FINAL

Clean Water Act §401 Certification

for the

Application for Certification
Pursuant to Section 401 of the
Federal Clean Water Act

Submitted by:

Portland General Electric
and
The Confederated Tribes of Warm Springs Reservation of Oregon

for the

Federal Energy Regulatory Commissions'

RELICENSING OF THE PELTON ROUND BUTTE HYDROELECTRIC PROJECT ON THE DESCHUTES RIVER, JEFFERSON COUNTY, OREGON (FERC No. 2030)

Pursuant to Tribal Ordinances 45 and 80
& Tribal Code Chapters 433 and 479

Prepared by:
Tribal Environmental Office
Natural Resources Department
Warm Springs, Oregon 97761

For:
THE WATER CONTROL BOARD
Confederated Tribes of Warm Springs Reservation of Oregon

June 25, 2002

Clean Water Act § 401 Certification

For Portland General Electric and Confederated Tribes of Warm Springs' Pelton Round Butte Hydroelectric Project on the Deschutes River, Oregon.

Portland General Electric (PGE) and the Confederated Tribes of Warm Springs (Tribes) own and operate the Pelton Round Butte Hydroelectric Project (Project) on the Deschutes River near the City of Madras, Jefferson County, Oregon. The Project is operated under a license issued by the Federal Energy Regulatory Commission (FERC). Because the license expires in the year 2002, PGE and the Tribes (Joint Applicants) on June 25, 2001 applied to FERC for a new major license to continue operating the Project beyond that date (FERC Project No. 2030).

On June 26, 2001, the Joint Applicants applied to the Water Control Board (WCB) of the Confederated Tribes of Warm Springs for water quality certification of the Project pursuant to § 401 of the federal Clean Water Act (CWA) and Tribal Ordinance 80. The Natural Resources Department's Tribal Environmental Office (TEO) has evaluated the application for consistency with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA; Tribal Ordinances 45, 74, 80, and 81; and the specific water quality provisions for the Deschutes River Basin.

The WCB recognizes that the Joint Applicants have worked diligently to address the water quality issues attributed to this Project and that the applicants are willing to bring the Project into full compliance with the water quality standards of both the State of Oregon and the Confederated Tribes of Warm Springs Reservation of Oregon. In addition, the Joint Applicants are willing to adaptively manage the project through the Water Quality Management and Monitoring Plan and are willing to enter into an agreement with the WCB to facilitate future discussions or actions that may be required to keep the Project in compliance through the term of the License. Therefore, the WCB supports the Applicants request for a 50-year license term for the Pelton-Round Butte Hydroelectric project.

Based on the application, public and agency comments, the Evaluation Report and Findings, and other information submitted to the WCB, and pursuant to § 401 of the Clean Water Act and Tribal Ordinances 45, 74, 80 and 81, the WCB conditionally approves the application for certification. The WCB is reasonably assured that compliance with the certification conditions contained herein will maintain the Project consistent with applicable provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, Tribal water quality standards, and other appropriate requirements of Tribal law related to water quality.

In accordance with Tribal Ordinance 81 and Warm Springs Tribal Code Chapter 433, the Joint Applicants, if dissatisfied with the conditions of this certification, may request a hearing before the WCB or a hearings officer designated by the WCB. Such request for a hearing must be made in writing to the Chairman of the Water Control Board within 20 days of the date of mailing of this certification. Any hearing will be conducted pursuant to the rules of the Tribal Council.

This certification is valid for the Joint Applicants only and is not transferable without prior approval of the Tribal Council or its' designated representative, in accordance with Ordinance 81, 433.070 (7).

Certification Conditions

1. Protection of beneficial uses of anadromous fish passage, salmonid spawning, salmonid rearing, and resident fish and aquatic life

Upon FERC's issuance of a new license for the Project, the Joint Applicants shall comply with the following provisions related the Biological Criteria water quality standard and other appropriate requirements of Tribal law:

A. Habitat Improvement Projects

The Joint Applicants will work with private and governmental entities in the Deschutes River Basin to implement cost-effective habitat enhancement and restoration measures to improve the quality of water flowing into, through or below the Project. These measures will include, but not be limited to, the creation of riparian refugia, as well as improvements such as livestock exclusion, placement of large woody debris, planting of grass, shrubs, trees, and the maintenance and creation of wetlands.

