

**Attachment A  
District Response to Comments on the Draft License Application**

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
<b>February 14, 2012 – Nebraska Game &amp; Parks Commission</b>		
1	<p>Water temperature in the bypass reach of the Loup River was identified as a potential issue due to the repeated occurrence of fish kills in this reach. The Nebraska Department of Environmental Quality (NDEQ) identified low flows and thermal stress suspected causes of mortality in these fish kills. NDEQ has established temperature standards for support aquatic life in a warm water stream with a maximum limit of 90 degrees Fahrenheit (°F).</p> <p>The NGPC provided LPD with a requested flow bypass of 75 cfs in 2003. However, after a more thorough analysis, we recommend higher flows to help address the thermal stress issue and avoid future fish kills. We concur with the FWS letter that outlines the use of the Montana Method to address the flows (see paragraph from the FWS letter below). The lower number of the identified flow ranges below would satisfy our concerns.</p>	<p>The District notes that three fish kills have been documented in the Loup River bypass reach, as detailed in FLA Section E.6.3.2, and that the District’s study of Water Temperature in the Loup River Bypass Reach determined no statistically significant relationship between water temperature and discharge as detailed in FLA Section E.6.3.2 and FLA Volume 3, Appendix C.</p> <p>The District’s proposed action (see FLA Section E.5.2), includes the provision of 75 cfs of flow in the Loup River bypass reach in accordance with previous agreements, as discussed in FLA Section E.6.3.3.</p>
2	<p>The NGPC supports a further investigation of the sediment management portion of LPD’s operations. We support FERC’s request for further analysis stated in their December 21, 2011 letter. Specifically, we believe Alternative #4 should be addressed (see language below from FERC’s letter).</p>	<p>The results of Study 14.0, Alternative Project Operations and Sediment Management Study requested by FERC are included in FLA Volume 3, Appendix J.</p>
3	<p>The FWS and NGPC identified impacts from Project hydrocycling to the least tern, piping plover, pallid sturgeon, and the lower Platte River ecological community and provided several potential alternatives at earlier meetings.</p> <p>We continue to support any activity/study that would reduce the magnitude and duration of discharge peaks from the Project tailrace to benefit the downstream biotic community. We would also advocate evaluating the feasibility and efficacy of the full array of possible alternatives, including those that have been provided and those that have not, that would minimize the impacts of hydrocycling on species and communities while optimizing the efficiencies of LPD power operations.</p>	<p>The District’s analysis of the impacts of hydrocycling on threatened and endangered species are summarized in FLA Section E.6.6.2 and in the District’s Draft BA (FLA Appendix E-2)..</p>
4	<p>The NGPC recognizes that monitoring is critically important in evaluating the positive or negative consequences of any action. However, we further acknowledge that creation of effective and efficient monitoring programs are fraught with logistical and methodological challenges. Therefore, NGPC is also willing to offer technical assistance on any monitoring plans that are developed during the remaining steps of the re-licensing process.</p>	<p>The District appreciates NGPC’s offer of assistance.</p>
<b>February 16, 2012 – Federal Energy Regulatory Commission</b>		
1	<p>In Exhibit A, you state that there are no transmission lines at either the Monroe or Columbus powerhouses. However, in several places in the draft license application, you describe transmission facilities at both of these powerhouses. For example, in Section A.2.9 (page A-8), you state that at the Monroe powerhouse, there is a powerhouse bus that is directly connected to a substation by an underground bus cable. You state in Section A.2.16 (page A-14) that at the Columbus powerhouse, each of the three generator step-up transformers is connected directly to a substation bus.</p> <p>A primary transmission line is a line that is used solely to transmit power from a licensed project to a load center. By this definition, without the line, there would be no way to transmit the project’s power to the electrical grid. A line leading from a project ceases to be a primary line at the point it is no longer used solely to transmit power from the project to the interconnected grid. Based on the information you provided in Exhibit A, it appears that the underground bus cable at the Monroe powerhouse and the generators leads connecting to the step-up transformers may be primary transmission lines. Therefore, please tell us in the final license application (final application) where the Loup River Project transmission lines at the Monroe and Columbus powerhouses interconnect with the grid and cease to be primary lines used solely to transmit power from the project to the electrical grid. Exhibits A and G may need to be revised to note the type, length, and voltage of the transmission lines, and show where the project transmission lines interconnect with the regional grid.</p>	<p>The District has clarified the discussion of the Project’s transmission connection to the grid in FLA Sections A.2.9, A.2.16, and A.2.20.</p>

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
2	In Section A.2.9 of Exhibit A (page A-8), you state that at the Monroe powerhouse, power is metered and purchased by the Nebraska Public Power District (Nebraska Power) prior to the power entering the substation. However, you also state that the substation is connected with the District's and Cornhusker Public Power District's sub-transmission and distribution systems. As stated in the draft license application, the implication is that the District operates a distribution system. Please clarify in the final application which "District" operates a distribution system as there are three "District's" discussed in the draft application (i.e., Loup Power District, which in some places in the application it is called simply District; the Nebraska Public Power District; and the Cornhusker Public Power District).	As noted in Section H.2, the Loup Power District is a wholesale and retail electric distribution utility that owns and maintains an extensive distribution system that serves over 18,000 customers in five counties. Loup Power District also owns and operates the licensed hydropower Project—its only generation asset—which is the subject of this relicensing. The District's distribution system is not related to Project relicensing and discussion of the distribution system has been removed from the FLA. Additionally, the District has clarified discussion of the Project's transmission connection to the power grid. Finally, the District has clarified all discussion involving more than one public power district by using the Loup Public Power District's full name to clarify which public power district is being discussed.
3	In Section A.2.12 of Exhibit A (pages A-10 and A-11), you provide storage characteristics for Lakes Babcock and North. You provide the effective storage for Lake Babcock, the gross storage capacity for Lake North, and the gross storage capacity of both reservoirs. The dead storage and combined area-capacity relationship for Lakes Babcock and North are presented in Section B.2.4 of Exhibit B (page B-19). In the final application please clarify the relationship between effective and gross storage and provide the following information for each lake: (1) the elevation-storage relationship for the project's range of operation and (2) the elevation below which there is dead storage.	The District has expanded the reservoir storage characteristic discussion in FLA Section B.2.4.
4	In Section B.1.2 of Exhibit B (page B-2), you state that the Monroe powerhouse units were sized to handle a design flow rate of 3,500 cubic feet per second (cfs). In Section A.2.9 of Exhibit A (page A-8), you state that the three units each have a maximum hydraulic capacity of 1,000 cfs for a total capacity of 3,000 cfs. Please eliminate this inconsistency between exhibits in the final application.	FLA Section B.1.2 has been revised and made consistent with FLA Section A.2.9.
5	In Section B.2.4 of Exhibit B (page B-19), you state that Lake Babcock's effective storage is exhausted at 1,426 feet mean sea level (MSL) and Lake North provides storage down to its outlet sill at elevation 1,420 feet MSL. Exhibit F, sheet no. 20 of 26 (sectional view of the Columbus powerhouse intake) shows the minimum upstream elevation at the lakes is 1,499 feet MSL. Please eliminate this inconsistency between exhibits in the final license application. Please also describe in Exhibit B of the final application, the operation of Lakes Babcock and North as related to water surface elevations, effective storage, and entry to the Columbus powerhouse intake.	Elevation discrepancies have been revised in FLA Section B.2.4. This section has also been expanded to describe lake operations relative to water surface elevations, effective storage, and entry to the Columbus powerhouse intake.
6	In Section E.6.1.2 of Exhibit E (page E-58), you state that no requests were made to study the direct project effects on geology and soils. However, in the sentence following that statement, you state that studies were requested to determine the effect of project dredging operations on sediment transport and channel morphology, and then you follow with a discussion on the effects of sediment transport and project dredging operations geology and soils. Therefore, it is unclear to us why you state that no requests were made to study project effects on geology and soils.	The statement that "agency and stakeholders did not request studies to address direct Project effects on geology and soils" has been removed from Section E.6.12.
