

RESOLUTION NO. 240

WHEREAS, Condition G2 of the WNP-2 National Pollutant Discharge Elimination System (NPDES) Permit requires that "The discharge of water treatment additives which were not identified in the permit application shall be subject to the Energy Facility Site Evaluation Council (Council) approval;" and

WHEREAS, The Supply System, by letter dated May 12, 1987, requested the Council to review its process for review and approval of new circulating water additives; and

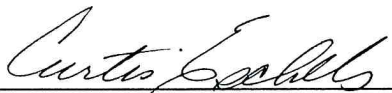
WHEREAS, The Council has studied its process and has conducted meetings with the Supply System and state resource agencies to review and study the Council process; and

WHEREAS, The Council, the resource agencies, and the Supply System have agreed upon a circulating water additive review process;

NOW, THEREFORE, BE IT RESOLVED, The Council has adopted the Review Process for Circulating Water Additive Requests, dated December 14, 1987 (Attachment No. 1), as the Council's guidelines for the review and approval of circulating water additives.

Dated this 14th day of December 1987.

Washington State Energy Facility
Site Evaluation Council

BY 
Curtis Eschels
Chairman

ATTEST:

BY 
William L. Fitch
Executive Secretary

REVIEW PROCESS
FOR
CIRCULATING WATER ADDITIVE REQUESTS

December 14, 1987

I. Introduction

The purpose of developing the Council process for approving or disapproving requests for WNP-2 circulating water additives is to aid Council members in their decision making process. The Council has issued an NPDES permit to the Supply System for WNP-2 in which some pollutant standards have been set. The NPDES permit gives the Council the authority to approve water treatment additives which were not identified in the permit application. It also gives the Council authority to request additional tests to "determine if the makeup of the composite discharge has been altered to the detriment of the environment."

The goal then, is to identify the standards the Council should use and the steps the Council should take to reach a determination of acceptability of a circulating water additive within the NPDES permit. The Council may also want to identify any additional changes in the tests or standards that should be included in the NPDES permit when it is renewed in 1990.

II. Council Authority

The Council's authority for the NPDES permitting, monitoring, and review comes from the state law RCW 80.50 delineating the Council's authority and the state Water Pollution Control Act RCW 90.48, and the Council's rules WAC 463-38:

- o RCW 80.50.040 Powers enumerated. (9) "To prescribe the means for monitoring of the effects arising from the construction and the operation of energy facilities to assure continued compliance with terms of certification and/or permits issued by the council pursuant to chapter 90.48 RCW or subsection (12) of this section: **Provided**, That any on-site inspection required by the council shall be performed by other state agencies pursuant to interagency agreement: **Provided further**, That the council shall retain authority for determining compliance relative to monitoring;"
- o RCW 90.48.262 (2) "Permits for energy facilities subject to chapter 80.50 RCW shall be issued by the energy facility site evaluation council: **Provided**,....The council shall have all powers necessary to establish and administer a point source discharge permit program pertaining to such plants, consistent with applicable receiving waters quality standards established by the department, and to qualify for full participation in any national waste discharge or pollution discharge elimination permit system. The council and the department shall each adopt, by rules, procedures which will provide maximum coordination and avoid duplication between the two agencies with respect to permits in carrying out the requirements of this act including, but not limited to, monitoring and enforcement of certification agreements, and in qualifying for full participation in any such national system."

- o WAC 463-38-065 MONITORING AND ENFORCEMENT. "The council hereby delegates to the DOE the monitoring activities of water discharges under a Certification Agreement which incorporates the NPDES Permit. As a result of said monitoring activities, DOE shall report to the council any activity by a permittee which in its judgment requires the initiation of appropriate enforcement activities by the council including those in WAC 463-38-055, pursuant to RCW 80.50.150.....")

III. NPDES Requirements

The NPDES Permit, renewed in 1985, authorizes limited discharges (Special Condition S1) of suspended solids, total residual chlorine, and oil and grease, pH and temperature.

