Yadkin Hydroelectric Project (FERC No. 2197)
Water Quality IAG Meeting
March 13, 2003
Alcoa Conference Center
Badin, North Carolina

Final Meeting Summary

Agenda

See Attachment 1.

Meeting Attendees

See Attachment 2.

Welcome and Introductions

Gene Ellis, Yadkin, opened the meeting with introductions and a review of the agenda. Jane Peeples, Meeting Director, said that she had distributed copies of "Issue Advisory Groups Outline of Purpose and Suggested Process", a document distributed originally at the February 28, 2003 Issue Advisory Group (IAG) Organizational Meeting to those who did not have a copy (see Attachment 3). Jane reviewed the three-stage relicensing process schedule. She noted that at the February 28 meeting the following IAG meeting dates were set: April 8-10, 2003; May 20-22, 2003; June 3-5, 2003; July 8-10; August 5-7, 2003; September 2-4, 2003; October 7-9, 2003; November 4-6, 2003; and December 2-4, 2003.

IAG Dispute Resolution Process

Jane Peeples discussed meeting procedures and the proposed dispute resolution process with new meeting attendees prior to the start of the meeting. The proposed dispute resolution process (see Attachment 4) was revised (see Attachment 5) based on earlier comments by Larry Jones, High Rock Lake Association, and Steve Reed, North Carolina Division of Water Resources (see Attachment 5). Continuing, Jane also reviewed the meeting procedures (i.e. meeting agendas and meeting summaries) and various meeting norms.

Introduction of Technical Consultants

Wendy Bley, Long View Associates, stated that the purpose of the meeting was to scope water quality studies based on comments/issues/and study requests submitted to Yadkin in January 2003. She noted that Yadkin retained Normandeau Associates (NAI) to plan and conduct the studies at the Yadkin Project. Wendy introduced Don Kretchmer, NAI, who will manage the studies.

Don said that he had been with NAI for 16 years and had worked on about 50 hydro projects. NAI is currently involved in the Tennessee Valley Authority's Reservoir Operations Study. He said that he managed water quality studies at APGI's Tapoco Project and is currently managing water quality studies at the Yadkin Project. He said that NAI had collected monthly water quality data at the Yadkin Project for the past three and a half years (monitoring parameters have included dissolved oxygen, temperature, nutrients, chlorophyll a, and metals). Don said that NAI has also been collecting continuous temperature and dissolved oxygen data below the Narrows and Falls developments. All water quality data collected at the Yadkin Project through 2001 has been summarized in reports, which are available upon request. Don noted that water quality data collected in 2002 is still going through QA/QC (quality assurance/quality control). He said that there are some data gaps in the 2002 data because of the drought.

Roy Rowe, Piedmont Boat Club, asked if the water quality data is available on the Yadkin website. Don said that the dataset is large and maintained in SAS (statistical software), which makes it difficult to post on a website in a readily accessible format. Gene said that Yadkin would share the water quality data with the IAG upon request. Wendy offered to post the water quality reports on the Yadkin website. She also noted that much of the water quality data is summarized in the Yadkin Project Initial Consultation Document (September 2002).

Discussion of Study Requests and Study Scopes

Wendy Bley said that field studies would be conducted over the next two years (2003 and 2004). She said that the goal for the meeting was "to leave with enough understanding of the study requested to develop draft study plans". Wendy listed several study scoping objectives that should be considered by all when scoping technical studies:[1]

1. What is the issue?
2. What is the relationship to the resource and the Project or its operation?
3. What are the study objectives or what questions does the study need to answer?
4. What is the appropriate geographic scope?
5. Are there any timing/scheduling issues?
6. Are there any methodological issues?
7. Are there opportunities to coordinate studies?

After reviewing the issues/comments/study requests received by Yadkin during Stage 1 regarding water quality (see Attachment 6), Wendy distributed outlines for two studies – a Project Water Quality Assessment and a Sediment Transport Literature Review (see Attachment 7).

Project Water Quality Assessment

Working from the outline for the Project Water Quality Assessment (Attachment 7), Wendy said that Yadkin plans to continue the monthly water quality sampling of the Project reservoirs and

[1] The original list of study scoping objectives (presented at the March 12, 2003 Fish and Aquatics (RTE aquatic) IAG meeting was revised, as presented here.

tailwaters (about 20 sampling stations) and the continuous dissolved oxygen and temperature monitoring below the Narrows and Falls developments. Wendy said that the proposed Project Water Quality Assessment would also evaluate the effects of reservoir operations on reservoir and tailwater (units on and off) water quality. Wendy said that the sampling methodology and water quality parameters are described in the Yadkin Project ICD.

