The exam mode is TAKEHOME.

This exam is 6 pages long. Please check to see that you have all 6 pages. There are seven essay questions.

While taking this examination, your answer must be entirely your own work. You may not discuss the examination with anyone, either while taking it or thereafter until everyone has taken the exam.

No credit will be given for discussing issues or matters not covered in the assigned course materials.

The word limits stated for each question are suggested, not mandatory, maximums, and are approximately indicative of the relative grading weight of each question.

All your answers combined should not exceed 4700 words. This limit is relatively liberal. In my judgment first-rate answers can be written well within that limit, so do not feel compelled to fill out your answers to the word limit.

Take care to analyze and respond to the specific questions asked, rather than simply offering an essay on everything remotely related to the topic at hand. I reward focus and conciseness in answers. If you believe further information or investigation is needed to fully answer a question, please indicate that in your answer(s) at the appropriate juncture(s).

Exam4 will automatically print your Anonymous ID and word count on the exam.

Thank you for providing me such an enjoyable teaching experience this semester. I wish you each good luck and a rewarding career.

Abbreviations: PA = prior appropriation; RIP = riparian rights; AF = acre-feet; SW = surface water; GW = groundwater.

SAMPLE ANSWERS ARE FOUND AT THE END OF THE EXAM, FURTHER BELOW:

Question 1 (suggested maximum answer length 1400 words)
Jethro owns a 500 acre tract along both sides of the Gauley River in West Virginia where he maintains a cabin for use on weekends for solitude and fishing and birdwatching. Jethro’s great-great-grandfather got title to the parcel from the state of West Virginia in 1869, six years after West Virginia broke off from Virginia during the Civil War and was admitted to the Union by Congress. Assume West Virginia applies the RIP doctrine to SW.

Immediately upstream and downstream from Jethro’s tract are large units of the George Washington National Forest, land acquired by the U.S. government in the 1930s and managed by the U.S. Forest Service. (Jethro’s grandfather refused a Forest Service offer to buy his tract.) As it flows through the National Forest both upstream and downstream from Jethro’s land, the River has considerable white-water rapids, though there are no rapids in the stretch winding through Jethro’s tract. About 8 miles upstream from Jethro’s tract, still on the national forest, is a fifty-year-old hydroelectric dam owned and operated by the nearby city of Bexley, under a license from the Federal Energy Regulatory Commission that expires in 2012. The dam operation provides even, consistent flows, which enhance the rafting experience downstream.

For the last ten years or so, when the weather is good in the late spring, summer and early fall, about 2-3 rafts a day have used the river through Jethro’s land for fishing and recreation on weekends, but almost none during the week. This limited use is primarily because this part of the Gauley is remote from metropolitan areas and there have never been good launch and take-out sites. As part of a plan to promote recreational use of the forest, the Forest Service has recently decided to open a raft launch site on national forest land about 3 miles upstream from Jethro’s land. (There are already accessible places to take out rafts on national forest land below his land.)

Jethro fears an onslaught of rafters will spoil the solitude of his land once the Forest Service opens the new launch site. He comes to you, a noted water law attorney, for advice as to his rights here. Assume West Virginia has no statutes or caselaw in point.

Part I: Advise him as to his legal rights in this situation, exploring only water rights and related issues we discussed in this course (no credit will be given for discussion of non-course-related issues). Lay out a strategy for him.

Part II. Same facts as in Part I, EXCEPT: (1) Assume the land immediately above Jethro’s property, and stretching five miles upstream, is owned by the private Mead Paper Company, not the U.S. Forest Service. (2) Assume the hydro dam’s more regulated flows disrupt the riverine ecology downstream. For this reason, the Forest Service and some environmentalists have advocated removal of the dam, but Bexley has adamantly refused, because alternative sources of electricity are much more costly. (3) Assume Mead Paper Company has put a parcel of its riparian land above Jethro on the market. The parcel is a good launch site for recreational rafting. The City of Bexley, seeing both an opportunity to promote tourism and recreation, and an opportunity to strengthen its case for securing renewal of the FERC license, is considering buying Mead’s land and installing wharves, a launch site, boat storage and repair facilities, motel, restaurant, gift shop, etc. You are the city attorney for Bexley. Advise the City Council as to the water-law-related legal issues it should
consider in this situation, and how they might be resolved or used to its advantage. (Again, explore only water rights and related issues we discussed in this course.)

Question 2: (suggested maximum answer length 1000 words)

The Lazy River arises in Texas and flows northward into Oklahoma, where, fifty miles north of the state line, it flows into the Arkansas River. The Lazy is a relatively small river, with an average annual flow of about 100,000 AF. About two-thirds of the River’s flow comes from precipitation in Texas, and the remainder from Oklahoma.

