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**RE: Proposed Plan for Remediation of the 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units**

Dear U.S. Department of Energy:

Columbia Riverkeeper (Riverkeeper) submits the following comments on the U.S. Department of Energy's (Energy) Proposed Plan for Remediation of the 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units (hereafter referred to as "Proposed Plan"). Riverkeeper has significant concerns about Energy's Proposed Plan to deal with radioactive and toxic pollution in the 100-D/H Area. Riverkeeper urges Energy to take a proactive, protective approach to dealing with dangerous waste in the 100-D/H Area.

Riverkeeper has appreciated aggressive interim cleanup actions taken by Energy to address highly mobile and toxic chromium contamination at the site, particularly the "big dig" effort in the D and H areas where Energy excavated deep soils to remove contamination that was contributing to groundwater pollution with the potential to impact the Columbia River and its

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<sup>1</sup> Note: The public notice for Proposed Plan directed comments to Mr. Buel. The Proposed Plan itself directs comments to Ms. Holmes. See Proposed Plan P. 48.

sensitive salmon habitat. Unfortunately, Energy's Proposed Plan for the remaining pollution in the 100-D/H Area relies heavily on monitored natural attenuation (MNA) and institutional controls (ICs) to address radioactive and chemical pollution, and the Proposed Plan fails to provide a well-reasoned explanation for why Energy does not adopt a more proactive approach to addressing radioactive and chemical soil contamination. Riverkeeper urges Energy to revise the Proposed Plan to address these shortcomings.

## **I. Riverkeeper's Commitment to Hanford Cleanup**

Columbia Riverkeeper is a 501(c)(3) nonprofit organization with a mission to protect and restore the Columbia River, from its headwaters to the Pacific Ocean. Since 1989, Riverkeeper and its predecessor organizations have played an active role in educating the public about Hanford, increasing public participation in cleanup decisions, and monitoring and improving cleanup activities at Hanford.

A legacy of the Cold War, Hanford is the nation's most contaminated site and continues to leach radioactive and chemical pollution into the Columbia River. Hanford's nuclear and chemical contamination threatens the Pacific Northwest's people, river communities, the health of the Hanford Reach, which is the most productive mainstem spawning ground for Chinook salmon, and countless other cultural and natural resources. The public and Riverkeeper members continue to catch and consume fish from the Columbia River, drink water from the river, irrigate farms with water from the river, and recreate in the Hanford Reach and downstream of Hanford. The federal government has an obligation to ensure that Hanford's nuclear legacy does not compromise current and future generations' use and enjoyment of the Columbia River.

In recent years, members of the public have used and enjoyed the Hanford Reach in the vicinity of the 100-D/H Area, including during Riverkeeper-led kayak trips. Additionally, Riverkeeper and its members often observe fish and wildlife in the area that could be negatively impacted by cleanup actions that leave chemical and radioactive pollution close the Columbia River. Lastly, Riverkeeper supports cleanup that avoids reliance on monitored natural attenuation and institutional controls for over 100 years in the River Corridor.

## **II. Public Participation**

Riverkeeper encourages EPA, Ecology, and Energy (collectively the "TPA agencies") to strive for robust public participation in all Hanford cleanup decisions. The TPA agencies' public notice for the Proposed Plan fails to provide the public with an accurate picture of how proposed actions will result in long-term risks to the environment. For example, the comparison of alternatives fails to explain how deep soil sites will fail to reach cleanup levels for up to 187 years. Rather, the public notice and fact sheet provide a sparse comparison of waste cleanup activities, providing no indication that soils would exceed pollution standards after 56 years. As described below, the agencies' failure to present a comprehensive comparison of alternatives

undermines the public's ability to evaluate Energy's plans to rely on monitored natural attenuation (MNA) and institutional controls (ICs) for over 100 years in eight soil waste sites. Furthermore, TPA agencies did not hold a public hearing on the Proposed Plan, limiting the public's ability to understand and comment on the Proposed Plan. We request that Energy provide adequate public notice and information materials and plan to hold hearings for major decisions that impact the River Corridor.