Gerrit Jobsis, South Carolina Coastal Conservation League (SCCCL) and American Rivers, asked Don to provide an overview of the sampling methodology and water quality parameters measured at the Yadkin Project. Don said that NAI has collected water quality samples at 16 reservoir stations (for temperature, dissolved oxygen, surface and bottom samples for nutrients, metals (e.g. copper, mercury, cyanide, cadmium etc.), chlorophyll a, turbidity, total organic carbon, and biological oxygen demand) and four tailrace stations the Yadkin Project since 1999. Don said that NAI also collects continuous temperature and dissolved oxygen data below the Narrows and Falls developments. Gerrit asked what data is collected in the High Rock and Tuckertown tailraces. Don replied that all four tailraces are sampled monthly for the same suite of parameters that are measured in the reservoirs. Mark Oden, High Rock Business Owners Group, asked if NAI sampled for fertilizers. Don said that NAI only samples for nutrients – nitrogen and phosphorus. He said that generally, nitrogen and phosphorus concentrations are high. He noted that water quality, especially water clarity, improves further downstream.

Donley Hill, U.S. Forest Service, asked Don to describe the objectives of water quality sampling at the Project. Don said that the Project Water Quality Assessment would determine if Project operations have any effect on reservoir or tailwater water quality.

Robert Petree, SaveHighRockLake.org, suggested that the data collected at the Yadkin Project from 1999 through 2002 would be skewed because it had been collected during abnormally dry years. Don said that he hoped that 2003 would be closer to the historic normal. Larry Jones asked if there were any water quality problems evident in the samples collected in the summer of 2002 (i.e. during the drought). Don said that there were no alarming water quality problems. He noted that the total number of samples was lower because there was no water to sample at some stations at times.

Donley Hill requested additional clarification on the study's objectives. He said that he was cautious based on his experience with the Tapoco relicensing and wanted to be sure that the studies were designed to answer the right questions. He asked that the study plans include a statement of objective. Wendy Bley said that the purpose of the meeting was to understand the questions the resource agencies and others want answered and to establish study objectives based on those questions. She noted that the IAG would not have the luxury of multiple meetings to discuss study objectives because of the tight timeline to get the studies in the field. Donley suggested that the group use the meeting to develop study objectives that could then be incorporated into the draft study plan – he did not want to wait until the draft study plan was distributed to discuss study objectives.

Mark Bowers, U.S. Fish and Wildlife Service (USFWS), cautioned against making the relicensing schedule a priority over resolving issues and developing study objectives. He asked that Yadkin consider the USFWS' comments specific to water quality – he said that the USFWS

is interested in understanding the water quality conditions at the Project as a whole. He said that, under the current sampling scheme, there are not enough sampling stations in the Project tailwaters. He also asked why the continuous temperature and dissolved oxygen data was only being collected below Narrows and Falls dams. Wendy said that Yadkin must file an Application for New License with the Federal Energy Regulatory Commission (FERC) by April 30, 2006. Mark said that if Yadkin filed an incomplete application the USFWS would protest. Wendy said that Yadkin would meet the April 30, 2003 deadline. Mark said that the USFWS would protect the resources. Gene Ellis acknowledged that it is not ideal to develop study objectives and study plans concurrently, but said that it must be done.

Gerrit agreed that the study plan should discuss specific study objectives, such as "to determine the effects of Project operations on the Project reservoirs and tailwaters".

Mark Bowers asked if NAI uses an independent lab. Don replied yes and said that the study plan would include such information.

Wendy said that an objective of the Project Water Quality Assessment would be to establish a good baseline of water quality data. She asked about other study objectives. Donley Hill asked if any of the sampling would target toxic contaminants, such as PCBs and hydrocarbons. Donley said that PCBs are a particular concern and that he wanted to know if PCBs were a problem at the Project or not. Don said that he did not plan to target specific toxic contaminants. He said that level of anoxia in the water column is a reasonable surrogate – ammonia toxicity is directly related to anoxia. Don said that it would not be possible to sample for everything at all stations and said that he did not remember any requests to sample for specific contaminants in the comment letters to Yadkin. Wendy said that in the past, Yadkin and NAI relied heavily on the North Carolina Division of Water Quality (NCDWQ) to determine the sampling parameters. She said that Yadkin would be willing to discuss any toxics that are of a particular concern if there was a demonstrable relationship to the Project or its operation.