There is thought to be a good deal of use of GW in the basin, primarily small domestic wells, but the extent is not known because neither state requires registration of wells or reporting of GW use in the basin. The effect of GW on River flows is also not very well known. There are no major water storage dams on the River.

Oklahoma and Texas both follow the RIP doctrine for SW. Since 1980, OK has required a state permit to make a new diversion of SW. Texas has a common law system with no state administrative machinery. Texas follows a capture rule for GW. Oklahoma applies the reasonable use doctrine. Neither has a permit system for GW.

The Lazy is not heavily used now, but the Texas portion of its basin is rapidly becoming suburbanized. Cargill, Inc., a major agribusiness company, has announced plans to locate a large processing facility (which would require a good deal of water, but Cargill has not identified a particular source) on a parcel of land it owns near the Lazy in Oklahoma. The U.S. Fish & Wildlife Service has just announced that, given the projected upstream growth in demand for Lazy River water, it is considering listing as endangered a rare species of mussel whose only habitat is some mudwater flats along the Lazy in Oklahoma a few miles upstream from its confluence with the Arkansas, which flats could be decimated by a significant reduction in river flows.

Concern about projected future growth in water demand and the prospective listing of endangered species has led both states to begin to explore the possibility of negotiating an interstate compact.

Texas Governor Marvin Berry asks you to describe very briefly what issues might be addressed in the compact and, from TX’s perspective, how they might be addressed to protect Texas’s interests in the Lazy, and also have a realistic chance of being acceptable to Oklahoma. He also asks you for advice on how TX might protect its interests if a compact cannot be negotiated. Both states are politically conservative, with a deep-seated distrust of government bureaucracy and regulation. Texas also has learned that the Oklahoma Attorney General has asked for a memo to be prepared exploring the possibility of Oklahoma initiating a lawsuit in the U.S. Supreme Court to apportion the River waters. Respond to Governor Berry’s request.
Question 3: (suggested maximum answer length 700 words)

The Cochiti Band of Indians has a 3,000 acre reservation on its ancestral homeland along the Rio Grande River in New Mexico north of Albuquerque. The reservation was created by Executive Order issued by President Grant in 1870 to, as the Order recites, “preserve the Band’s homeland.” The Order is silent on water. Downstream all the water of the Rio Grande has been appropriated by the City of Albuquerque under New Mexico law, or committed by New Mexico to the downstream state of Texas by interstate compact. New Mexico applies the PA doctrine to SW and GW. All the groundwater underneath the Band’s reservation is closely connected hydrologically to the River.

The water rights of the Band have never been adjudicated. The Band has historically diverted only about 100 AF from the River for small gardens and domestic use. It has never used GW. The reservation has only about 200 acres of irrigable land. Non-Indian farmers in this part of New Mexico typically apply 3 AF per acre to their crops, with 1.5 AF of return flow.

The Band has just struck an agreement with a Las Vegas gaming company and announced plans to open a large casino and resort on its reservation, including fountains, swimming pools, an irrigated golf course and a water park. The plans call for diverting 1000 AF from the River to supply the resort, but do not specify whether and how much water might be returned to the River after use.

You are retained by the City of Albuquerque and the State of New Mexico to devise a strategy for dealing with this proposal and safeguarding the City’s water supply. Lay out such a strategy, assessing strengths, weaknesses and alternatives.

Question 4: (suggested maximum answer length 500 words)

List possible legal techniques to provide legal protection to instream flows that were covered in the class materials, and note any limitations that might apply to each.

Question 5 (suggested maximum answer length 300 words)

Assume the state of Maine applied the American reasonable use doctrine to GW from the time it became a state in 1820 until 2002, when the legislature required all proposed new withdrawals of GW except for small domestic uses to obtain a permit from the state. The legislation also required the state to find, before issuing a permit, that the proposed new withdrawal was “in the public interest.” Norman, a Maine landowner (whose property had been in his family since before statehood, but his family has never used GW) is denied a permit by the state to drill a new well to pump GW for the car wash business he operates on the property (he has been using SW for the
business). The state found that his proposed well could lower the water in the aquifer and possibly dry up neighbors' wells. Does he have good grounds to challenge the new law? Explain.

**Question 6 (suggested maximum answer length 400 words)**

Many scientists are projecting a rise in levels of the oceans and the Great Lakes of as much as 2-3 feet in the next fifty years, along with a greater frequency and severity of major storm events. The changing climate is expected to cause major changes along shorelines. Assuming no legislation is enacted that addresses the problem, how might this affect private property ownership along the coasts?

**Question 7 (suggested maximum answer length 400 words)**

Discuss how the law governing the allocation of rights in, and management of, water resources can differ from the rights allocation and management principles that apply to other kinds of property in our society. Identify what you think are the three or four most important differences, and suggest explanations for the differences, drawing on materials we covered in the course.