The Joint Applicants will expend a minimum of $1.475 million for these measures over the first 5 years of the new license.

Proposed Mitigation Measure	Proposed Expenditure
Improved Riparian Corridor Management	$ 750,000
Community Habitat Education Activities	$ 25,000
Establishment of Reserves and Refugia	$ 700,000
Total	$1,475,000

B. **Long-Term Water Quality Monitoring and Adaptive Management**

The selective water withdrawal facility, to be built as a means to address water quality and fish passage issues, may adversely affect specific water quality parameters such as turbidity and pH. Therefore, the WCB requires a comprehensive water quality monitoring and management plan be implemented to monitor physical, chemical, and biological parameters. Implementation of this plan along with adaptive management will allow rigorous evaluation of progress towards achieving defined measures of success; and utilization of gained knowledge to make necessary modifications through time.

Knowledge gained from the water quality monitoring and management plan will receive broad review from resource managers and the public leading to informed decisions by an Implementation Oversight Committee representing the WCB, DEQ, and the Joint Applicants. The Implementation Oversight Committee will be involved in the administration of the Water Quality Management and Monitoring Plan attached hereto as Appendix A and the Implementation Agreement attached hereto as Appendix B.

The Tribal Council of the Confederated Tribes of Warm Springs has delegated the responsibility and accountability to implement the Policy Statements listed in Tribal Ordinance 80 and 81 to the Water Control Board. Therefore the WCB will be responsible for all decisions requiring the exercise of delegated authority from the Federal Environmental Protection Agency under the Federal Clean Water Act and for implementing Tribal Ordinances 45, 80 and 81.

In the WCB's view the biological criteria also includes consideration of the Project's ongoing impacts on the lower Deschutes River in terms of increased recreational use of the reservoirs, increased development along reservoir shorelines, interception of large woody materials, interception of gravel and finer materials, flow modification (instream flows, ramping rates, and attenuation of flood peaks), disconnection of populations for resident fish species, and prevention of anadromy. This document addresses each of these factors insofar as they affect the support of designated beneficial uses of the lower river as specified by the Tribes in the Reservoirs and the lower Deschutes River. Designated beneficial uses most sensitive to the above-listed impacts include anadromous fish passage, salmonid rearing, salmonid spawning, and resident fish and aquatic life.

The WCB therefore requires the Joint Applicants to implement a long-term monitoring program to address water quality, water quantity, biological parameters and environmental factors related to resource management objectives in the tribal waters affected by the Project. This monitoring program will provide the data necessary to assess whether the Project attains and maintains compliance with the appropriate water quality standards. The information gathered in this program will also be used in the adaptive management of project operations to meet Tribal water quality standards.

The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

C. Large Wood

The WCB requires all large wood naturally entering the Reservoirs of the Project to be collected and reintroduced below the Project. Mitigation projects to reintroduce large wood back into the lower Deschutes River will be coordinated with all appropriate agencies and approved by the Implementation Oversight Committee. Projects to replace large wood in the lower river will include addition of large wood to the waters in the way of installed structures along the banks to provide for habitat diversity, streambank stability and enhancement of the environment. In addition, some large wood reintroduction projects could be coordinated with normal high flow events to allow the large wood to find its' own *"home"* in the lower river.

Based on the fact that there is a lack of the "ideal quality" of large wood naturally entering the Project due to riparian management activities in the upper watershed, the WCB recommends use of proposed habitat improvement mitigation funds to supplement the large wood naturally entering the reservoirs. Typically this material would be anchored or placed along shorelines or riverbanks to add stability and habitat quality. All applicable licenses, permits and clearances for mitigation or monitoring projects will be obtained prior to any activity taking place in Tribal Waters.

D. Gravel

The reservoirs act as a settling basin not only for gravel-sized sediment but also for finer sand and silt. This may have some adverse effects to the fisheries habitat in the lower river from the Reregulating Dam to the mouth of Shitike Creek. The level of anadromous fish spawning in this area has been documented as being lower over the last 20 years.