7	On a related matter, the final application should include the results of Study 1.0, Sedimentation and Study 2.0, Hydrocycling (HEC-RAS sediment transport modeling) in section E.6.1, geology and soils.  In our Study Determination on Requests for Modifications to the Loup River Project Study Plan, dated December 21, 2011, we directed you to complete the Alternative Project Operations and Sediment Management study. Please include the results of this study in the final application.	FLA Section E.6.1 includes the results of Study 1.0 Sedimentation, as well as the sediment related results from Study 2.0 Hydrocycling, Study 5.0, Flow and Depletion and Flow Diversion, and Study 14.0 Alternative Project Operations and Sediment Management.
8	In Section E.6.2.2 of Exhibit E (page E-108), you state that the degrading trend at the Louisville gage was attributed to site-specific circumstances and not considered to be generic. In the final application, please elaborate on the site-specific circumstances for the degrading trend occurring at the Louisville gage.	The Sediment and Sediment Transport subheading of FLA Section E.6.1.1 includes this discussion and references applicable literature citations that address this comment.
9	In Section E.6.2.2 of Exhibit E (page E-110, table E-32), you provide identical drainage areas for sites 3 and 4 (Platte River upstream and downstream of the tailrace return, respectively). The drainage areas for sites 3 and 4 are larger than that provided for the North Bend gage, which is significantly downstream. Please describe in the final application how the drainage areas for sites 3 and 4 were developed and why the drainage areas for these sites are larger than that provided for the North Bend gage, which is significantly downstream. Also, the drainage area provided for the Ashland gage should be 83,600 square miles according to the U.S. Geological Survey's records. Please correct the Ashland gage drainage area in the final application.	Table E-32 of the DLA is Table E-15 in the FLA and is included in FLA Section E.6.1.2. A note has been added to the table to explain the drainage areas in question.

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
10	In Section E.6.2.2 of Exhibit E (pages E-113 and E-114), you state that the project has no discernible impact on flow area because of tailrace return flows. You base this conclusion on the relationship of discharge and flow area presented on graph E-4. We agree that there is a strong relationship of the points in graph E-4 as indicated by the coefficient of linear regression. However, it is unclear how the calculation of the dominant and effective discharges for sites downstream of the tailrace return differs from those sites not impacted by project operation. In the final application, please include a discussion of the methodology used to calculate the dominant and effective discharges to assess the effects of project operation on channel geometry.	Explanatory text has been added to the Effective and Dominant Discharge Calculations portion of FLA Section E.6.1.2.
11	HEC-RAS was used to calculate flow characteristics (for example, water surface elevation, width, depth, area, and velocity) corresponding to a range of flow rates. The calculated relationships between flow rates and flow characteristics for the eight sites along the lower Platte River were used to develop graphs E-3 and E-4. The cross sections used in the HEC-RAS model were field surveyed in the spring and fall of 2010. So that we understand the flows that shaped the cross section during the survey, in the final application, please include the date and flow characteristics of the cross sections in the HEC-RAS model used to develop graphs E-3 and E-4.	Explanatory text and appropriate FLA component references have been added to the Hydraulic Geometry Relationships and Spatial Analyses portion of FLA Section E.6.1.2.
12	In Section E.6.2.2 of Exhibit E (page E-113), you state that dominant discharge generally increases in the downstream direction. This is true for all sites on both graphs E-3 and E-4 with the exception of site 5. In the final application, please discuss the apparent anomaly for the dominant discharge at site 5.	This discussion is contained in FLA Section E.6.1.2, immediately preceding Table E-16, and includes new content relative to the noted anomaly.
13	In Section E.6.2.2 of Exhibit E (pages E-116 through E-118), you present graphs E-5, E-6 and E-7. You state that the abscissa in these three graphs represents the channel-forming discharge. In the final application, please clarify whether effective or dominant discharges are plotted on the x-axis for these three graphs.	Text that defines the horizontal axes as the 2003-2009 dominant discharges has been added to the Regime Analysis of the Loup and Platte Rivers portion of FLA Section E.6.1.2.
14	In Section E.6.2.2 of Exhibit E (pages E-116 through E-118), the data set used to develop the channel-forming discharge presented in graphs E-5, E-6, and E-7 is unclear. The only values of channel-forming discharges in the draft license application are presented in table E-33 (page E-112), which include the years 2003-2009. Three figures in Study 1.0, Sedimentation (dated August 26, 2011) were developed for the years 1985-2009 and appear to be identical to those presented in the draft license application. Therefore, in the final application, please clarify what data were used to develop the channel-forming discharge presented in graphs E-5, E-6 and E-7. Also, in the final application please revise the plotted data to provide positional accuracy.	Text that defines the horizontal axes as the 2003-2009 dominant discharges has been added to the Regime Analysis of the Loup and Platte Rivers portion of FLA Section E.6.1.2. Plotted data has been revised on Graphs E-5, E-6, and E-7.
15	In Section E.6.2.2 of Exhibit E (page E-115), you state that all plotted points on graph E-7 are positioned away from any threshold to a different morphology. However, all points plotted on graph E-7 are located within an area termed "intermediate streams" or very close to the threshold between intermediate and braided streams. The intermediate area appears to be a transitional zone between braided and meandering streams. In the final application, please include additional discussion to clarify your statement that all plotted points on graph E-7 are positioned away from any threshold to a different morphology.	This discussion is contained in the Regime Analysis of the Loup and Platte River subheading of FLA Section E.6.1.2 and includes new content relative to the noted anomaly.
16	In Section E.4.12.1 of Exhibit E (page E-27), you state that the original maximum pool elevation in Lake Babcock was increased to 1,531 feet MSL from 1,529 feet MSL. However, this change in water surface is not reflected in Exhibit F, sheets 15 of 26, 20 of 26, and 21 of 26. In the final application, please revise Exhibit F to reflect the present normal water surface elevation in the project's regulating reservoirs.	FLA Exhibit F, Sheets 15, 20, and 21 of 26 have been revised to show the Lake Babcock pool elevation as 1,531 feet MSL.
17	In Section E.4.18 of Exhibit E (page E-37), you state that in 1952, the crest of the outlet weir was lowered about 18 inches. However, this change is not reflected in Exhibit F, sheet 26 of 26. In the final application, please revise Exhibit F to reflect the present crest elevation of the outlet weir and upstream water surface.	FLA Exhibit F, Sheet 26 of 26 has been revised to reflect corrected elevations for the outlet weir and water surface elevations.
18	On pages E-81 to E-105, you discuss water quality and state water quality standards. You also list state water quality standards in Appendix E-3. The title of table E-1 in Appendix E-3 should be modified to indicate "state water quality standards" rather than "standards." Also, please include dissolved oxygen (DO) and temperature in table E-1.	Nebraska Water Quality Standards has been added to the title of the titles of the tables in FLA Appendix E-3. Additionally, Tables E-40 through E-44 identifying the applicable water quality standards have been added to FLA Section E.6.2.1.
19	On pages E-88 to E-105, you discuss in detail various water quality parameters and how the sampling and water quality data collected at the project and in nearby waters meet state water quality standards. It would be very helpful to have a short table in that section of the discussion that would indicate the state standards for several parameters, excluding all the metal and nutrients shown in Table E-1. In other words, the table would have the numeric state water quality standards for	DO, temperature, E. coli, aquatic life, and ammonia state water standards are noted in FLA Tables E-40, E-41, E-42, E-43, and E-44, respectively. All referenced tables are contained in the Water Quality Standards portion of the FLA Section E.6.2.1.

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
	the following: DO, temperature (in Celsius and Fahrenheit), pH, E. coli, conductivity, ammonia, and chloride. Please also include in the revision to the final application the length of time, if available, where temperature exceeded the state standard of 90° F at each of the various collection sites.	
20	On page E-159, you state that you “believe” that the Loup Power system fishery that was characterized by Rupp (1981) as an excellent fishery and of regional importance to east-central Nebraska is still valid today, nearly 31 years after the report. Please explain the basis for your conclusion about the recreational fishery resources of the Loup River Project in your final application and include a copy of the 1981 paper by Rupp.	Results of the District’s 2010 creel survey support this determination and have been added to FLA Section E.6.3.2.
