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General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 788-0550

November 13, 1978

Director, Nuclear Reactor Regulation
Attn: Mr Dennis L Ziemann, Chief
Operating Reactors Branch No 2
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - TECHNICAL
SPECIFICATIONS CHANGE: EFFLUENT
RELEASE CONTROLS

Transmitted herewith are three (3) original and thirty-seven (37) conformed copies of a proposed change to the Technical Specifications for the Big Rock Point Plant, Docket 50-155, License DPR-6.

The purpose of this change is to incorporate requirements implementing 10 CFR 50 Appendix I as requested by NRC letter dated July 11, 1978. This change is substantially the same as a proposed change submitted June 4, 1976, prior to issuance of 10 CFR 170.22. No response to the earlier proposed change has been received. Accordingly, it is concluded that this change should be exempt from licensing fees specified in 10 CFR 170.22.

David A Bixel
Nuclear Licensing Administrator

CC: JOKeppler, USNRC

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CONSUMERS POWER COMPANY
Docket 50-155
Request for Change to the Technical Specifications
License DPR-6

For the rearons hereinafter set forth, it is requested that the Technical Specifications contained in Facility Operating License DPR-6, Docket 50-155, issued to Consumers Power Company on May 1, 1964 for the Big Rock Point Plant be changed as described in Section I below:

I. Changes

Add new Sections 11.3.5.1 and 11.4.5.1, "Station Process Effluents" as attached. (These sections are substantially the same as Sections 3.5.1 and 4.5.1 of the draft Technical Specifications submitted March 11, 1975 as subsequently amended and resubmitted June 4, 1976.)

II. Discussion

NRC letter dated July 11, 1978 requested that 10 CFR 50 Appendix I model Technical Specifications "Draft Radiological Effluent Technical Specifications for BWRs" be reviewed for applicability to the Big Rock Point Plant. The NRC letter requested that a license amendment application be submitted to incorporate Appendix I implementing requirements into the Technical Specifications.

Consumers Power Company has reviewed the draft specifications and concurrently has reviewed 10 CFR 50 Appendix I to identify specific Appendix I implementation requirements not in the current Technical Specifications. It has been determined from plant effluent records that Appendix I limits for both quarterly and annual doses have been met at least in the last five years of operation.

Two alternative approaches for ensuring continued compliance with Appendix I were considered. These alternatives were adoption of the Draft Radiological Effluent Technical Specifications and incorporating basic Appendix I requirements into the current Technical Specifications.

Adoption of the draft specifications is considered unacceptable by Consumers Power Company. The draft specifications are unnecessarily cumbersome and would severely complicate plant operation. Consumers Power Company considers

that adoption of these specifications could result in unintentional degradation of performance in both plant operability and effluent release control. Consumers Power Company notes that concerns regarding practicability of the draft specifications and their effect on plant safety have been raised previously by an AIF review committee (letter to Mr Harold Denton, USNRC, from Carl Walske, AIF President, dated August 16, 1978). Consumers Power Company shares the concerns raised by AIF.

Consumers Power Company has previously proposed a Technical Specifications change to incorporate all requirements necessary for implementation of Appendix I. This proposed change was submitted June 4, 1976. No response to this proposal has been received. Consumers Power Company has again reviewed this proposed change and considers it the best method of ensuring continued compliance with Appendix I.

The proposed new Sections 11.3.5.1 and 11.4.5.1 are identical to the proposed change submitted June 4, 1976 except for Table 3.5.1.a, "Stack Effluents - Design Objective Annual Quantities." The analysis techniques used to develop the original design objective annual quantities and the results of the 1976 analysis are described in a report which accompanied the June 4, 1976 submittal. The design objective annual quantities for airborne effluents have been revised in this proposed change as a result of changes in limiting dose pathways and associated deposition and dispersion coefficients which are summarized in Tables 1 and 2 below. No changes to liquid effluent dose pathways have occurred.

The proposed change was reviewed by both the Big Rock Point Plant Review Committee and the Safety and Audit Review Board when originally submitted in 1976.

