necessary should not be construed as an exhaustive or complete list of such problems, but only

an illustrative list, not limiting given the overall purpose and language of the Safe Drinking Water Act.

The federal Clean Water Act, the federal Resource Conservation and Recovery Act, and the federal Pollution Prevention Act are prime examples of federal laws which may also be applicable to the issuance of a UIC permit, and which, if they do, must be followed under the policy of 40 CFR 144.4. See, for example, 40 CFR 270. 1 -- http://law.justia.com/us/cfr/title40/40-26.0.1.1.4.1.37.1.html. Similarly, EPA may reasonably be required (or at least authorized) by the Coral Reef Conservation Act of 2000 to take its policies into consideration when deciding whether or on what conditions a UIC permit should be issued which may affect coral reef ecosystems. Likewise, injection of low level radioactive wastes could be subject not only to the federal Safe Drinking Water Act, but also to the "Low-level Radioactive Waste Policy Amendments Act of 1985," even though this piece of legislation is not explicitly listed in 40 CFR 144.4. See: http://www.nrc.gov/waste/llw-disposal.html.

3. The current record is persuasive that the County is now releasing pollution through the injection wells into the ocean without an NPDES permit in violation of the Clean Water Act.

This is not a situation in which it is alleged that a new UIC permit could possibly lead to a release to the ocean. In this case a responsible County official has admitted on the record at the November 2008 hearing, and the rest of the overall record independently corroborates that admission, that the nutrient-laden effluent injected into the Lahaina wells is not contained in the wells, but flows from there into the ocean. Now EPA has actual knowledge of that fact.

Under these circumstances where a clear hydrological connection has been demonstrated between the Lahaina injection well and the surface water (ocean) to which the injectate is released and where the nexus between the two is clearly "significant" under the Rapanos and Northern California River Watch cases cited in our previous submission, it would be an abuse of discretion for EPA to:

(a) grant the 10 year UIC permit,
(b) fail to order the County to obtain an NPDES permit,
(c) fail to impose conditions requiring the County to take the related steps necessary to cap actual nutrient loadings, further reduce the nutrient levels and pathogens to the maximum extent feasible, and reduce the harmful effects of its discharge to and through the injection wells into the ocean.

None of the previous decisions of EPA that have limited the UIC permit decision to the impact of the injection on drinking water supplies have confronted a factual situation such as this one, where the injection activity is admitted by the applicant and known to the EPA to be resulting in violation of the Clean Water Act. Under these circumstances, and particularly given EO 13089 and 40 CFR 144.4(f) – see below – the Agency may not ignore these facts, but must insist on conditions and controls to ensure compliance with the Clean Water Act and reduction of the impact of the injection wells' releases to the ocean on sensitive coral reef ecosystems of West Maui.

While it is true that the 5th Circuit Court of Appeals has held that the Clean Water Act does not *generally* confer on the Administrator of EPA the authority to require NPDES permits for underground injection wells, it is important to note that the Court specifically did not deal with the factual circumstances presented by what we now know about the Lahaina injection wells. Note 1 of the Court's decision in Exxon Corp. v. Train, 554 F. 2d 1310 (5th Cir. 1977) addresses this point expressly:

> "Specifically, EPA has not argued that the wastes disposed of into wells here do, or might, 'migrate' from groundwaters back into surface waters that concededly are within its regulatory jurisdiction. Cf. Comment, Groundwater Pollution in the Western States Private Remedies and Federal and State Legislation, 8 Land & Water L. Rev. 537, 557 (1973). We mean to express no opinion on what the result would be if that were the state of facts."
> http://openjurist.org/554/f2d/1310

Similarly, see note 17, indicating that in that case the EPA Administrator ". . . does not argue that disposal into these deep wells is the addition of a pollutant 'to navigable waters' within the meaning of the Act." That, however, is precisely what we, the County, and EPA now know is happening at Lahaina – the injected effluent is admitted by the County to be flowing down the wells uncontrolled into the ocean. That is why the UIC permit may not be renewed by EPA to grant the County continued authority to generate these discharges to navigable waters without requiring the County to obtain and meet the conditions of an NPDES permit and more as indicated above.

The following cases and citations provide further support for this conclusion: Leslie Salt Co. v. Froehlke, 578 F.2d 742, 754-55 (9th Cir.1978) (holding that "the term 'navigable waters' within the meaning of the [CWA] is to be given the broadest possible interpretation under the Commerce Clause"); Friends of Santa Fe County v. LAC Minerals, 892 F. Supp. 1333, 1357-58 (D.N.M.1995) (holding that the Tenth Circuit's decision in Quivira Mining Co. v. United States Envt'l. Protection Agency, 765 F.2d 126 (10th Cir.1985), cert. denied, 474 U.S. 1055, 106 S. Ct. 791, 88 L.Ed.2d 769 (1986), foreclosed "any argument that the CWA does not protect groundwater with some connection to surface waters" because the Tenth Circuit had expansively interpreted the CWA's jurisdictional reach in a non-groundwater context); Washington Wilderness Coalition v. Hecla Mining Co., 870 F. Supp. 983, 989- 90 (E.D.Wash.1994) (holding that, although "Congress did not intend to include isolated groundwater as part of the 'navigable waters' " that the CWA regulates, the CWA does apply to discharges of pollutants that reach surface waters through groundwater); Sierra Club v. Colorado Refining Co., 838 F. Supp. 1428, 1434 (D.Colo.1993) (holding that discharges into "navigable waters" include discharges that reach navigable waters through groundwater); and McClellan Ecological Seepage Situation v. Weinberger, 707 F. Supp. 1182, 1193-96 (E.D.Cal.1988), vacated on other grounds, 47 F.3d 325 (9th Cir.), cert. denied, 516 U.S. 807, 116 S. Ct. 51, 133 L.Ed.2d 16 (1995) (noting that although "Congress did not intend to require NPDES permits for discharges of pollutants to isolated groundwater," plaintiff could state a claim if it could "establish that the groundwater is naturally connected to surface waters that constitute 'navigable waters' under the Clean Water Act."). Note, too, that in its discussion of its regulations for storm water discharge NPDES permits, EPA has remarked in response to a rulemaking comment that "this rulemaking only addresses discharges to waters of United States, consequently discharges to ground water are not covered by this

rulemaking (*unless there is a hydrological connection between the ground water and a nearby surface water body)*. 55 Fed. Reg. 47990, 47997 (Nov. 16, 1990). [Emphasis added].