21	On page E-156, you mention that the Nebraska Game and Parks Commission (Nebraska Game) historically stocked walleye in Lake North but currently has no regular stocking program in Loup River Project waters. If available, it would be helpful to know why the walleye stocking program was discontinued, particularly, since in the very next sentence you state that the same agency stocked sauger in the Loup Power Canal in 2009. Please indicate in your final application whether Nebraska Game has any intention of continuing the stocking of sauger in the Loup Power Canal, and what, if any, management objectives have been established for that species in the canal.	Explanatory and corrected fish stocking discussion has been added to FLA Section E.6.3.1.
22	On page E-168, you also discuss other fish stocking efforts by Nebraska Game and it is unclear what fish stocking occurred in the Loup Power Canal from among the 244,614 fish stocked in various locations since 2001. Please explain, in the final application, which species were stocked in the Loup Power Canal from among the 244,614 fish stocked and whether there is any intention by Nebraska Game to continue this stocking. Please also indicate if the stocking would be done on an annual basis or intermittently.	More detailed fish stocking information has been added to FLA Section E.6.3.4.
23	In your final application, please indicate if any exotic fish species, like Asian carp, northern snakehead, or other exotic fish species are present in project waters, and if so, the estimated relative abundance of these species compared to other native species found in the same waters.	New information, regarding Asian carp observations within the Tailrace Canal, was received from NGPC and has been added to FLA Section E.6.3.1.
24	On page E-256, you state that you have erected public awareness signs at Lake North in 2011 that alert the public to preventing the spread of potential aquatic invasive plants and animals. Please indicate in your final application whether any invasive aquatic plants or animals have been reported in project waters.	Note preceding comment/response regarding Asian carp. No other invasive aquatic species have been reported in Project waters.
25	In table D-1, Preliminary Cost Estimate of Proposed Environmental Measures of your draft license application, you provide the cost to install a sand volleyball court at the project’s Headworks Park. However, you do not provide a proposed construction schedule for this volleyball facility in section C.2 Proposed Construction Schedule. Please provide a construction schedule for the sand volleyball court in your final application.	Sand volleyball court construction at Headworks Park is scheduled for 2015. This schedule is now indicated in FLA Section C.2, Section E.6.7.3 and the District’s Recreation Management Plan.
26	In table E-57 of your draft license application, you summarize the average daily and annual recreation use at the project’s recreation facilities and the power canal; however, you do not define how you obtained the average daily and annual use for the recreational facilities and the power canal. Please state if the recreational use estimates are based on a recreation day, (i.e., a visit by a person for recreational purposes during any portion of a 24-hour period) or by other means and provide responses in your final application.	Recreation use estimate methodologies previously included in the SISR Study 8.0 – Recreation Use are now also included in FLA Section E.6.7.2 in association with Table E-80.
27	In section E.6.7.1 Existing Environment of your draft license application, you describe the parks and trails located within the project boundary; however, you do not describe any regional recreation facilities or parks. Please provide information about regional recreational facilities and parks in your final application.	As detailed in FLA Section E.6.7.1, the Nebraska SCORP-defined Recreation Region 3: Northeast Area contains two state parks, one state historical site and four state recreational areas. These resources are now summarized in the FLA.
28	In section E.6.7.1 Existing Environment of your draft license application and section 3.2 Capacity of District Recreation Sites of your draft Recreation Management Plan, you provide a brief qualitative summary of the project’s capacities at various recreation facilities; however, more information is needed to determine if the project’s recreational facilities are at or exceed their use capacities. Therefore, as requested in the Second Initial Study Report Meeting Summary filed March 11, 2011, please provide, quantitatively, the facility capacity for each recreation resource at your recreation facilities. To calculate facility capacity, compare the average total amount of weekend use with the total combined capacity of these resources to handle such use and enter a percentage that indicates their overall level of use. Please do not consider peak weekend use. For example, if all available camping sites at the Headworks Park would be used to half its capacity during non-peak weekend days, the facility would be at 50 percent capacity.	Camper counts taken during the District’s 2010 recreation use survey, and resulting percent usage capacity values, are now included in FLA Section E.6.7.2.

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
29	In section E.6.7.1 Existing Environment of your draft license application, you state that you sponsor and maintain a public trail network within the project boundary. However, you do not state who owns these public trails. Please provide the ownership of the public trails you refer to in your final application.	As stated in FLA Section E.6.7.1, the District owns and maintains all trails within the Project Boundary.
30	In section E.6.7.1 Existing Environment of your draft license application, you state that you maintain Contemplation Point, kiosks, and other recreation enhancements built by the Boy Scouts and Girl Scouts. Please state who owns these recreational enhancements built by the scouts and the location of these enhancements in your final application.	As stated in FLA Section E.6.7.1, the District owns the amenities that resulted from cooperative efforts with local scouts.
31	In section E.6.7.3 Proposed Environmental Measures of your draft license application; you state that a new 2,000-foot trail segment would be constructed along the southeast side of Lake Babcock. Please state if the proposed trail would be included in the project boundary in your final application.	As stated in FLA Section E.6.7.3, the proposed trail segment would be wholly constructed within the Project Boundary and would be owned and maintained by the District.
32	In section E.3.5, National Historic Preservation Act of your draft license application, you state that as the non-federal representative for section 106 of the National Historic Preservation Act, you contacted six Indian tribes, and three of the tribes indicated that they have no interest in the project. Please identify in the final application the six tribes you contacted and the three tribes that stated that they are not interested in the project.	The six contacted tribes, and the three tribes that stated that they are not interested in the Project, are specified in FLA Section E.3.5.
33	In section E.3.5, National Historic Preservation Act of your draft license application, you state that a draft Historic Properties Management Plan (HPMP) has been sent to the Nebraska State Historic Preservation Officer for comment and review. The restricted service list for the project, issued on July 1, 2009, identifies the Pawnee Tribal Business Council, Santee Sioux Nation, and the Omaha Tribe of Nebraska as tribes that we would consult with during the section 106 process. Please send the draft HPMP to these tribes for review, allowing at least 30 days for comment, and summarize their response, if any, in your final license application.	As described in FLA Section E.3.5, the District provided the Draft HPMP to Nebraska SHPO and Native American tribes for review. SHPO concurrence has been received and is noted in Section E.3.5; to date, no comments have been received from Native American Indian tribes.
34	On page E-9, Reasonably Foreseeable Future Actions, you state that one of the parameters of concern would be the continued actions of the Platte River Recovery Implementation Program (Recovery Program) upstream in the central Platte River. On page E-154 you provide a brief description of the Recovery Program. Please include a footnote on page E-9 describing the Recovery Program.	A footnote that briefly defines the Recovery Program has been added to FLA Section E.2.5.
35	In your discussion of the Recovery Program on page E-154, please identify the four federally-listed endangered species of concern and provide an example of one type of management measure for flow in the Platte River under the Recovery Program that could potentially affect these four federally-listed species. Also, please provide an example of how flows recommended under the Recovery Program could affect operation of the proposed Loup River Project in the future.	The requested information has been added to FLA Section E.6.2.5.
36	On page E-19, you mention that the project's skimming weir is fitted with screens to collect trash and debris. Please include in the final application the dimensions of the weir, including the clear bar spacing, and revise the drawing of the skimming weir to include profile and elevation views of the trashrack. Also include in your discussion about the skimming weir how debris is removed from the trashrack, and where it is disposed.	The requested detail has been added to FLA Sections A.2.7 and E.4.7 and Exhibit F Sheet No. 3 of 26.
37	On pages E-80 and E-81, you use the term "raise dam" as a type of use related to water rights claims, applications, and appropriations. We are not familiar with this terminology. Please define the term "raise dam" in the final license application and explain how it relates to your proposed project.	A footnote has been added to define "raise dam" in FLA Section E.6.2.1.
<b>February 16, 2012 – U.S. Fish &amp; Wildlife Service</b>		
1	The Service cannot concur with the conclusion that adverse effects resulting from Project operations to the whooping crane ( <i>Grus americana</i> ) are discountable because species usage estimates can be determined, the Project is located within the migratory corridor, and habitat affects are measureable.	The District has expanded the whooping crane discussion in the Draft BA (FLA Appendix E-2) to support the determination of may affect, not likely to adversely affect. Additionally, the District previously responded to a similar USFWS comment regarding Project affects to whooping crane on Attachment B, Pages 2-7 of the District's May 11, 2011 Response to Comments on the SISR.