TABLE 1

BIG ROCK POINT PLANT

LOCATION CHART FOR ITEMS[2] IMPORTANT TO CALCULATION OF DOSES TO INDIVIDUALS

	DISTANCE (MILES)				
Sector[2]	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5
ENE	-----	-----	R,V (2.5)	R, V	-----
E	-----	R,V(1.3)	R, V	C (3.5) G (3.25) M (3.75) R, V	R, V
ESE	-----	R,V(1.3)	M (2.5) R, V C (2.25)	R, V	R, V
SE	-----	M (1.75) R,V(1.6) C (1.75)	C (2.25) R, V G (3.0)	R, V	R, V
SSE	-----	R,V(1.6)	M (2.25) R, V	R, V C (3.5)	C (4) R, V
S	-----	R,V(1.5)	R, V	R, V	-----
SSW	-----	R,V(1.5) G (1.5)	R, V	R, V	-----
SW	-----	-----	R,V(2.5)	R, V	R, V
WSW	-----	-----	R,V(2.75)	-----	-----
W	-----	-----	-----	-----	-----

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(1) C = cow, G = goat, M = meat animal } Numbers in parentheses are distances in miles from reactor.

R = residence, V = vegetable garden } A vegetable garden is assumed at each residence. For purposes of calculations, beyond 2 miles, a residence may be located in sector annulus at location of highest calculated dose. Therefore, distances are not given.

(2) Sectors not listed are entirely over water out to 5 miles or more.

TABLE 2

BIG ROCK POINT PLANT
CURRENT LOCATIONS OF MAXIMUM DOSE

NO	DISTANCE (MILES)	DIRECTION	DESCRIPTION	NORMAL X/Q (s/m^3)	DEPOSITION D/Q ($1/m^2$)
1	1.25	E	Max residence, garden	2.98×10^{-7}	2.48×10^{-9}
2	1.75	SE	Max milk cow	1.65×10^{-7}	1.03×10^{-9}
3	1.5	SSW	Max milk goat	9.4×10^{-8}	5.8×10^{-10}
4	1.75	SE	Max meat animal	1.38×10^{-7}	9.67×10^{-10}

III. Conclusion

Based on the foregoing, both the Big Rock Point Plant Review Committee and the Safety and Audit Review Board have concluded that these changes are acceptable from a safety standpoint.

CONSUMERS POWER COMPANY

By _____
C R Bilby, Vice President
Production & Transmission

Sworn and subscribed to before me this 13th day of November 1978.

_____
Betty Bishop, Notary Public
Jackson County, Michigan
My commission expires September 21, 1982.

Limiting Conditions for Operation

3.5.1 STATION PROCESS EFFLUENTS

Applicability:

Applies to the radioactive effluents from the station.

Objective:

To assure that radioactive material is not released to the environment in an uncontrolled manner and to assure that any material released is kept as low as reasonably achievable and in any event is within the limits of 10 CFR 20.

Specification:

A. Stack Release

1. The maximum release rate of gross radioactivity except iodines and particulates with half-lives longer than eight days excluding Tritium shall be limited in accordance with the following equation:

$$Q \leq \frac{0.47}{\bar{E}} \text{ (Ci/s)}$$

where Q is the stack rate (Ci/s) of gross radioactivity and $\bar{E}$ is the average gamma energy per disintegration (MeV/dis).

2. The maximum release rate of iodines and particulates with half-lives

Surveillance Requirement

4.5.1 STATION PROCESS EFFLUENTS

Applicability:

Applies to the periodic test and record requirements of the station process effluents.

Objective:

To ascertain that releases of radioactive material from the station are within allowable values.

Specification:

A. Stack Release

1. Station records of gross stack release rate of gaseous radioactivity shall be maintained by recording of hourly data from the stack-gas monitor to assure that the specified rates are not exceeded and to yield information concerning general integrity of the fuel cladding. Records of isotopic content based on filter sample analysis shall also be maintained. Monthly isotopic analysis of condenser off-gas shall be made during power operation. From this analysis, the total gaseous release rate of 22 noble gases shall be calculated. Gross analysis of gaseous activity shall be made at least every 96 hours. Each month, based on the isotopic analysis, the release rate of each of the 22 noble

Limiting Conditions for Operation

3.5.1 STATION PROCESS EFFLUENTS (Contd)

longer than eight days shall be limited in accordance with the following:

Nuclide	Limiting Release Rate μCi/s
I-131	0.2
I-133	4.4
Particulates	2.8

3. At least one of the two air ejector off-gas monitors shall be operable to administratively control the stack gas release rate as specified in Specification 3.5.1.A.