4. **One state that has grappled expressly with this precise question has concluded that underground injection of wastewater effluent in a way that is known to result in subsequent discharge to surface water is prohibited under the Clean Water Act if done without an NPDES permit.**

The State of Hawaii has not addressed this question expressly. Nor has any court in Hawaii done so. However, the one state that seems to have addressed this question specifically, the State of Oregon, has rendered an interpretation of the NPDES rules in its Internal Management Directive entitled, "Disposal of Municipal Wastewater Treatment Plant Effluent by Indirect Discharge to Surface Water via Groundwater or Hyporheic Water," (2007) -- http://www.deq.state.or.us/wq/pubs/imds/indirectdischarge.pdf. The State concludes, "Based on site conditions and design of indirect discharge [to surface water] systems as defined in this IMD are such that 'all' the wastewater and affected groundwater will discharge to surface water after leaving the waste management area, the Department interprets its rules to require an NPDES permit . . . for these systems." (p. 11)

The same Directive provides, "For sources covered by this IMD, Department staff are directed to address this situation in the following way: The indirect discharge systems should be designed and a permit issued with conditions so that the effluent leaving the treatment system and entering surface water indirectly will meet water quality standards at the edge of the surface water mixing zone. . ." (p. 12) *That, plus other typical requirements of an NPDES permit (such as effluent limits to meet all applicable water quality standards and TMDLs and water quality monitoring), are what we are requesting (and what we believe is legally required) to control the indirect discharges to surface waters that are occurring at the Lahaina plant.*

5. **The requirements of Section 307 of the Coastal Zone Management Act have not been satisfied, and in the absence of meeting all applicable requirements, EPA is prohibited by the Safe Drinking Water Act regulations (40 CFR 144.4(d)) from granting the 10-year permit that the County has requested and is prohibited from allowing increases in total effluent volumes or in actual total nitrogen levels going into the wells.**

As 40 CFR 144.4(d) notes,

> (d) *The Coastal Zone Management Act,* 16 U.S.C. 1451 *et seq.* Section 307(c) of the Act and implementing regulations (15 CFR part 930) prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the State's non-concurrence).

In this instance, the applicant (Maui County) has not certified that the proposed new 10-year permit that it has requested for Lahaina injection wells complies with the State's Coastal Zone Management program, and received a State concurrence. Nor has the Secretary of

Commerce overridden any non-concurrence by the state. Thus, EPA may not lawfully grant the 10-year permit as requested by the County. This is an express requirement of the federal Safe Drinking Water Act regulations (e.g., 40 CFR 144.4). Thus, EPA is not authorized to grant the requested permit on the current record.

It is clear that the "CZM area [of Hawai'i] encompasses the entire state." See the Hawaii Coastal Zone Management Program: http://hawaii.gov/dbedt/czm/program/program_czm.php. This includes the land as well as the ocean. "Because there is no point of land more than 30 miles from the ocean, a definite land-sea connection exists throughout the state. So, designating the entire state as the CZM area was logical. What occurs on land, even on the mountains, will impact and influence the quality of the coastal waters and marine resources." Id. That means that the injection wells of Lahaina's wastewater treatment plant fall within the CZM area, and federal permit actions must be consistent with the state's plan. "Federal license or permit activities and federal financial assistance activities that have reasonably foreseeable coastal effects must be fully consistent with the enforceable policies of state coastal management programs." NOAA, "Federal Consistency Overview," -- http://coastalmanagement.noaa.gov/consistency/welcome.html. The Hawaii State Coastal Management Plan reflects the CZM Act's distinctions between "federal activities and development projects" which must be consistent with State CZM policies and objectives "to the maximum extent practicable," and federally-issued permits – such as the UIC permit for Lahaina – which must be fully "consistent with" the state's CZM "objectives and policies." http://hawaii.gov/dbedt/czm/program/doc/1990_czm_program_doc.pdf, p. 25. See also 15 CFR 930.50-930.66, particularly 15 CFR 930.58.

Among the federal permitting activities specifically listed as subject to the Hawaii Coastal Zone Management Act "consistency" requirements are "permits . . . required under section 402 of the Federal Water Pollution Control Act" [federal Clean Water Act, as amended]. See Appendix C of the Hawaii Coastal Zone Management Program. As we have demonstrated previously and additionally in these supplemental comments, the Lahaina injection well permit cannot lawfully be issued (when EPA knows that to do so would allow continued violation of the Clean Water Act's prohibition on discharges to the ocean from this point source from or through the injection wells without an NPDES permit under section 402.) Accordingly, the UIC injection well permit may not be issued for the Lahaina injection well renewal without (1) first ensuring the issuance of an NPDES permit meeting all applicable requirements; and (2) even before that, obtaining the required "consistency" certification from the County and concurrence from the State with regard to the injection wells and NPDES permit's consistency with the State CZM "objectives and policies."

It is not within EPA's authority to waive the "applicant's" (i.e., Maui County's) duty to make the certification of consistency or to concur, when it is solely the state's responsibility to concur or withhold concurrence.

Among the relevant reef protection "objectives and policies" of the Hawai'i CZM program are the following which are relevant to this (Lahaina injection well) permit proceeding:

- I(B)(i) and (iv) – Recreational uses: "

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;

- 4 – Coastal Ecosystems

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:
(A) Improve the technical basis for natural resource management;

(B) Preserve valuable coastal ecosystems of significant biological or economic importance;

(C) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(D) Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.

Not having made the requisite certification under 40 CFR 144.4(d) and obtained the required state concurrence and not having obtained an NPDES permit, the County has not made all the requisite showings of eligibility for a UIC permit and EPA is prohibited under its own regulations (40 CFR 144.4) from granting any such permit. The fact that the Safe Drinking Water Act permits are not among those listed by the State's CZM plan as requiring consistency certifications and concurrences is not dispositive of this question, when the County also has the duty to obtain an NPDES permit and that permit is so listed in the Hawai'i CZM plan Appendix C.