2	The Service cannot concur with the determination that the Project may affect, but is not likely to adversely affect the piping plover ( <i>Charadrius melodus</i> ) and least tern ( <i>Sternula antillarum</i> ).	The District has clarified discussions and provided additional information that supports the determination that Project relicensing may affect, but is not likely to adversely affect the interior least tern and the piping plover in Section 6.1 of the Draft BA (FLA Appendix E-2). District responses to specific USFWS comments provided in association with the USFWS's affect determination are provided in subsequent matrix responses.
3	The Service cannot concur with the determination that Project operations may affect, but are not likely to adversely affect	As stated in Section 6.3 of the Draft BA (FLA Appendix E-2), the District has clarified discussions and provided

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
	the pallid sturgeon ( <i>Scaphirhynchus albus</i> ).	additional information that supports the determination that Project relicensing may affect, but is not likely to adversely affect pallid sturgeon. District responses to specific USFWS comments provided in association with the USFWS's affect determination are provided in subsequent matrix responses.
4	The Service concurs that Project operations are not likely to adversely affect the western prairie fringed orchid ( <i>Platanthera praeclara</i> ).	The District notes the provided affect determination and USFWS concurrence.
5	<p>The conclusion that Project hydrocycling for this relicensing action has no effect on federal and state trust species seems to be unique and somewhat inconsistent with what other researchers have found on the Platte River and other river systems.</p> <p>The Service has determined that the Project hydrocycling operations may impact the aquatic community in the lower Platte River. As reported in recent studies, the Project hydrocycling operations are likely to be a contributor in the reduction of benthic invertebrate production resulting in the reduction in the growth rates of species that feed on benthic invertebrates including channel catfish, shovelnose sturgeon, and pallid sturgeon. Project impacts similarly affect the fish community by reducing the quantity of habitat available, quality of habitat available, and connectivity of these habitats.</p>	<p>The District has included a discussion of the effects of hydrocycling on the macroinvertebrate community of the lower Platte River in Sections 6.1.6 and 6.3.8 of the Draft BA (FLA Appendix E-2). Additionally, the District previously responded to a similar USFWS comment regarding the affects of hydrocycling on pallid sturgeon in Attachment B, Pages 13-16 of the District's May 11, 2011 Response to Comments on the SISR.</p> <p>Based on USFWS comments regarding potential Project impacts to macroinvertebrate/species forage, the District performed a thorough review of the literature citations provided by USFWS in support of their stated concerns. In lieu of responding to each specific comment independently, the District generally notes that the ultimate findings of the cited literature are either, 1) not applicable to the Loup River Project, 2) inconclusive, 3) unsubstantiated, or 4) counter to the USFWS representation of the findings. A notable example is the reference to studies performed on waterways in Washington, Maryland, and Austria. Based on the varied geography, channel morphologies, and substrate materials of these waterways, the District is concerned with any attempts to make direct comparisons regarding macroinvertebrate density and diversity relationships with the Loup and lower Platte rivers. Regarding the geographically-pertinent statement by Barada that hydrocycling operations affect the growth rates of channel catfish in the lower Platte River via adverse affects to the macroinvertebrate (forage) community, the District finds this conclusion to be speculative. Barada performed no macroinvertebrate sampling to substantiate this finding and further states that intra- and inter-specific competition, temperature, and watershed characteristics could also contribute to the observed growth rates of channel catfish. Furthermore, the District notes the 2005 NDEQ Stream Classification Study as a suitable and specifically relevant study relating to the macroinvertebrate community of the lower Platte River. In association with this study, NDEQ performed site-specific sampling in the lower Platte River, just below the Tailrace return, and rated the associated macroinvertebrate population as "Good" (on a rating scale of Excellent, Good, Fair, and Poor).</p>
6	The PLP proposes a minimum Loup River bypass discharge of 50 to 75 cubic feet per second (cfs) will maintain a "severe degradation" condition under the Montana Method. A study conducted by LPD under the ILP process showed that Project diversions severely impact fish habitat in the Loup River bypass area from April through October with the most severe degradation of such habitat from July through October. Furthermore, the minimum bypass has a high probability of exceeding the temperature standard set by the Nebraska Department of Environmental Quality (approximately 90-percent daily exceedence according to the Second Initial Study Report (SISR) results). The Service expects similar impacts to the Platte River bypass area although impacts based on results from the SISR and the Updated Study report (USR) as completed by LPD are difficult to discern because of the influence of central Platte River streamflow.	District analysis of fish habitat suitability within the Project bypass reach is stated in FLA Section E.6.3.2. Additionally, the District previously responded to a similar USFWS comments in Attachment B, Pages 9-10, 19, and 34-36 of the District's May 11, 2011 Response to Comments on the SISR.
7	The Service supports the investigations of the four alternatives described in FERC's June 10, 2011, request for study plan modifications (as amended December 21, 2011).	In association with the FLA, the District has included Study 14.0, Alternative Project Operations and Sediment Management.
8	Hydrocycling related PM&E measures should be put into place to avoid or minimize impacts to federal and state trust fish and wildlife resources within the March through October time frame.	The District is not proposing PM&E measures relative to hydrocycling, as Project-specific studies have not identified any adverse impacts resulting from Project hydrocycling.
9	Consider implementation of some or all of these alternative PM&E measures including: a) no hydrocycling; b) limit the number of operational turbines; and/or c) develop re-regulation facilities.	The District is not proposing PM&E measures relative to hydrocycling, as Project-specific studies have not identified any adverse impacts resulting from Project hydrocycling.
10	The Service recommends the development of an instream flow bypass that is greater than the 50 to 75 cfs proposed in the PLP.	The District's proposed action (see FLA Section E.5.2), includes the provision of 75 cfs of flow in the Loup River bypass reach in accordance with previous agreements, as discussed in FLA Section E.6.3.3.
11	(The Service recommends that the District) Implement an effective/dominant discharge level flow from May-June on the Loup River bypass reach to enhance sediment transport.	District studies have not identified that the suggested flow modification would benefit listed species. As such, the District is not proposing to implement such flow modifications.
12	The Service recommends mechanical modifications on two to four sandbar point bars within the Loup River bypass area.	Because mechanical sandbar modification would require associated flow modifications, and because the District has not found the associated flow modifications to provide species benefit, the District is not proposing mechanical sandbar modification.
13	A multi-year monitoring program is recommended for the Loup River bypass and lower Platte River to: a) ascertain	The District is not proposing a multi-year monitoring program, as Project-specific studies have identified no adverse

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
	response of the least tern, piping plover, pallid sturgeon, whooping crane, and other riverine fish and wildlife species to the recommended PM&E measures; and b) ascertain habitat response of the above species to the recommended PM&E measures.	impacts that warrant such an effort.
14	The Service will defer to FERC to determine the level of documentation needed to satisfy NEPA requirements for the Loup River Hydroelectric Project. However, the Service has serious concerns about the inadequacy of PM&E measures currently proposed in the PLP given the number of important resources involved. It may be difficult for FERC to support preparation of a Finding of No Significant Impact with only the current level of PM&E measures.	Comment noted.