END OF EXAM

**NOTE REGARDING SAMPLE ANSWERS:** These sample answers were prepared by Professor Leshy, who has taught this subject several times and was not time-constrained. While they convey how rich and probing answers can be, no student answer was expected to, nor did it, approach these answers in breadth or depth of analysis. Do not, therefore, be discouraged by reading them.

Student answers were evaluated for identification of relevant issues, the quality of analysis of those issues, and, to a lesser extent, on organization and articulate expression. While these model answers sometimes cite cases discussed in the text, I do not give extra credit for case citations. You may find it is simply convenient shorthand to identify a doctrine or discussion by reference to a case name.

Note to students taking the course after the fall of 2011: I sometimes vary the material covered in this course from semester to semester. Therefore some issues discussed here may not be covered in the future. Also, new editions of the casebook may have different cases and materials and page numbers.

**Sample answer to question one**

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Part 1: Jethro’s rights may turn in part on who owns the bed of the river where it flows through his land, a matter controlled by federal law, and also may depend on state law regarding the riparian landowner’s rights. On ownership of the bed, the question is complicated because Virginia was one of the thirteen original colonies. It thus owned the bed whether or not the Gauley was navigable in 1783 when the treaty was signed ending the Revolutionary War. Then the question is what happened when West Virginia became a state in 1863. Presumably under the equal footing doctrine it succeeded to ownership of the bed of the river, if it was navigable at that point in time. A question not answered by the facts that may be relevant is, how did West Virginia get the land it conveyed to Jethro’s ancestor? Presumably from Virginia when it broke off, which would presumably also mean it got title to the bed of the stream, which Virginia had, from the Crown. It might be worth examining the terms of statehood and what it said if anything about streambed ownership.

Navigability is controlled by federal law, and is defined by whether the River was susceptible to being a highway for commerce. The question gives few facts relevant to this point, so some further investigation will be necessary. The river has “considerable” rapids above and below Jethro’s land, but none where his land is found. This calls into question whether navigability will be measured reach-by-reach, or whether on an the basis of the entire stream, a question before the U.S. Supreme court in the Montana Power case pending this term. Also, does “highway for commerce” include recreational uses, or does it require more conventional shipping of goods and people by barge or larger craft? Is it measured by the technology and practices of statehood? Evidence need not be extensive, see the Utah Lake case. And the upstream dam built after statehood apparently improved the navigability of the river, at least for rafting. Are post-statehood improvements relevant?

Given all these uncertainties, based on the facts we have, it is difficult to say whether the river was navigable in 1863. If it was navigable, then presumably the new state got ownership of the bed, and then the question is whether WVA conveyed title to Jethro’s ancestor. The terms of this conveyance would need to be examined to see if it said anything about streambed ownership. If it was navigable in 1863, there might be a strong presumption that West Virginia retained title to the bed when it conveyed the surrounding land to Jethro’s ancestor. Alternatively, the public trust doctrine (whether grounded in state or federal law), might have prevented such conveyance, so the state would have retained a strong interest in the bed, following the principle of Illinois Central. (And the public trust doctrine might allow for navigation through improvements like the upstream dam – after all, in National Audubon, the CA S Ct applied the public trust doctrine to non-navigable tributaries of navigable waters.)

If it was not navigable under the federal test, then feds may have retained title. Somehow the feds conveyed the uplands to WVA at or after statehood so WVA could convey them to Jethro’s ancestor) so then the question is whether the feds conveyed the bed along with the uplands, and if so, whether WVA then conveyed the bed to Jethro’s when it conveyed the land on either side to him in 1869. The general rule is that the deed conveying land on either side of a non-navigable stream presumably includes the bed of the stream, unless it provided otherwise. Key facts to investigate
include what the deed said, if anything, about the bed, and what West Virginia law is on whether conveyance of the uplands conveys in the bed. And it would also be worth learning what position WVA will now take on all these matters. There is a good chance it will want to support rafting, a big industry in the state, and thus may be hostile to Jethro’s claims based on ownership.

Still, if Jethro acquired the bed through the above conveyances, he may be able to exclude others from the bed, but does that also include a right to exclude rafters from using the stream itself? Perhaps, but perhaps not. A court might have difficulty accepting an argument by Jethro that the stream is non-navigable so that he owns the bed, and that ownership allows him to exclude “navigation” (by rafters). Moreover, regardless of how the answers to the above come out on navigability for title, there remains to be considered the question of navigability under state law. Many states, particularly in the modern era, have adopted a recreation-based test for navigability, which may make ownership of the bed irrelevant, by proclaiming a broad right in the public to make recreational use of navigable waters. West Virginia has no law on this, according to the facts here, so the question will be whether West Virginia will follow this modern trend, or whether it will hold, like a few states, that the bed owner has the right to keep recreationists off the rivers.