Gerrit Jobsis asked if the sampling design/methodology, as proposed, is adequate to document the effects of reservoir fluctuations on water quality (e.g. a rapid filling of the reservoir could mobilize contaminants, such as mercury, bound in the sediments). Don said that NAI has collected and will continue to collect water quality data at varying water levels. He said that NAI had not conducted a detailed ramping study over the course of one particular event. Don said that, at times, copper and mercury have been above detection limits, but have not violated water quality standards.

Mark Bowers asked if the Project Water Quality Assessment would be solely a presentation of data or more of an analysis and discussion of the data. Don said that to the extent possible, NAI would try to explain spikes or concentrations changes in the system. Mark asked about mercury specifically. Don answered that fish tissue data may be the best way to measure mercury levels.

Summarizing, Wendy said that NAI would continue to collect monthly water quality samples from the reservoirs and tailwaters to evaluate the effects of Project operations on water quality in the reservoirs and tailwaters. She said NAI would supplement their field study with a literature search about the effects of water level fluctuations on water quality. She said that if any of the

monthly samples indicated that there is a problem, NAI could conduct follow-up studies in 2004. She added that NAI would also continue to collect continuous temperature and dissolved oxygen data in the Narrows and Falls tailraces. She asked if there was any need to collect this data in the High Rock and Tuckertown tailraces. Recognizing that no representative from the NCDWQ was present at the meeting, Wendy said that Yadkin would need their input and guidance on the study plan.

Larry Jones said that the study's title and the term "Assessment" indicate that Yadkin and NAI are only proposing to catalogue the existing water quality conditions at the Yadkin Project. He said that he is most interested in understanding what can be done to improve water quality at the Project and specifically, in High Rock Reservoir. Larry stated that one of Yadkin's resource management goals, as described in the Yadkin Project ICD, is to protect aquatic vegetation in Narrows Reservoir. He asked that Yadkin also examine the status of and potential for aquatic vegetation in High Rock Reservoir. Wendy explained that the goal of the study is to assess water quality at the Project to determine if there are any water quality problems and that any decisions to improve water quality would need to be based on the studies/science. Gerrit Jobsis suggested that the study combine the information collected during the literature review with actual data collected in the field – for example, information about how aquatic vegetation can affect water quality could be combined with actual vegetation data collected from the reservoirs.

Don noted that many of the water quality problems in the Project reservoirs are basin related and that changes in Project operations would not be able to fix all the problems. Recognizing that Yadkin has no control over the quality of inflows into High Rock, Mark Bowers suggested that Yadkin take proactive measures, such as educating landowners above High Rock Reservoir about non-point source pollution, to improve water quality. Wendy said that Yadkin would consider any appropriate alternatives (operational or other) to improve water quality once it understands the problem(s), if any.

Gerrit Jobsis asked if NAI would collect any fecal coliform data. Don responded no. Gerrit suggested that shoreline development around the Project reservoirs and the way Yadkin manages land within the Project boundary may affect fecal coliform levels in Project waters. He also suggested that Yadkin could control development around the reservoirs to minimize fecal coliform problems. Randy Benn, Yadkin counsel, said that beyond developing and implementing a Shoreline Management Plan (SMP), which Yadkin has done, Yadkin has no control over permitting and/or development. Randy said that Yadkin preferred to spend its time and resources on problems that can be fixed. Wendy Bley clarified that Yadkin could not regulate actions on private property. It can only encourage responsible land management through the issuance of private pier permits.

Ben West, U.S. Environmental Protection Agency (EPA), asked if the Yadkin Project SMP addressed septic maintenance. Randy was unsure of whether the SMP specifically addressed septic maintenance, but he agreed that there are things Yadkin can do through the implementation of the SMP to manage shoreline development responsibly. Gene Ellis said that the SMP does not allow septic systems within 100 feet of the shoreline.

Mark Bowers agreed with Gerrit that fecal coliform is a parameter that should be studied. Don said that if fecal coliform was included as a parameter it should only be studied in areas of concern, such as swimming areas, not reservoir-wide. Robert Petree indicated that the wastewater treatment plants upstream of the Project are the source of any fecal coliform problem.