6. Effect of the Mayor's Testimony: The Mayor's Testimony at the August 20 Hearing Makes Clear that Wastewater Effluent Promotes Algal Growth

The record was clear even apart from the Mayor's testimony at the August 20, 2009 hearing that the Lahaina wastewater effluent promotes the growth of algae harmful to the coral reef ecosystem of West Maui. See, for example, the studies cited in the DIRE Coalition's written submission of that date and the additional studies cited below and by others at the August 20, 2009, hearing. However, **after the Mayor's testimony that she does not want de-nitrification requirements imposed on the effluent prior to reuse, because she would like to see the effluent used in an algae to energy plant, there can be no doubt about this aspect of the "significant nexus" between the discharge of the effluent into the wells and the resultant impact in promoting algae growth in the ocean.** This is entirely relevant to the determination that the Clean Water Act NPDES permit requirements apply to these injection wells under the Rapanos and Northern California River Watch cases discussed in the DIRE Coalition's written submission of August 20, 2009.

7. The Following Additional Articles and Reports Support the DIRE Coalition's Concern about the Harmful Effects of Nutrients being Released

into the Ocean and their Deleterious Effect on Coral Reef Ecosystems. Looked as a Whole, the Record Underscores the Need for the County to Curtail Injection at the Lahaina Plant as Soon as Possible and to Obtain an NPDES Permit for the Discharges through the Wells into the Ocean.

In our submission dated August 20, 2009, we listed a number of scientific studies, reports, and articles expressing growing concern about increased nutrient loadings spurring algal growth and algal growth's adverse effects on coral reef ecosystems. In this submission, we wish to add the following additional references, reports and articles to supplement the already strong evidence of the existence of a "significant nexus" between the injection wells at Lahaina and the contributions to ocean nutrient loadings, algae growth, and reef ecosystem harm in West Maui that require EPA not to grant the permit as originally requested or as most recently proposed by EPA. The articles included also contain information on the feasibility of safe and beneficial wastewater effluent reuse as an alternative to the injection wells in Hawai'i.

a. **Lau, "WATER REUSE FROM SEWAGE EFFLUENT BY IRRIGATION: A PERSPECTIVE FOR HAWAII,"** ***Water Resources Bulletin*** **(1980) – http://www3.interscience.wiley.com/journal/119607875/abstract?CRETRY=1&SRETRY=0**

"The increasing overall fresh water requirements for the island of Oahu will outstrip the potential yield of fresh ground water sources, as developed by present technology, by the year 2000 according to Honolulu Board of Water Supply projections. There are water shortage regions on other islands. Water reuse from sewage effluent for irrigation will augment natural water resources, furnish supplemental or alternative fertilizer, and reduce ocean water pollution and the costs of engineering systems.

In cooperative field testing from 1971 to 1975, it was demonstrated that effluent can be applied as supplemental water for furrow irrigation of sugarcane without detriment to ground water quality and sugar yield. Studies are in progress to test different dilutions of effluent and its use with chemical ripeners to improve crop yield. Sugarcane plantations on Oahu, Maui, and Kauai are in various stages of water reuse by effluent irrigation. Reuse is presently practiced for irrigation of golf courses and is being planned for forage crops in Hawaii."

b. **USEPA, "Class V Injection Wells Regulatory Amendments," EPA 813-F-95-003 (1995) -- http://www.gwpc.org/e-library/documents/general/UICVEPA.HTM**

". . . aquaculture return flow wells have the potential to influence ground water quality in the vicinity of the point of injection. The potential for serious degradation of ground water quality is mitigated, however, because *the basal ground water flow in coastal Hawaii is usually seaward and the flow of contaminants will likely be away from fresher water inland (i.e., suitable drinking water).*" [Emphasis added]. This citation further underscores and supports the hydro-geology part of demonstrating a "significant nexus" between the points of discharge and receiving ocean waters under Justice Kennedy's test in the Rapanos test and a hydro-geological connection under the Northern California River Watch v. Healdsburg case. It further supports the need for the Lahaina plant to obtain an NPDES permit before any further discharges to and from the injection wells into the ocean.

c. **Paul et al., "'Evidence for Groundwater and surface marine water contamination by wastewater contaminated by waste disposal wells in the Florida Keys," Water Research 31 (6): 1448-1454 (1997) -- http://www.reefrelief.org/coralreef/study/wastewater.html**

"Injection wells (Class V disposal wells) are a major method for domestic wastewater disposal in coastal environments around Florida, and particularly the Florida keys, where there are nearly 700 in operation.

A recent report published in the June issue of Water Research by researchers at the University of South Florida indicates that wastewater disposed by these practices can rapidly contaminate groundwater and surface marine waters.

These investigators, led by Drs. John H. Paul and Joan B. Rose, used harmless bacterial viruses as a tracer for the movement of wastewater from a recently permitted class V disposal well in the Middle Keys.

This well meets current DEP requirements, which means that the well was drilled to 90 feet and cased with PCV pipe to 60 feet. Within 8 hours of addition of the tracer, it was detected in the groundwater, and within 36 hours it was detected in Florida Bay.

By 53 hours, the tracer appeared in a canal on the other side of US1, on its way to Hawk Channel and the Atlantic Ocean.

A second experiment performed last fall indicated that the tracer could move from the waste disposal well to the same canal in less than 8 hours, if strong North winds associated with a cold front occurred at the same time.

The meaning of these results is that wastewater from injection wells can rapidly make its way to the subsurface. This could cause potentially serious health problems for bathers in canals and coastal waters around the Florida Keys.

Disease causing microorganisms could be transmitted from wastewater to these waters where they could potentially infect bathers, windsurfers, jet ski operators and other participants in recreational water-contact activities.