15	A recognized shortcoming of the Missouri River Basin study is that the sediment yield analysis only evaluates sediment sources, but does not assess sediment sinks. The assumed absence of sediment sinks leads to the incorrect assumption that the total quantity of source sediment is transported to the next downstream sub basin. The Missouri River Basin study identified sources of sediment, but study methods did not identify areas of sediment deposition which includes hillslope deposition, valley deposition, and floodplain deposition (i.e., sediment sinks). This line of reasoning has also been applied in the Preliminary License Proposal (PLP) with the North and South Sand Management Areas (SMA) but nowhere else.	<p>The District previously responded to a similar USFWS comment regarding fish habitat in the bypass reach on Attachment B, Pages 6 to 8 of the District's May 11, 2011 Response to Comments on the SISR.</p> <p>To clarify, there are two different sediment analyses being performed in Study 1.0 Sedimentation. The first is the estimate of sediment yield from the watershed. This is soil erosion from sheet and rill erosion from rainfall, streambank erosion, and channel erosion. The MRBC sheet and rill erosion was calculated using the USLE equation. The sediment yield analysis performed by the MRBC estimates "the amount of sediment delivered to the mouth of individual watersheds within the subbasins" which includes sediment deposition in the watershed. The streambank and channel erosion were estimated using actual measurements. As stated in USACE, 1990 "There are a number of methods available to determine sediment yield. All can be grouped into two broad categories: those based on direct measurement and those based on analytical techniques. Only those methods based on direct measurement are considered a rigorous approach; analytical techniques are trend indicators at best."</p> <p>FERC approved of the use of the MRBC Platte River Basin Level B Study for calculating sediment yield in the August 26, 2009 Study Plan Determination for the Loup River Hydroelectric Project.</p> <p>The sediment budget that FERC requested on April 8, 2011 was not related to the MRBC soil erosion calculations. The comments were related to sediment capacity within the river systems.</p> <p>The USLE methods employed by the MRBC were applied on several smaller subbasins, not on the entire Platte River Basin.</p>
16	<p>The Service is concerned about the Project's removal of 24 percent of the sediment supply from the Platte River at North Bend and its effect on channel morphology leading to impacts to species habitats. The Service encourages FERC to consider the cumulative effects to lower Platte River sediment supply and how these effects may change in the future.</p> <p>The central Platte River is currently experiencing similar problems in the loss of sediment supply (Murphy et al. 2006). This erosion of sediment supply has migrated downstream as evidenced through the progressive coarsening of sediment in the central Platte River (Kinzel and Runge 2011). It is assumed that sediment transport impacts in the central Platte River will be realized in the lower Platte River. The Platte River Recovery Implementation Program intends to offset the sediment imbalance in the central Platte River through sediment augmentation, but the long-term feasibility of sediment augmentation remains under investigation. When considering the central and lower Platte River cumulative effects, the Corps (1990) conclusion that the sediment supply of the lower Platte River is virtually unlimited does not appear to be valid.</p>	<p>The District previously responded to a similar USFWS comments regarding sediment supply in, 1) Attachment B of the District's November 24, 2010 Response to Comments on the ISR (USFWS Comment 2 on Project Sediment-related Effects: Tailrace to North Bend) and 2) Attachment B, Pages 24 to 28 of the District's May 11, 2011 Response to Comments on the SISR.</p> <p>With regard to the central Platte River, The Platte River Recovery Implementation Program (PRRIP) is scheduled to initiate a pilot test to augment sediment in the central Platte River in the fall of 2012 as a result of clear water returns from a hydroelectric project. The pilot study is being performed to evaluate the PRRIP Sediment Priority Hypothesis No. 1 which states that "Average sediment augmentation near Overton of 185,000 tons/year under existing flow regime and 225,000 tons/year under Governance Committee proposed flow regime achieves a sediment balance to Kearney." The sediment imbalance was identified based on historic stream gage trends at the Overton gage, survey measurements, bed material samples, and sediment transport modeling (Bureau of Reclamation and U.S. Fish and Wildlife Service, April 2006; Platte River Recovery Implementation Program Final Environmental Impact Statement Summary).</p> <p>In the lower Platte River, particularly in the vicinity of the Project, historic stream gage data, channel surveys, bed material samples, existing literature, and sediment transport models all show that the river is neither aggrading nor degrading, but is a stable channel which has adjusted to the incoming sediment load and the increase in flow at the Tailrace Return. The PRRIP study and the results of the studies performed Project relicensing corroborate this finding (Sedimentation Study - Appendix A, and Hydrocycling Study - Appending B, in the Final Study Report, Study 14.0 Alternative Project Operations and Sediment Management). In addition, the PRRIP's hypothesis is to achieve sediment balance at Kearney, recognizing that the sediment deficit will not translate approximately 115 miles downstream to the Loup River/Platte River confluence.</p>

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
17	Sediment-free water from the Tailrace Return is likely to facilitate sandbar erosion.	<p>The District previously responded to a similar comment regarding the potential for Project operations to facilitate sandbar erosion in Attachment A of the District's November 23, 2011 Response to Comments on the USR. In addition, the District responded to Project effects on channel morphology and habitat in Attachment B of the District's May 11, 2011 Response to Comments on the SISR, and in Attachment B of the District's November 24, 2010 Response to Comments on the ISR. Finally, the District performed studies specific to the Project in both the Loup and Platte Rivers. These studies are detailed in the Final Study Report (Study 1.0 Sedimentation, Study 2.0 Hydrocycling, Study 5.0 Flow Depletion and Flow Diversion, and Study 14.0 Alternative Project Operations and Sediment Management).</p> <p>The District previously responded to a similar USFWS comment regarding Joeckel and Henebry (2008) in Study 2.0 Hydrocycling Section 5.4.3 Regime Analysis. The District also previously responded to a similar USFWS comment regarding Elliot (2009) in a letter to FERC dated November 24, 2010.</p>
18	When reviewing the body of current literature for the lower Platte River, there is not clear support that the lower Platte River is in stable geomorphic condition as stated in the PLP.	Throughout relicensing, the District has cited and provided USACE, USGS, and other sources that confirm that the geomorphic condition of the lower Platte River is in dynamic equilibrium. The District does not consider the support of this position to be in question.
19	The Service believes that hydrocycling operations have resulted in the erosion of sandbars in the lower Platte River.	The District previously responded to a similar USFWS comment regarding the potential affect of hydrocycling on sandbar erosion on Attachment B, Pages 11 and 12 of the District's May 11, 2011 Response to Comments on the SISR. Additional information is provided in response to USFWS comment 17, above.
20	The Service believes that Project operations have increased the probability of high water temperatures in the Loup River bypass. The comparison of the probability of temperature exceedence to streamflow is one product of the relicense studies whose methods were derived from Sinokrot and Gulliver (2000). LPD replication of methods developed by Sinokrot and Gulliver (2000) demonstrate that, at lower discharges, diel temperature fluctuations are more pronounced as evidenced in the probability of temperature exceedences graph in the USR (Figure 5-16). The current minimum flow bypass of 50 to 75 cfs has a high probability exceeding the Nebraska Department of Environmental Quality standard (approximately 90-percent daily exceedence).	<p>The District notes that Study 4.0, Water Temperature in the Loup River Bypass Reach determined no statistically significant relationship between water temperature and discharge (see FLA Section E.6.3.2 and FLA Volume 3, Appendix C). Furthermore, the District previously responded to a similar USFWS comment regarding temperature in the bypass reach in Attachment B, Page 9 of the District's May 11, 2011 Response to Comments on the SISR.</p> <p>The District's proposed action (see FLA Section E.5.2), includes the provision of 75 cfs of flow in the Loup River bypass reach in accordance with previous agreements, as discussed in FLA Section E.6.3.3.</p>
21	The Service has determined that Project operations impact the Loup River fish community by: a) increasing the probability of exceeding the water quality standard for warm water aquatic life, and b) reducing suitability of instream habitat.	<p>The District notes that Study 4.0, Water Temperature in the Loup River Bypass Reach determined no statistically significant relationship between water temperature and discharge (see FLA Section E.6.3.2 and FLA Volume 3, Appendix C). Furthermore, the District previously responded to a similar USFWS comment regarding temperature in the bypass reach in Attachment B, Page 9 of the District's May 11, 2011 Response to Comments on the SISR.</p> <p>The District's proposed action (see FLA Section E.5.2), includes the provision of 75 cfs of flow in the Loup River bypass reach in accordance with previous agreements, as discussed in FLA Section E.6.3.3.</p> <p>The District previously responded to a similar USFWS comment regarding bypass reach habitat related to flow on Attachment B, Page 19 of the District's May 11, 2011 Response to Comments on the SISR.</p>
22	The conclusion that Project hydrocycling for this relicensing action has no effect on federal and state trust species seems to be unique and somewhat inconsistent with what other researchers have found on the Platte River and other river systems.	The District's response to USFWS Comment No. 5 specifically addresses potential hydrocycling affects to the macroinvertebrate community of the lower Platte River.
23	The Loup River bypass has a role in whooping recovery in the future if habitat could be improved compared to present conditions.	<p>The District has included a discussion of the effects of hydrocycling on the macroinvertebrate community of the lower Platte River in Sections 6.1.6 and 6.3.8 of the Draft BA (FLA Appendix E-2). Additionally, the District previously responded to a similar USFWS comment regarding the affects of hydrocycling on pallid sturgeon on Attachment B, Pages 13-16 of the District's May 11, 2011 Response to Comments on the SISR.</p> <p>The District has addressed potential changes to whooping crane habitat in Sections 5.3.2, 6.2.2, and 6.2.3 of the Draft BA ((FLA Appendix E-2).</p> <p>Additionally, the District previously responded to a similar USFWS comment regarding Project affects to whooping crane in Attachment B, Pages 2-7 of the District's May 11, 2011 Response to Comments on the SISR.</p>
24	Assessments of habitat use in the DBA do not consider information from recently published documents. The DBA does not consider channel width, wetted width, and depth information published by Farmer et al. (2004) or Howlin et al. (2008) which represent important habitat criteria for the whooping crane. It is important to recognize that, although whooping crane may use a range of unobstructed and wetted widths, the species selects for the widest unobstructed and wetted widths available. The DBA description of habitat use in Table 4 does not capture the complexities of how the species selects habitats based on habitat availability using resource selection applications (Johnson et al. 2006, Rosenfeld 2003, Johnson 1980).	<p>The District has addressed potential changes to whooping crane habitat in Sections 5.3.2, 6.2.2, and 6.2.3 of the Draft BA ((FLA Appendix E-2).</p> <p>Additionally, the District previously responded to a similar USFWS comment regarding Project affects to whooping crane on Attachment B, Pages 2-7 of the District's May 11, 2011 Response to Comments on the SISR.</p>



NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
25	The Service does not support the DBA conclusion that interior least tern use of the Loup River in relation to use of other Nebraska rivers is minimal. The species recovery plan has identified the Loup River as important for species conservation and recovery, and species recovery cannot occur unless Loup River recovery objectives are achieved.	Sections 5.2.3 and 6.1 of the Draft BA (FLA Appendix E-2) clarify discussions and provide additional information that supports the determination that Project relicensing may affect, but is not likely to adversely affect, the interior least tern and the piping plover.
26	The DBA does not include important interior and least tern adult and nest survey information that was provided by the (Nebraska Game and Parks) Commission.  The Loup River upstream of the diversion has a higher number of: a) maximum number of individuals surveyed per mile, b) total number of least tern nests per river mile, and c) total number of nesting colonies per river mile for all three years of survey.	The referenced survey information has been added to Section 5.1.3 of the Draft BA (FLA Appendix E-2).
27	The PLP stated that the calculation of channel width and depth using the no diversion effective and dominant discharges reveals that the values of both parameters would be larger under a no diversion condition than under current operations.  The LPD May 11, 2011, response to SISR comments stated that under the no diversion condition, the Loup River bypass reach would over time develop characteristics similar to the upstream location. If the Loup River downstream of the Project diversion was geomorphically similar to the river upstream of the diversion, then species use would be similar. If the rate of species use for the Loup River bypass area was similar to use documented for the Loup River upstream of the diversion, then we would expect the: a) maximum number of individuals to increase by 20 to 33 individuals; b) total number of nests to increase by 4 to 26 nests; and c) number of nesting colonies to increase by 2 to 4 colonies.  Channel width in the bypass segment of the Loup River is narrower than channels upstream of the diversion. The Service believes that the lower rates of use and nesting in the Loup River bypass are linked to lower channel width suitability.  Furthermore, the DBA did not consider the position of the sandbars in relation to habitat suitability. While the DBA correctly states that the Loup River bypass has greater areas of bare sand, the Service does not consider bare sand as suitable habitat unless the sand represents a mid-channel sandbar isolated by streamflow. Study sites upstream of the Project diversion have a larger percentage of mid-channel bars in comparison to downstream sites which have a higher proportion of point bars. Mid-channel sandbars located upstream of the project diversion are likely to be higher in suitability because sandbars would be located away from visual obstructions.	The District notes that regardless of bypass reach conditions (under current operations or a no diversion scenario), the nesting data demonstrates higher least tern nest counts along the Loup River below the Project diversion, as compared to least tern nest counts on the Loup River above the Project diversion (see Section 5.1.3 of the Draft BA [FLA Appendix E-2]).  Further, the District has addressed issues related to sediment and sandbar habitat in Section 6. 1.4 and 6.1.5. of the Draft BA (FLA Appendix E-2).
28	Project operations may affect least tern forage because of Project diversions affecting water temperature in the Loup River bypass and instream habitat in the Loup and Platte River bypass areas. Least terns are opportunistic feeders. However, adults and chicks have different sizes requirements for food items, so a diverse and healthy fish community is necessary to support different least tern life stages.	The District previously responded to a similar USFWS comment regarding temperature in the bypass reach on Attachment B, Page 9 of the District's May 11, 2011 Response to Comments on the SISR.
29	The Service supports the DBA assessment that OHV could represent a disturbance-related effect to the species, and broad use of OHV in the bypass may be facilitated by low bypass flows.	OHV use of the Loup River bypass reach is a private property matter over which the District has no control. Potential disturbance-related effects to least tern and piping plover, resulting from OHV use within the Loup River bypass reach, can not be linked to the District; furthermore, the District has no authority to police recreation activities on private property.
30	The DBA concluded that factors such as suitable habitat, mid-summer flooding, recreational disturbance, predation, nesting success in other locations, and threats in the wintering locations create variability in nesting numbers. The Service has determined that the DBA analyses cannot singularly assess Project effects to least tern nesting. The Project may/may not affect the species, but current methods can not verify this effect (of lack of) because methods cannot account for the aforementioned confounding factors that creates variability in the results.	The District notes that the Draft BA statement relative to multiple variables that affect nest count variability also included the statement that, while nest counts have been variable (from 1987 – 2009), Project operations have remained constant. It should also be noted that differences in nest count methodology may also attribute to this variability. Furthermore, the District's studies were developed in an effort to isolate the Project effects. The effects of hydrocycling were evaluated in comparison to a run-of-river operation to assess potential frequency of benchmark flow exceedences as a surrogate for potential nest elevations. This analysis used historical flow data as a method of comparison. HEC-RAS models were used to compare current operations to run-of-river operations as a method of determining Project operations on river morphology and sediment transport parameters. Study 14.0 was performed to analyze how hydraulic and river morphology characteristics would be affected under hypothetical situations relative to sediment availability (for the Platte River) and by-pass flow rates (for the Loup River bypass reach). In each circumstance, no substantial difference between current operations and run-of-river operations were identified.
31	According to the LPD USR response, approximately 1,794,800 tons of sediment are removed on an average annual basis through Project operations. Assuming a bulk density of sand at 1.9 tons per cubic yard (Kinzel 2009), approximately 944,632 cubic yards of sediment near the Project tailrace return would be needed to maintain sediment balance on an annual basis. The sediment removed from the available sediment supply would come from Platte River streambed, banks, and sandbars. Project removal of sediment at the Project diversion may affect Platte River sandbar formation and sediment free water from the Tailrace Return may facilitate sandbar erosion. This relationship between suspended sediments and sandbar development has been documented in other river basins.	The District previously responded to a similar USFWS comments regarding sediment supply in, 1) Attachment B of the District's November 24, 2010 Response to Comments on the ISR (USFWS Comment 2 on Project Sediment-related Effects: Tailrace to North Bend and 2) Attachment B, Pages 24 to 28 of the District's May 11, 2011 Response to Comments on the SISR.  The District previously responded to a similar FERC comment regarding the potential for Project discharge to facilitate sandbar erosion in Attachment A of the District's November 23, 2011 Response to Comments on the USR.

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
32	The PLP referenced results from the aggradation/degradation analysis which used methods from Chen et al. (1999) stating that channel degradation was not detected at the North Bend streamgage and sites further downstream. However, the aggradation/degradation analysis is limited in that stream gage. The North Bend gage is approximately 30 miles downstream from the Project tailrace, and methods could not be used to detect change to the sub-aerial component of the channel (i.e., sandbars) (Alexander 2009).	The District previously responded to a similar USFWS comments regarding the aggradation/degradation analysis in Attachment B of the District's November 24, 2010 Response to Comments on the ISR (USFWS Comment 2 and 3 on Aggradation/Degradation).
33	As discussed in Appendix B, Project hydrocycling operations also affect primary productivity in the Platte River below the tailrace return which may affect least tern forage base. Project hydrocycling affect the least tern through sandbar erosion, and the continuous wetting of sandbars may also impact sandbar suitability by facilitating vegetation establishment.	<p>The District's response to USFWS Comment No. 5 specifically addresses potential hydrocycling affects to the macroinvertebrate community of the lower Platte River.</p> <p>The District has included a discussion of the effects of hydrocycling on the macroinvertebrate community of the lower Platte River in Sections 6.1.6 and 6.3.8 of the Draft BA (FLA Appendix E-2).</p> <p>The District previously responded to a similar USFWS comment regarding the potential affect of hydrocycling on sandbar erosion on Attachment B, Pages 11 and 12 of the District's May 11, 2011 Response to Comments on the SISR.</p>
34	<p>Project hydrocycling also affects least tern nest inundation. The Service does not support the DBA conclusion that the relative elevation above the wetted sand of a sand bar would be the same for current operations and a run-of-river scenario.</p> <p>It is reasonable to conclude under certain flow conditions that hydrocycling either: a) has the potential for nest inundation, or b) has the potential to inundate nesting habitat that would preclude nesting opportunities.</p>	<p>The District has provided additional information and clarification regarding the District's analysis of potential for piping plover and interior least tern nest inundation is included in Draft BA Section 6.1.6 (FLA Appendix E-2).</p> <p>The District previously responded to a similar USFWS and NGPC comment regarding the potential for nest inundation resulting from hydrocycling in Attachment C, Pages 13 to 25 of the District's May 11, 2011 Response to Comments on the SISR.</p>
35	The genus for the least tern has recently changed from <i>Sterna</i> to <i>Sternula</i> .	Noted and applied to the FLA and associated Draft BA.
36	The DBA is correct in that the breeding range (of the least tern) has not changed, but the number of breeding sites range-wide has diminished.	Noted.
37	The DBA statement that least terns are associated with piping plovers at nesting sites is incomplete. The species have been known to nest at colonies independent of the other species. Furthermore, species ranges are different further documenting why species are not always associated.	Section 5.1.2. of the Draft BA (FLA Appendix E-2) has been updated, consistent with USFWS input.
38	The Service would like to caution the use of 2005 census data as the sole source of data used to determine the significance of the Loup River to the species.	Noted.
39	The North SMA has 425.5 acres of sand, but only 100 to 150 acres is considered habitat for terns and plovers.	Noted.
40	The Service does not view the MOU as a mitigation or enhancement offset for Loup or Platte River habitat impacts. The North SMA memorandum of understanding reduces the take of least tern and piping plover nests resulting from sand mining operations only and does not reduce effects of Project operations on Loup River nesting habitat.	The District agrees that the MOU reduces the risk of take of least tern and piping plover nests resulting from sand mining operations. The District also cites the species data contained within Section 5.1.3 of the Draft BA that demonstrates the considerable use of the North SMA by the species and demonstrates that the MOU has been effective in protecting the species at the North SMA.
41	<p>The Service does not support the DBA conclusion that piping plover use of the Loup River in relation to use of other Nebraska rivers is minimal. The species recovery plan has identified the Loup River as important for species conservation and recovery, and species recovery cannot occur unless Loup River recovery objectives are achieved.</p> <p>The DBA does not include important adult and nest survey information.</p> <p>Similar to findings in the least tern section, the Loup River upstream of the diversion has a higher number of: a) piping plover individuals per mile, b) piping plover nests per river mile, and c) nesting colonies per river mile for all three years of survey. This change is especially dramatic when considering that a single nesting colony as well as all of the documented piping nests in the Loup River bypass area occurred at the Central Sand and Gravel sandpit. As noted in Figure C-5, channel widths of approximately 1,700 feet are much wider than widths documented in the flow depletion/flow diversion study in the bypass area. When removing nest totals from the Central Sand and Gravel sandpit, there would be zero nests in the Loup Bypass area.</p>	The District has clarified discussions and provided additional information that supports the determination that Project relicensing may affect, but is not likely to adversely affect, the interior least tern and the piping plover in Section 5.2.3 of the Draft BA (FLA Appendix E-2).
42	The PLP stated that the calculation of channel width and depth using the no diversion effective and dominant discharges reveals that the values of both parameters would be larger under a no diversion condition than under current operations.	The District notes that regardless of bypass reach conditions under a no diversion scenario, the current data provided in Section 5.1.3 of the Draft BA (FLA Appendix E-2) demonstrates higher piping plover nest counts along the Loup River

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
	<p>Channel width in the bypass segment of the Loup River is narrower than channels upstream of the diversion. Results from the HEC-RAC analysis show channel widths upstream of the diversion averaging 825 feet while channels downstream of the diversion average 640 feet.</p> <p>The Service believes that the lower rates of use and nesting in the Loup River bypass are linked to lower channel width suitability. While the DBA correctly states that the Loup River bypass has greater areas of bare sand, the Service does not consider bare sand as nesting habitat unless the sand represents a mid-channel sandbar isolated by streamflow. Study sites upstream of the Project diversion have a larger percentage of mid-channel bars in comparison to downstream sites which have a higher proportion of point bars. Mid-channel sandbars located upstream of the project diversion are likely to be higher in suitability because sandbars would be located away from visual obstructions.</p>	<p>below the Project diversion, as compared to least tern nest counts along the Loup River above the Project diversion.</p>
43	<p>As discussed in the least tern section, the Project may/may not affect the species, but current methods cannot verify this effect (or lack of) because methods cannot account for the confounding factors that creates variability in the results.</p>	<p>The District notes that the Draft BA statement relative to multiple variables that affect nest count variability also included the statement that, while nest counts have been variable (from 1987 – 2009), Project operations have remained constant. It should also be pointed out that differences in nest count methodology may also attribute to this variability. Furthermore, the District’s studies were developed in an effort to isolate the Project effects. The effects of hydrocycling were evaluated in comparison to a run-of-river operation to assess potential frequency of benchmark flow exceedences as a surrogate for potential nest elevations. This analysis used historical flow data as a method of comparison. HEC-RAS models were used to compare current operations to run-of-river operations as a method of determining Project operations on river morphology and sediment transport parameters. Study 14.0 was performed to analyze what would happen to hydraulic and river morphology characteristics under hypothetical situations relative to sediment availability (for the Platte River) and by-pass flow rates (for the Loup River bypass reach). In each circumstance, no substantial difference between current operations and run-of-river operations were identified.</p>
44	<p>Project hydrocycling operations affects primary productivity in the Platte River below the tailrace return which may affect piping plover forage base.</p> <p>Project hydrocycling may affect the piping plover through sandbar erosion, and the continuous wetting of sandbars may also impact sandbar suitability by facilitating vegetation establishment. It is also reasonable to conclude under certain flow conditions that hydrocycling either: a) has the potential for nest inundation, or b) has the potential to inundate nesting habitat that would preclude nesting opportunities.</p>	<p>The District’s response to USFWS Comment No. 5 specifically addresses potential hydrocycling affects to the macroinvertebrate community of the lower Platte River.</p> <p>The District has included discussion of the effects of hydrocycling on the macroinvertebrate community of the lower Platte River in Sections 6.1.6 and 6.3.8 of the Draft BA (FLA Appendix E-2).</p> <p>The District previously responded to a similar USFWS comment regarding the potential affect of hydrocycling on sandbar erosion in Attachment B, Pages 11 and 12 of the District’s May 11, 2011 Response to Comments on the SISR.</p>
45	<p>The Service cautions the use of international piping plover census data as the sole source of data to determine the significance of the Loup River to the species.</p>	<p>Noted. Additionally, the District has included additional survey data along the Loup River in Section 5.1.3</p>
46	<p>The International Piping Plover Census is conducted every five years, not four as cited in the DBA.</p>	<p>Noted and updated in Draft BA Section 5.1.3 (FLA Appendix E-2).</p>
47	<p>Table 3 of the DBA should compare the Loup River metapopulation to the total number of piping plover adults when comparisons should be developed at the subspecies, population, or Distinct Population Segment level because of the biological significance of these units to species conservation.</p>	<p>The District is uncertain as to the information requested herein. The District has included all relevant species data, at its disposable.</p>
48	<p>Banded piping plover data accessible to the LPD demonstrates regular and routine dispersal between breeding sites and areas at various scales. This exchange of individuals demonstrates the Loup River contributes to the overall population and shows the interconnectedness of breeding areas and sites. Loss or increases of breeding sites and habitat on the Loup River, or elsewhere for that matter, has population-level consequences.</p>	<p>Relicensing of the Project would not result in habitat loss. It would however maintain the North SMA as suitable habitat that contributes to the interconnectedness noted by the USFWS.</p>
50	<p>The Project’s removal of 24 percent of the sediment supply at the Project tailrace may result in future channel degradation which would affect pallid sturgeon habitat.</p>	<p>The District previously responded to a similar USFWS comments regarding sediment supply in, 1) Attachment B of the District’s November 24, 2010 Response to Comments on the ISR (USFWS Comment 3 on Aggradation/Degradation and USFWS Comment 2 on Project Sediment-related Effects: Tailrace to North Bend) and 2) Attachment B, Pages 24 to 28 of the District’s May 11, 2011 Response to Comments on the SISR. In addition, the District performed studies specific to the Project in both the Loup and Platte Rivers. These studies are detailed in the Final Study Report (Study 1.0 Sedimentation, Study 2.0 Hydrocycling, Study 5.0 Flow Depletion and Flow Diversion, and Study 14.0 Alternative Project Operations and Sediment Management).</p>
51	<p>Pallid sturgeon may also be affected by Project bypass operations. Study Site 3, located within the Platte River bypass area, has narrower channels compared to study sites downstream of the Project’s tailrace return which is a result of Project diversions lowering effective discharge. This reduction in channel area would assume to have some proportionate</p>	<p>District analysis regarding this USFWS concern is included in Draft BA Section 6.3.2 and Section 6.3.9 (FLA Appendix E-2).</p>

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
	reduction in pallid sturgeon habitat.	