Mark Oden said that it would be nice to know if there are any coliform problems at any of the 16 reservoir sampling stations. Don said that any evaluation of coliform levels should be in areas where people swim. Robert Petree proposed a closer look at Abbots Creek, a tributary to High Rock Reservoir.

Wendy proposed that NAI first look at any available NCDWQ data to evaluate the effects of Project operations, aquatic vegetation, and shoreline development (emphasis on fecal coliform) on water quality. Ben West suggested that NAI focus on the immediate drainage basins (by hydrologic unit code (HUCs)).

Scott Jackson, North Carolina Watershed Coalition, asked why there were only four tailwater sampling stations and only two tailwater continuous monitoring stations. Wendy explained that the two continuous monitoring stations below the Narrows and Falls developments are a result of Yadkin's proposed upgrade program and a FERC requirement to consult with the resource agencies to develop a monitoring plan to evaluate the upgrade program's effect on water quality in the tailwaters. She reasoned that because the first three units to be upgraded were at Narrows, Yadkin installed continuous monitors below Narrows and Falls. She acknowledged that there are known dissolved oxygen problems in all four Project tailwaters. She suggested that if the group was interested in having continuous temperature and dissolved oxygen data below High Rock that Yadkin move the continuous monitor from below Falls to below High Rock (because the monitors are expensive and difficult to maintain and the next unit upgrades will be at High Rock). Wendy said that Yadkin is currently rethinking the unit upgrade schedule as originally proposed (Narrows, High Rock, and Falls). She said that the High Rock upgrades would not likely be completed prior to Yadkin filing an Application for New License with FERC. Wendy noted that Yadkin does plan to continue and complete the upgrades at Narrows. Don noted that NAI had collected some diurnal data at High Rock and Tuckertown and suggested that NAI could do some more of this work.

Scott Jackson said that he was supportive of the idea of moving the continuous monitor from the Falls tailwater to the High Rock tailwater so long as NAI is comfortable with data collected from the Falls tailwater.

Gerrit Jobsis stated that it would be important to understand the effects of discharges of water from the dam and water temperature on dissolved oxygen levels. He said he was interested in understanding the effects of generation (units on and off) and ramping rates on water quality in the tailwaters. Gerrit asked that the tailwater sampling locations be representative of the entire tailwater. Gerrit suggested a series of samples across a cross section (transect) to determine if the sampling station is representative of the entire area. Mark Bowers agreed that there needs to be a more temporal and spatial aspect to the sampling. Mark requested continuous monitoring in all four Project tailwaters during the summer months.

Wendy outlined the objectives, as described by the IAG, of the tailwater water quality assessment on the flip chart:

- Document existing water quality conditions at the Yadkin Project
- Determine the success of any mitigative/enhancement measures for dissolved oxygen
- Make larger temporal and spatial observations of what happens during a generating cycle not only within a day, but seasonally weeks/months
- Determine the effects of water quality on biota using the tailwaters, including striped bass
- Monitor/evaluate the discharge of low dissolved oxygen water
- Evaluate water quality with units on and off and with ramping

Wrap-up

With time as a limiting factor, Wendy suggested postponing the discussion of the proposed Sediment Transport Literature Review until the next Water Quality IAG meeting. The IAG agreed to discuss the study at the next meeting. Wendy said that NAI would develop a draft study plan for the Project Water Quality Assessment, which could be discussed at the next meeting.

Chris Goudreau expressed a concern that the IAG meeting times (ranging from two to four hours) were not adequate for the amount of material to be discussed. Wendy agreed and said that in the future it was not likely that all IAGs would be meeting over the allotted three-day meeting period. She suggested that future IAG meetings be a full day or, at a minimum, a half day.

The meeting adjourned at approximately 10:00 a.m.