B. Liquid Effluent

1. The concentration of gross beta radioactivity above background in the condenser cooling water discharge canal shall not exceed the limits stated below unless the discharge is controlled on an identified isotopic basis in accordance with Appendix B, Table II, Column 2 of 10 CFR 20 and Note 1 thereto.

a. Maximum concentration (excluding tritium) - 1×10^{-7} μCi/ml.

Surveillance Requirement

4.5.1 STATION PROCESS EFFLUENTS (Contd)

gases shall be adjusted to determine total gaseous release rate. Gaseous release of tritium shall be calculated on a monthly basis from measured data. Tritium shall be measured at least every 6 months, ± 25%.

2. Station records of stack release of iodines and particulates with half-lives greater than eight days shall be maintained on the basis of all filter cartridges analyzed. These cartridges shall be analyzed at least weekly.

3. Each Six Months

a. Conduct off-gas density test.

b. Conduct off-gas holdup time test.

4. Monthly

Off-gas samples shall be taken monthly and analyzed for calibration of the off-gas radiation monitors.

Limiting Conditions for Operation

3.5.1 STATION PROCESS EFFLUENTS (Contd)

b. Maximum tritium concentration 3×10^{-3} μCi/ml.

c. The liquid process monitor in the discharge line from the waste disposal tanks to the discharge canal shall be operative.

C. If the limits of 3.5.1.A are not met as indicated by the stack-gas monitor or a normal routine surveillance check, reactor power shall be immediately reduced to meet the limits.

D. If the limits of 3.5.1.B are not met following a routine surveillance check, normal orderly shutdown of the liquid waste discharge equipment shall be initiated within one hour and discharge shall not be resumed until the cause of the excessive discharge rate is identified and corrected.

E. Waste Storage

1. The inventory of liquid radioactive wastes in the liquid radioactive waste disposal system shall not exceed 5,000 curies.

2. The inventory of solid radioactive wastes shall not exceed 40,000 curies. This total does not include radioactive material such as spent fuel, Cobalt-60, control rods and in-core flux measurement devices which are stored in the spent fuel pool.

Surveillance Requirement

4.5.1 STATION PROCESS EFFLUENTS (Contd)

B. Liquid Effluent

1. Station records shall be maintained of the radioactive materials concentration and volume before dilution of each batch of liquid effluent released and of the average dilution flow and length of time over which each discharge occurs.

2. Each batch of radioactive liquid effluent shall be sampled and analyzed prior to release.

3. Isotopic analysis of a representative batch of radioactive liquid waste shall be performed at least once per quarter. Each batch shall be analyzed for gross beta radioactivity and when released on an identified radionuclide basis, the analysis shall also include a gamma spectral analysis.

4. Monthly composite samples shall be collected from the discharge canal and analyzed for gross beta radioactivity.

Limiting Conditions for Operation

3.5.1 STATION PROCESS EFFLUENTS (Contd)

F. General

It is expected that releases of radioactive material in effluents be kept at small fractions of the limits specified in 10 CFR 20.106. At the same time, the licensee is permitted the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of Power even under unusual operating conditions, which may temporarily result in releases higher than such small fractions but still within the limits specified in 10 CFR 20.106. It is expected that in using this operational flexibility under unusual operating conditions, the licensee will exert his best efforts to keep levels of radioactive material in effluents as low as reasonably achievable.

1. Notwithstanding Sections 3.5.1A, B, C and D, the quantity of all radionuclides determined to be released during any calendar quarter shall not exceed one-half the design objective annual quantity specified in Tables 3.5.1a and 3.5.1b. Calculations shall be performed for each batch release and weekly for continuous releases by the formula
$\Sigma A_i/C_i \leq 0.5$

A_i = Cumulative activity (curies) for a calendar quarter of each identified nuclide i.

Surveillance Requirement

4.5.1 STATION PROCESS EFFLUENTS (Contd)

6. A sample of a representative waste batch shall be analyzed for tritium at least twice per year.

7. The performance and results of independent samples shall be logged.

8. A canal water sample shall be analyzed daily for gross beta.

C. General

1. Operating procedures shall be developed and used, and equipment which has been installed to maintain control of radioactive materials in gaseous and liquid effluents produced during normal reactor operations, including expected operational occurrences, shall be maintained and used to keep levels of radioactive material in effluents released to unrestricted areas as low as reasonably achievable. The environmental monitoring program specified in Table 4.5.1 shall be conducted.