Condition G2 requires no discharge of PCB's (polychlorinated biphenyl compounds) and no detectable discharge of the priority pollutants (listed in 40 CFR Part 423, Appendix A) contained in chemicals added for water treatment. Condition G2 also states discharge of water treatment additives which were not identified in the permit application shall be subject to Council approval.

Condition G3 of the permit does not allow any discharge which would cause a violation of any applicable state water quality criteria or standards contained in WAC 173-201¹ outside a mixing zone in the river.

Condition G10 requires all samples and measurements taken to meet the requirements of the permit will be representative of the monitored discharge and all analytical test methods shall be approved under 40 CFR Part 136, unless other methods are specified in the permit.

Condition G34, under Special Studies and Reports, required bioassay testing "So the Council may satisfy its concerns regarding the aquatic resource." The condition states the tests shall be conducted for 96 hours using 100% concentration of wastewater on a schedule and format to be "approved by the Council." If the survival rate of salmonid test organisms

¹The state water quality standards are WAC 173-201. There are water quality criteria for pH, fecal coliform, dissolved oxygen, temperature, and turbidity. The NPDES Permit has effluent limits for pH, total suspended solids, oil and grease, temperature, flow, and total residual chlorine. Limiting standards exist for only some of the over 120 chemicals listed by EPA on their priority pollutants list. Many of the priority pollutants (as well as many thousands of other chemicals and compounds) have no numerical standards because toxicity levels are not known or have not been determined by experiments or research.

- o Standards not specifically noted in WAC 173-201 are referred to in section 035 (8) (a) "Existing beneficial uses shall be maintained and protected and no further degradation which would interfere with or become injurious to existing beneficial uses will be allowed." (ii) "All wastes and other material and substances proposed for discharge into said waters shall be provided with all known, available, and reasonable methods of treatment before discharge."
- o Section 045 (2) (c) (vii) the water quality criteria for Class A water (including the Columbia River) states "Toxic, radioactive, or deleterious material concentrations shall be below those of public health significance, or which may cause acute or chronic toxic conditions to the aquatic biota, or which may adversely affect any water use."

is less than 80% "the Council will discuss with the permittee methods of mitigation such that 80% survival can be achieved." In condition G34 the Council "reserves the right to require the submission of a schedule and format of additional tests if the Council or the permittee determines that the makeup of the composite discharge has been altered to the detriment of the environment."

IV. Council Actions

In 1982 the Council approved the Supply System's request for use of circulating water additives Calgon CL-1245 corrosion inhibitor and CL-361 chlorine enhancer supported by vendor literature and allowed the use of other chemicals provided they were "approximately no more toxic than those proposed" (Resolution No. 201). In 1984 the Council approved the Supply System bioassay procedures (for 1980 issue NPDES Condition G26) based on Washington State Department of Ecology's (ECY) standard 96 hour static bioassay procedure.

In the deliberations concerning the water additive issue the Council Certificate Compliance Committee determined that bioassays on proposed water additives were not a requirement of the NPDES Permit. However, if salmonid bioassays were performed by the Supply System, the CCC, Ecology and the resource agencies determined that the survivability criterion would be an 80% survival rate in 100% effluent water.

Also in 1987 the Council passed Resolution No. 239 which approved the WNP-2 Environmental Monitoring Program where the Supply System committed to the use of a 96 hour flow through bioassay procedure. The flow through bioassay procedure sets a 80% survival rate in 100% effluent water.

The Council, by rule, relies on ECY to monitor and advise them on the NPDES Permit. The department is in the process of revising its state-wide Water Quality Program. ECY applies both water quality based limits and technology-based limits as required by both the state and federal water pollution control laws. They have adopted specific numerical water quality standards for some specific substances. For those substances not specifically listed, ECY uses technology-based effluent limits which focus on the economic and technological ability of the discharger to reduce toxicants in its effluent. If water quality standards and technology-based effluent limits differ, then the most restrictive of the two must be met. If technology-based effluent limits cannot be established, it is ECY's practice to set effluent limits using Best Engineering Judgment (also called Best Professional Judgment) determined by ECY or EPA staff.