Attachment A – Meeting Agenda

Alcoa Power Generating Inc. Yadkin Division (FERC No. 2197)
Communications Enhanced Three-Stage Relicensing Process

Issue Advisory Group Meetings

March 12-14, 2003
Alcoa Conference Center
Badin, North Carolina

IAG Meeting Schedule

Wednesday, March 12 1:00 to 4:00 p.m.	Fish and Aquatics (RTE aquatic)
Thursday, March 13 8:00 to 10:00 a.m.	Water Quality
Thursday, March 13 10:00 to 12:00 noon	Wetlands, Wildlife, Botanical (RTE terrestrial)
Thursday, March 13 1:00 to 4:00 p.m.	Recreation, Aesthetics, Shoreline Management
Friday, March 14 8:00 to 10:00 a.m.	Operations Model
Friday, March 14 10:00 to 12:00 noon	County Economic Impacts

Agenda

(The following agenda applies to all individual IAG meetings)

1. Review of Meeting Schedule for 2003 and Procedures

2. Discussion of IAG Dispute Resolution Process

3. Introduction of Technical Consultants

4. Review and Discuss Study Requests and Study Scopes

5. Agenda for Next Meeting

Attachment B – Meeting Attendees

Name	Organization	Email
Ben West	US Environmental Protection Agency	west.ben@epa.gov
Bob Barwick	NC Wildlife Resources Commission	barwickrd@ctc.net
Carl Davidson	Davie County	carl.davidson@co.davie.nc.us
Chris Goudreau	NC Wildlife Resources Commission	goudrecj@wnclink.com
Coralyn Benhart	Alcoa	coralyn.benhart@alcoa.com
Don Kretchmer	Normandeau Associates	dkretchmer@normandeau.com
Donley Hill	US Forest Service	donleyhill@fs.fed.us
Gene Ellis	APGI, Yadkin Division	gene.ellis@alcoa.com
Gerrit Jobsis	SC Coastal Conservation League	scrivers@bellsouth.net
Jane Peeples	Meeting Director	jpeeples@carolinapr.com
Jody Cason	Long View Associates	jjcason@worldnet.att.net
Julian Polk	APGI, Yadkin Division	julian.polk@alcoa.com
Larry Jones	High Rock Lake Association	larry@foxhollowfarm.org
Lawrence Dorsey	NC Wildlife Resources Commission	dorseylg@vnet.net
Mark Bowers	US Fish and Wildlife Service	mark_bowers@fws.gov
Mark Oden	High Rock Business Owners Group	mlrboden@cs.com
Nob Zalme	Duke Energy	njzalme@duke-energy.com
Randy Benn	Yadkin counsel	dbenn@llgm.com
Ray Johns	US Forest Service	rayjohns@fs.fed.us
Rick Simmons	Normandeau Associates	rsimmons@normandeau.com
Robert Petree	SaveHighRockLake.org	pete@savehighrocklake.org
Roy Rowe	Piedmont Boat Club	rrowe@triad.rr.com
Ryan Heise	NC Wildlife Resources Commission	ryan.heise@earthlink.net
Sarah Allen	Normandeau Associates	sallen@normandeau.com
Scott Fletcher	Framatome ANP	scott.fletcher@framatomenap.com
Scott Jackson	NC Watershed Coalition	scott@ncwatershedcoalition.org
Wendy Bley	Long View Associates	bleylva@aol.com

Attachment C – Issue Advisory Groups Outline of Purpose and Suggested Process

Alcoa Power Generating Inc. – Yadkin Division
Communications Enhanced Three-Stage Relicensing Process

Issue Advisory Groups
Outline of Purpose and Suggested Process

Purpose

Issue Advisory Groups (IAGs) are being formed to advise Yadkin on the important resource issues requiring study during the relicensing process. As a member of an IAG, your primary role will be to help identify issues that should be considered in the relicensing process, help determine information and study needs in support of those issues and to review study results.

Membership

IAGs are composed of representatives from state and federal agencies, legislatures, tribes, affected municipalities and recognized non-government organizations (NGOs). Recognized NGOs are those who meet the following criteria:

- represent interests not represented in already existing NGOs
- represent an interest that is directly affected by Yadkin's relicensing
- represent the interests of a group of stakeholders rather than an individual
- demonstrate a defined organizational structure
- have a designated representative who can speak for the organization

Time Line

The first objectives of the IAG process are to help Yadkin develop a scope of technical resource studies to be conducted and to review study plans. It is anticipated that IAGs will then meet as needed throughout 2003, 2004 and the first quarter of 2005 to review study results, as available, and refine/adjust studies, as needed.

Meeting Procedures

The following are suggested procedures for managing the work of the IAGs. These suggestions are open for discussion and revision within the IAG.