2. Radiation monitoring instrumentation surveillance requirements for process monitors (includes off-gas and stack gas), portable dose rate instruments and area monitors are specified in Table 4.5.1.b.

3. Annually, at the beginning of the agricultural season (May through July), surveys to confirm the location of the nearest milk cow, milk goat, meat animal, vegetable garden (> 500 ft^2) and resident in each sector to a distance of five miles from the release point, shall be conducted.

Limiting Conditions for Operation	Surveillance Requirement
3.5.1 STATION PROCESS EFFLUENTS (Contd)	4.5.1 STATION PROCESS EFFLUENTS (Contd)

C_i = Design objectives annual quantity (Table 3.5.1a or Table 3.5.1b) of each nuclide i determined to be released.

2. The design objective annual quantities are based upon the following annual doses.

   a. Liquid Effluents
      Total Body $\leq$ 3 mRem/Year
      Any Organ $\leq$ 10 mRem/Year

   b. Gaseous Effluents
      Gamma Dose in Air $\leq$ 10 mRads/Year
      Beta Dose in Air $\leq$ 20 mRads/Year
      Total Body $\leq$ 5 mRem/Year
      Skin $\leq$ 15 mRem/Year

   c. Radioiodines and Particulates Released to the Atmosphere
      Any Organ $\leq$ 15 mRem

3. In the event the summation of quarterly releases exceeds one-half the design objective annual quantity as determined by the formula given in 3.5.1.F.1, the following action shall be taken:

   a. Make an investigation to identify the causes for such release rates;

   b. Define and initiate a program of corrective action; and

   c. Report these actions to the Commission within 30 days from the end of the quarter during which the release occurred.

TABLE 3.5.1a
Stack Effluents

Design Objective Annual Quantities

Nuclide	Limiting Organ	Dose Conversion Factor (mRem/Curie)	Design Objective Annual Quantity Ci (Curies)
I-131	Thyroid	7.44E+00	2.02E+00
I-133	Thyroid	1.29E-01	1.16E+02
Cs-134	Liver	2.49E+00	6.02E+00
Cs-137	Liver	2.39E+00	6.27E+00
Co-60	GI Tract	1.51E-01	9.93E+01
Mn-54	GI Tract	3.04E-01	4.93E+01
Co-58	GI Tract	2.87E-02	5.23E+02
C-14	GI Tract	6.24E-03	2.40E+03
Ba-140	Bone	2.08E-02	7.21E+02
Noble Gases (1)	Gamma Dose in Air	$\bar{E}$	2.30E+05

NOTE:

(1) The average gamma ray energy ($\bar{E}$) for a diffusion mixture is 0.845 MeV for a pure U-235 fission spectrum.

TABLE 3.5.1b
Liquid Effluents

Design Objective Annual Quantity

Nuclide	Limiting Organ	Dose Conversion Factor (mRem/Curie)	Design Objective Annual Quantity Ci (Curies)
Cs-134	Total Body	3.62E+00	8.29E-01
Cs-137	Total Body	2.16E+00	1.39E+00
Cs-136	Total Body	4.01E+00	7.49E+00
Co-60	Total Body	2.99E-01	1.00E+01
Sr-89	Bone	1.70E-02	5.88E+02
Sr-90	Bone	1.64E-01	6.10E+01
Fe-59	GI Tract	1.41E-02	7.09E+02
Mn-54	GI	7.74E-02	1.29E+02
Zn-65	GI	2.73E-01	3.66E+02
Cr-51	GI	1.58E-03	6.32E+03
Ba-140	GI	2.50E-03	4.01E+03
La-140	GI	2.20E-02	4.55E+02
I-131	Thyroid	4.19E-01	2.39E+01
Co-58	GI Tract	1.13E-02	8.87E+02
H-3	Total Body	1.77E-06	1.69E+06