A second reason for concern is the transport of nutrients (inorganic and organic) into marine waters. These act like fertilizers which cause algal growth and water quality deterioration."

d. **West Maui Watershed Advisory Committee, "West Maui Watershed Owners' Manual," (1997) -- http://hi5deposit.com/health/environmental/water/cleanwater/prc/pdf/WestMauiWatershedOwnersManual_bookmarked.pdf**

Among the accomplishments pointed to by the Advisory Committee were: "reductions in nitrogen and phosphorus loadings to Lahaina's wastewater injection wells by over 60%; . . . a new county ordinance on use of reclaimed water; . . . [and] irrigation of Kaanapali Golf Course with 1.3 mgd of reclaimed water." (p. 5)

"A research program was undertaken to investigate the causes of nuisance algal blooms . . . The research confirmed that nutrients from land-based sources are necessary to support the amount of algae growing in West Maui. The major source of nutrients supporting the growth of Hynea is the steady seepage of groundwater along the shore." (p. 5)

While this report reached the conclusion that "Wastewater injection wells were not shown to a significant source of nutrients for Hypnea," this was evidently because "Nutrients from injection wells evidently *enter the ocean* in deeper water than where Hypnea occurs." (p.5 [emphasis added] Thus, the Advisory Committee was acknowledging more than 10 years ago that the effluent from these wells were migrating into the ocean creating an indirect discharge of pollutants to the ocean – a discharge that should have been – but has not been -- regulated under the NPDES permit requirements and other provisions of the Clean Water Act.

e. **NOAA, "THE STATE OF CORAL REEF ECOSYSTEMS OF THE UNITED STATES AND PACIFIC FREELY ASSOCIATED STATES: 2002," – http://www.rmiembassyus.org/Environ/status_coralreef.pdf**

"Two invasive algae, a brown and a green alga (*Hypnea musiformis* and *Cladophora sericea*), are overgrowing reef corals off western Maui." (p. 49). . . For example, secondary treated sewage from urban areas is discharged primarily through deepwater outfalls on O'ahu and through injection wells on Maui and Hawai'i (Kona District). Nutrient leaching from injection wells on Maui is attributed to the algal blooms occurring there." (p. 63)

f. **NOAA, "A National Coral Reef Action Strategy: Report to Congress on Implementation of the Coral Reef Conservation Act of 2000 and the National Action Plan to Conserve Coral Reefs in 2002-2003," pp 1-156 (2002) -- http://coris.noaa.gov/activities/actionstrategy/action_reef_final.pdf**

"Coral reefs are some of the most biologically rich and economically valuable ecosystems on Earth. They are also in serious jeopardy, threatened by an increasing array of impacts from overexploitation, pollution, habitat loss, invasive species, diseases, and climate change. The rapid decline and loss of these valuable marine ecosystems has significant social, economic, and environmental consequences in the U.S. and around the world. Action is needed on a wide variety of fronts to address the coral reef crisis, especially on issues of global proportions such as the impacts of climate change, increasing coastal development and persistent over-fishing of reef systems.

The Report lists 2 fundamental themes and 13 goals which are "essential to addressing and reducing threats to coral reefs worldwide." Those themes and goals include:

- **"THEME 2: Reduce The Adverse Impacts Of Human Activities** – Reducing the impacts of human activities is essential to conserving coral reef ecosystems. The strategy outlines the following major goals to reduce the adverse impacts of human activities: . . .
  - *Goal 8: Reduce pollution"* (pp. iii-iv)

"The following goal or action areas were ranked as high priority needs by all or most U.S. regions: . . . – "Reduce pollution (reduce sediment pollution) . . . " [among others] (p. 13).

"Land-based pollution is the major cause of coral reef loss and degradation in many coral reef ecosystems world-wide (Bryant et al., 1998). Coral reef ecosystems need clean, clear water and healthy habitats, both of which can be imperiled by pollution. Many coral reef ecosystems are currently impacted by a variety of pollutants, including sedimentation, *nutrients*, chemical contaminants, marine debris, and invasive, non-native species (biological pollutants). Pollution enters reef ecosystems in many ways, ranging from specific point sources such as sewage pipes and vessel discharges, to more diffuse runoff from land based sources such as agriculture, coastal development, road construction, and on-site waste water management systems, to airborne sources such as emissions from automobiles and power plants. . . . [Emphasis added]

"Conserving the Nation's coral reef ecosystems requires reductions in the concentrations and cumulative impacts of pollution from a variety of sources. . . . Excess nutrient loading from inadequate treatment and disposal of human and animal waste, and surface runoff from urban and agricultural lands, can also lead to significant changes and damage to the reef community. . . . The goal is to reduce the quantity and impacts of sediment, *nutrient*, marine debris, and biological pollutants (e.g., invasive species) on coral reef ecosystems." [Emphasis added]

"The strategy has two main parts divided into seven objectives: (1) developing tools to assess the biological, chemical, and physical conditions of coral reef ecosystems, and (2) reducing the major types of pollution impacting coral reef ecosystems. . . . Objective 2: Reduce nutrient pollution by establishing comprehensive waste management systems to reduce discharges of harmful pollutants from wastewater treatment facilities, vessels, industrial sources, agricultural sources and air deposition. (pp. 60-61)

"IMPLEMENTATION PLAN 2002-2003 . . . To Address Objective 2: . . . Conduct assessment of nutrient pollution issues in reef-associated coastal watersheds to help identify priorities and strategy of action in each region." (p. 65)

See Table 3, listing "reducing nutrient pollution" as a "high priority" for the Main Hawaiian Islands. (p. 100)

g. **Schrope, "Changes in Reef Latitude," NASA Earth Observatory, Feb. 2006 – http://earthobservatory.nasa.gov/Newsroom/view.php?id=29573**

"Since the 1980s, researchers have hypothesized that nutrient levels rather than temperature are the main factor controlling the latitudinal bounds of coral reefs, but the issue remains controversial. New results from an extensive survey of reefs in South Florida by a Harbor Branch Oceanographic Institution research team strongly support this hypothesis. The research suggests that, by supporting blooms of harmful seaweed, increasing nutrient pollution levels are reducing the areas where reef-building coral can survive, a result the team believes it is directly observing in Florida waters. . . . Temperature is a key determinant of the extent of shallow water reefs. Nonetheless, some waters that are warm enough for reef building corals do not have them. In Florida, for instance, reef-building corals are for the most part not found north of Palm Beach County, about a third of the way up the coast. This boundary appears to have been similar throughout the state's geological history, yet corals thrive in Bermuda, well north of there where temperatures are cooler.