Lastly, during our participation in the August River and Plateau Committee of the Hanford Advisory Board (HAB), we were disappointed to hear agency representatives assert that comments were unlikely to alter Energy's analysis or the outcome of its decision. According to an EPA representative in the August River and Plateau Committee meeting, the record of decision "will be issued by the end of September," and agency officials expect to respond to comments as they arrive but not to alter their Proposed Plan or expected selection of the Preferred Alternative. Unfortunately, the agencies' assertion that they plan to respond to comments but not seriously consider altering their preferred cleanup actions diminishes the importance of public involvement. Indeed, it violates the public's expectation that public involvement and public comments have the ability to shape the agencies' course of action. We urge TPA agencies to refrain from committing to a course of action until they have adequately solicited, considered and responded to public comments, and to avoid dissuading public involvement by presenting their Proposed Plans as immutable.

### **III. Comments on the Proposed Cleanup Plan**

- A. Energy's preferred alternative relies excessively on monitored natural attenuation and institutional controls, which should not be relied upon to protect human health and the environment for very long periods of time.

Energy's preferred alternative fails to protect human health and the environment by relying excessively on monitored natural attenuation (MNA) and institutional controls (ICs), an approach that will leave hazardous chemical and radiological waste in soils and groundwater for decades. For example, using its MNA approach in the Preferred Alternative, Energy anticipates that Strontium-90 (Sr-90) will remain above acceptable levels in deeper soils in the D area for up to 187 years. In sites 100-D-46 (2203), 116-D-1B (2203), 116-D-1A (2203), 100-D-49:2 (2117), 116-D-7 (2125), 116-DR-1 & 2 (2148), 118-D-6:3 (2120), 118-D-6:4 (2143), 116-H-1 (2110),<sup>2</sup> the Proposed Plan concludes that soils will exceed hazardous levels for over 100 years. In all of these sites, the Proposed Plan proposes to restrict soil disturbance below 15 feet for the duration of time during which soil contamination levels remain above standards.

The TPA Agencies' exchange with the National Remedy Review Board (NRRB) highlights flaws in the Proposed Plan related to the Plan's reliance on MNA and ICs. The NRRB

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<sup>2</sup> Proposed Plan, Table 6, p. 45. Numbers in parentheses indicate the year in which sites are expected to reach cleanup levels.

questioned the Plan's reliance on MNA and ICs and asked EPA and Ecology to provide additional "lines of evidence" to support the use of an MNA remedy in both soils and groundwater. The NRRB wrote,

...the Board did not have sufficient information to fully evaluate certain aspects of the preferred approach, including: 1) the relative roles of maximum contaminant levels (MCLs) and State surface water quality standards in achieving the remedial action objectives (RAOs); 2) lines of evidence to support a monitored natural attenuation (MNA) remedy for groundwater and soils; 3) scope and extent of potential risks to human health and the environment associated with the I 00-H-36 structure, including potential contamination of sediments; 4) MCLs and associated monitoring data for all potential contaminants of concern (COCs) in groundwater; 5) how sites were screened out (e.g., no future remedial action planned); 6) historic and current levels of strontium in the soils and groundwater; and 7) lack of a comprehensible conceptual site model.<sup>3</sup>

NRRB further questioned the Proposed Plan's reliance on MNA and ICs:

...the Department of Energy (DOE) has reasonably anticipated future land use as conservation and preservation. EPA and Ecology believe that other uses, including residential use, are reasonably anticipated for the site. The Board recommends that future decision documents clearly identify the future land use and how the preferred alternative will be protective of that use...The package presented to the Board indicated that institutional controls (ICs) will play an important role for the I 00-D/H Area. The Board recommends that the proposed plan and other decision documents clearly explain in sufficient detail which specific ICs would be needed to ensure protectiveness of human health, upon what authority they would be based and how they would be enforced over the longterm.<sup>4</sup>

In their response to the NRRB, EPA and Ecology provide essentially no justification for their reliance on ICs in deep soils<sup>5</sup> for up to 187 years. Their response focuses almost entirely on groundwater. When asked to describe how MNA is suited for groundwater and soils at the site, the agencies responded:

The lines of evidence to support a MNA remedy for soil are proposed at sites with radioactive contamination. This was not clearly presented in the Remedy Review Board Package. The diffusion and dispersion of the nitrate, which is co-located with the Cr(VI) plume, results in attainment of the nitrate cleanup level within 13 years/or Alternatives 2, 3, and 4 (summarized in Table 4 of the Proposed Plan). The MNA of nitrate and strontium-90 in the preferred remedy is appropriate for use with the pump-and/treat for

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<sup>3</sup> National Remedy Review Board Letter to EPA. March 27, 2015. p. 2.

<sup>4</sup> National Remedy Review Board Letter to EPA. March 27, 2015. p. 3.