TABLE 4.5.1.a

Radiological Environmental Monitoring

Medium	Description	Type of Analysis	Frequency of Analysis	Location
I. Liquid Effluents				
Lake Water	One Gallon Composite	Gross Beta, Tritium Gamma Spectrum[1]	Monthly	Discharge, Intake, and Charlevois Municipal Water Supply
Aquatic Biota Including Fish	Grab	Gross Beta, Gamma Spectrum	Spring and Fall	Discharge Canal Outlet and Several Locations Within Three Miles of Site
II. Gaseous Effluents				
Air	Continuous at Approximately 1 Cfm	Gross Beta, I-131	Weekly	One On Site, Six Off Site
Film Badges or TLD	Continuous	Gamma Dose	Monthly	Six On Site, Six Off Site
Milk	One Gallon Grab	I-131	Monthly When Available	Two in Plant Vicinity (One From Nearest Cow) and One Remote From Plant

[1] Gamma spectrum analysis required if gross beta is greater than 1×10^{-8} μCi/ml.

TABLE 4.5.1.6

Radiation Monitoring Instrumentation Surveillance Requirements

Monitor	Amplifier Check	External Source Calibration & Alarm Trip Tests	Notes
1. Process Monitors			
a. Canal Discharge[3][6]	Weekly	Monthly	
b. Radwaste Discharge[3][6]	Weekly	Quarterly	
c. Main Condensate[4][6]	Weekly	Quarterly	
d. Sphere Service Water[3][6]	Weekly	Quarterly	
e. Sphere Cooling Water[4][6]	Weekly	Quarterly	
f. Condenser Off-Gas[7]	Weekly	Each Major Refueling[1]	During each operating cycle, automatic closure initiation of the isolation valve shall be verified by observing valve travel.
g. Stack Gas[2][6]	Weekly	Quarterly	
2. Portable Dose-Rate Instruments			
a. β, γ Instruments	NA	Quarterly	
b. Neutron Instruments	NA	Quarterly	
3. Area Monitors[5][6]	NA	Monthly	

(1) Additional calibration will be comparison of monthly isotopic analysis of condenser off-gas with the off-gas recorder.

(2) Normally set to alarm at a level that corresponds to a stack release rate of 0.1 curie per second. At stack release rates of greater than 0.1 curie per second, the alarm shall be set approximately a factor of two above the stack release rate, but in no event greater thar the maximum release rate in Specification 3.5.1A.

(3) Alarm set point not greater than those listed in Column II, Table II, Appendix B, of 10 CFR 20 for the concentrations present.

(4) Alarm set point shall be selected to alert operator to unexpected changes in radioactivity levels.

(5) Alarm trip points shall be set at a radiation level approximately twice the normal maximum level, but normally not less than one decade above the lowest scale reading.

(6) Normally in service during power operation. Adequate spare parts shall be on hand to allow repairs to be made promptly.

(7) One of two channels must be in service during power operation.

Bases:

Detailed meteorological studies were conducted to establish a permissible rate for stack emissions to the environment in accordance with the limits of 10 CFR 20 and are described in Section 9 of the FHSR. Site meteorology and isotopic content of the effluent were considered in establishing permissible release rates. The effluent isotopic content for gaseous emissions was assumed to be that for a diffusion mixture typical of that observed for release rates above about 20,000 μCi/s over the operating history of the plant. This mixture exhibits an average gamma ray energy of 0.845 MeV/dis for a pure U-235 fission spectrum. A spectrum weighted with a 40% Pu-239 fission contribution (typical of reactor operations expected with full license amendment utilization of plutonium) was examined with the resultant diffusion mixture average gamma energy of 0.758 MeV/dis obtained. Hence, the maximum release rate specified in 3.5.1.A.1, utilizing a pure U-235 fission spectrum, is conservative. The $\bar{E}$ determination need consider only the average gamma energy per disintegration since the controlling whole body dose is due to the cloud passage over the receptor and not cloud submersion in which the beta dose could be additive.

Values of the meteorological dispersion constant to the nearest site boundary distance of 842 meters used in the analysis was 6.1×10^{-7} s/m^3 with a correction to finite cloud size and dose receptor ground location of 0.25 used per "Meteorology and Atomic Energy, 1966," Section 7. A stack height of 240 feet (75m) was also used. Based on this analysis, a release rate of $0.47/\bar{E}$ in curies per second will not result in an off-site annual dose in excess of the limits specified in 10 CFR 20.