ECY set toxicant effluent limits by having ECY permit writers review the dischargers' operations and incorporate permit conditions which will require all known, available, and reasonable methods to control toxicant in the discharger's wastewater. ECY has considered, among others, in determining "reasonable methods" status of planning needed to proceed with the proposed method, environmental or siting constraints, and economic factors.

ECY will use the technology-based effluent limits for the "end of pipe" and the water quality standards for the receiving waters or mixing zone.

In monitoring the toxicity of effluent, ECY is currently working with EPA on the best methods for testing the effects. ECY and EPA are moving towards longer term bioassay testing for chronic rather than acute effects on organisms. The longer term chronic tests will most likely involve flow through bioassays rather than the static bioassay testing for acute effects.

V. Council Review Process

The Council shall consider the following:

1. To summarize the Council's and NPDES requirements, new water additives must meet the following conditions:
 - o No PCB's, and no detectable discharge of priority pollutants contained in compounds added for water treatment.
 - o No effluent shall cause a violation of state water quality criteria or standards outside the dilution zone.
2. To achieve the state water quality criteria and standards where technology-based effluent limits haven't been identified, the Department of ECY uses the permit writers "Best Professional Judgment" for setting effluent limitations on a case by case basis. The Council as a permit writer should consider the following items:
 - o Is the compound really needed? Is it necessary in light of environmental or siting constraints, or economic factors?
 - o Would the use require additional compounds to counteract the primary effects? Is the use justified by the need?
 - o What is the frequency and timing of use. Is the compound to be used infrequently or frequently, and does the timing of use impact particular environmental concerns?
 - o Is the compound degradable? What is the nature of the compound e.g. is it organic or inorganic, what are the by-products?
 - o What is the persistence of the compound. If it is organic how long does it take to degrade into less or nontoxic substances. Does it contain hazardous materials? Will they collect in river sediments and stay in the environment for long periods of time?
3. The Council shall also consider the effluent toxicity. The effluent shall meet toxicity levels of 80% survivability in 100% effluent water for 96 hours. This may be established through vendor information, scientific literature, other utility experience, bioassay test results, or other accepted means.

Although not required by law or rule, the Council can call on any resources available to it to help in their understanding of technical issues related to the water additives or impact it may have on the environment.

VI. Proposed Council Standards for a New Circulating Water Additive not Specifically Listed in the NPDES Permit

- o NEED - The additive shall be necessary technologically and economically (e.g. the additive inhibits corrosion of piping which will add years to the life without costing more than replacement. It should not severely react with other components causing multiplying effects requiring numerous additional additives to counteract the initial additive).
- o DEGRADABILITY - Over time the additive will degrade into compounds having less toxicity than the original.
- o PERSISTENCE - The additive should not contain persistent compounds. However, if no alternatives are available, the additive should contain minimal amounts of toxic substances, including metals, which will endure in the environment.
- o TOXICITY - The additive shall not be used in concentrations which are acutely toxic to aquatic organisms beyond the applicable dilution zone. The additive is assumed not to be toxic if 80% survivability is achieved in 100% effluent for 96 hours on salmonids.

VII. Decision Options

In the decision making process the Council must use the above standards to arrive at a decision concerning proposed additives. It is obvious that there are few exact criteria to base decisions on. Therefore, Council members (as with the ECY and EPA permit writers) must weigh possible long and short term environmental effects with the need of the additive.

In the review and decision making process the Council has the following options for approving or disapproving a new water additive request²:

1. If the additive would not cause the discharge to contain detectable PCB's or priority pollutants and would meet end-of-pipe, technology-based requirements and state water quality criteria and standards, approve the request. If the additive does not meet these conditions, then deny the request.
2. If the Council determines, based on the data submitted, that the effluent may not meet state and Council standards, the Council could require submission of additional data, and/or a format and schedule for tests to acquire the data prior to approval. The proposed tests may be reviewed by the resource agencies for design parameters and validity of results.

²Substitution of additives, made necessary by a change in chemical suppliers, may be addressed by Council resolution in the manner of Resolution No. 201.