



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ENVIRONMENTAL IMPACT APPRAISAL BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 55 TO LICENSE NO. DPR-49

IOWA ELECTRIC LIGHT AND POWER COMPANY
CENTRAL IOWA POWER COOPERATIVE
CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

Description of Proposed Action

By letter dated March 29, 1978, the Iowa Electric Light and Power Company (the licensee) requested changes to Appendix B, Environmental Technical Specifications for the Duane Arnold Energy Center (DAEC).¹ The licensee's proposed changes were to Specifications 2.2.1 Chlorine, 3.2.1 Chlorine (monitoring requirements) and 2.2.2 Other Chemicals. The staff reviewed the requested changes to Specifications 2.2.1 and 2.2.2 and Amendment No. 53 to Facility License No. DPR-49 was subsequently issued to address these changes.²

The remaining proposed change, to the monitoring requirement for residual chlorine, Specification 3.2.1, would delete the requirement for repeated manual sampling of the plant discharge immediately prior to and during each chlorination. It would replace this requirement with one specifying the use of automatic recording/control equipment to control dechlorination of the plant discharge. A backup program of manual sampling and control would be utilized when the automatic (primary) system is unavailable. By letter dated September 12, 1979, the licensee provided additional descriptive information on the automatic equipment.³ Subsequent discussions between the licensee and the NRC staff resulted in modifications to the licensee's proposed request. The licensee has agreed to these modifications.

By letter dated July 19, 1978, the licensee requested an amendment to Appendix B, Environmental Technical Specifications for the DAEC. The licensee proposed several minor changes to Specification 4.1, Environmental Surveillance and Special Studies.

This appraisal reviews the environmental impacts associated with the aforementioned changes.

Environmental Impacts of Proposed Action

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Specification 3.2.1

The proposed system for chlorine monitoring and control consists of a residual chlorine analyzer, an electronic strip chart recorder and an electronic indicating controller. Staff review of the specifications of this equipment indicates that the system is designed for and capable of continuous residual chlorine analysis and recording, and continuous control of dechlorination equipment. The proposed system will utilize an amperometric titration analyzer to monitor

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total residual chlorine concentration in the plant discharge. Equipment specifications indicate a sensitivity of 0.01 mg/l chlorine, an operating range capability of from 0 to 0.5 mg/l up to 0 to 10 mg/l chlorine and an accuracy of + or - 2% of full scale reading.

The staff considers the proposed primary monitoring system adequate to meet the objective of the Technical Specification. Adverse environmental impact is not expected to result from the use of the proposed automatic continuous recording/control equipment in place of repeated discrete sampling of the plant discharge.

The proposed back-up monitoring program, to be employed whenever and for as long as the primary automatic recording/control equipment is unavailable due to failure, will provide a daily check on weekdays of discharge concentrations of residual chlorine. Although data on the variability of the chlorine demand of the incoming and circulating cooling water is not available, it is anticipated that adverse environmental impact will not result from the use of this reduced frequency monitoring system. Factors influencing the staff's judgement are the anticipated infrequent use of this backup system and the availability of data from the operation of the primary system as to the adjustment of the chlorine feed and dechlorination equipment consistent with acceptable discharge concentrations. The U. S. Environmental Protection Agency (EPA) has reviewed the licensee's dechlorination proposal and proposed monitoring plan. The monitoring scheme proposed by the licensee was found to be "acceptable."^{4,5} The staff has contacted the State of Iowa concerning the proposed change in residual chlorine monitoring procedures. No objections to the modified proposal were indicated, although review of the limitations and procedures concerning chlorination at the DAEC would likely be conducted when the current EPA issued NPDES permit for the facility expires and a State issued permit is to be considered.

Specification 4.1.1

The licensee proposes to delete reference to a chlorine study from the Objective of Section 4.1.1. The study has been completed and was removed from the ETS in a previous license amendment (License Amendment No. 22). This change is administrative in nature, and is acceptable.

The licensee proposes to add a paragraph to the specification in Section 4.1.1, describing action to be taken in the event that a sample is missed due to hazardous conditions, equipment malfunctions or laboratory accidents. This change is also administrative in nature and is acceptable.

Specification 4.1.1.1

The licensee proposes to change one of the parameters monitored as part of Section 4.1.1.1 General Water Quality Analysis. The requirement to perform taste and odor tests on water samples taken twice monthly from four river stations and from the discharge canal is being reduced so that only odor tests need be performed. The licensee's consultant has indicated that for this qualitative test, odor determinations are sufficient to detect "threshold" levels of sewage and industrial wastes. The staff judges that for the purpose

of this water quality survey, taste tests of the water samples need no longer be required and deletion of this requirement is acceptable.

Specification 4.1.1.5

The licensee proposes to change the sampling frequency for benthos in Section 4.1.1.5 from quarterly to semi-annually. This would be consistent with the schedule required for radiological monitoring for benthos. Also, because the macroinvertebrate community in the vicinity of the plant is of low diversity, low density, and composed of tolerant forms, lowering the sample frequency would not result in a significant loss of useful data. Reduction of sampling frequency to semi-annual sampling for benthos is therefore acceptable.

Conclusion and Basis for Negative Declaration

On the basis of the foregoing analysis, it is concluded that significant adverse impact on the environment in the vicinity of the Duane Arnold Energy Center will not occur as a result of the proposed changes. On this basis and in accordance with 10 CFR Part 51.5(c), the Commission concludes that no environmental impact statement for the proposed action need be prepared and a negative declaration to this effect is appropriate.

Dated: November 19, 1979

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References

1. Letter from L. Liu, Iowa Electric Light and Power Company to E. Case, U.S. NRC; March 29, 1978.
2. Amendment No. 53 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center; Docket No. 50-331; letter to Iowa Electric Light and Power Company from T. A. Ippolito; August 7, 1979.
3. Letter from L. Root, Iowa Electric Light and Power Company to T. A. Ippolito; September 12, 1979.
4. Letter from C. M. Walter, U.S. Environmental Protection Agency to R. L. Thiede, Iowa Electric Light and Power Company; March 7, 1978.
5. Personal communication; J. Tonneson, State of Iowa Department of Environmental Quality and J. Lehr, USNRC; October 11, 1979.

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