Field sampling and dose measurements in accordance with the environmental monitoring program will be made during all periods of gaseous, particulate and halogen release. The sampling frequencies are as set forth in Table 4.5.1.

Calculations of ground level air concentrations of iodines and particulates with half-lives longer than eight days at several off-site locations have been made in the directions of pastureland where actual dairy cows, milk goats and gardens are located. These calculations considered site meteorology and distance to the pasture and garden locations. Based on the calculations summarized below, the release rate limit for nuclides specified in Specification 3.5.1.A.2 is obtained. Use of the release rate limit in Specification 3.5.1.A.2 assures that releases will not result in off-site doses near those specified in 10 CFR 20.

The bases for the calculations utilized on-site meteorological data for the sector orientation appropriate to actual grazing areas, distance to the grazing area, reconcentration factors of 243 for I-131 and 17.8 for I-133 per Regulatory Guide 1.42, a six-month grazing period and the assumption of a one-year old infant consuming one liter of fresh milk daily. The SE sector is the most critical with the nearest real dairy cow located 1.75 miles (2816 meters) from the plant.

For particulates, the limiting release rate is based on an inhalation dose at the point of maximum ground concentration ($X/Q = 4.9 \times 10^{-8}$ s/m^3) resulting from Sr-90.

The environmental sampling program will include milk from at least the nearest cow, one other local dairy farm and from a remote location at least 10 miles from the plant.

Bases: (Contd)

Radioactive effluents released from the plant to unrestricted areas on the basis of gross beta analyses are based on the premise that Iodine 129 and radium are not present in accordance with 10 CFR 20. Accordingly, Appendix B, Table II, Column 2 of 10 CFR 20 will permit a concentration of up to 1 x 10^{-7} μCu/ml in the cooling water discharge canal.

If radioactive effluents are released to unrestricted areas on an identified radionuclide basis, the permissibe concentration shall be determined and controlled in the cooling water discharge canal in accordance with Appendix B, Table II, Column 2 of 10 CFR 20 and Note 1 thereto.

The release of radioactive effluents on an identified radionuclide basis shall be based on an isotopic analysis of the batch to be released. Along with the isotopic analysis, a gross beta analysis shall be performed.

The required dilution factor for the isotopic mixture for release to the cooling water discharge canal shall be determined using the following analysis:

$$\text{Required DF} = \frac{C1}{MPC_1} + \frac{C2}{MPC_2} + \ldots \frac{Cn}{MPC_n}$$

where C_1 = concentration of Isotope 1 in the batch to be released, etc.

MPC_1 = MPC from Appendix B, Table II, Column 2, 10 CFR 20.

This required dilution factor shall be used to determine the appropriate discharge rate for waste batches. The minimum frequency of the isotopic analysis will vary but shall be done at least once per quarter even if no batches are released on an identified radionuclide basis.

An environmental monitoring program in Lake Michigan will be conducted as outlined in Table 4.5.1. Samples of cooling water canal inlet and outlet will be taken daily and composited for monthly analysis. Biota, including fish, will be collected at least twice yearly, in the spring and the fall at several locations including the cooling water canal and up to three miles from the plant.

Procedures require sampling of each waste batch prior to release to the discharge canal. This procedure is backed up by a radiation monitor in the line from the waste disposal tanks to the discharge canal. The high-alarm point shall be set on this monitor such that it will warn of a higher than maximum MPC in the discharge canal. In the event of a high alarm, the discharge of waste shall cease until the cause is corrected. The discharge canal sample monitor alarm point is set such that it will warn of a higher than maximum MPC in the discharge canal as a final check.

The off-gas monitor will be calibrated to the off-gas spectral analysis and the stack gas monitor will be calibrated to a portable radiation survey instrument in conjunction with an external source.

The annual design basis quantities specified in Tables 3.5.1a and 3.5.1b are based on models and data contained in the June 4, 1976 10 CFR 50, Appendix I, submittal. The design basis quantities and dose design basic guides are in accordance with Appendix I of 10 CFR 50. Conformance with Appendix I is deemed a conclusive showing of compliance with the "as low as is reasonably achievable" requirements of 10 CFR, Sections 50.34a and 50.36a. The design objective annual quantities are based on models and data such that the annual exposure of an individual is unlikely to be substantially underestimated.