As a result, the Joint Applicants will take the following measures with regard to sediment transport and spawning gravel in the Deschutes River downstream of the Project:

1. Verify the sediment transport model developed by Fassnacht (1998) by placing radio- tagged and/or colored rocks on selected bars in the Deschutes River below the Reregulating Dam. Determine at which flow levels these rocks are mobilized by checking their positions after each major flow event. Initiate study at flows greater than 6,500 cfs. As data is collected at this flow level, adjustments can be made to the flow level event that would trigger future data collection needs. Buried columns of colored rocks may be utilized to determine the depth of scour at different flow levels.
2. Resurvey channel cross sections at five locations utilized by Fassnacht (1998). Resurvey these annually for 5 years to determine if there is any active channel change associated with years having high flow events. If no change is detected after 5 years, resurvey them every 5 years, or after events greater than 15,000 cfs.
3. If monitoring sediment transport and channel change shows significant transport and/or change at flows lower than predicted by Fassnacht (1998), initiate a program to measure actual bedload transport at different flow levels at the Warm Springs bridge.
4. If monitoring of channel change and measuring bedload shows significant transport at low levels significantly below those predicted by the geomorphology study, revisit the sites used by McClure (1998) for particle size measurements and replicate these particle surveys.
5. Coordinate and lead a study of historical fish counts and spawning data to determine the cause of anadromous spawning reduction in the Lower Deschutes River from below the Reregulating Dam down to the mouth of Shitike Creek. In addition, the Applicants will conduct a study to determine anadromous gravel habitat quality in the Lower Deschutes River from below the Reregulating Dam down to the mouth of Shitike Creek.

The results of these studies and other appropriate information generated in the FERC re-licensing process will be used to determine if additional mitigation measures (such as gravel augmentation) are necessary to improve habitat quality.

E. Flow Modification

The WCB requires that the Reregulating Reservoir be used to redistribute upstream peaking flows and maintain nearly steady discharge into the Deschutes River, approximately equal to the daily average inflow to Lake Billy Chinook. Project operations will closely mimic inflows (surface and groundwater) so that the project functions as a "run of the river" system under most operational conditions. There will be no more than a 10% variation from Project inflow under most conditions.

SAFETY

Project inflows above 6,000 cfs will be used as a trigger value whereby the project operators will:

1. Evaluate if the Project Emergency Action Plan needs to be implemented.
2. Determine if a power emergency exists (as defined in the Western Systems Coordinating Council Minimum Operating Reliability Criteria (WSCC 1999)).
3. Determine if equipment failures or emergencies exist at one of the Project dams or power plants.
4. Determine reservoir drawdown needs for safe passage of anticipated floods to minimize damage to life and property.

If any of these steps warrant a change to the outflow policy of being within plus or minus 10% of inflow, the Joint Applicants may take whatever steps are necessary to minimize impacts to the Project while protecting public health and safety. Overall direction is to minimize changes to inflow so as to provide the lower river a more normal flow regime.

NORMAL OPERATIONS

These operational requirements will allow for higher peak flows to occur in the Lower River allowing for more natural channel maintenance processes. The Joint Applicants will implement the following:

1. Institute real time flow monitoring at each of the inflows to provide hourly records of flow. This will be required to ensure compliance with the "runoff the river" mandate.
2. Institute real time flow monitoring at the Madras Gauge that will offer better control of flows and a significant enhancement in accurate monitoring of actual stream flows in the lower Deschutes River. This system will enable the project to operate as "run of the river" and comply with other operational guidelines.
3. Project operations will closely mimic inflows (surface and groundwater) so that the project functions as a "run of the river" system under most operational conditions. There will be no more than a 10% variation from Project inflow under most conditions. These changes will allow for higher peak flows to occur in the Lower River allowing for more natural channel maintenance processes.
4. The WCB requires that the Q80 flows for the full period of record for the Madras Gauge (1925-1999) be used as the target "minimum flow" to be released from the project to the Lower Deschutes River. In the event inflows to the project are lower than the target "minimum flow" then inflow volumes must be released to the Lower Deschutes River. The required "minimum flow" may be reduced up to 150 cfs to ensure the refilling of Lake Billy Chinook to reach its normal minimum summer operational level of 1944 feet. The recommended target Q80 "minimum flows" are summarized below by month.