One idea is that, both historically and now, this Florida coral cut-off has been determined by nutrient levels. Corals' need for oligotrophic, or nutrient poor, water is well known, but the relative importance of temperature and nutrients in defining coral range can be difficult to discern. Lapointe believes, based on more than 20 years of research at reefs in Florida and the Caribbean, that levels of the nutrient phosphorus can be a key factor controlling growth of reef-building corals. The basic theory is that in the presence of sufficient nitrogen, which is typically more readily available, phosphorus is the limiting factor for macroalgae, or seaweed, growth, so high phosphorus levels can fuel the growth of seaweed that outcompetes corals, effectively smothering them.

As they do now, sediments rich in phosphorus historically dominated Florida's central and northern coastal areas above the Palm Beach County line. In the past, Lapointe says, naturally high levels of phosphorus would have set the northern coral boundary in Florida above which seaweed is dominant. Further south, the sediments are predominately carbonates, which react with phosphorus to significantly reduce levels of the nutrient in the water. . . .

Supporting the theory that nutrient levels control the latitudinal boundaries of coral reefs, the team has found a clear increase from south to north in the concentration of phosphorus in forms that can be used by the seaweed and a corresponding expansion of fleshy seaweeds. They also found a complementary decrease in the number of species and extent of coral and reef fishes from south to north. These data were corroborated by analysis of tissue for the dominant seaweed species at each location, which, again, revealed less phosphorus at southern sites and more to the north.

These gradients were much more pronounced during the wet season compared to the dry season, suggesting a significant role for non-point source and other forms of nutrient-rich pollution in controlling nutrient dynamics at the reefs. Lapointe's group has also completed extensive analyses of the chemical signature of nitrogen stable isotopes in seaweed samples and determined that the algae are using mainly nitrogen from land-based sources, rather than from marine sources, further suggesting a tie to human activities.

Sufficient nutrient levels, and associated seaweed growth, can effectively cause near or total loss of reef-building corals. . . .

"Certainly it appears that factors such as global warming leading to coral bleaching are having significant impacts, but I think it's a mistake to blame all the devastation we've witnessed in past decades on global factors. Local nutrient pollution problems can be addressed and if we do that, I think it's clear that corals will strongly benefit."

h. **Richmond et al, "Watersheds and Coral Reefs: Conservation Science, Policy, and Implementation,"** ***Bioscience*****, (July-Aug. 2007), pp. 598-607 -- http://www.kewalo.hawaii.edu/labs/richmond/assets/Publications/Richmond%20et%20al%3B%20Bioscience%20%282007%29.pdf**

"Coral reefs in the United States and throughout the world are experiencing documented declines in ecosystem health, integrity, and resilience (Wilkinson 2004). . . .

"The presence of multiple stressors often leads to finger-pointing among a variety of users, all defending their own activities while accusing others of culpability; hence, there is a need not only for data that clearly identify cause-and-effect relationships (Downs et al. 2005) but also for improved policy development, implementation, and enforcement.

"In the face of uncertainty, manufactured or real, policymakers often choose inactivity by default rather than subscribe to the precautionary principle. This approach undermines society's ability to leave a sound environmental legacy for future generations.

"There is a broad consensus that coral reefs throughout the world have been and continue to be degraded by a variety of human activities (Hughes et al. 2003,Pandolfi et al. 2003, 2005).Runoff, sedimentation, and land-based sources of pollution within adjacent watersheds are among the greatest threats to coastal coral reefs surrounding high islands and along continental margins. While there are numerous efforts under way to address coral reef decline, few positive examples exist that document efforts where science, policy, and management have intersected successfully to reverse the present trend.

". . . many Pacific island cultures treat the land–sea interface as a continuum rather than a boundary, and this "ridge-to-reef" stewardship recognizes that upslope activities affect people and resources farther down a watershed and in the ocean.

" The main US coral reef ecosystems—in the states of Hawaii, Florida, and Texas; the commonwealths of the Northern Mariana Islands and Puerto Rico; and the territories of American Samoa, Guam, and the US Virgin Islands—have all suffered substantial degradation from land-based sources of pollution and sediment stress. Development within watersheds, the channelization of streams for flood control projects, and other poor land-use practices have turned coastal waters into dumping grounds for runoff, and thus for substances ranging from nutrients to toxic chemicals. Such chronic stressors of increasing magnitude act synergistically when superimposed over natural cycles of coral reef disturbance, and often prevent cycles of recovery that would occur in the absence of the anthropogenic signal.

The history of environmental remediation, from cleaning up polluted Superfund sites to addressing harmful algal blooms associated with anthropogenic eutrophication of coastal waters, demonstrates that prevention of environmental degradation is more cost- and time-effective to society than remediation after the fact. While coral reef restoration activities are conceptually attractive, proactive and protective measures are essential, given the magnitude of coral reef damage, the complexity of coral reef ecological structure and function, and the fact that a 300-year-old coral can be killed in hours to weeks, but cannot be replaced for centuries (Richmond 2005)."

i. **Meghan Dailer, Testimony before Water Resources Committee, Maui County Council, December 1, 2008 -- http://www.co.maui.hi.us/archives/111/081201min.pdf**

"Underground sewage injection wells also contribute to nutrient, nutrient loading on Maui. Up to five *[sic]* million gallons of sewage effluent a day are injected into the ground in three areas of wastewater treatment plants on Maui: Kahului, Kihei and Lahaina or North Kaanapali Beach. . . . the sewage effluent coming out of this injection wells and such are high with N15 values. . . . Since Nitrogen is often limiting in the marine environment, macroalgae will utilize Nitrogen

from additional sources, such as land based fertilizers and sewage effluent when available. The N15 values of macroalgae growing directly in front of sewage outfalls are often highly enriched, with values generally ranging in the literature from 9 to 15. . . .

This is a study by Costanzo et al in 2001 in Australia. This figure is showing the loads from sewage outfall sites of Nitrogen in tonnes per year. Oh, sorry. This is the associated N15 values from similar places. So, the values in the red circles are from areas 'in close proximity' to sewage outfall sites and they have higher N15 values than those in the green circles, which are not anywhere near a sewage outfall site. This and, this and many other studies have successfully linked the elevated N15 values in macroalgae to the presence of sewage effluent in the marine environment. . . . Heavy N15 signatures, meaning 18 and above are in the orange and red circles, and correspond to areas with sewage injection wells in Kahului, Kihei, and Lahaina, or North Kaanapali, which shows that the injected reclaimed water is percolating into the near shore marine environment.

Since the Maui coastline study was able to successfully detect areas of concern due to the presence of elevated N15 values, we conducted another survey in May to map the injection well plumes from the Lahaina and Kihei Wastewater Treatment Plants. These maps show the collection sites for the Lahaina injection well plume. The previous N15 values of 43 and 35 are also displayed. The N15 of . . . and the N15 value of 43 is currently the highest known macroalgal N15 value in the literature.

At Kahekili Beach Park and .5 kilometers to the north, the shallow fore reef area harbors . . . has algae blooms in the summers when the large north swells are no longer persistent and the south swells are fewer and farther between. . . .

In closing, some of our important findings so far are that on Maui, the most elevated, elevated macroalgal N15 values are in close proximity to sewage injection wells. Ulva and hypnea grow faster with the nutrient mixture in sewage effluent than without nutrients. . . . From these experiments it is clear that algal blooms on Maui of hypnea and ulva are driven by an excess of land based nutrients." (pp. 6-15)

"Although the causes are not completely understood, there is compelling evidence that nutrient enrichment (nitrogen, phosphorus, iron) of coastal waters is at least partly to blame for such [algal] blooms. [Vitousek, et. al, 1997]. . . . In coastal waters, the most important nutrients are nitrogen and phosphorus. . . . Human-introduced sources of these nutrients include sewage, fertilizer, and soils originating in the coastal watershed." (pp. 67-68).

"During these [algal] blooms [of the early 1990s] the Cladophora drifted inshore where it settled in dense masses on the ocean floor, apparently smothering corals and other reef organisms." (p. 70).

"Separate studies . . . attempted to find the plume of wastewater immediately offshore of the Facility at Honokowai [but] the investigators never discovered the plume's exact location. . . . [Despite this the investigators concluded definitively that] "there is no major 'plume' of effluent seeping into the ocean within the study area." (p. 74)

"The amount of nutrients and sediment reaching the ocean [has] been reduced. Improvements in sewage treatment and the irrigation of the Kaanapali Golf Course have cut nitrogen loads to sewage injection wells by over 60%." (p. 76)

This study further demonstrates the connection between the algae blooms and the excess nutrients resulting from land based sewage pollution (including the injection wells at Lahaina) and the resultant harm to the coral reefs.

j. **Maui Planning Commission, Hearing, Feb. 26, 2008 -- http://www.co.maui.hi.us/archives/85/022608.min.pdf**

"Mr. Starr. . . . in your previous testimony you described how basically, you know, in this system everything ultimately flows from the mountain to the sea. That there's a shoreward flow of water and that the injection products being injected into the injection wells will travel toward the ocean. They certainly wouldn't be flowing upslope into the mountain and I'm trying to understand how long it will take for that flow to travel from the location of the injection wells to when it is underneath the ocean.
Mr. Starr: Will it flow toward the ocean or will it flow up the mountain?
Mr. Krock: Nothing flows up the mountain.
Mr. Starr: Will it flow inland or will it flow toward the ocean?
Mr. Krock: That particular thing will flow very little but it will generally, the tendency would be towards the land.
Mr. Starr: It's flowing toward the land? Mr. Bauer do you concur that the effluent from this injection well will flow toward the land because I know that the plumes from the county injection wells have all been traced and they all flow toward the ocean. In fact, every well that ever has been put injection in Hawaii always flows toward the ocean. Are you willing to state your reputation and future on saying that the injected water will flow uphill toward the land mass?
Mr. Bauer: The return water will flow in all directions because it's being pumped down the well and into permeable zones. Permeable zones are essentially horizontal. So you can imagine the water moving in all directions. So some of it is going inland and some of it is going to towards the ocean –
. . .
Mr. Starr: Okay, so some of it will flow toward the ocean?
Mr. Bauer: Some of it will flow towards the ocean.
Mr. Starr: How long will it take it – at what rate will it travel that which travels toward the ocean?
Mr. Bauer: I don't know what rate it is until we have the information on pump testing and what kind of permeability we're looking at. But it will be flowing, it will be moving and you know, maybe few feet per day, maybe less." (pp. 45-46)
. . .

Mr. Starr: I share your concern about the limu and the algae growth, you know, in their report they say the reef is just fine out there, but it's dead. It's dead, over the last 30 years I've been snorkeling that place and the reef is dead and now we've got seaweed and algae. We have a project before us that's going to have injection wells right behind the shoreline. They're going to put hot brine down into the beach and no one knows what that's going to do and it possibly could make the algae growth and the limu growth to exponential. Isn't that something that would be concern you or do you think that's okay because it's already so trashed?
Mr. Lindsey: No, it's not okay. And I appreciate your concern. That was my concern too. (pp. 83-84).
. . .

This exchange further underscores the seaward direction of groundwater flow and injection well plumes in the vicinity of West Maui and documents the decline of the coral reefs as the algae has grown.

k. **Knowlton and Jackson, "Shifting Baselines, Local Impacts, and Global Change on Coral Reefs," PLOS Biology (2008) -- http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.0060054**

" , , , over the past few decades . . . living coral cover has decreased on average by one-third to more than two-thirds worldwide. . . .

"There is, however, every reason to believe that the extent of local impacts may affect the responses of corals and other reef organisms to global change. . . . Global changes, most importantly warming and acidification, have already occurred and will continue, even under the most optimistic of scenarios, so that conservation strategies must be evaluated accordingly. . . . Of particular importance are the effects of resource extraction and lowered water quality on reef ecosystems and their effects on corals via overgrowth of macroalgae and disease. . . .

". . . low abundance of corals and coralline algae is almost invariably associated with high abundance of fleshy or turf macroalgae. The causes are complex because so many interacting factors, including overfishing, pollution, and warming, can kill corals directly as well as promote growth of macroalgae that can also kill corals directly by overgrowth or indirectly by promoting coral disease. . . .

"The best-understood aspects of coral resistance and resilience relate to the effects of overfishing, degraded water quality, and increased macroalgal abundance on coral recruitment (resilience) and coral disease (resistance). Many corals require hard substrates (and in particular, coralline algae) to recruit, and the relationship between recruitment failure and increasing macroalgal dominance due to loss of herbivory, and the converse, are well documented . . . Large amounts of macroalgae may also destabilize microbial communities . . . either by changing water chemistry near coral surfaces . . . or by serving as a reservoir for pathogens . . . High anthropogenically derived nutrient levels could also simultaneously increase macroalgae and disease. . .

"New insights in science often come from examining the exceptions to general patterns rather than the norms. The remote, uninhabited atolls of the Central Pacific are a case in point and cause for cautious optimism. Despite increased warming and coral bleaching throughout the Pacific, these reefs still support extraordinarily abundant fish populations dominated by apex predators and among the highest reported abundances of living coral and coralline algae. . . . [R]egardless of the ultimate explanation, the simple persistence of these luxuriant reefs is fundamentally inconsistent with the growing belief that the effects of global change are so overwhelming that other factors can be largely ignored.

"There is, however, no room for complacency. Most reefs are not yet as degraded as cattle ranches in the Amazon, but they are poised at the brink . . . . Very small numbers of people can have a big impact on trophic structure . . . and ecosystem resistance and resilience, which may

degrade much faster than biodiversity. Figure 2 illustrates the inferred relationships between the intensity of local anthropogenic disturbance and biodiversity and ecosystem function based on the studies reviewed in this essay. . . .

In sum, local actions do make a difference, not only to fishes, but also to reef ecosystems as a whole, and they do so across the entire spectrum of local human impacts and oceanographic conditions where reefs occur."

This article makes clear the urgency and importance of taking action at a local level to reduce land-based nutrient flow to coral reef ecosystems in light of the likely continuation of challenges to the reefs from global climate change.

l. **Kauai County, "Building Public Facilities and Services," -- http://www.kauai.gov/Portals/0/Planning/Ch7.PDF, p. 19)**

The potential for ocean pollution from wastewater injection wells near the ocean has been recognized and acknowledged on Kauai since 1993: "The *Water Quality Management Plan for the County of Kauai* (November 1993) discusses the need to create a regional system serving Köloa Town, which has subsurface disposal problems, and Poipü, where smaller visitor properties and residences are currently served by a variety of small private plants. Because these plants dispose of effluent by ground injection, there is a long-term risk of polluting adjacent ocean waters." (p. 19)

This statement from Kauai County makes clear that County's long-standing awareness of the nexus between injection wells near the ocean and resulting harmful pollution of the ocean.

m. **Fore et al., "Heeding a call to action for US coral reefs: The untapped potential of the Clean Water Act," *Marine Pollution Bulletin* (2009), pp 1-2 -- http://webmail.kelaassociates.com/horde/imp/view.php?thismailbox=INBOX&index=10859&id=2&actionID=113&mime=338e8c6936040a2e66e201136eebcd93**

This article endorses "the 'bold and urgent steps' outlined by Dodge et al. (2008) and propose[s] that the CWA can be used to advance all nine actions (Fore et al., 2008)." These nine actions include: . . . (8) Recognize the links between what we do on land and how it affects the ocean. Most sediment and nutrients and a large share of toxic chemicals that affect coral reefs originate on land and are transported to near shore environments by rivers, streams and stormwater systems. Moreover, water withdrawal and other activities that alter the flow of freshwater to coastal environments originate with human land use. The CWA has authority over freshwater and estuarine environments and states and territories are required to monitor and regulate their condition. Biological criteria in nearshore environments can potentially be linked to physical, chemical, and biological criteria in rivers, wetlands and estuaries, providing a direct connection to land-based sources of pollution."

8. On the current record considered as a whole, it would be "arbitrary, capricious, an abuse of discretion, or not otherwise in accordance with law" for EPA to grant a 10 year permit for continued injection of wastewater effluent at the Lahaina Wastewater Treatment Plant, to allow high levels of nutrient to

continue to flow into the wells and into the oceans, and to fail to insist on the County obtaining an NPDES permit for the discharges through the wells into the ocean. The Mayor's Testimony at the August 20 Hearing In Favor of Ending Injection Wells as Soon as Possible and Reusing the Water Means That a 10-Year Open-Ended Permit to Continue to Inject at Current Levels Underscores This Point.

Under the Administrative Procedure Act (APA), courts will set aside agency decisions found to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706 (2) (A). As the Supreme Court has explained: "The scope of review under the 'arbitrary and capricious' standard is narrow and a court is not to substitute its judgment for that of the agency. Nevertheless, the agency must examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983). Agency action is arbitrary and capricious "if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, *offered an explanation for its decision that runs counter to the evidence before the agency*, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." Id. [Emphasis added]

The record as a whole is clear: the County of Maui has failed to bear its burden of proof by a preponderance of the evidence that it is entitled to a 10 year extension of the permit to inject wastewater effluent at the Lahaina (Honokawai) treatment plant. It has failed to demonstrate a need for ten more years. The dangers of 10 more years of injecting algae fueling nutrients into the wells have been powerfully documented in the record as has the actual release of these nutrients into the ocean from the wells. The public and experts in this field have unanimously urged the Agency not to grant 10 more years to inject wastewater effluent at Lahaina. The decision of the Agency cannot "run counter to the evidence before it" without being considered "arbitrary, capricious, and/or an abuse of discretion." It is clear that even in the area of enforcement discretion, "the [EPA] Region's discretion in this regard is not unconstrained." In re Borough of Ridgway, PA, USEPA Board of Appeals, Clean Water Act Appeal No 95-2 (1996), p. 494 http://www.epa.gov/eab/disk9/ridgway.pdf

It is clear that the Agency must make its decisions on the basis of the record before it, including its response to all salient comments. "The idea behind the regulations at 40 C.F.R. §§ 124.17 and124.18 [UIC regulations] is that the *decision maker* have the benefit of the comments and the response thereto to inform his or her permit decision. Held: In order to effectuate the requirements of 40 C.F.R. §§ 124.17 and 124.18, the Board hereby vacates the permit decision and remands this case to the Region for the purpose of requiring the Region to reconsider and reissue a final permit decision, based on the administrative record." In re Weber #4-8, UIC Appeal No. 03-01 (2003), p. 241 -- http://www.epa.gov/eab/disk11/weber.pdf

> … the Regional Administrator must base the final permit decision on the administrative record, which must be "complete" on the date he or she issues the final permit. . . . § 124.18. These requirements ensure that the decision maker gives serious consideration to comments before or at the time of making his or her final permit decision. *See In re Rockgen Energy*

Ctr., 8 E.A.D. 536, 556 (EAB 1999); *In re Atochem N. Am., Inc.*, 3 E.A.D. 498, 499 (Adm'r 1991). Id at p. 246.

Nor may the Agency grant a UIC permit which it knows will sanction behavior that violates another law it administers – in this case the prohibition against point source discharge of pollutants into the ocean without an NPDES permit – albeit through an underground conduit. Once the County and EPA know that the injection wells have been and are releasing their contents into the ocean, the Clean Water Act prohibition is triggered. See In re Service Oil Co, CWA Appeal No. 07-02, USEPA Environmental Appeals Board, (2008), pp 4-5. For EPA to authorize such conduct for 10 more years through a UIC permit without requiring the County to obtain an NPDES permit would be "otherwise not in accordance with law" in under 5 USC 706 (2) (A).

It is clear that EPA Regions may go beyond considerations of compliance with the Safe Drinking Water Act when the issues raised with a pending UIC permit – as here – involve allegations that the injection well is (or would) cause a violation of the Executive Order, other law or policy administered by EPA. See, for example, In re EDS, US Environmental Appeals Board, 98-1 and 98-2 (1998), pp. 35-36, in which Region V considered whether a proposed injection well would violate the Environmental Justice policies of the Agency as reflected in draft guidelines of the Region and an Executive Order – EO 12898. As noted above in Point 1 of these Supplemental Comments, EO 13089 includes requirements that must be observed for maximizing protection of coral reef ecosystems before federal agencies take any action (such as granting an UIC permit) that may "affect coral reef ecosystems." Thus, it is not only perfectly appropriate, even obligatory, for Region 9 to impose terms and add conditions to the permit such as we have advocated to protect the coral reef ecosystems in West Maui. By the same token, it would be arbitrary, capricious, an abuse of discretion, and not otherwise in accordance with law if Region 9 were to refuse to do so.

See also In re Rentkiewicz, UIC Appeal 91-4 (1992), p. 65, in which the Environmental Appeals Board remanded an UIC permit to the Region because of failure to deal adequately with concerns expressed about the potential harm to Endangered Species from the injection well being permitted. http://www.epa.gov/eab/disk1/renki.pdf

The cases in which EPA has refused to impose terms or conditions on UIC permits requested by opponents of the permit and in which the Environmental Appeals Board has upheld that refusal (or denied review) involve situations that do not present "clear factual or legal error affecting the Region's permit decision, nor any important policy matter or exercise of discretion warranting review by the Board." In re Federated Oil and Gas of Traverse City Michigan, UIC Appeal No. 95-38, US Environmental Board of Appeals (1997), pp. 724-25. Such is not the case with respect to the pending Lahaina permit. In this case, if the Regional Administrator were to grant the 10 year permit request of the County on this record and in disregard of the Regional Administrator's duties under the various authorities cited here and in previous submissions, that decision would raise very clear factual and legal issues and call into question the reasonableness of the exercise of discretion in support of such decision.

These considerations strongly dictate in favor of the Region restricting the permit to the shortest possible time necessary to transition to a safe wastewater reuse plan that has been called for not only by the DIRE Coalition, but now by the Mayor of Maui County herself; restricting nutrient

loadings into the wells and oceans more stringently, and insisting on the County obtaining and abiding by an NPDES permit.

9. The Lahaina News Has Editorialized "Get Rid of Injection Wells"

We request that this editorial – at http://lahainanews.com/page/content.detail/id/500110/Get-rid-of-injection-wells.html?nav=9 – be added to the record and considered by EPA when making its decision on the pending application for the permit at Lahaina. See Appendix 1

Public testimony and written record submissions – over 200 of them – have been unanimous as well – in opposing the granting of a 10 year permit and in favor of more stringent limits on effluent and nutrient loadings to be allowed into the wells in the interim before the wells are shut down.

Appendix 1 – "Get Rid of Injection Wells"
Lahaina News Editorial – August 27, 2009

"Every day, an average of 3,000,000 to 5,000,000 gallons of treated sewage is dumped into the ground at the Lahaina Wastewater Reclamation Facility, and one million gallons is treated to R-1 quality and reused.

Add that up for years, and you have billions of gallons of nutrient-rich effluent marching toward the ocean.

With injection wells in use around the island, this practice is foolish on several levels.

The treated wastewater pollutes the ocean, harms reefs and the nearshore environment and fuels algae blooms.

Meanwhile, precious potable water is used to irrigate golf courses, parks, resorts and other large properties, while drinking water sources are taxed and quality declines.

In reviewing the injection well permit for the Lahaina Wastewater Reclamation Facility, the U.S. Environmental Protection Agency was ready to let the county keep wasting water for the next ten years to the tune of 7,000,000 gallons per week at the stinky Honokowai plant.

Responding to public concerns, Mayor Charmaine Tavares told EPA the county wants to end its use of injection wells and pursue 100 percent reuse of treated wastewater in conjunction with a pilot project to grow algae for fuel production.

Her administration will create a plan to meet that goal within the next 12 to 18 months, and begin implementing the plan within five years to cut down use of the wells.

“We should first explore what options are available; second, analyze the options considering costs, time and other factors; and third, set volume reduction targets — then we will be on a positive path to accomplishing the goal of 100 percent use of reclaimed wastewater,” Tavares explained in a letter to the DIRE (Don’t Inject Redirect) Coalition last week Wednesday.

“I do not wish to be perceived as just ‘another politician’ making promises someone else will have to keep. I do want to put us on a course to complete projects that will increase use of reclaimed water.”

Mahalo to the many residents and scientists who spoke out on injection wells. It’s clear EPA and the Hawaii Department of Health are clueless on the hazards of injection wells, or these agencies would have taken meaningful action 20 years ago.

Also credit Mayor Tavares for taking steps to protect water resources and halt ocean pollution. Her initiatives for environmental protection and alternative energy have been creative and smart.”