<sup>5</sup> Energy defines "deep" soil sites as being below 15 feet from the surface.

Cr(VI). Both the nitrate and strontium-90 plumes are co-located within the Cr(VI), and migration is controlled through the groundwater extraction system...As a result of ongoing groundwater remediation under interim action, nitrate concentrations have declined below the drinking water standard (DWS) in most wells. Only small areas continue to have concentrations above the DWS in the 100-D Area. Nitrate concentrations did not exceed the DWS in 100-H or the Horn during 2014. Strontium-90 has shown stable or declining concentrations, and is relatively immobile.<sup>6</sup>

Ecology's response, furnished to the NRRB by EPA, largely focused on the agencies' reasons for selecting MNA for groundwater and elsewhere stated that ICs were "proven" at the Hanford site.<sup>7</sup> Ecology responded, "Strontium-90 has shown stable or declining concentrations, and is relatively immobile." Yet, the Proposed Plan shows that Sr-90 levels will remain in excess of cleanup standards for 44 years,<sup>8</sup> and Sr-90 is mobile enough to pose a risk to groundwater, rendering the No Action Alternative unacceptable according to Energy.<sup>9</sup> In the Proposed Plan, in addition to sidestepping Sr-90 contamination, the agencies also did not address the potential to remove co-extracted contaminants during treatment of hexavalent chromium. The Proposed Plan should address alternatives that reduce the timeframe during which Sr-90 would remain above cleanup levels in groundwater.

Additionally, neither the agencies' response to the NRRB nor the Proposed Plan adequately explain how the very long timeframe for ICs in soil sites (up to 187 years) is reasonable for soil sites in close proximity to the Columbia River, where soil disturbance below 15 feet could be reasonably expected to occur in the next 187 years if ICs fail. In its response to comments from the NRRB and in the Proposed Plan, Energy contends ICs have been "proven" at the Hanford site.<sup>10</sup> While restrictions on well-drilling and excavation may be conceivable for the 44 years it will take for groundwater to reach standards, the long-term use (over 100 years) of ICs for deeper soils<sup>11</sup> so close to the Columbia River have not been proven to be successful: ICs are an undemonstrated approach at Hanford for areas that become publicly accessible but whose soils may pose a risk for over 100 years. Energy describes ICs in the Proposed Plan in general terms:

Alternatives 2, 3, and 4 require ICs during the period before completion of the remedial action and following remedial action implementation where cleanup levels protective of UU/UE will not be achieved. Exposure to contamination deeper than 4.6 m (15 ft) bgs is not anticipated. Where contamination at depth exceeds the residential use cleanup levels, ICs are required to ensure that future activities do not bring this contamination to the surface or otherwise result in exposure to contaminant concentrations that exceed cleanup

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<sup>6</sup> EPA Response Letter to NRRB. December 21, 2015. p. 2.

<sup>7</sup> EPA Response Letter to NRRB. December 21, 2015. p. 9.

<sup>8</sup> Proposed Plan, p. 45.

<sup>9</sup> Proposed Plan. p. 39.

<sup>10</sup> EPA Response Letter to NRRB. December 21, 2015. p. 9.

<sup>11</sup> Energy defines "deep" soil sites as below 15 feet below the ground surface.

levels. Figures 11 and 12 show the 34 deep waste sites (with sampling results as of November 2012) that indicate radiological contamination at depths greater than 4.6 m (15 ft) bgs exceeding the residential use cleanup levels, which would be addressed using MNA and would be subject to ICs under Alternatives 2, 3, and 4. In addition, any waste sites remediated after November 2012, with radiological contamination at depths greater than 4.6 m (15 ft) bgs that exceed the residential use cleanup levels, would be addressed using MNA and would be subject to ICs. Drilling and excavation would be restricted within the IC boundaries shown in Figures 11 and 12 for deep waste sites. ICs will be maintained until cleanup levels are achieved, the concentrations of hazardous substances are at levels to allow for UU/UE, and EPA authorizes the removal of restrictions. Table 3 projects the year when radioactive decay will achieve cleanup levels and ICs can be removed.<sup>12</sup>