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1924-1999 Q80	3512	4049	4225	4263	4267	4571	4170	3721	3686	3540	3446	3431

5. Seasonal operation of Lake Billy Chinook to allow for no more than a 10 foot draw down during normal winter months with an absolute maximum draw down of 20 feet. Lake Billy Chinook should be filled and at normal operation level of 1944 feet by 1st of April. However, if this is not possible, the reservoir must be at normal operation level of 1944 feet by June 15. The "minimum" level required to be maintained at 1944 feet from June 15 to September 15, for Lake Billy Chinook. During the fall months Lake Billy Chinook should be maintained at the 1944 feet operation level so as to provide continued protection of riparian vegetation and cultural resources.
6. Seasonal operation of Lake Simtustus to allow for a minimum elevation of 1,576 feet from June 1 to August 31 and 1,573 feet elevation from September 1 to May 31.
7. Seasonal operation of the Reregulating Reservoir to allow for a minimum elevation of 1,414 feet year round.
8. Limits on river stage changes below the Reregulating Development will be as follows:
    a. From May 15 to October 15, hourly stage control limit will be 0.05 feet with a daily stage change control limit of 0.2 feet.
    b. From October 16 to May 14, hourly stage control limit will be 0.1 feet with a daily stage change control limit of 0.4 feet.

    Only during extraordinary or emergency situations can the Joint Applicants deviate from these stage change limits.

F. Fish Passage

The WCB requires the Joint Applicants implement mitigation measures that will effectively enable fish passage and allow for re-connection of harvestable fish populations and anadromy. The WCB requires that these measures do not adversely impact the thriving populations of resident fish species in the Project Reservoirs and the healthy populations of anadromous and resident fish species in the lower Deschutes River.

The Joint Applicants are proposing the construction of a selective water withdrawal facility at Round Butte Dam to address the effects of the Project on water quality and also as a means to enable fish passage. The Joint Applicants have modeled the facility's impacts on water quality and have provided enough information to show that the water quality effects of the project can be mitigated. Fish passage issues are being studied and results may not be known for many years. If the selective water withdrawal facility on Round Butte Dam will not adequately address fish passage, the Joint Applicants still have the responsibility to implement mitigation measures that will effectively enable fish passage and allow for re-connection of fish populations and anadromy within a reasonable period of time not to exceed 10 years from issuance of FERC license. If current modeling of volitional passage has not been successfully completed after 10 years, alternative methods of re-connecting the fish populations will be developed and approved by the managing agencies having regulatory authority for fisheries in the Deschutes River and the Joint Applicants, and implemented by year 15 of the new license. The Joint Applicants may request that these time frames be adjusted by the WCB after due consultation with appropriate agencies.

The Joint Applicants will continue existing fisheries mitigation programs and evaluation of fish passage projects until the fish passage issue has been resolved.

The WCB is reasonably assured that the discussed biological criteria standard will be met with implementation of mitigation measures outlined above and with the implementation of the Water Quality Monitoring Plan and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

2. Dissolved Oxygen Conditions

The Joint Applicants shall comply with the following provisions related to dissolved oxygen levels in the lower Deschutes River.

The WCB requires additional data be collected at appropriate locations to determine the correlation of the Intergravel Dissolved Oxygen (IGDO) and ambient Dissolved Oxygen (DO) for a period of 3 years following issuance of this Certificate. Until the correlation between IGDO and DO has been established and it supports a change in the applicable DO Standard, the WCB will use of the ambient DO levels (11mg/l) as the appropriate standard. The methodology to be used in monitoring IGDO will be approved by the WCB prior to any activity taking place.

The Joint Applicants will begin construction of selective water withdrawal facilities at the Round Butte Dam within 3 years of FERC license being issued and operational to meet water quality standards by end of year five. The Joint Applicants may petition the WCB to adjust these timeframes as appropriate.

Joint Applicants will implement a combination of selective water withdrawal and operational changes to keep the river immediately below the Project within range of the relevant water quality criteria for dissolved oxygen.