Meeting Schedule

- Yadkin will schedule the initial meetings. Subsequent meetings will be held on an as needed basis as determined by the IAG or Yadkin. Yadkin will try to provide notice to IAG members of all IAG meetings about 30 days prior to the meeting, if possible. Meetings may be scheduled with less than 30 days notice, if necessary. IAG members who are unable to attend the meeting in person will be given the opportunity to participate by conference call.
- It may be helpful to select a particular week of the month to convene IAGs in order to avoid conflict with other regional licensing processes.

Agenda and Information

- IAG meeting agendas will be prepared by Yadkin with input from IAG members and distributed to members at least 14 days prior to the meeting. IAG members may submit comments about the agenda in writing, by phone, e-mail or fax up to one week prior to the meeting. In addition, the agenda may be modified at the beginning of the meeting with agreement from those attending.
- Yadkin and IAG members should endeavor to make available all documents and other information necessary to prepare for the meeting at least one week prior to the meeting. As an alternative, materials may be provided at the meeting.

Meeting Summary Preparation and Distribution

- Yadkin will provide a draft meeting summary to all meeting attendees within about 15 days of the meeting. Meeting attendees should provide their comments on the meeting summary to Yadkin in writing or by phone, fax, or e-mail within about 15 days following the meeting. Yadkin will then finalize the meeting summary within about 30 days after receiving comments and will distribute a final meeting summary to all IAG members, regardless of their

(continued)

participation in the meeting. If no corrections are submitted, the meeting summary will become final 30 days after the date of the meeting.

Meeting Norms

- Meetings begin and end on time
- Agenda is followed during the meeting
- Needed information resources are available during the meeting
- Tangible progress is made toward accomplishment of the tasks
- All decisions are brought to closure in a way that is clearly understood
- Agenda for next meeting discussed at close of each meeting
- Group members demonstrate effective meeting behaviors
  - One speaker at a time, one subject at a time, limit war stories
  - Respect for opinions of others, look for merit in ideas
  - Active participation of all
  - All members present at start of meeting
  - All members arrive informed about previous meeting and agenda for present meeting

Resolving Study Disputes

- As the process unfolds, disagreements may surface regarding the type and scope of studies to be conducted. It is anticipated that IAGs will consider developing an appropriate dispute resolution process with the goal of resolving any study disputes within the IAG. Under FERC's regulations, a licensee is expected to conduct all "reasonable and necessary" studies requested by resource agencies and tribes. If through its dispute resolution process an IAG is not able to resolve a dispute regarding whether or how a particular study should be conducted, then Yadkin may opt to send the dispute to FERC for formal dispute resolution.

Yadkin's Communications Enhanced Three-Stage Relicensing Process

Stage One 2002-2003	Stage Two 2003-2006	Stage Three 2006-2008
1 → 2 → 3 →	4 → 5 → 6 → 7 → 8 →	9 → 10 → 11
1) Inform stakeholders and public (publish ICD) 2) Receive input from stakeholders and public 3) Form Issue Advisory Groups	4) Conduct studies 5) Review studies w/ IAGs and public 6) Draft Application 7) Receive comments on draft Application 8) File Application	9) FERC Reviews Application and Comments 10) Conducts Environmental Assessment 11) Issues License

Attachment 4 – IAG Dispute Resolution Process Document

IAG Dispute Resolution Process

As the Issue Advisory Group process unfolds, there will be situations in which the issue being discussed cannot easily be resolved within the normal IAG setting. When such disputes first present themselves, Yadkin and the IAG members will discuss the issue and attempt to resolve the dispute through discussion commensurate with the nature and importance of the dispute. Should initial discussions over the dispute cause an inordinate delay of the work of the IAG or become an obstacle to the progress of the IAG, Yadkin will implement the following process:

(1) The issue will be delegated by Yadkin or the meeting manager to a smaller dispute resolution work group made up of Yadkin representative(s) and IAG members who have a vested interest in the issue.
(2) The dispute resolution work group will convene outside of the regular IAG meeting to discuss the issue. Interested parties who are part of the dispute resolution work group will have responsibility for development of their position statements.[1]
(3) Yadkin will take into consideration the position statements prepared by the interested parties while making a decision on the disputed issue. Yadkin's decision on the disputed issue and the position statements of the interested parties will be reported back to the full IAG.
(4) Both the position statements prepared by the dispute resolution work group 's interested parties and Yadkin's report to the full IAG will become part of the IAG meeting summary and the final consultation record, which will be reviewed by FERC.