52	Project reductions in active channel area may affect pallid sturgeon habitats in two ways. Reduction in active channel area may affect the longitudinal distribution of habitats which in turn affect the presence or absence of species at large spatial scales (Rosenfeld 2003). Reductions in channel area may also reduce the lower Platte River's habitat capacity for a species which in turn affect species abundance (Rosenfeld 2003). These reductions in channel area may result in river segments that are unsuitable to pallid sturgeon, or suitability is so reduced that the river segment serves only as a migration corridor.	District analysis regarding this USFWS concern is included in Draft BA Section 6.3.2 and Section 6.3.9 (FLA Appendix E-2).
53	The Project's removal of 24 percent of the sediment supply at the Project tailrace return could affect the development of channel sandbars and macroforms. Furthermore, the Project's release of clear water at the tailrace return would increase water clarity in the lower Platte River. The clear water returns would affect the pallid sturgeon which select for dark to very dark conditions, avoid areas of low turbidity, and have specialized physiological adaptations to turbid environments (Peters and Parham 2008b). The increase in water clarity would decrease habitat suitability and may increase predation pressure on individuals near the tailrace return (Peters and Parham 2008b).	The USFWS's definitive statement regarding clean water discharge impacts to the Platte River is speculative, not substantiated by associated turbidity sampling, and contrary to Project-specific study findings. Attachment B of the District's November 23, 2011 response to USFWS Comment 3 on the Updated Study Report illustrates a lack of bed coarsening downstream of the Tailrace return: this suggests a lack of clear water, as clear water would result in bed coarsening. In addition, the District previously responded to a similar USFWS comments regarding sediment supply in, 1) Attachment B of the District's November 24, 2010 Response to Comments on the ISR (USFWS Comment 2 on Project Sediment-related Effects: Tailrace to North Bend) and 2) Attachment B, Pages 24 to 28 of the District's May 11, 2011 Response to Comments on the SISR.
54	Project hydrocycling may also affect pallid sturgeon habitats. Elliot (2011) noted that deep water geomorphic classification (i.e., percent of deep water) was sensitive to discharge changes resulting from hydrocycling; therefore, it is reasonable to assume that hydrocycling similarly affects pallid sturgeon habitat.	District analysis regarding this USFWS concern is included in Draft BA Section 6.3.2 and Section 6.3.9 (FLA Appendix E-2).
55	Service April 7, 2011, comments on the SISR identified Project hydrocycling effects to the connectivity to pallid sturgeon habitats.  The most prominent Project effects to connectivity occur from February through June and in November. For certain months, Project effects to connectivity occur upstream to Study Site 4. These losses of connectivity at Study Site 3 could imply Project diversions potentially affecting pallid sturgeon habitat in the Platte River Bypass area. Project effects to habitat connectivity may reduce the capacity of the Platte River to support pallid sturgeon individuals. Reductions in habitat connectivity may also affect the spawning migration of pallid sturgeon in the Platte River between April and July when reproductive shovelnose and pallid sturgeon generally move upstream to spawn.	The District previously responded to a similar USFWS comment regarding the affects of hydrocycling on pallid sturgeon on Attachment B, Pages 13-16 of the District's May 11, 2011 Response to Comments on the SISR.
56	It is likely that Project operations would not affect spawning behavior of the pallid sturgeon. DeLonay et al. (2009) identified potential long-term and short term cues for reproductive maturation and readiness to spawn. Day length is the likely long-term cue that is initiated months before a predictable spawning date. Of three potential short-term spawning cues (i.e., water temperature, discharge, day of year) water temperature is the most likely to affect the sensitivity of pallid sturgeon hormones, embryo development, and embryo survival. Since Project operations are not known to affect stream temperature in the Platte River, it is reasonable to conclude that Project operations would not affect spawning behavior.	The District concurs with this USFWS conclusion.
57	The Project may affect pallid sturgeon prey items by: a) flow and sediment-related effects to sustainability of habitats, b) flow and sediment-related effects to habitat quantity and quality, c) flow-related effects to habitat connectivity, and d) flow-related effects on primary production.  Project reductions in channel area, reductions in suspended sediment, removal of sediment supply near the tailrace return may affect habitat quality and quantity of pallid sturgeon prey items.	District analysis regarding this USFWS concern is included in Draft BA Section 6.3.8 and Section 6.3.9 (FLA Appendix E-2).
58	Project hydrocycling operations may affect habitat quality and connectivity of habitat for pallid sturgeon prey items. Project hydrocycling effects to primary production has been well documented. This effect would be realized for benthic invertebrates commonly consumed by juvenile pallid sturgeon as well as affecting small fishes commonly consumed by adults.	The District's response to USFWS Comment No. 5 specifically addresses potential hydrocycling affects to the macroinvertebrate community of the lower Platte River.  District analysis regarding this USFWS concern is included in Draft BA Section 6.3.2 and Section 6.3.9 (FLA Appendix E-2).
59	University of Nebraska at Lincoln researchers have captured both stocked and wild pallid sturgeon upstream of the Elkhorn River confluence for all three sampling years and all three sampling time periods (i.e., spring, summer, and fall). Thus, implying that the Platte River provides habitat for the pallid sturgeon year round as opposed to providing seasonal habitat described in the DBA.	The reference to seasonal habitat has been removed from the Draft BA (FLA Appendix E-2).
60	The Service cautions the use of angler-reported pallid sturgeon to determine the range of the species. The initial range of	The District notes that the reference to angler reported sturgeon in the DBA is from Peters and Parham; which is a

NUMBER	COMMENT / COMMENT SUMMARY	DISTRICT RESPONSE
	<p>the pallid sturgeon for the Platte River (i.e., downstream of the Elkhorn River confluence) was developed in absence of directed research upstream of the Elkhorn River confluence. The University of Nebraska at Lincoln studies provided the first effort in searching for the species upstream of the confluence.</p>	<p>widely used reference for pallid sturgeon. The District also notes that the DBA also utilizes the findings of the UNL Sturgeon Management Study. Further, the District notes that Peters and Parham used multiple gear types in multiple unsuccessful attempts to capture pallid sturgeon at multiple lower Platte River sampling locations upstream of the Elkhorn River confluence (2008).</p>