The WCB is reasonably assured that the discussed dissolved oxygen criteria will be met with implementation of mitigation measures outlined above and with the implementation of a Water Quality Monitoring and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

3. Temperature Management Conditions

a. Upon FERC's issuance of a new license for the Project, the Joint Applicants shall comply with the following provisions related to water temperatures in the Deschutes River Basin:

- Joint Applicants will begin construction of selective water withdrawal facilities at the Round Butte Dam within 3 years of FERC license being issued and operational to meet water quality standards by end of year five. The Joint Applicants may petition the WCB to adjust these timeframes as appropriate.
- Implementation of the Water Quality Monitoring and Management Plan and the Implementation Management Plan will continue to help ensure that project operations do not violate the temperature criteria.

1. Upon the U.S. Environmental Protection Agency's (EPA's) final approval or adoption of a Total Maximum Daily Load (TMDL) for temperature in the portion of the Tribal waters affected by the Project, the WCB :

(a) Will seek, in conjunction with designated management agencies and in accordance with applicable law, other anthropogenic sources within the Deschutes River Basin to implement measures to reduce their contribution to exceedances of the temperature criteria; and

May reevaluate the Water Quality Monitoring and Management Plan in light of information acquired since the certification of the Project and in light of the temperature modification measures sought to be implemented by other sources in the basin, whether or not such implementation is underway or completed for all other sources. If additional temperature improvement measures are feasible and necessary to meet a load allocation (LA) for the Project under the TMDL (either as a component of the initial TMDL or any subsequent modification of the TMDL), the WCB may require submittal of a revised temperature management plan that insures attainment of the LA, subject to limits set forth

in the Water Quality Monitoring and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

2. At the end of the period determined by WCB to be necessary to implement the TMDL for temperature in the portion of the Tribal waters affected by the Project, the WCB may:

(a) Determine whether the TMDL and LA for the Project have been achieved.

(b) If the TMDL and LA for the Project have been achieved, the Joint Applicants shall continue to implement the Temperature Management Plan (TMP) unless, at the Joint Applicant's request, the WCB approves a modification of the Water Quality Monitoring and Management Plan.

(c) If the TMDL or LA for the Project has not been achieved, the WCB may require submittal of a revised temperature management plan that insures attainment of the LA, subject to limits set forth in the Water Quality Monitoring and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

3. Any Project-related instream temperature increase of 0.25 ºF, or less above the relevant criterion shall not be deemed to contribute to an exceedance of the temperature criterion or to a violation of the temperature water quality standard.

4. pH (hydrogen ion concentration)

Upon FERC's issuance of a new license for the Project, the Joint Applicants shall comply with the following provisions related to pH in the Deschutes River:

The Joint Applicants will implement the construction and operation of the selective water withdrawal facilities. Modeling results have indicated that discharges from the Reregulating Dam will continue to meet the pH criterion, with the possible exception of minor, brief, and isolated instances during the summer months. The exceedances that are predicted are within the error of the model, and the model predictions themselves are conservative in that they are at the upper end of the error range.

Conditions in Lake Billy Chinook will improve and will meet the relevant pH criterion where the associated beneficial uses occur or are expected to occur. Any increases that occur within Lake Simtustus will be minor and will not cause a failure to comply with water quality standards in that reservoir. Moreover, Lake Billy Chinook and Lake Simtustus will continue to fall within the exemption from the pH standard. Specifically, the reservoirs existed as of January 1, 1996, and the exceedance of the pH standard occurs as a result of the impoundment in response to primary productivity supported by nutrients that arise from sources not associated with the impoundment. With the implementation of selective water withdrawal, the Joint Applicants will have taken all practicable measures to bring pH in the impounded waters into compliance with the criterion.

The WCB is reasonably assured that the discussed pH criteria will be met with implementation of mitigation measures outlined above and with the implementation of the Water Quality Monitoring and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

(a) Upon EPA's final approval or adoption of a TMDL for pH in the Deschutes River, the WCB will determine whether the Project needs to provide additional measures to achieve an LA for the Project under the TMDL (either as a component of the initial TMDL or any subsequent modification of the TMDL). If the TMDL does not include a specific LA for the Project, references to the "LA for the Project" shall refer to the LA that encompasses Project contributions to pH exceedances in the Deschutes River below the Project or within the Projects' reservoirs. The determination shall be based on data provided through the Water Quality Monitoring Plan and other relevant information and on an analysis of the extent to which measures employed by or required of other sources within the Deschutes River Basin will result in achievement of the TMDL.