[1] For instance, in cases where the dispute is over a request to conduct a study or gather information, the position statements prepared by the dispute resolution work group should at a minimum include 1) a description of the study or information being requested, 2) the purpose of the study or need for the information being requested, and 3) the relationship between Project operations and effects on the resource to be studied.

Attachment 5 – IAG Dispute Resolution Process Document As Revised

IAG Dispute Resolution Process

As the Issue Advisory Group process unfolds, there will be situations in which the issue being discussed cannot easily be resolved within the normal IAG setting. When such disputes first present themselves, Yadkin and the IAG members will discuss the issue and attempt to resolve the dispute through discussion commensurate with the nature and importance of the issue. Should initial discussions over the dispute threaten an inordinate delay of the work of the IAG or become an obstacle to the progress of the IAG, Yadkin will implement the following process:

(1) The issue will be delegated by Yadkin or the meeting manager to a smaller dispute resolution work group made up of a Yadkin representative(s) and IAG members who have an expressed interest in the issue.
(2) The dispute resolution work group will convene outside of the regular IAG meeting to discuss the issue and attempt to resolve it. As part of this effort, IAG members who are part of the dispute resolution work group will develop a written statement of their positions.[1] It is expected that these efforts will take place before the commencement of the next meeting of the IAG.
(3) If the dispute resolution work group is unable to reach a timely resolution of the issue, Yadkin will take into consideration the position statements prepared by the interested parties when making a decision on the disputed issue. Yadkin's decision on the disputed issue and the position statements of the interested parties will be reported back to the full IAG.
(4) Both the position statements prepared by the dispute resolution work group's interested parties and Yadkin's report to the full IAG will become part of the IAG meeting summary and the final consultation record, which will be reviewed by FERC.
(5) If through this dispute resolution process an IAG is not able to resolve a dispute regarding whether or how a particular study should be conducted, then Yadkin or the resource agencies may opt to send the dispute to FERC for formal dispute resolution.

[1] For instance, in cases where the dispute is over a request to conduct a study or gather information, the position statements prepared by the dispute resolution work group should at a minimum include 1) a description of the study or information being requested, 2) the purpose of the study or need for the information being requested, and 3) the relationship between Project operations and effects on the resource to be studied.

Attachment 6 – Issues/Comments/Study Request Tables

WATER QUALITY

ISSUE/COMMENT	STUDY REQUEST
Current status of Yadkin Project reservoir and tailwater water quality	Continue reservoir and tailwater water quality monitoring
Effects of Yadkin Project reservoir operations/fluctuations on reservoir water quality	Evaluate effects of reservoir fluctuations on reservoir water quality
Current status of tailwater and reservoir benthic macroinvertebrate community	Evaluate benthic macroinvertebrate communities in reservoirs and tailwaters
Dissolved oxygen (DO) enhancement as a result of planned unit refurbishments	Evaluate potential DO change associated with various “aeration” technologies that could be installed during unit upgrades
Effects of sediment deposition on reservoir habitats and effects of dams/reservoirs on sediment transport to the lower river	Evaluate sedimentation and sediment transport in and through the Yadkin Project
Current status of sediment content and contamination and effects of reservoir fluctuations on contaminant availability	Evaluate sediment quality; test for pollutants and potential contaminants

Attachment 7 – Water Quality Study Outlines

STUDY: Project Water Quality Assessment

1. Conduct monthly water quality sampling of Project reservoirs and tailwaters
2. Conduct continuous DO/temperautre monitoring in tailwater areas
    1. Narrows
    2. Falls
3. Evaluate effects of reservoir operations on reservoir water quality
4. Evaluate effects of Project operations on tailwater quality
    1. Units on
    2. Units off

STUDY: Sediment Transport Literature Review

1. Review extensive literature and studies of sediment transport into Yadkin Project
    1. Sources of sediment
    2. Sediment load
2. Examine the distribution of sediment within High Rock Reservoir
3. Qualitative evaluation of the effects of sediment distribution in High Rock Reservoir on resources and uses
    1. Habitats
    2. Recreation
    3. Other
4. Review literature and studies of sediment transport out of the Yadkin Project
    1. Qualitative evaluation of impact of dams and reservoirs on downstream sediment transport