Table 3 does not provide the year when radioactive decay will achieve cleanup levels for deep soil sites: rather, that information is available in Table 6 on page 45 of the Proposed Plan. More importantly, the Proposed Plan does not present an in-depth analysis of the challenges posed by implementing and maintaining ICs. The NRRB, Riverkeeper, and others have advised Energy in previous comments that the future uses of the River Corridor and interests of Tribal Nations may conflict with the use of very long-term ICs so close to the River. For example, even when groundwater reaches standards in 44 years, the drilling of a well through a waste site may bring to the surface drill casings that contain soils contaminated with high levels of Sr-90 or other contamination. For this and other easily anticipatable problems such as unexpected intrusion, building and excavation, and other activities that will be attractive so close to the Columbia River, Energy must devote a much more robust analysis to its reliance on ICs in the River Corridor. In summary, Riverkeeper urges Energy to acknowledge the potential for ICs to fail due to changing political, economic, and ecological circumstances over the very long timeframes contemplated in the Proposed Plan.

Additionally, the Proposed Plan plans to use MNA and ICs for shallow waste sites under its Preferred Alternative. Three waste sites (100-D-25, 116-D-8, and 116-DR-9) with shallow radionuclide contamination (depth less than 15 feet) would require entry restrictions until 2038. Alternative 4 considers an alternative which uses RTD for these shallow sites, a preferable approach to reducing contamination that, due to its shallower depth, may pose a greater risk for exposure to humans and ecological receptors.

To justify its chosen course, Energy must find that the timeframe for MNA is reasonable, and that ICs are likely to succeed for as long as the Proposed Plan indicates that they will be needed. We urge Energy to consider the commonsense advice from the HAB, which concludes that Energy's prolonged use of MNA and ICs will present a significant risk to human health and the environment at Hanford. The HAB has addressed Energy's past proposals for prolonged use

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<sup>12</sup> Proposed Plan. p. 35.

of ICs by stating that “there is no reasonable way to ensure” that Energy’s approach will remain effective for the very long time period required for radioactive decay or other processes to reduce contamination below cleanup levels.

According to the EPA, Energy should use a proactive cleanup approach when possible, particularly when pollutants can migrate through soils to groundwater. An EPA guidance document from 2010 states: “When relying on natural attenuation processes for site remediation, EPA prefers those processes that degrade or destroy contaminants. Also, EPA generally expects that MNA will only be appropriate for sites that have a low potential for contaminant migration.”<sup>13</sup> Emphasizing the importance of limiting contaminant migration, EPA’s guidance document highlights the importance of controlling the source of pollution. In this case, access to deep soils on the Hanford site, very close to the Columbia River, will be difficult to manage for the timeframes during which the soils will remain contaminated at dangerous levels. We urge the TPA Agencies to reconsider their proposed reliance on MNA and ICs for deep soil sites, and to offer an analysis of alternatives that could address some or all of the deep soil sites through an RTD approach.

Lastly, Yakama Nation and others have expressed concern to the TPA Agencies about the duration of pump-and-treat activities and the monitoring required to ensure that pollution levels do not rebound after pump-and-treat activities cease. For example, Energy’s Preferred Alternative is expected to attain cleanup levels in 12 years for Cr(VI) and total chromium, 6 years for nitrate, and 44 years for Sr-90.<sup>14</sup> The Proposed Plan does not clearly identify how Energy will reach the decision to cease pump-and-treat activities and how monitoring will detect any potential rebound in contaminants (either chromium, which is the target of the pump-and-treat system, or Sr-90, which is not). Most importantly, the Proposed Plan does not establish a clear plan for re-establishing additional cleanup activities if pollution levels were to increase unexpectedly after the cessation of active cleanup. We ask that the Proposed Plan be amended to provide additional clarity on this matter.

#### B. Energy’s Cleanup Plan Fails to Provide an Adequate Analysis of Alternatives for Cleanup of Hanford Soils & Hanford Groundwater

Energy’s Proposed Plan fails to propose an alternative that adequately addresses both groundwater and deep soil contamination. Energy should combine the most pro-active components of Alternatives 3 and 4 for soils and groundwater in a 5<sup>th</sup> Alternative. Instead, Energy’s Proposed Plan poses a tradeoff between Alternative 3, which includes more aggressive pump-and-treat activities and more new wells, and Alternative 4, which provides for additional remove-treat-dispose (RTD) cleanup of shallow waste sites. Alternative 4 proposes RTD for

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<sup>13</sup> U.S. EPA. Monitored Natural Attenuation of Inorganic Contaminants in Ground Water. Volume 3. Assessment for Radionuclides Including Tritium, Radon, Strontium, Technetium, Uranium, Iodine, Radium, Thorium, Cesium, and Plutonium-Americium. September 2010. p. 2.

<sup>14</sup> Proposed Plan. p. 37.

three shallow waste sites and a pipeline rather than MNA and IC's, as proposed in Alternative 3. Yet, Alternative 4 would deploy fewer groundwater wells (30 wells) than Alternative 3 (80 wells).<sup>15</sup> Energy must provide a reasonable range of alternatives. In this case, Energy should provide analysis of an alternative that combines the most aggressive soil remediation and groundwater remediation strategies.

Energy's presentation and comparison of alternatives has additional flaws. Energy does not explain why Alternative 4 appears to be more expensive for cleaning up groundwater while offering significantly reduced cleanup activity. Alternative 4 deploys 50 fewer wells than Alternative 3. Yet, Alternative 4 costs an additional \$48 million. Presumably, the additional cost results from the additional 27 years that Alternative 4's pump and treat system would be required to bring hexavalent chromium levels down to cleanup levels. As written, Table 4 remains confusing and counter-intuitive in the Proposed Plan. And it reinforces the need for Energy to propose an alternative that combines the most aggressive cleanup elements of Alternatives 3 & 4 for groundwater and soil remediation.

Energy does not present an alternative to address Sr-90 groundwater contamination, other than through MNA. As noted above, both the NRRB and EPA's own guidance set a high bar for Energy to reach the conclusion that MNA is appropriate where groundwater close to the Columbia River exceeds cleanup levels. Sr-90 is only incidentally addressed in Energy's chromium-driven groundwater strategy by being co-extracted, diluted, and re-injected throughout the site. Energy contends that Sr-90 levels will remain below groundwater cleanup levels before re-injection. Energy should consider an alternative that addresses not only hexavalent chromium contamination, but also attempts to treat co-extracted contaminants such as Sr-90 and nitrate. The hexavalent chromium pump-and-treat activity in the preferred alternative will end decades prior to Sr-90 levels reaching groundwater cleanup goals. We urge Energy to evaluate how groundwater cleanup could be targeted at Sr-90 to reduce the time period during which levels will remain elevated above cleanup levels in groundwater.

Lastly, Energy provides no alternative to address deep soil contamination in the 100-D/H Area. As noted above, in all Action Alternatives, eight soil sites below 15 feet are proposed to be addressed through MNA and IC's for 100 years or more. Energy must evaluate cleanup alternatives that reduce or eliminate the long-term reliance on MNA and ICs at soil waste sites close to the Columbia River where deep excavation for building, future well-drilling, or other processes may bring contamination below 15 feet to the surface. By failing to assess methods to address deeper soil contamination, Energy fails to provide the public with a reasonable range of alternatives. We understand that Energy is capable of excavating deep vadose zone waste: indeed, the agency has undertaken multiple "deep digs" in the River Corridor in the 100-B/C and 100-D/H areas to address highly mobile chromium contamination. The risk with deep radioactive and chemical soil contamination is both its potential to move into groundwater, and

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<sup>15</sup> Proposed Plan. p. 38.



its potential for exposure to people in the future if ICs fail. We urge Energy to develop a sixth Alternative to address these deeper soil waste sites that will not reach cleanup goals for many decades (up to 187 years in some sites), while using the chromium-driven groundwater cleanup approach in Alternative 3.

#### C. Cleanup Should Protect Unrestricted Future Use of the 100-D/H Area.

In agreement with previous advice from the HAB about River Corridor cleanup plans, Riverkeeper objects to Energy's over-reliance on ICs. For up to 187 years in a few sites, and for many decades in over a dozen sites, deeper soils will exceed cleanup levels and require ICs. As a result, Energy's Proposed Plan falls far short of achieving unrestricted use in the River Corridor, leaving pollution in soils that will require a restriction on the excavation of soils – thereby limiting activities such as well-drilling that could disturb deep soils. The use of ICs should be addressed with appropriate acknowledgement and deference to future users of the Hanford site, in particular tribal nations whose treaty rights guarantee their use of the Columbia River and the River Corridor. Energy should not rely on the Comprehensive Land Use Plan (CLUP) as a justification for short-changing key cleanup decisions. Rather, as recommended by the HAB in previous advice, Energy should proceed towards cleanup that achieves an unrestricted use standard. The HAB wrote in 2014:

The Board advises the TPA agencies to choose alternatives that meet the goal of unrestricted use along the River Corridor. Language in the Proposed Plan and selected preferred alternatives indicates that DOE is not considering cleanup to unrestricted use standard and is moving toward a less stringent cleanup based on the Comprehensive Land-Use Plan.<sup>16</sup>

The HAB, Riverkeeper, Yakama Nation, and others have identified that the River Corridor is highly attractive to future uses that may be difficult to restrict or prohibit using ICs. Energy's Proposed Plan is unacceptable because it curtails future uses of the Columbia River corridor rather than achieving the "unrestricted use." Disappointingly, Energy offers no alternative that would achieve safely allow "unrestricted use" of the River Corridor, instead choosing a goal of "unrestricted *surface* use."

#### D. The Incomplete and Flawed River Corridor Baseline Risk Assessment is not an Appropriate Source for Risk Assessment Metrics in Energy's Proposed Plan.

The Proposed Plan relies the River Corridor Baseline Risk Assessment (RCBRA),<sup>17</sup> a document that state and federal agencies as well as the HAB deemed severely flawed. Riverkeeper urges Energy to consider input on the RCBRA's deficiencies from agencies, tribes,

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<sup>16</sup> HAB Advice 268.

<sup>17</sup> Proposed Plan. P. 22.

the HAB, and other regional stakeholders, and to revise the RCBRA. Until Energy finalizes a revised RCBRA and resolves issues raised by agencies, the Yakama Nation, the HAB, and others, the agency should refrain from relying on RCBRA's conclusions in cleanup plans, including the Proposed Plan for the 100-D/H Area.

For example, both the Proposed Plan and the RCBRA fail to address adequately the cumulative chemical and radiological risk of contaminants that are likely to enter the 100-D/H Area from outside its boundary as a result of migrating plumes from other areas of the Hanford site. For example, uranium, iodine-129, and other contaminants have the potential to flow from the Central Plateau through groundwater into the 100 Area over many hundreds of years. Like the Proposed Plan, the RCBRA itself failed to adequately incorporate potential future likely uses of the River Corridor.<sup>18</sup> In short, the Proposed Plan should not rely on the RCBRA, which has unresolved flaws such as anticipating a heavy reliance on institutional controls and lacking analysis of plumes entering the River Corridor from the Central Plateau over the long term.

#### E. Energy Must Consult with the Services Under Section 7 of the Endangered Species Act.

Pursuant to Section 7 of the Endangered Species Act (ESA), Energy must consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) to determine how the proposed action may affect any threatened or endangered species in the Columbia River. Riverkeeper has raised this issue in multiple comments on Hanford cleanup and other federal actions at Hanford. See Columbia Riverkeeper Comment on Mercury Storage at Hanford (Aug. 2009); Columbia Riverkeeper Comment on Tri-Party Agreement Proposed Changes and Consent Decree (Dec. 2009); Columbia Riverkeeper Comment on Tank Closure Waste Management Environmental Impact Statement (May 2010); Columbia Riverkeeper Comment on 300 Area Proposed Plan (September 2013); and Columbia Riverkeeper Comment on 100-F Area Proposed Plan (August 2014).

Section 7 of the Endangered Species Act (ESA), the heart of the ESA's requirements for federal actions, imposes strict substantive and procedural duties on federal agencies to ensure that their activities do not cause jeopardy to listed species or adverse modification to their critical habitat. 16 U.S.C. § 1536(a)(2). The ESA mandates consultations to ensure that an agency action "is not likely to jeopardize the continued existence of any" listed species or adversely modify critical habitat. 16 U.S.C. § 1536(a)(2). Because Energy's Proposed Plan may affect listed species and critical habitat, Energy has an affirmative duty to consult with the National Marine Services and the U.S. Fish and Wildlife Service.

## **IV. Conclusion**

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<sup>18</sup> See HAB Advice 246. June 2011.

In light of the shortcomings of the Proposed Plan, Riverkeeper urges Energy to evaluate a broader range of alternatives, abandoning an over-reliance on MNA which will not achieve protection of the Columbia River, human health, and the environment in a reasonable timeframe. Riverkeeper asks Energy, EPA and Ecology to advocate for a more aggressive cleanup strategy, one that provides a more adequate balancing analysis and does not give disproportionate weight to the cost of more protective solutions.

We look forward to working with Energy on the monumental task of protecting the public and future generations from Hanford's nuclear legacy. Thank you for considering Riverkeeper's input on the Proposed Plan.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Daniel R. Serres', with a stylized, cursive script.

Daniel R. Serres

Conservation Director  
Columbia Riverkeeper