(4) (b) If the TMDL or LA for pH has not been achieved, the WCB may require submittal of a revised pH management plan that insures attainment of the LA, subject to limits set forth in the Water Quality Monitoring and Management Plan attached to this §401 Certification as Exhibit A.

(c) The WCB may approve cessation or modification of components of the Water Quality Monitoring Plan if the WCB determines that it will not impair the achievement of any pH TMDL or LA for the Project and will not contribute to the exceedance of the pH criterion in waters affected by the Project. Among other circumstances, the WCB may approve a request for termination of pH monitoring if the Deschutes River does not show pH exceedances for at least three consecutive years.

5. Nuisance Phytoplankton Growth

Although the nuisance phytoplankton standard is exceeded in the surface waters of Lake Billy Chinook and Lake Simtustus, the WCB believes that this condition is not adversely affecting any beneficial use of either impoundment, and that the condition is due to elevated inputs of nutrients from tributaries.

There are no technically and economically practicable strategies to control this condition in the Project itself, although the implementation of selective water withdrawal may tend to reduce measured chlorophyll *a* levels. However, due to unknown effects of the selective withdrawal facility on the chlorophyll *a* levels, the WCB recommends that a reference value for current conditions be established (average chlorophyll *a* levels taken for a period of 5 years). This value will be compared against annual measurements of chlorophyll *a.* If the reference value is exceeded by more than 10% in any given sample, a replication or verification sample will be collected and analyzed within 30 days. If this verification sample also exceeds the reference value by 10%, a survey of water users will be conducted to determine the level of nuisance within the next 30 days.

The WCB is reasonably assured that the discussed nuisance phytoplankton criteria will be met with implementation of mitigation measures outlined above and with the implementation of the Water Quality Monitoring and Management Plan described in Exhibit A. The WCB however does require the Joint Applicants to conduct a survey of users of Project Reservoirs based on criteria listed above to ensure that beneficial uses are not being adversely impacted by nuisance phytoplankton.

6. Total Dissolved Gas

The WCB is reasonably assured that the total dissolved gas standard will be met without special requirements. The WCB will require implementation of the Water Quality Monitoring and Management Plan for DO and Total Dissolved Gas to ensure compliance with this standard.

7. Antidegradation Policy

With the implementation of the mitigation measures listed above, the WCB believes that overall water quality in and below the Project will be improved. As noted earlier, the modeled shift in temperature back toward pre-Project conditions will cause an increase over existing conditions during the first half of the

year; but as this represents a *reversal* of a Project impact, this does not constitute a violation of the antidegradation policy. Current modeling results indicate that DO levels will improve throughout the year. The pH levels in the lower Deschutes River may increase slightly for brief periods of time, but these increases, if they occur, are not predicted to have any adverse impact on water quality or on compliance with other standards, particularly the biological criteria standard. As shown by the recently completed modeling of the lower river, the overall impact on water quality will be beneficial. Accordingly, the WCB believes that there will be a reasonable assurance that Project operations, coupled with the mitigation measures listed above, will comply with the Tribal antidegradation policies. The WCB will require implementation of the Water Quality Monitoring and Management Plan to ensure compliance with the antidegradation policy.

8. Naturally-Occurring Conditions

There are a number of issues related to natural conditions that need to be stressed.

(a) Water temperatures are in excess of the current bull trout standard upstream of Lake Billy Chinook in the upper Deschutes River, Crooked River, and Metolius River sub-basins. It is evident that temperatures in the streams of the Deschutes River Basin naturally exceed the temperature standard set for bull trout. Groundwater entering the Crooked River at Opal Springs runs at an average temperature of 53˚F (11.67 ˚C) year round according to the Tribal Water Quality Monitoring Program. In the late summer and fall months, groundwater provides the majority of the surface flows entering lake Billy Chinook from the Crooked River and Deschutes River arms. Therefore surface water temperatures are naturally above the standard temperature for bull trout.