In general, the weight of opinion in modern times is to expand the right of the public to make recreational use of rivers, so Jethro ought to be advised that his battle might be uphill here.

Does Jethro have a water rights basis – rather than a basis that depends on the outcome of various navigability tests – for resisting the rafters? He is clearly a riparian landowner, and West Virginia applies the RIP doctrine, so Jethro does have the right to make reasonable use of the waters of the Gauley. This would include, under standard RIP doctrine, the right to make recreational use of the water. In general, other riparian landowners also have the right to make use of the waters for recreational use. So what if these uses conflict? Reasonableness in RIP jurisdictions assesses one’s use in relation to others’ use. The Forest Service, as riparian landowner, can presumably claim a water right under W VA state law to make reasonable recreational use of the water (especially below as well as above Jethro’s parcel). And it can presumably license private persons like recreational rafters to exercise its rights. Jethro could argue that it is unreasonable for the Forest Service to license hordes of rafters because they interfere with his reasonable use of the stretch of the river that flows through his property. There is a basis for this claim, but what he’s really arguing for is an exclusive right to use, or a riparian right to solitude. This looks like a difficult argument to make. He might make the claim and use it as a basis for trying to negotiate with the Forest Service to try to limit the number of rafters they license. There is also a procedural question whether Jethro could sue the Forest Service as a proxy defendant for the rafters who are actually making the use.

Jethro also might face an argument that the rafting that has taken place has created a prescriptive right to continue to raft. This might be a difficult argument to make; it’s been only ten years, and presumably the rafters haven’t all been the same, so the argument would be for establishment of a public prescriptive right. It depends on what W VA law says.

But if the Gauley is considered navigable under state law here, measured by recreational use, then
that would presumably trump Jethro’s state law water right, because state policy would effectively limit the scope of the rights of riparian landowners like Jethro. That was the effective outcome of the McIlroy case in Arkansas (p. 554). And that would mean also that Jethro has no real takings argument here, because he didn’t have the right in the first place to exclude the rafters, or even if he did at one point, the loss of that stick in his bundle may not measure up to a taking, given the strong public trust interest here.

Even if the public has a right to make extensive use of the river where it flows through Jethro’s property, Jethro might still have a right to prevent rafters from using the banks above the ordinary highwater mark, or touching the bottom, on some sort of trespass theory (he clearly owns the banks, and maybe the bottom). Here too the modern trend is to favor recreationists and limit the right of riparian landowners, but the outcome is hardly clear. (Again, prescription might be a problem for Jethro if rafters who have been using the stream have used the banks as well.)

The Forest Service might also try to argue that it has a *Winters* right to an instream flow in the Gauley, arising out of its acquisition and reservation of land for national forest purposes. The application of *Winters* in riparian jurisdictions is very uncertain – no cases have squarely addressed the issue. And the federal land here was acquired, and not reserved. Ordinarily the Forest Service doesn’t have rights to instream flows, under the *New Mexico* decision, unless it can succeed under a “channel maintenance” argument it has unsuccessfully urged in a Colorado court. And finally, even if the FS did have an instream flow in the River above and below Jethro’s dam, it is not at all clear that it entitles the Forest Service to put a lot of rafters on the stream where it does not flow through the forest; i.e., along Jethro’s land.

Jethro might also have a problem, particularly if the stream is considered navigable, with the federal government’s broad navigation servitude, including the power to promote navigation and clear away obstructions to it. Finally, Jethro might ally himself with the Forest Service and the enviros who want to take out the upstream dam, because that would destroy consistent flows and undermine the value of the stream for navigation.

**Part II:*** The first thing the City has to consider is the possibility of dam removal. Bexley has no right to renewal of its FERC license, and FERC has grappled with the implications of not renewing such licenses. Dam owners don’t have property rights in the flows or the dam; the license clearly is term-limited and the federal interest is strong. One such issue is whether, if the license is not renewed, the dam facilities have to be removed. If renewal is denied, presumably the federal navigation servitude would prevent Bexley from recovering any of its investment in facilities below the highwater mark. FERC could clearly deny the license and prevent the hydro facilities from being operated. This would probably (although it is a fact to verify) prevent the dam from being operated to regulate the river flows and make it better for rafting. Bexley thus has to consider how much the recreational rafting value of the river is impaired if the dam ceases to operate, and how it affects the economics of its transaction. Presumably at least it would lower the amount it should offer Mead for the land. Bexley could also explore joining forces with Mead to advocate with Bexley for renewal of the license, or could make the acquisition from Mead contingent upon FERC renewing
the license (or negotiate an option to buy from Mead to the same end). It should also, in any transaction with Mead, insist on a condition that Mead forego using riparian rights on its remaining land in such a way as to interfere with the City’s plans.

All told, FERC has a lot of discretion over such license renewals, and the outcome is not clear. The Forest Service could impose section 4(e) conditions to protect forest land. FERC could impose conditions that required the dam be operated to mimic natural flows as much as possible, perhaps seasonally, and that might be done in such a way as not to undermine the flows suitable for rafting.

The City might argue as riparian landowner it has a riparian right to recreate, and license others to recreate, on the stream. But that should not entitle it to override FERC regarding the dam and its operation.

The next set of questions is whether, if Bexley goes ahead with the purchase, it could install all those facilities it wants to put below the highwater mark of the River. This would turn on West Virginia law as to the scope of riparian rights, the right to wharf out, etc. It may also turn on federal law, as the Corps of Engineers has broad power over facilities that interfere with navigation.

**Sample answer to question two:**

There is a wide scope of possible compacts, ranging from one creating a bi-state commission to closely regulate the river and associated groundwater, to one that merely provides some skeletal apportionment or minimal regulation of river flows. The compact, once approved by the states and Congress, would bind the states as a matter of federal law, would pre-empt state law, and would bind all private parties claiming water rights in each state (a state cannot recognize water rights in the state that it does not have sovereignty over under the terms of a compact). And, it could take the dormant commerce clause out of the picture, by licensing states to prohibit export of water they control under the compact. So there are advantages to states to enter into compacts.

Texas’s main interest here appears to be in protecting the right to make expanded use of the waters upstream of the state line for suburban growth. Normally, as the upstream state, Texas is advantaged by the status quo of no interstate apportionment, because it can divert until some legal mechanism is invoked to stop it. But doing nothing has hazards. If the species is listed, and/or the Cargill plant built and makes use of the River, it will become harder for Texas to retain that upstream advantage. Thus it is wise to think about negotiating a compact.

First, the species listing would bring into play the awesome power of the federal Endangered Species Act. This federal law could trump any interstate allocation. Any compact negotiated with OK would also require congressional (and presidential) approval. The endangered species issue could be addressed as part of the congressional review process; e.g., the compact approving legislation could amend the ESA even to prevent listing of the mussel or exempt the Lazy entirely from the Act, but this is very unlikely. Furthermore, if there is no compact, and the Supreme Court is asked to
equitably apportion the River, it would likely take the mussel’s needs into account – that is, it would be very unlikely to ignore the ESA in these circumstances.

An ESA listing would arguably make any new diversion from the river upstream, whether in TX or OK, a possible “take” violating section 9. Thus it is in both states’ interest to try to reach agreement on how the burden of complying with the listing is to be met. Without such an agreement, it is not clear where the burden of the ESA would fall. Each state would be subject to section 9, and so it depends on how section 9 is applied. Any diversion in either state that diminishes the flow of water the mussels need might be subject to section 9 enforcement action. Texas might argue that Oklahoma should bear the total burden of ESA compliance, arguing by analogy that, generally speaking, Indian water rights are satisfied out of the apportionment of the state where the Indians are found – at least that’s the common understanding of the Winters’ doctrine. But a compact could reach a different result, and so could the Supreme Court in equitable apportionment litigation.

Absent a compact, TX would have very little leverage over the Cargill plant’s diversion of water downstream from the state line. While equitable apportionment does not necessarily follow state law doctrines, and does not have to respect priority of use (especially since here both states apply riparian rights doctrine), once in place, the Cargill diversion may be difficult to displace. On the other hand, if the species is listed first, Cargill’s proposed diversion could be a big target for enforcement of ESA section 9, compared to smaller diversions gradually increasing upstream in Texas.

Back to equitable apportionment, if there is no compact, there is not a lot of predictability as to how the Supreme Court would apply the doctrine here. Both states apply RIP doctrine, but the Supreme Court is not bound by that. While Cargill’s use appears to be off of riparian land, and thus prohibited or discouraged under the RIP doctrine, there is no guarantee that the U.S. Supreme Court would not allow it (cf. the Court’s approval of New York City’s diversion of the Delaware River). Moreover, the fact that 2/3s of the flow come from TX precipitation is irrelevant, at last, the Court said in CO v. NM, when both states followed prior appropriation. Would the same result obtain here? Not clear. But to the extent the same principle applies, it might disadvantage TX to litigate rather than bargain for a compact. The Supreme Court could end up giving much of the water to TX or to OK or something in between. On the other hand, CO v. NM also made clear that a state’s maladministration or mismanagement of its water (such as Texas using its rule of capture) doesn’t really count for much of anything in equitable apportionment litigation.

It is also not clear at all here that the Supreme Court could be persuaded even to hear this case. It applies a very high threshold of injury to take up these matters. The proposed listing and proposed increased diversions may not be enough. And even if it did, the adjudication might take several years. All this argues fairly powerfully for negotiating a compact.

While Congress has the power to apportion the Lazy, that is very unlikely – Congress is reluctant to step in to these disputes in any direct way. And private litigation is possible to resolve some of these disputes, along the lines of Bean v. Morris, but there is little modern experience with such suits, and
while both states apply RIP doctrine to SW, they may not be identical; and they do apply different doctrines to GW.

Also arguing for a compact is the GW issue. Not much is known about GW here, how it is used now and how it affects river flow. But it would be to everyone’s advantage to find out more – because the more direct the GW connection, the more likely it is that future GW pumping will affect streamflow, and the greater the possibility of undermining whatever SW allocation is reached, if GW is not included. Presumably the two states’ collective ignorance about, and lack of regulation of, GW reflects public sentiment, people being hostile to government regulation and all. But farsighted governors could use the current situation as a way to gain better knowledge about GW and lay the basis for regulating in the future as necessary to protect each of their interests in the River. OK will have a much stronger interest in seeing TX, the upstream state, regulate GW in the basin, but TX will also have an interest in OK GW regulation, because if the two states agree on uses of the SW to, among other things, provide flows for the mussel, TX has an interest in seeing that OK doesn’t circumvent the agreement by using more GW.

So what might a compact look like? Regarding GW, TX might be amendable to have it address the subject, at least to the extent of calling for a careful study of GW/SW connections, and commit both states to regulate GW to the extent necessary to protect SW flows. This might be all that can be done on this score at this time.

Regarding SW, TX might press for some specific apportionment between the states, but the portion to be allocated to protect the mussel or any other species that might be listed in the future might be a bone of contention. TX could try to argue it’s all OK’s problem because the species is found there, but as noted earlier, that’s not likely to get very far. A compact could say that if the species is listed, the compact will be renegotiated, or the amount each state will contribute to ESA-mandated flows might be addressed at that time.

In any event, Texas should argue for specifying allowable uses in each state, rather than committing to delivering a specific quantity at the state line. If it does the latter, it will be bearing most of the risk of uncertainty, and diminished flows because of climate change, and it also would put pressure on Texas to regulate groundwater, to the extent GW pumping could diminish streamflow (rather like the Edwards aquifer). Texas could adopt a SW registration system as part of the compact process. That would be a good thing to do anyway, and the compact could provide political cover for doing it.

Still, there’s more pressure on OK than on TX at this point. A further complication with an apportionment is that there are states further downstream on the Arkansas River (Arkansas, and still further downstream, MS and LA), who might claim a share of Lazy River water.

The compact could also explicitly allow each state to impose export limitations on the water they are apportioned, which might also make the compact more politically palatable inside each state.
Sample answer to question three:

First, the Band almost certainly has good Winters rights. *AZ v. CA* made clear Executive Order reservations have the same rights as reservations created by treaty or statute. The standard for quantification would ordinarily be practicably irrigable acreage (PIA), which would suggest that the Band’s right might be quantified at 600 AF. (There might be a question whether “irrigable” on the facts means “practicably irrigable” in the context of the PIA test.) But the city may have some arguments. One is that the EO’s use of “preserve” might suggest that the tribe’s right is only what it has traditionally used, 100 AF, and not some additional amount. This is an uphill argument, but not beyond the pale. Also, there is a question whether the 100 AF of current use is additive or not as part of a PIA-quantified Winters right is not so clear. It is also possible that the Band might have a good state law PA claim to that 100 AF – it might be a use senior to Albuquerque’s anyway. The total quantity the Tribe might claim is therefore on the order of 700 AF, but it might be as little as 100 AF.

But presumably it wants to get 1100 AF, the 100 AF of existing uses and the casino complex’s 1000 AF. It can argue that the right ought to be quantified according to a “homeland” standard, not PIA, because the EO expressly uses that language. (The AZ Supreme Court did something like this in its *Gila River* opinion.) “Homeland” could include economic development activity like a casino – it’s obviously a broader measure than an agricultural base standard.

Even if the Band’s water is quantified on the basis of the agricultural (PIA) standard, the Supreme Court has indicated that the Band does not have to use the water for agricultural purposes; so it could take that 600 AF and apply it to the casino. But the Supreme Court’s 1979 decree in *AZ v. CA*, which contemplated tribes changing the use of Winters rights quantified under a practically irrigated acreage standard, also indicated that the consumptive use of the water should not be increased. Thus, if the Band here has a PIA-calculated Winters right of 600 AF, and farmers in this region typically have 1.5 AF of return flow, then it will have to return 300 AF to the River, or can only consume 300 AF of that Winters right. If the standard of quantification is the more open-ended “homeland” standard, then it is not clear whether, and how this “consumptive use” or “no-injury to downstream appropriators” direction in the 1979 decree would apply. The tribe might be able to divert as much as 100 AF, so long as its use, including at the casino complex, produced 800 AF of return flow (only a consumptive use of 300 AF).

All this suggests the Band has a good claim to some Rio Grande water for use in the casino, but probably will have a hard time establishing rights to all the water it wants or needs, 1000 AF (plus the 100 AF it is now using). That might be possible if the casino installed state-of-the-art recycling and reuse. The Band could and might have to address this problem by reworking the casino plans, doing more recycling and reuse, cutting back on the diversion or limiting consumption and boosting return flows.

The Band could also use GW, but since the facts indicate that GW is connected to SW and the reservation is along the River, that would probably still count as a draw on the River. The S Ct has
not definitively settled whether Winters applies to GW, but it probably does. But GW under the Band’s land here should probably be managed as part of the streamflow – NM state law recognizes such a connection (City of Alb. v. Reynolds) and federal law probably should do the same – see Cappeart.

But the question asked what the City and State might do to deal with this situation. They could bring a general stream adjudication to settle all the rights along the Rio Grande, or at least Albuquerque’s and the Band’s, if they are the only major users. The U.S. could be sued as it holds title to Indian rights, and this could meet the terms of the McCarran Amendment (which we touched on only lightly in this course). Such a suit could be brought in state court, but it would have to apply federal law to the Band’s water right.

But rather than rush to the courthouse, a better approach would be to try to negotiate a settlement. The state and city might consider recognizing a larger entitlement in the Band (above PIA) if the Band agreed to rework its casino plans to return more water to the River. Or the State and city could consider sweetening the pot by paying the Band $ for long-term lease of some of the Band’s water. They might even explore partnering with the tribe, and providing money for such facilities, as a showcase for sound water use. These kinds of things are becoming relatively standard in Indian water rights settlements.

Sample answer to question four:

(a) Make an instream flow appropriation under state law, in those PA states that recognize it. (In some of these states, only the state or a state agency can get such an appropriation.) Such appropriations are generally junior, as most streams are already fully appropriated, but they can protect streamflow from subsequent changes in existing appropriations, under the junior protection rule, so they are worth doing. (b) In RIP jurisdictions, it is possible to claim a RIP right to an instream flow, such as a “view,” or to protect fishing. It would be measured by the reasonable use standard that generally applies. But these are never fixed, and always subject to re-evaluation, so they are fragile. (c) A federal agency or Indian tribe might be able to get an instream flow under the Winters doctrine; e.g., a tribe with a treaty right to fish can get such a flow to protect fishing, or a national park can get a water right to preserve natural flows (e.g., falls in Yosemite); and the Wild & Scenic Rivers Act designation carries with it an express Winters right. (d) In either RIP or PA jurisdictions, especially those that require permits for water rights, the state may limit the number of permits in order to protect flows. Such protection is wholly negative – forbearing to issue permits that interfere with flows – and so it can be modified and is somewhat fragile. (e) State permitting agencies can condition new permits, or condition approval of changes of use or diversion points, by requiring releasing or returning a certain amount of water to the river, to protect instream flows; or a state permitting agency can deny a change of use or a change in diversion point where that would reduce flows. Again, these conditions can be waived or modified in the future, and state agencies often come under pressure to do so. (f) Regulatory laws like the Endangered Species Act might
require instream flows. This depends on the presence of endangered species. (g) Instream flows may be effectively protected by interstate compacts or equitable apportionment decrees, in effect “pulling” water downstream. (h) States may withdraw streams from further appropriation under legislation like a counterpart to the federal Wild & Scenic Rivers Act, or may adopt laws to protect fish passage in dams, like CA’s F&G Code 5937. (i) FERC may require flow releases as part of its hydropower licensing process. (j) A state can “withdraw” a stream from further appropriation. Again, this can be modified. (k) A state’s public trust doctrine may protect flows, as in National Audubon.

In all of these situations, quantification of instream flows may be challenging. For environmental or species purposes, such flows may need to be variable over time, with occasional spike flows to mimic the natural hydrograph and scour the channel. Also, in all of these situations, groundwater withdrawal may be a threat, if the law (state or federal) does not recognize a hydrologic connection.

**Sample answer to question five:**

Norman could of course challenge the denial as arbitrary and capricious under ordinary administrative law principles. Most important, the state would have to have some evidence to support the finding of interference with neighbors’ wells. It would likely get deference in so finding, but if Norman could show the concern had no factual basis, he might win (at last a remand for another look). Here the state is favoring domestic uses (normally the highest priority) over a commercial one, which adds strength to its argument (e.g., Prather v. Eisenman). And the state is not saying absolutely that Norman can never pump, just that on these facts it is not in the public interest. It may be worth inquiring what the state policy is, if any, on right to a water level, on domestic versus other uses, and on whether it has a no-mining policy. But if the state has any kind of rational basis for its action, it should win.

He could also bring a takings challenge, arguing he had a right to make use of the water under the common law reasonable use standard, and the 2002 change in the law, coupled with the denial of the permit, took his property interest in his property. This would be difficult to win. The landowner is generally not regarded as “owning” the GW underneath his property, but just a right to extract it, under the reasonable use doctrine. Ownership of molecules of water does not come until the water is captured and pulled to the surface. So Norman at most had only an expectation of the right to use GW at some point in the future, but the state has now denied that, and has sufficient reasons – to protect pre-existing pumpers. So it has converted to a kind of PA system, in effect. This is analogous to the situation in Bamford, and in Harloff, where the state regulation was upheld, even of existing pumpers (here Norman is a new pumper). It is not really different from a zoning situation, where the government limits land uses, and ordinarily can do so prospectively so long as some reasonable use of the land is left. Here the state can argue that Norman still has the power to use his land in ways that do not involve making a new GW use.

Norman could argue that pumpers should not have a right to a specific water level, and the
neighbors should have to deepen their wells to accommodate his use, but this is difficult in these circumstances. Norman could also argue an analogy to riparian rights (which the American reasonable use GW doctrine somewhat resembles) and the Franco-American case. But that case is an outlier, and anyway the state is not saying he can never pump. All other jurisdictions that have moved away from riparian rights have not found any constitutional problem doing so.

Sample answer to question six:

A gradual rise in sea levels, imperceptibly slow, would call for application of the doctrine of accretion or reliction – so that the private property owner along the coast would simply lose title to the dry land that is gradually covered by the sea level rise. The state as typical owner of the submerged land to the highwater mark would in effect succeed to the title as the land is inundated. If larger storms result in major change to the coastline – severe coastal erosion all at once – (or, possibly, in some cases, overnight buildup of coastal lands through sand deposition), then the doctrine of avulsion would come into play. The property line would remain the same as before the event, so the private property owner may keep title to land that is now submerged, or lost contact with the highwater mark if new land is suddenly created and the highwater mark is moved into what used to be the waterbody. The best explanation of the rationale underlying this doctrine is it best tracks the expectation of the parties.

Obviously the line between sudden and gradual is not distinct, so the boundaries between these two doctrines is not clear. There might be questions whether a predictable, inexorable rise in sea levels is gradual enough to qualify for accretion. And there are questions how these two fit together; if there is a storm that wipes out beach, so the beachfront landowner’s property is now somewhat underwater, and the sea level continues to rise gradually, does the underwater boundary move, or stay the same? Might global warming be considered artificial and not natural, allowing an argument that property boundaries should not change with artificial accretion?

Moreover, does the public trust doctrine’s reach under cases like Marks v. Whitney move with the property boundary? That could directly affect coastal development. If there’s avulsion, does the public lose the right of access below the highwater mark for recreational use? Cf. Glass v. Goeckel. Or the federal navigation servitude, so the U.S. might not have to pay if it destroys shoreline improvements or armoring? If more lands become tidal, would the underlying boundary move, arguing by analogy from Phillips Petroleum – does that case apply only to the beds of waters that were tidal at statehood, or might it apply to those that become tidal thereafter? Under most of these arguments, in general, public ownership and control of beachfront might likely expand, not contract, as the climate changes.

The bottom line is there would be enormous instability in property titles and the Congress or the state legislatures would likely be forced to act. Property owners would likely want to armor their beachfront property, which will also likely call for state if not federal regulation, and public works programs to have taxpayers underwrite part of the costs, and insurance companies will likely get
involved, etc. A big mess that could keep lots of lawyers busy.

**Sample answer to question seven:**

There are many things to be said here. The mobile character of water, and its variability from day to day and year to year, while somewhat predictable, obviously pose serious challenges for a property rights scheme. Especially measurement and regulation. Also, the fact that it can be reused, and is rarely wholly consumed by use, makes it different from real property. These features all make the basic concept of ownership one of a usufructuary right rather than ownership of simple molecules of water. The fact that the resource is found on the surface and underground, and that these are sometimes interconnected, and sometimes not, also pose challenges. While GW and SW ought to, when connected, be managed together at least to some extent poses some real challenges for devising a property rights scheme, and for management, because SW tends to move a lot faster than GW. Also, the fact that the resource may cross political boundaries - state lines or international borders – requires some special features of water law. And the fact that water is subject to some radically different uses and demands – navigation, fisheries, recreation, industrial, domestic, hydropower, etc., also complicates the formulation of property rights schemes for the resource. Most water law doctrines are flabby (e.g., riparian “reasonableness” – “beneficial use”), loose, and so it is difficult to get final resolution of property rights – they can always be re-litigated in a way that land titles cannot. The law also has little to do with the resolution of many water management disputes (settlement of Indian water rights, GW in southern California, etc.). There are difficulties with letting the market work – the junior protection rule in PA, e.g., etc.