The spring fed Metolius River temperatures are also in excess of the current bull trout standard during this period. The water entering Lake Billy Chinook has a hydraulic residence time of approximately 2 months, and since the tributary streams exceed 10°C for nearly this long during the summer, it is unlikely that the temperature in the reservoir could remain below 10°C. Lake Simtustus receives nearly all of its inflow from Lake Billy Chinook, so it, too, is unlikely to remain below 10°C. Therefore, stream temperatures in the lower Deschutes River are unlikely to remain below 10˚C.

(b) Dissolved oxygen concentration in the hypolimnion of Lake Billy Chinook and Lake Simtustus follows a pattern that is typical of highly productive lakes. Biological oxidation of organic matter in the hypolimnion during the period of stratification results in depletion of oxygen. In many productive lakes, DO concentration in the hypolimnion can approach zero. In Lake Billy Chinook, however, this extreme condition is avoided because oxygen-containing water from the tributaries flows into the hypolimnion and provides a source of oxygen. In Lake Simtustus, the flow into the hypolimnion comes from the relatively well-aerated mid-depths of Lake Billy Chinook.

(c) The pattern of pH seen in the Project reservoirs and in the Deschutes River below the Project is, like the DO pattern in the reservoirs, a function of the high productivity of the water bodies. Intense photosynthetic activity results in elevated pH levels in the water. This occurs in the reservoirs, in the lower Deschutes River, and in the Deschutes and Crooked rivers above the Project. It is a consequence of the relatively high nutrient concentration in the waters of the Project, which acts to increase biological activity resulting in an increase in pH.

(d) As stated earlier, the Metolius River may be representative of the "natural" nutrient conditions of the steams flowing into the Project reservoirs. The Metolius River is low in nitrogen and relatively high in phosphorus. The Deschutes and Crooked rivers have similar phosphorus concentrations but higher nitrogen concentrations, suggesting that they are being artificially enriched in nitrogen. The resulting high nutrient concentrations support the profuse algal production, which results in the patterns of DO and pH seen in the Project reservoirs and in the lower Deschutes River. Dense algal blooms would occur even in the absence of nitrogen enrichment because species of cyanobacteria (blue-green algae) present in Lake Billy Chinook are capable of meeting their nitrogen needs from the atmosphere in the presence of sufficient phosphorus. It is unlikely that

phosphorus input could be reduced sufficiently to limit the growth of phytoplankton because of the naturally high concentration in inflowing streams.

(e) The current conditions regarding stream flow entering the Project Area may be deemed to be naturally occurring in that the Project does not regulate legal water rights obtained under State Law nor does the Project generate or create additional water above what nature delivers within the context of the entire Deschutes Basin. Given the current appropriations and their individual supporting water right certificate with corresponding priority date, the WCB is convinced that the most effective, equitable and efficient way to increase stream flow below the project is to work within the legal framework to increase flows entering the Project area. This could include use of market based incentives, land acquisitions, water right transfers and other legal methods to secure more water.

(f) Increases in surface stream flow entering the Project due to mitigation measures in the upper basin may increase temperature regimes in the reservoirs and ultimately the Lower Deschutes.

(g) The stability of the Lower Deschutes River is attributable to significant ground water sources within and immediately above the Project area. The lower Deschutes River flows are dominated by groundwater contributions in the late summer and fall months. Diurnal fluctuations are small immediately below the Project mainly due to constant groundwater contributions and present Project Operations. Although both the Deschutes and Crooked Rivers are highly managed in the upper basin, water quality within the Project is moderated to a great extent by the excellent quality and quantity of groundwater entering within the vicinity of the Project.

(h) Conditions in the Lower Deschutes River do not appear to violate the Tribal Water Temperature Standard.

The WCB believes that naturally-occurring temperatures and nutrient levels may be adversely and indirectly affecting water quality within and downstream of the Project. The WCB has taken these facts into account in making their findings. No additional special requirements, aside from those already listed above, are needed to meet the requirements of the Tribal Water Code.

9. Spill and Waste Management

The Joint Applicants shall implement its Project-specific Oil Spill Prevention, Control and Countermeasure (SPCC) Plan and Waste Management Guidelines. The SPCC Plan and Waste Management Guidelines shall be kept current. In the event of a spill or release or threatened spill or release to Tribal waters, Joint Applicants shall immediately implement the site's SPCC plan, modified SPCC plan or other applicable contingency plan and notify the Oregon Emergency Response System (OERS) at 1-800-452-0311, Tribal Fire & Safety Office at (541) 553-1634 and the Natural Resources Department at (541) 553-2001.

10. § 401 Certification Modification

Subject to the provisions of Ordinance 80 and 81, the WCB may reconsider and add or alter conditions to the §401 Certification as necessary to address changes in conditions or knowledge or to address any failure of conditions herein to protect water quality and beneficial uses. In accordance with the Clean Water Act §401, any added or altered condition shall, so long as it is in effect, become a condition of any federal license or permit that is thereafter issued for the Project. Ordinance 81 provides a mechanism for appropriate changes to the conditions established in this §401 Certificate. With respect to an existing federal license or permit for the Project, the WCB may petition the federal agency to incorporate the added or altered condition in the federal license or permit.

11. Project Changes

The Joint Applicants must obtain the WCB review and approval before undertaking any change to the Project that might significantly affect water quality, including changes to Project operation and flows.

12. Project Repair or Maintenance

The Joint Applicants must obtain the WCB review and approval before undertaking Project repair or maintenance activities that might significantly affect water quality. The WCB may, at Joint Applicants' request, provide prior approval of such repair and maintenance activities on a periodic or ongoing basis.

13. Costs for TEO and WCB Oversight

In accordance with Tribal Ordinance 80 and 81, Joint Applicants shall pay a project-specific fee for the WCB and the TEO's costs of overseeing implementation of this §401 Certification. The fee shall be $24,000 annually (2002 dollars indexed to the Federal Inflation Rate) made payable to "Tribal Environmental Office, Natural Resource Department" and due on July 1 of each year after issuance of this Certificate. If this fee amount is found to be in excess of needs or inadequate to cover costs incurred, the Water Control Board may change the annual fee charged after consultation with the Joint Applicants.

14. Project Inspection

The Joint Applicants shall allow the WCB and TEO or other designated representative such access as necessary to inspect the Project area at reasonable times to monitor compliance with certification conditions.

15. Notification

The Joint Applicants will notify the WCB and the TEO of all future changes in the project or operation of the project.

16. Posting of Certification

A copy of this certification shall be prominently posted within the project powerhouse.

The Joint Applicants have provided reasonable assurance that the Project will be managed and operated in a manner that will not violate applicable tribal water quality standards. The Water Control Board as the delegated authority of Tribal Council of the Confederated Tribes of the Warm Springs Reservation of Oregon is reasonably assured that compliance with the certification conditions contained herein will maintain the Project consistent with applicable provisions of Sections 301, 302, 303, 306, and 307 of the Federal Clean Water Act, Tribal water quality standards, and other appropriate requirements of Tribal law related to water quality.

Based on the application, public and agency comments, the Evaluation Report and Findings, and other information submitted to the WCB, and pursuant to § 401 of the federal Clean Water Act and Tribal Ordinances 45, 74, 80 and 81, the WCB hereby conditionally approves the application for certification.

CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON
WATER CONTROL BOARD

JEFFERY E. SANDERS, JR. Chairman	Date
ROY SPINO, Vice Chairman	Date
FRANCELIA MILLER, Vice Chairman	Date

EXHIBIT A

DRAFT WATER QUALITY MANAGEMENT AND MONITORING PLAN

The following Draft Water Quality Monitoring and Management Plan as submitted by the Joint Applicants has been accepted by the WCB in conjunction with the § 401 Certification application:

EXHIBIT B

IMPLEMENTATION PLAN

The following Implementation Agreement between the Joint Applicants and the Water Control Board describes the processes for implementing the conditions of the 401 Certification for this Project and any other adaptive management strategies or activities that support compliance with the Tribal water quality standards. The Implementation Plan has been accepted by the WCB in conjunction with the § 401 Certification application:

EXHIBIT C

EVALUATION AND FINDINGS REPORT

The Evaluation and Findings Report supports the conditions laid out in the Certification. The Implementation Plan has been accepted by the WCB in conjunction with the § 401 Certification application: