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Date: 1/22/2008 1:15:39 PM
Subject: Indian Point License Renewal Proceeding - NRC Staff's Response to CRORIP's Petition for Waiver
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Attached is the "NRC STAFF'S RESPONSE TO THE PETITION FOR WAIVER OF COMMISSION REGULATIONS FILED BY CONNECTICUT RESIDENTS OPPOSED TO RELICENSING OF INDIAN POINT (CRORIP)," with exhibits, in the Indian Point Units 2 and 3 license renewal proceeding.

Copies of the attached document are also being served by First Class U.S. Mail and internal NRC mail.

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January 22, 2008

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	Docket Nos. 50-247/286-LR
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	

NRC STAFF'S RESPONSE TO THE PETITION FOR WAIVER OF COMMISSION REGULATIONS FILED BY CONNECTICUT RESIDENTS OPPOSED TO RELICENSING OF INDIAN POINT (CRORIP)

Pursuant to 10 C.F.R. § 2.335(b), the Staff of the U.S. Nuclear Regulatory Commission ("NRC Staff") hereby files its response to the "10 CFR § 2.335 Petition" ("Waiver Petition") filed by Connecticut Residents Opposed to Relicensing of Indian Point ("CRORIP") on December 10, 2007.[1] For the reasons set forth below, the Staff submits that CRORIP has failed to establish a prima facie case that special circumstances exist concerning the subject matter of this license renewal proceeding, such that the Commission's regulations would not serve the purposes for which they were adopted. Accordingly, its Waiver Petition should be denied.

[1] "Connecticut Residents Opposed to Relicensing of Indian Point and Its Designated Representative's 10 CFR §2.335 Petition," filed December 10, 2007. In its "Order (Clarifying time for Entergy to File Answer to CRORIP 10 C.F.R. 2.335 Petition)," the Licensing Board directed that all answers to the instant petition be filed on or before January 22, 2008. The Staff notes that 10 C.F.R. § 2.335(b) permits a petition for waiver of NRC regulations to be filed by a "party." While CRORIP has petitioned to intervene, it has not, as yet, been admitted as a party. However, inasmuch as CRORIP's petition to intervene rests upon a grant of the instant Waiver Petition, the Staff submits that a ruling on CRORIP's Waiver Petition should be issued in conjunction with a ruling on its petition to intervene.

BACKGROUND

This proceeding arises from the application of Entergy Nuclear Operations, Inc. ("Entergy" or "Applicant") to renew its operating licenses for Indian Point Nuclear Generating Units 2 and 3, located in Buchanan, NY. On August 1, 2007, the NRC published a Notice of Opportunity for Hearing, requiring that petitions for leave to intervene and requests for hearing be filed by October 1, 2007;[2] this deadline was later extended to November 30, 2007, and to December 10, 2007 for CRORIP and other persons who alleged that their petitions to intervene were impeded due to their inability to access documents in the NRC's Agencywide Documents Access and Management System ("ADAMS").[3]

On December 10, 2007, CRORIP filed a petition for leave to intervene, accompanied by the instant petition for waiver of Commission regulations under 10 C.F.R. § 2.335. In its Waiver Petition, CRORIP asserts that the NRC's rule adopting the Generic Environmental Impact Statement for License Renewal of Nuclear Plants ("GEIS") would not serve the purposes for which it was adopted, "with regard to (a) its exclusion of radiation exposures to the public and occupational radiation exposures during the license renewal term as Category 1 excluded issues which do not require site-specific analysis and (b) its use of the "Reference Man" dose

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[2] "Entergy Nuclear Operations, Inc., Indian Point Nuclear Generating Unit Nos. 2 and 3, Notice of Acceptance for Docketing of the Application and Notice of Opportunity for Hearing Regarding Renewal of Facility Operating License Nos. DPR-26 and DPR-64 for an Additional 20-Year Period," 72 Fed. Reg. 42,134, 42,135 (Aug. 1, 2007).

[3] "Entergy Nuclear Operations, Inc., Indian Point Nuclear Generating Unit Nos. 2 and 3, Notice of Opportunity for Hearing Regarding Renewal of Facility Operating License Nos. DPR-26 and DPR-64 for an Additional 20-Year Period: Extension of Time for Filing of Requests for Hearing or Petitions for Leave to Intervene in the License Renewal Proceeding," 72 Fed. Reg. 55,834 (Oct. 1, 2007). The Commission subsequently granted a further extension of time for filing petitions to intervene, until December 10, 2007, to Friends United for Sustainable Energy ("FUSE"), based on its allegation that the temporary unavailability of ADAMS impeded its ability to file on time. Commission Order of November 16, 2007. The Licensing Board subsequently granted similar extensions of time to CRORIP and others who raised similar allegations. See, e.g., "Order (Granting an Extension of Time to CRORIP Within Which to File Requests For Hearing)" (Dec. 5, 2007).

models from 1980." Waiver Petition at 1. In support of its Waiver Petition, CRORIP filed the Affidavit of its representative, Nancy Burton;[4] Ms. Burton, in turn, referred to and incorporated the Declarations of Joseph J. Mangano and Helen M. Caldicott (filed with CRORIP's petition to intervene), and cited certain studies or reports pertaining to radiological doses, discussed *infra*. As set forth below, CRORIP's Waiver Petition and supporting materials fail to establish a prima facie showing that Commission regulations should be waived in this proceeding.

DISCUSSION

A. Legal Standards Governing Petitions for Waiver Under 10 C.F.R. § 2.335.

Pursuant to 10 C.F.R. § 2.335(a) ("Consideration of Commission rules and regulations in adjudicatory proceedings"), "[e]xcept as provided in [§ 2.335 (b), (c), and (d)], no rule or regulation of the Commission, or any provision thereof, concerning the licensing of production and utilization facilities . . . is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding subject to this part." Subsections (b), (c) and (d) of § 2.335 further provide as follows:

> (b) A party to an adjudicatory proceeding subject to this part may petition that the application of a specified Commission rule or regulation or any provision thereof, of the type described in paragraph (a) of this section, be waived or an exception made for the particular proceeding. The sole ground for petition of waiver or exception is that special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or a provision of it) would not serve the purposes for which the rule or regulation was adopted. The petition must be accompanied by an affidavit that identifies the specific aspect or aspects of the subject matter of the proceeding as to which the application of the rule or regulation (or provision of it) would not serve the purposes for which the rule or regulation was adopted. The affidavit must state with particularity the special circumstances alleged to justify the waiver or exception requested. Any other party may file a response by counter affidavit or otherwise.

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[4] "Nancy Burton Affidavit in Support of [CRORIP] and Its Designated Representative's 10 CFR §2.335 Petition," dated December 10, 2007 ("Burton Affidavit").

> (c) If, on the basis of the petition, affidavit and any response permitted under paragraph (b) of this section, the presiding officer determines that the petitioning party has not made a prima facie showing that the application of the specific Commission rule or regulation (or provision thereof) to a particular aspect or aspects of the subject matter of the proceeding would not serve the purposes for which the rule or regulation was adopted and that application of the rule or regulation should be waived or an exception granted, no evidence may be received on that matter and no discovery, cross-examination or argument directed to the matter will be permitted, and the presiding officer may not further consider the matter.
>
> (d) If, on the basis of the petition, affidavit and any response provided for in [§ 2.335(b)], the presiding officer determines that the prima facie showing required by [§ 2.335(b)] has been made, the presiding officer shall, before ruling on the petition, certify the matter directly to the Commission (. . . for a determination in the matter of whether the application of the Commission rule or regulation or provision thereof to a particular aspect or aspects of the subject matter of the proceeding, in the context of this section, should be waived or an exception made. . . .

Id.; emphasis added.

In applying these provisions, the Commission has emphasized that a waiver of one or more of the license renewal rules may be granted only upon a showing that four requirements have been satisfied:

> (i) the rule's strict application "would not serve the purposes for which [it] was adopted;" (ii) the movant has alleged "special circumstances" that were "not considered, either explicitly or by necessary implication, in the rulemaking proceeding leading to the rule sought to be waived;" (iii) those circumstances are "unique" to the facility rather than "common to a large class of facilities;" and (iv) a waiver of the regulation is necessary to reach a "significant safety problem." The use of "and" in this list of requirements is both intentional and significant. For a waiver request to be granted, *all four* factors must be met.

Dominion Nuclear Connecticut, Inc. (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551; 559-60 (2005) (emphasis in original; footnotes omitted). Thus, unless these requirements are satisfied, any matters deemed to be resolved as Category 1 issues in the GEIS cannot be challenged in individual license renewal proceedings. *Florida Power & Light*

Co. (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 10, 12 (2001).

As set forth below, CRORIP has failed to satisfy any -- much less all four -- of these requirements. Accordingly, its Waiver Petition should be denied.

B. CRORIP Has Failed to Establish A Prima Facie Case Showing That A Waiver of the Commission's Rules Adopting the GEIS Is Warranted.

In seeking a waiver of NRC rules adopting the GEIS, CRORIP presumably seeks a waiver of 10 C.F.R. §51.95(c), which provides that the Commission will reach a determination on license renewal, relying upon NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" ("GEIS") (May 1996) for issues designated as "Category 1" issues in Appendix B to 10 C.F.R. Part 51, in addition to a site-specific Supplement to the GEIS which considers the impacts of license renewal with respect to "Category 2" issues.[5]

Appendix B to 10 C.F.R. Part 51 states that "the Commission has assessed the environmental impacts associated with granting a renewed operating license" for nuclear plants that held an operating license as of June 30, 1995, subject to an evaluation of the impacts identified as Category 2 issues. Appendix B directs that Table B-1 "is to be used in accordance with § 51.95(c)." Table B-1 then sets forth the Commission's generic determination of the environmental impacts of Category 1 issues, and identifies the matters that are to be considered on a site-specific basis as Category 2 issues.

In particular, as pertinent here, Table B-1 defines the issue of radiological doses as a Category 1 issue; it further states that "radiation exposures to [the] public (license renewal term)" have been determined to be "SMALL. Radiation doses to the public will continue at

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[5] Similarly, 10 C.F.R. § 51.53(c)(3)(i) states that the environmental report submitted in support of a license renewal application for licenses in effect on June 30, 1995, "is not required to contain analyses of the environmental impacts of the license renewal issues identified as Category 1 issues in Appendix B."

current levels associated with normal operations." Table B-1 further identifies "occupational radiation exposures (license renewal term)" as a Category 1 issue, and states that these impacts have been determined to be "SMALL. Projected maximum occupational doses during the license renewal term are within the range of doses experienced during normal operations and normal maintenance outages, and would be well below regulatory limits."

In its Waiver Petition, CRORIP seeks a waiver of the rules adopting the GEIS, with regard to (a) its "exclusion of radiation exposures to the public and occupational radiation exposures during the license renewal term as Category 1 excluded issues which do not require site-specific analysis, and (b) its use of the "Reference Man" dose models from 1980." Burton Affidavit, ¶ 3; *see* Waiver Petition at 1. CRORIP alleges that "special circumstances" are present in this proceeding, establishing that "application of the categorical exclusion rule and archaic 'Reference Man' dose models would not serve the purposes for which they were adopted." Burton Affidavit, ¶ 4; *see* Waiver Petition at 1. CRORIP further alleges that these "special circumstances" are set forth in the Affidavit of Nancy Burton attached to its petition. According to CRORIP, "[t]he affidavit states with particularity the special circumstances alleged to justify the waiver." Waiver Petition at 1. No such showing, however, is contained in Ms. Burton's affidavit or any of the materials cited or incorporated therein.

CRORIP argues that the NRC's development of the GEIS "does not includes [sic] components such as public input and operational conditions occurring post-adoption of the GEIS, that is, post-December 18, 1996, nor progress in the evolution of standards to better protect the public health and safety from radiological exposures to workers and the public off-site." Burton Affidavit, ¶ 9. This argument plainly constitutes a generic challenge to the rule, rather than a site-specific challenge based on special circumstances unique to Indian Point. Indeed, CRORIP's arguments concerning the GEIS could just as easily be raised in connection with any number of nuclear power plant license renewal applications, and CRORIP thus fails to demonstrate the existence of special circumstances unique to Indian Point.

Similarly, CRORIP argues that "[i]n the application at hand, the GEIS relegates the important topic of "Human Health" vis-a-vis radiation exposures to the public and occupational radiation exposures during the relicensing term to Category I exclusion, thereby "exclud[ing] consideration of site-specific conditions involving human health impacts from radiological exposures to workers and the public" in this proceeding. Burton Affidavit, ¶¶ 12-13. CRORIP argues that the exclusion of these issues from consideration for Indian Point "would not serve the purposes for which the rule was adopted," in that:

> [T]he exclusion of Human Health as a Category I issue . . . entirely removes from the proceedings arguably the most critical issue involved in continuation of operations during the license renewal term: the very health of the plant's workers and the public surrounding the plant. Thus, rather than effectuate the purposes underlying enactment of the GEIS - to assist the NRC and the applicant in complying with NEPA in an efficient way - it simply buries the issue so that the true environmental impacts cannot and will not be probed nor evaluated in the public proceedings."

Burton Affidavit, ¶ 14. However, this same argument could be applied with respect to the license renewal application of <u>any</u> nuclear power plant, and fails to establish the existence of special circumstances which warrant consideration of the issue in this proceeding.

CRORIP next attempts to argue that Indian Point's history of radiological emissions supports its request to set aside the GEIS's exclusion of radiological dose considerations in this proceeding. In this regard, CRORIP argues that "<u>Indian Point's</u> radiological emissions <u>cannot be completely disregarded</u> as a possible factor in the high levels of strontium-90 found in baby teeth near the plant and the correlation found between high strontium-90 levels and elevated cancer incidences in the communities closest to the plant." *Id.*, ¶ 14(B); emphasis added. In support of this assertion, CRORIP cites the Declaration of Joseph J. Mangano, attached to its petition to intervene. *Id.* However, even if Mr. Mangano's findings are assumed to be correct, they fail to establish a prima facie showing that strontium-90 found in infants' teeth near Indian Point in fact resulted from the operation of Units 2 and 3, or that the level of radiological emissions at the facility are substantially different from the levels of emissions at other NRC-

licensed facilities. To the contrary, Mr. Mangano asserts that "[l]ike all nuclear power reactors," Indian Point Units 2 and 3 produce numerous fission products, including "Cesium-137, Iodine-31, and Strontium-90," and "[l]ike all nuclear power reactors, Indian Point 2 and 3 emit radioactivity, in the form of gases and particles, into the air and water on a routine basis." Mangano Declaration, ¶¶ 3; 4, emphasis added.[6] These assertions fail to show that special circumstances apply to Indian Point Units 2 and 3.[7]

Further, while Mr. Mangano claims that "[t]he amount of airborne releases from Indian Point exceeds that of most other U.S. reactor[s]," *Id.;* emphasis added, he fails to show that Indian Point Units 2 and 3 actually emit higher levels of airborne radiological releases than other NRC-licensed nuclear reactors – and, in fact, the reports cited in his Declaration directly contradict his allegations.[8] Nor does Mr. Mangano's Report, "Public Health Risks to Fairfield

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[6] This is not the first time that CRORIP's representative, Ms. Burton, has attempted to advance Mr. Mangano's study of strontium in baby teeth in an NRC license renewal proceeding. In the license renewal proceeding for Millstone Units 2 and 3, she similarly presented his views in a motion to reopen, in which she claimed that the GEIS Supplement prepared for the Millstone facility understated the site's strontium emissions. The Commission rejected the motion to reopen, finding, *inter alia*, that even if the assertions were correct, the issue of excessive emissions would pertain to operations under the current license, and "[t]he alleged problem would not be a reason for denying license renewal." *Dominion Nuclear Connecticut, Inc*. (Millstone Nuclear Power Station, Units 2 and 3), CLI-06-04, 63 NRC 32, 37-38 (2006).

[7] Indeed, radiological doses were considered in the GEIS for Indian Point and numerous other reactors: Radiological dose considerations for normal operations and accident conditions at various sites, including Indian Point, are addressed at length in the GEIS. *See, e.g.*, GEIS Vol. 1, §§ 3.8 and 5.33. The GEIS included conservative estimates to reasonably bound the radiological impacts likely to occur at any individual plant site. *See* GEIS at B-7.

[8] In support of these assertions, Mr. Mangano generally cites Reference 1, an NRC contractor report (Tichler, J., *et al*., "Radioactive Materials Released from Nuclear Power Plants," NUREG/CR-2907 (Annual Report 1993)), and Reference 2 (the "REIRS" report found at www.reirs.com/effluent, "Effluent Database for Nuclear Power Plants"). Mangano Declaration, ¶ 4 at 2, and References at 4. However, Mr. Mangano fails to identify any specific portion of the cited documents or period of releases in support of his claims. In fact, a review of these reports shows that they actually disprove his assertions. Thus, the Tichler report shows (in Tables 2, 4, 6 and 8) that Indian Point releases were on a par with – and often lower than -- releases from other pressurized water reactors. *See* **Exhibit 1** attached hereto. Similarly, the effluent release reports documented in www.reirs.com/effluent, show that radiological releases at Indian Point Units 2 and 3 in 1999 and 2003 (the only years reported for these reactors) were within the range of releases reported by all licensees – and these were liquid releases, rather than (continued. . .)

County CT of Keeping the Indian Point Nuclear Reactors Open," (Sept. 12, 2007), attached to his Declaration, provide any support for CRORIP's claim that emissions at Indian Point exceed those at other NRC-licensed reactors such that the GEIS should be set aside in this license renewal proceeding.[9]

While Mr. Mangano further claims that environmental "radioactivity levels are higher near Indian Point," he fails to identify what areas were involved in his comparison. Moreover, apart from the vagueness of this assertion, he fails to provide any facts in its support, citing only unspecified New York State and NRC reports. *See* Mangano Declaration ¶ 6 at 2-3, and references 3 and 4, cited at pp. 4-5. These assertions and unspecified references fail to establish a prima facie showing that radioactivity levels near Indian Point Units 2 and 3 are significantly different or higher than the levels found near other NRC-licensed facilities, or any special circumstances to support CRORIP's assertion that the generic treatment of radiological doses in the GEIS should be set aside for Indian Point.

CRORIP's request for "a waiver of the NRC's use of 'Reference Man' - a healthy white male - in its dose calculations" (*id.*, ¶¶ 4, 15) similarly fails to state any special circumstances sufficient to support its Waiver Petition. This challenge to the NRC's dose reference individual, like CRORIP's other assertions in this regard (*id.*, ¶¶ 16 - 19), constitute a direct attack on the generic radiological dose standards embodied in the NRC's regulations, rather than show any

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(. . .continued)

airborne releases as claimed by Mr. Mangano. *See* **Exhibits 2 and 3** attached hereto, at pp. 4 of 4, and 11-12 of 33, respectively.

[9] While Mr. Mangano's report claims that airborne radiological releases at Indian Point are the "fifth highest of 72 U.S. plants," he candidly admits that this figure is based upon incorrect data which were later revised by the NRC – and that Indian Point would rank as the "12th highest" site using the corrected data. Mangano Report at [unnumbered] 7. Moreover, the data in his report are purportedly drawn from the Tichler report (attached as Exhibit 1 hereto), which (as noted above) does not support his claims. Moreover, the Tichler data present a combined total for all <u>three</u> reactors at the site; if the Unit 2 and 3 releases were considered alone, without contribution from the Unit 1 facility, the tabulated releases might well be lower. *See* Mangano Report at 7; Table 3; **Exhibit 1**, at 8 (attached hereto).

special circumstances to support setting aside the GEIS in this specific proceeding. Indeed, CRORIP admits that this is a broad general attack on the NRC's regulatory standards, stating that "radiation protection regulations applicable to U.S. nuclear power plants is [sic] still stuck in the past - their 'reference' person is a man. . . . Thus, a central principle of environmental health protection - protecting those most at risk - women, children and fetuses - is missing from the regulatory framework," such that the dose effects of license renewal have been "under assessed." *Id.* ¶¶ 16-18. These claims, however, even if true, would apply to any license renewal proceeding, as well as to nuclear reactor regulation in general; they fail to establish a prima facie showing that the GEIS should be set aside in this specific license renewal proceeding.[10]

Similarly, CRORIP's allegation that "the prospect for continued and/or worsening leakages in the relicensing term are issues which need be considered" does not state a basis for disparate treatment of the Indian Point Units 2 and 3 license renewal application (Burton Affidavit, ¶ 15). Indeed, these assertions could be made for numerous facilities which have experienced unplanned radiological releases in their operating history.

Finally, CRORIP fails to establish a prima facie showing that the GEIS should be set aside in this proceeding, based on its assertion that "[r]adiation releases - planned and unplanned, monitored and unmonitored are likely to increase as Indian Point's physical plant ages." Burton Affidavit, ¶ 20, citing the Declaration of Helen M. Caldicott, M.D. (filed in support of CRORIP's petition to intervene). Dr. Caldicott's opinions, even if accepted as valid, would

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[10] CRORIP's reference to the report, "Science for the Vulnerable: Setting Radiation and Multiple Exposure Environmental Health Standards to Protect Those Most at Risk," similarly fails to show that special circumstances exist in this proceeding such that the GEIS should be set aside. As CRORIP observes, that report challenges NRC dose standards in general, asserting that "current dose limits, unchanged since the late 1980s and early 1990s need to be re-evaluated in light of today's knowledge regarding radiation risks and the recognition that the most vulnerable populations should be the focus of protective actions." Burton Affidavit ¶ 19, *citing* (http://www.ieer.org/campaign/report.pdf) (Oct. 19, 2006) (Makhijani, A., *et al.*).

apply to the license renewal application of any nuclear power plant, and fail to show special circumstances which would warrant a waiver of Commission regulations in this specific license renewal proceeding.

Nor is there any reason to believe that the license renewal application for Indian Point Units 2 and 3 should be treated differently from other license renewal applications. Like other reactors, Indian Point Units 2 and 3 are required to comply with the radiation dose standards set forth in 10 C.F.R. Part 20 ("Standards for Protection Against Radiation"), the requirements set forth in 10 C.F.R. § 50.36a ("Technical specifications on effluents from nuclear power reactors"), and the radiological effluent design objectives in 10 C.F.R. Part 50, Appendix I. CRORIP has not alleged, much less shown, that Indian Point Units 2 and 3 fail to comply with these standards and requirements. Moreover, publicly available reports show that Indian Point Units 2 and 3 have operated within NRC regulatory dose limits, and that their radiological emissions are within the range of emissions found at other NRC-licensed nuclear reactors. *See, e.g.,* Exhibits 1-3, attached hereto. Rather, CRORIP's Waiver Petition constitutes a challenge to the NRC's regulatory framework, in general – and its assertion that "the true environmental impact of radiation exposures on human health - to the public and plant workers - in the projected relicensing period should be examined on a site-specific basis as a Category II issue" (Burton Affidavit ¶ 21) could just as easily be raised for any NRC-licensed operating reactor.

Finally, the Commission has previously determined, in rejecting a motion to reopen based upon assertions that a facility was emitting strontium in excess of NRC requirements, that such allegations pertain to operations under the current license -- and "[t]he alleged problem would not be a reason for denying license renewal." *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-06-04, 63 NRC 32, 37-38 (2006). Thus, CRORIP's request for a waiver of the GEIS to enable it to litigate these matters not only fails to establish special circumstances for Indian Point, it further raises a matter that is not proper for litigation in this license renewal proceeding.

CONCLUSION

CRORIP has failed to satisfy its four-fold obligation to demonstrate (a) that strict application of the rules adopting the GEIS would not serve the purposes for which they were adopted; (b) that any "special circumstances" were "not considered, either explicitly or by necessary implication, in the rulemaking proceeding leading to the rule sought to be waived;" (c) that those circumstances are "unique" to Indian Point Units 2 and 3 rather than "common to a large class of facilities;" and (d) that a waiver of the regulation is necessary to reach a "significant safety [or environmental] problem." Further, it has failed to raise a matter that is appropriate for consideration in this license renewal proceeding. Its Waiver Petition should therefore be denied.

Respectfully submitted,

Sherwin E. Turk
Counsel for NRC Staff

Dated at Rockville, Maryland
this 22nd day of January 2008

NRC STAFF

RESPONSE TO THE PETITION FOR
WAIVER OF COMMISSION REGULATIONS
FILED BY CONNECTICUT RESIDENTS OPPOSED
TO RELICENSING OF INDIAN POINT (CRORIP)

EXHIBIT 1

NUREG/CR–2907
BNL–NUREG–51581
Vol. 14

Radioactive Materials Released from Nuclear Power Plants

Annual Report 1993

Prepared by
J. Tichler, K. Doty, K. Lucadamo

Brookhaven National Laboratory

Prepared for
U.S. Nuclear Regulatory Commission

NUREG/CR-2907
BNL-NUREG-51581
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Radioactive Materials Released from Nuclear Power Plants

Annual Report 1993

Manuscript Completed: December 1995
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Prepared by
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U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
NRC Job Code J2139

PREVIOUS REPORTS IN THIS SERIES

1. "Report on Releases of Radioactivity in Effluents and Solid Wastes from Nuclear Power Plants for 1972," Directorate of Regulatory Operations, August 1973.

2. "Summary of Radioactivity Releases in Effluents from Nuclear Power Plants During 1973," NUREG-75/001, January 1975.

3. "Radioactive Materials Released from Nuclear Power Plants, 1974," NUREG-0077, June 1976.

4. "Radioactive Materials Released from Nuclear Power Plants, 1975," NUREG-0218, March 1977.

5. "Radioactive Materials Released from Nuclear Power Plants, 1976," NUREG-0367, March 1978.

6. "Radioactive Materials Released from Nuclear Power Plants, 1977," NUREG-0521, January 1979.

7. "Radioactive Materials Released from Nuclear Power Plants, 1978," NUREG/CR-1497, BNL-NUREG-51192, March 1981.

8. "Radioactive Materials Released from Nuclear Power Plants, 1979," NUREG/CR-2227, BNL-NUREG-51416, November 1981.

9. "Radioactive Materials Released from Nuclear Power Plants, 1980," NUREG/CR-2907, BNL-NUREG-51581, Vol. 1, January 1983.

10. "Radioactive Materials Released from Nuclear Power Plants, 1981," NUREG/CR-2907, BNL-NUREG-51581, Vol. 2, June 1984.

11. "Radioactive Materials Released from Nuclear Power Plants, 1982," NUREG/CR-2907, BNL-NUREG-51581, Vol. 3, February 1986.

12. "Radioactive Materials Released from Nuclear Power Plants, 1983," NUREG/CR-2907, BNL-NUREG-51581, Vol. 4, August 1986.

13. "Radioactive Materials Released from Nuclear Power Plants, 1984," NUREG/CR-2907, BNL-NUREG-51581, Vol. 5, August 1987.

14. "Radioactive Materials Released from Nuclear Power Plants, 1985," NUREG/CR-2907, BNL-NUREG-51581, Vol. 6, January 1988.

15. "Radioactive Materials Released from Nuclear Power Plants, 1986," NUREG/CR-2907, BNL-NUREG-51581, Vol. 7, November 1988.

16. "Radioactive Materials Released from Nuclear Power Plants, 1987," NUREG/CR-2907, BNL-NUREG-51581, Vol. 8, October 1989.

17. "Radioactive Materials Released from Nuclear Power Plants, 1988," NUREG/CR-2907, BNL-NUREG-51581, Vol. 9, July 1991.

18. "Radioactive Materials Released from Nuclear Power Plants, 1989," NUREG/CR-2907, BNL-NUREG-51581, Vol. 10, September 1992.

19. "Radioactive Materials Released from Nuclear Power Plants, 1990," NUREG/CR-2907, BNL-NUREG-51581, Vol. 11, October 1993.

PREVIOUS REPORTS IN THIS SERIES

20. "Radioactive Materials Released from Nuclear Power Plants, 1991," NUREG/CR-2907, BNL-NUREG-51581, Vol. 12, May 1994.

21. "Radioactive Materials Released from Nuclear Power Plants, 1992," NUREG/CR-2907, BNL-NUREG-51581, Vol. 13, August 1995.

ABSTRACT

Releases of radioactive materials in airborne and liquid effluents from commercial light water reactors during 1993 have been compiled and reported. The summary data for the years 1974 through 1992 are included for comparison. Data on solid waste shipments as well as selected operating information have been included. This report supplements earlier annual reports issued by the former Atomic Energy Commission and the Nuclear Regulatory Commission. The 1993 release data are summarized in tabular form. Data covering specific radionuclides are summarized.

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LIST OF TABLES

1.0 Introduction

1.1 Purpose

This report, prepared annually for the staff of the U.S. Nuclear Regulatory Commission, presents measured data on radioactive materials in effluents released from licensed commercial reactor power plants. These data were reported by licensees for plant operations during 1993. This information supplements earlier annual reports issued by the former Atomic Energy Commission and Nuclear Regulatory Commission. [1]

1.2 Scope

Releases of radioactive materials are governed by 10 CFR Part 20 and 50 and by limits established in the Technical Specifications for each facility. The requirement for reporting effluent releases by nuclear power plant operators is described in 10 CFR 50.36a. Through its Office of Nuclear Reactor Regulation, the Nuclear Regulatory Commission maintains a knowledge of radioactive releases from licensed nuclear reactors to ensure that they are within regulatory requirements. This report summarizes data from the licensed nuclear power plants that were declared by the utilities to be in commercial operation as of December 31, 1993. Data are included for several licensed facilities which are permanently or indefinitely shut down (Browns Ferry 1 & 3, Brunswick 1, Dresden 1, Fort St. Vrain, Humboldt Bay, Indian Point 1, LaCrosse, Rancho Seco 1, San Onofre 1, Three Mile Island 2, Trojan 1, Yankee Rowe 1) and Shoreham which was never in commercial operation.

1.3 Source of Data

The information included in this report was obtained from data reported by the licensees. Individual licensee reports are available in the NRC Public Document Room, Gelman Building, 2120 L Street, Washington, D.C. 20555 and in local Public Document Rooms located near each licensed facility. Licensee reports varied in the format and extent of information provided.

Data from prior years used in the comparison tables were obtained from the previous annual summaries.

2.0 Tabulated Data

2.1 Airborne and Liquid Effluents

Tables 1 through 4 list for each reactor, the measured quantities of total noble gases and of I-131 and particulates (with half lives greater than 8 days) released in effluents to the atmosphere during each of the years 1974 through 1993. Tables 5 and 6 list the total measured quantities of tritium released in liquid effluents in each of the years. Tables 7 and 8 list the mixed fission and activation products not including noble gases, tritium and alpha released in liquid effluents in each of the years.

[1] Previous reports in this series are listed on page ii and iii.

2.2 Solid Waste

The total volumes, activity and the number of shipments of solid waste for each plant during 1993 are summarized in Tables 9 and 10. A comparison for the years 1978 through 1993 is made in Tables 11 and 12.

2.3 Energy Generation

Tables 13 and 14 present a summary of net electrical energy generated by each plant during 1979-1993. Tables 15 and 16 present a summary of the thermal energy generated by each plant during 1993 and previous years from 1979. The reader is cautioned against making simplistic comparisons of radioactive releases with the energy generated because of the many factors which affect the amount of radioactive materials released; factors include the condition of the fuel, primary system integrity, effluent and radioactive waste treatment systems, maintenance activities and the extent to which these systems are used.

2.4 Individual Plant Summaries

Individual plant summaries are presented in alphabetical order. The summaries include general plant information, power production, effluent and solid waste data, and a summary of specific radionuclides measured in effluents. When the only type of solid waste reported is type "A", this may be because the plant did not break solid waste into different types but reported all types together. The activity released for each nuclide for the year for both airborne and liquid effluents is calculated by summing releases for each quarter. More detailed summaries in the format of Regulatory Guide 1.21 such as were used in the 1978 report[2] can be made available since all the data for 1978-1993 are stored in digital form.

A wide variation exists in the lists of specific radionuclides reported by utilities (licensees). Individual licensee Technical Specifications require the measurement and reporting of specific sets of radionuclides and "any others identified." The disparities result because of differing analytical methods used by various licensees for their measurements, and their differing operating histories and effluent and emission control methods.

Copies of the summaries included in this report as well as the more detailed summaries maintained in the computer data base were submitted to the licensees for verification before publication. In most cases, the licensees responded either verifying the included data for their plants or providing corrections. Individuals interested in obtaining the more detailed summaries should contact the Office of Nuclear Reactor Regulations of the Nuclear Regulatory Commission.

Volume 14 is the last report of NUREG/CR-2907, BNL-NUREG-51581 because the NRC has terminated the support for this work.

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[2] "Radioactive Materials Released from Nuclear Power Plants, 1978," NUREG/CR-1497, BNL-NUREG-51192, March, 1981.

2.5 Notation

The following notation is used:

1.86E+06 = 1.86×10^{6}

1.86E-03 = 1.86×10^{-3}

N/R = Not Reported
N/D = Not Detected
N/A = Not Applicable

< may actually mean ≤

3.0 Summary

Nearly all of the radioactive material reported as being released in effluents are from planned releases. Planned releases result from normal operation or from anticipated operational occurrences. The latter include unplanned releases of radioactive materials from miscellaneous actions such as equipment failure, operator error or procedure error; these releases are not of such consequence as to be considered an accident.

At present, it is difficult to compare effluent releases with those of previous years due to, among other contributors, variability in reporting structure and release requirements. Comparisons with respect to power generation are similarly difficult due to factors which strongly affect the releases such as level of fuel cladding defects, design features of plant radioactive waste treatment systems, operational occurrences and equipment performance.

Though perhaps not identifiable as an important factor at any specific plant from the data in this report, the generic improvement in fuel performance over the last several years has either reduced or has had the potential to reduce the amount of radioactive material released in effluents from most plants. In addition, at Boiling Water Reactors (BWRs), the reduction in the amount of airborne radioactive materials being released at some plants since the early and mid-1970s is due in large part to the installation of augmented offgas (AOG) systems, many of which were required to be installed to meet the provisions of Appendix I to 10CFR Part 50, which was promulgated by the NRC in May 1975.

Table 2

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Pressurized Water Reactors

Facility	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Arkansas One 1	1.96E+02	1.03E+03	5.69E+03	1.39E+04	7.50E+03	8.51E+03	3.80E+04	3.73E+03	2.10E+03	9.83E+02
Arkansas One 2						4.53E+03	9.37E+03	4.35E+03	9.78E+03	1.34E+03
Beaver Valley 1&2			1.07E+00	4.73E+01	3.90E+02	1.75E+03	8.64E+01	8.06E+02	1.31E+02	1.98E+02
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2		7.72E+03	9.40E+03	2.23E+04	2.76E+04	1.02E+04	2.96E+03	2.18E+03	8.00E+03	9.75E+03
Catawba 1										
Catawba 2										
Comanche Peak 1										
Donald C. Cook 1&2		2.64E+00	9.75E+02	3.80E+03	4.85E+04	1.09E+04	3.76E+03	5.42E+03	3.88E+03	3.28E+02
Crystal River 3				3.35E+03	6.86E+03	7.26E+04	3.65E+04	3.96E+04	6.85E+03	3.38E+03
Davis-Besse 1				1.27E+03	2.10E+03	< 1.68E+03	< 3.35E+03	1.01E+03	5.35E+02	9.15E+02
Diablo Canyon 1&2										
Joseph M. Farley 1					3.53E+03	3.18E+03	1.92E+04	2.21E+02	3.81E+04	2.20E+04
Joseph M. Farley 2								2.60E+00	3.54E+03	8.47E+02
Fort Calhoun 1	3.03E+02	4.29E+02	1.94E+03	3.81E+03	1.36E+03	7.06E+02	2.97E+02	1.22E+03	3.46E+02	8.79E+02
R. E. Ginna	7.57E+02	1.04E+04	5.52E+03	3.20E+03	9.72E+02	7.62E+02	8.61E+02	5.46E+02	1.95E+03	7.12E+02
Haddam Neck	7.00E+00	4.80E+02	4.52E+02	3.12E+03	2.14E+03	5.53E+03	2.68E+03	1.83E+03	7.54E+02	2.76E+03
Harris 1										
Indian Point 1&2	5.58E+03	8.20E+03	1.16E+04	1.60E+04	1.41E+04	9.03E+03	9.38E+03	9.13E+03	7.27E+03	9.58E+03
Indian Point 3			Shown with	Other Unit	8.09E+02	2.47E+02	1.11E+03	6.57E+03	2.58E+03	5.60E+02
Kewaunee	3.35E+03	2.45E+03	1.40E+03	2.43E+03	4.44E+02	1.52E+02	1.22E+02	1.18E+02	1.66E+02	< 2.25E+02
** Maine Yankee	6.36E+03	4.09E+03	1.30E+03	3.57E+03	1.55E+03	2.09E+03	4.07E+03	3.28E+02	1.53E+03	5.07E+01
McGuire 1								1.58E-01	1.65E-03	1.60E+03
McGuire 2										1.60E+03
Millstone 2			1.57E+03	2.28E+03	7.64E+02	3.59E+02	1.33E+03	2.24E+03	9.09E+03	9.06E+03
Millstone 3										
North Anna 1&2					1.51E+04	6.28E+03	3.50E+03	5.30E+03	4.34E+03	2.22E+04
Oconee 1,2,& 3	1.94E+04	1.51E+04	4.39E+04	3.56E+04	4.33E+04	4.79E+04	1.92E+04	1.63E+04	2.41E+04	2.40E+04
Palisades	< 1.00E+00	2.61E+03	2.99E+01	5.99E+01	3.23E+02	6.84E+01	1.40E+02	3.00E+03	7.38E+03	3.00E+03
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	9.74E+03	4.45E+04	1.91E+03	1.13E+03	5.16E+02	9.68E+02	6.41E+02	6.11E+02	9.93E+02	7.68E+02
Prairie Island 1&2	3.62E+02	2.17E+03	1.74E+03	6.73E+02	1.26E+03	6.97E+02	2.60E+02	4.65E+01	5.47E+02	2.76E+02
Rancho Seco 1		1.18E+02	1.27E+02	2.00E+03	7.10E+03	8.81E+03	1.58E+03	1.37E+03	1.48E+03	6.89E+02
H. B. Robinson 2	2.31E+03	1.17E+03	6.40E+02	4.76E+02	8.84E+02	1.52E+03	5.82E+02	5.13E+02	1.75E+02	2.93E+02
Salem 1			< 1.00E-02	1.96E+01	1.02E+01	2.49E+02	7.82E+01	1.06E+03	2.34E+02	1.25E+02
Salem 2							7.74E+00	6.09E+02	1.11E+03	7.44E+02
San Onofre 1	1.78E+03	1.11E+03	4.16E+02	1.54E+02	1.81E+03	6.37E+02	1.05E+03	4.17E+02	8.61E+01	1.06E+01
San Onofre 2-3									6.40E+00	7.43E+03
Seabrook 1										
Sequoyah 1&2							3.01E+03	9.03E+03	5.74E+03	3.92E+03
South Texas 1										
South Texas 2										
St. Lucie 1			1.72E+03	2.54E+04	2.93E+04	1.54E+04	8.97E+03	2.30E+04	2.33E+04	2.16E+04
St. Lucie 2										1.25E+03
Summer 1									1.40E+02	3.88E+02
Surry 1&2	6.86E+03	8.04E+03	1.91E+04	1.90E+04	4.36E+03	1.78E+03	6.17E+03	1.41E+04	2.11E+04	5.49E+03
Three Mile Island 1	9.16E+02	3.63E+03	2.76E+03	1.66E+04	1.57E+04	2.24E+03	4.64E-03	5.81E-02	7.56E-03	2.01E+01
Three Mile Island 2					8.73E+00	9.97E+06	4.72E+04	2.88E+02	4.89E+02	1.73E+02
TMI 2/Epicor							2.16E+00	1.84E+02	4.26E+02	3.61E+01
* Trojan			7.66E+02	4.45E+03	3.26E+02	9.47E+02	4.10E+02	1.24E+03	9.02E+02	2.29E+02

* Changes to the entries for Trojan for 1976 - 1987 represent corrections which were reported and explained in the Trojan July-December 1990 Effluent and Waste Disposal Report.

** Changes to the entries for Maine Yankee for 1977 - 1988 represent corrections which were reported and explained in the Maine Yankee report "Revised Semiannual Effluent Release Report for 770131 - 901231" Docket Date 92/01/08.

Table 2

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Pressurized Water Reactors

Facility	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Turkey Point 3&4	4.66E+03	1.34E+04	1.56E+04	2.33E+04	2.35E+04	1.06E+04	4.24E+03	4.33E+03	2.00E+04	1.61E+04
Turkey Point 3										
Turkey Point 4										
Vogtle 1&2										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	4.00E+01	2.24E+01	2.57E+01	1.25E+02	6.56E+02	1.82E+02	7.07E+01	1.72E+02	1.55E+02	7.51E+02
Zion 1&2	2.99E+03	4.88E+04	1.14E+05	3.22E+04	6.77E+04	3.41E+04	5.78E+03	6.91E+03	1.61E+04	6.34E+03
Total	< 6.56E+04	1.75E+05	< 2.43E+05	2.40E+05	3.30E+05	< 1.02E+07	< 2.36E+05	1.68E+05	2.25E+05	< 1.83E+05

Table 2

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Pressurized Water Reactors

Facility	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Arkansas One 1	2.90E+03	8.10E+03	1.71E+03	3.26E+02	1.24E+03	2.33E+03	7.00E+02	4.95E+02	8.93E+02	1.79E+01
Arkansas One 2	3.26E+03	8.91E+03	3.46E+03	2.06E+02	2.16E+03	2.76E+03	1.89E+02	1.59E+03	1.70E+03	5.21E+01
Beaver Valley 1&2	1.16E+03	3.92E+01	7.57E+01	2.25E+02	9.41E+01	1.57E+02	8.17E+01	1.49E+02	1.55E+02	5.56E+02
Braidwood 1				2.81E-01	4.19E+01	1.17E+03	1.42E+03	5.24E+03	7.71E+01	3.49E+02
Braidwood 2					3.82E+01	5.07E+02	1.02E+03	5.28E+03	1.56E+02	2.40E+03
Byron 1&2		2.79E+02	6.36E+02	1.30E+03	1.78E+03	8.16E+02	1.24E+03	1.04E+02	3.77E+02	1.22E+02
Callaway 1	2.00E+02	1.67E+03	5.19E+03	2.90E+03	6.89E+02	7.22E+02	9.02E+02	1.36E+02	4.01E+02	8.08E+02
Calvert Cliffs 1&2	3.83E+03	3.98E+03	7.65E+03	4.55E+03	5.70E+03	3.28E+03	6.72E+02	2.57E+03	5.87E+03	2.14E+02
Catawba 1		2.77E+02	1.36E+03	2.41E+03	1.56E+03	3.15E+02	5.33E+02	4.01E+02	4.28E+02	6.48E+02
Catawba 2			1.36E+03	2.41E+03	1.56E+03	3.15E+02	5.33E+02	4.01E+02	4.28E+02	6.48E+02
Comanche Peak 1							9.06E+02	5.89E+03	1.76E+03	1.92E+02
Donald C. Cook 1&2	3.50E+03	4.94E+03	3.29E+02	8.75E+02	2.58E+02	1.15E+02	1.88E+02	8.10E+01	2.04E+02	2.06E+03
Crystal River 3	1.96E+03	1.05E+03	2.76E+03	1.10E+03	3.41E+03	4.54E+03	7.31E+03	1.41E+03	7.86E+02	3.82E+01
Davis-Besse 1	5.02E+02	1.18E+02	5.09E-04	3.80E+02	1.09E+02	3.78E+02	1.09E+03	1.16E+03	3.62E+01	3.48E+02
Diablo Canyon 1&2	5.86E-02	5.72E+02	2.32E+03	7.14E+02	3.27E+02	3.35E+02	5.63E+01	4.62E+01	2.46E+00	2.14E+00
Joseph M. Farley 1	3.73E+03	1.70E+03	1.28E+03	1.30E+03	9.60E+02	9.92E+01	8.72E+01	1.09E+02	6.82E+02	1.94E+02
Joseph M. Farley 2	3.99E+03	6.63E+02	1.84E+03	7.22E+02	5.92E+02	1.60E+02	3.38E+01	3.56E+02	2.68E+01	2.61E+01
Fort Calhoun 1	1.52E+03	1.48E+03	5.68E+02	4.23E+02	7.85E+02	1.64E+02	4.59E+02	3.58E+02	1.51E+02	9.26E+00
R. E. Ginna	2.96E+02	4.06E+02	2.09E+02	1.77E+02	5.17E+01	5.11E+02	5.95E+02	5.14E+02	5.41E+02	1.40E+02
Haddam Neck	7.52E+03	2.76E+03	2.33E+03	3.58E+03	2.55E+03	1.71E+04	1.46E+03	6.11E+03	2.79E+00	2.08E+03
Harris 1				1.71E+03	2.25E+03	1.15E+03	5.96E+02	8.62E+02	1.36E+03	3.49E+02
Indian Point 1&2	3.78E+03	1.88E+03	2.05E+03	4.68E+03	2.27E+02	8.77E+01	2.23E+03	1.41E+03	5.25E+03	1.68E+03
Indian Point 3	1.88E+03	1.54E+03	1.93E+03	1.82E+03	3.10E+02	3.14E+02	6.26E+02	6.05E+01	2.15E+01	4.17E+01
Kewaunee	< 4.04E+01	< 4.97E+01	< 6.55E+01	< 3.19E+01	< 2.91E+01	6.52E+01	2.31E+00	1.81E+00	1.60E+00	3.67E-01
** Maine Yankee	1.54E+02	4.41E+02	1.07E+03	8.34E+02	9.19E+01	2.02E+01	9.46E+02	1.13E+03	4.01E+02	4.50E+01
McGuire 1	2.28E+03	1.93E+03	1.05E+03	2.04E+03	1.95E+03	7.19E+02	5.18E+02	4.49E+02	4.05E+02	4.84E+02
McGuire 2	2.28E+03	1.93E+03	1.05E+03	2.04E+03	1.95E+03	7.19E+02	5.18E+02	4.49E+02	4.05E+02	4.84E+02
Millstone 2	4.19E+03	4.00E+02	1.02E+02	3.97E+02	6.34E+02	2.46E+02	2.89E+03	3.89E+02	6.36E+02	1.32E+01
Millstone 3			2.39E+01	1.05E+02	8.44E+01	2.96E+02	2.11E+02	1.25E+02	1.13E+00	3.00E+01
North Anna 1&2	1.76E+04	8.05E+03	5.71E+03	1.05E+03	4.83E+02	1.44E+03	9.52E+02	2.24E+03	1.23E+03	2.51E+02
Oconee 1,2,& 3	2.28E+04	2.35E+04	2.43E+04	1.05E+04	2.59E+04	8.97E+03	8.84E+03	3.45E+03	3.29E+03	6.58E+02
Palisades	2.84E+01	3.68E+03	1.73E+02	1.75E+03	2.43E+03	1.52E+02	1.21E+02	6.26E+01	7.46E+01	9.29E+01
Palo Verde 1		2.53E+02	2.67E+03	1.27E+03	1.84E+03	6.41E+02	7.08E+02	2.91E+03	2.22E+03	5.79E+02
Palo Verde 2			1.97E+03	5.47E+03	2.97E+03	4.29E+02	6.76E+02	5.29E+02	2.01E+02	2.62E+02
Palo Verde 3				2.52E-02	1.36E+02	8.34E+02	1.20E+03	4.38E+02	4.35E+01	1.97E+02
Point Beach 1&2	9.30E+01	1.16E+02	2.78E+01	4.82E+01	8.08E+01	1.50E+01	8.03E+00	2.00E+01	5.06E+01	1.01E+01
Prairie Island 1&2	7.58E+01	4.59E+01	3.03E+01	8.77E-01	1.42E-01	1.73E+02	8.28E+01	5.60E+01	2.54E+01	3.68E+01
Rancho Seco 1	3.83E+03	4.67E+03	9.30E+01	2.16E-02	1.52E+03	2.00E+03	2.20E-01	N/D	6.93E-02	N/D
H. B. Robinson 2	4.90E+01	2.14E+03	6.59E+02	7.70E+02	1.04E+03	2.79E+01	7.20E+00	2.26E+00	7.59E+00	3.99E+02
Salem 1	1.95E+02	1.68E+03	1.39E+03	3.64E+03	5.29E+02	1.39E+03	3.13E+02	3.66E+02	6.75E+02	1.12E+03
Salem 2	1.81E+03	1.15E+03	8.56E+02	1.06E+03	1.18E+03	7.30E+01	1.49E+02	1.92E+02	2.68E+02	3.42E+02
San Onofre 1	8.62E+01	3.83E+03	4.11E+02	9.81E+02	2.99E+03	9.05E+02	1.80E+03	2.49E+03	4.12E+03	4.20E+02
San Onofre 2-3	4.00E+04	2.53E+04	8.25E+03	2.18E+04	5.12E+03	2.46E+03	1.16E+03	1.30E+03	1.41E+03	1.54E+03
Seabrook 1						N/D	1.07E+02	2.92E+01	9.13E-01	1.09E-01
Sequoyah 1&2	6.68E+03	4.57E+03	1.21E+00	N/D	2.25E+02	3.85E+03	6.07E+03	1.42E+03	2.07E+02	7.71E+01
South Texas 1					8.64E+02	4.45E+02	1.72E+02	8.55E+01	2.89E+02	2.42E+01
South Texas 2						1.16E+02	1.09E+02	4.67E+01	6.23E+02	1.79E+01
St. Lucie 1	3.53E+04	5.08E+04	3.33E+04	6.21E+03	1.42E+03	4.53E+03	6.19E+02	2.05E+03	3.30E+02	2.61E+02
St. Lucie 2	7.68E+03	9.55E+03	9.98E+03	8.60E+03	9.16E+03	2.22E+03	5.34E+02	4.90E+02	6.59E+02	8.62E+01
Summer 1	1.64E+01	1.40E+02	1.39E+01	6.34E+02	3.32E+02	1.82E+03	7.51E+02	4.34E+02	3.38E+02	2.43E+02
Surry 1&2	6.95E+03	2.07E+03	1.99E+03	3.08E+02	3.66E+02	1.37E+02	4.51E+02	3.54E+01	1.61E+01	4.15E+01
Three Mile Island 1	3.62E-01	1.08E+02	3.80E+03	7.89E+02	1.87E+03	2.10E+03	6.66E+02	1.22E+02	5.73E+02	2.40E+03
Three Mile Island 2	2.07E+02	N/D	2.80E-01	N/D	4.40E-01	N/D	N/D	4.18E-05	5.81E-05	4.41E-02
TMI 2/Epicor	3.99E+01	*+	*+	*+	*+	*+	*+	*+	*+	*+
* Trojan	8.98E+02	1.10E+03	9.42E+02	2.55E+02	4.25E+02	5.94E+02	2.06E+02	1.66E+02	2.07E+02	5.34E+01

* Changes to the entries for Trojan for 1976-1987 are corrections which were reported and explained in the Trojan July-December 1990 Effluent and Waste Disposal Report.

** Changes to the entries for Maine Yankee for 1977 - 1988 are corrections which were reported and explained in the Main Yankee report "Revised Semiannual Effluent and Release Reports for 770131 - 901231" Docket Date 92/01/08.

*+ Included with Three Mile Island 2 total

N/D = Not Detectable

Table 2

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Pressurized Water Reactors

Facility	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Turkey Point 3&4	1.16E+04									
Turkey Point 3		1.32E+03	3.64E+03	9.38E+02	1.25E+03	1.70E+03	6.88E+02	8.95E+00	6.15E+01	2.31E+02
Turkey Point 4		1.80E+03	1.01E+03	7.86E+02	1.31E+03	1.71E+03	5.92E+02	9.49E+00	6.22E+01	2.22E+02
Vogtle 1&2				1.07E+02	1.15E+02	5.46E+02	1.88E+02	3.58E+02	1.13E+02	2.34E+02
Waterford 3		8.21E+03	1.12E+04	5.63E+03	5.30E+03	5.59E+02	5.73E+03	2.15E+03	6.93E+02	9.13E+02
Wolf Creek 1		1.72E+02	3.15E+01	1.73E+02	7.92E+02	6.40E+02	9.99E+02	3.00E+03	3.08E+02	5.20E+02
Yankee Rowe 1	1.74E+03	1.47E+03	5.11E+02	3.84E+02	2.06E+02	1.21E+02	1.13E+02	2.15E+02	N/D	N/D
Zion 1&2	3.61E+03	3.88E+03	3.18E+03	1.18E+02	1.39E+03	1.12E+03	1.10E+02	2.76E+02	3.35E+02	2.61E+03
Total	**< 2.10E+05**	**< 2.05E+05**	**< 1.57E+05**	**< 1.11E+05**	**< 1.03E+05**	8.11E+04	6.21E+04	6.22E+04	4.16E+04	2.79E+04

Table 4

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)
(Half-Life Equal To or Greater Than 8 Days)

Pressurized Water Reactors

Facility	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Arkansas One 1	5.00E-02	7.40E-01	5.73E-02	9.04E-03	3.19E-03	4.47E-03	1.66E-01	5.58E-03	9.07E-04	1.15E-03
Arkansas One 2						4.65E-03	6.90E-03	1.41E-02	4.92E-03	5.78E-03
Beaver Valley 1&2			#< 1.00E-02	1.52E-04	7.21E-02	4.07E-04	1.91E-03	6.85E-03	4.56E-03	5.25E-02
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2		7.00E-02	1.38E-01	3.07E-01	1.35E-01	2.05E+00	7.44E-02	4.69E-02	1.84E-01	1.02E-01
Catawba 1										
Catawba 2										
Comanche Peak 1										
Donald C. Cook 1&2		< 1.00E-02	< 1.00E-02	7.45E-02	1.10E-01	7.36E-02	6.88E-02	3.55E-01	1.28E-01	5.75E-02
Crystal River 3				2.53E-03	1.05E-03	1.88E-02	6.77E-03	1.78E-02	3.22E-03	1.58E-03
Davis-Besse 1				2.57E-04	4.30E-04	5.69E-03	2.01E-03	5.79E-02	5.28E-03	7.37E-03
Diablo Canyon 1&2										
Joseph M. Farley 1					4.11E-02	2.20E-02	2.37E-03	6.24E-01	9.09E-02	4.60E-02
Joseph M. Farley 2								3.22E-03	6.51E-05	5.06E-05
Fort Calhoun 1	< 1.00E-02	< 1.00E-02	< 2.04E-02	1.34E-02	8.30E-03	1.58E-03	2.42E-03	3.63E-03	1.59E-03	9.32E-04
R. E. Ginna	< 1.00E-02	2.00E-02	3.17E-02	2.55E-02	1.04E-02	1.88E-02	9.00E-03	5.88E-03	1.36E-02	1.53E-02
Haddam Neck	< 1.00E-02	< 1.00E-02	< 1.00E-02	1.74E-03	5.21E-03	4.77E-02	8.01E-03	< 1.28E-02	< 5.41E-04	< 1.02E-02
Harris 1										
Indian Point 1&2	4.30E-01	1.62E+00	2.42E-01	5.59E-02	2.05E-01	4.50E-01	6.42E-02	4.42E-02	4.17E-02	2.06E-02
Indian Point 3			Shown With	Other Unit	1.29E-02	3.89E-03	2.53E-02	3.63E-03	< 4.28E-03	< 1.53E-04
Kewaunee	2.00E-02	6.60E-01	< 1.00E-02	2.40E-02	5.48E-03	6.18E-04	2.61E-04	1.21E-04	5.97E-05	< 2.16E-04
** Maine Yankee	5.00E-02	< 1.00E-02	< 1.00E-02	1.07E-02	4.39E-03	1.16E-01	3.67E-03	1.21E-03	2.55E-04	1.48E-04
McGuire 1								1.21E-11	9.51E-04	1.89E-03
McGuire 2										1.89E-03
Millstone 2		1.00E-02	1.25E-02	4.47E-03	2.97E-03	9.79E-03	1.94E-02	1.06E-01	3.19E-01	5.73E-02
Millstone 3										
North Anna 1&2					3.19E-02	5.71E-02	1.26E-02	4.81E-01	3.49E-02	3.28E-01
Oconee 1,2,& 3	3.00E-02	1.00E-02	2.72E-01	5.35E-01	2.22E-01	2.28E-01	1.33E-01	3.24E-01	2.55E-01	1.13E-01
Palisades	1.00E-02	3.80E-01	4.16E-02	1.63E-02	2.07E-02	2.46E-02	2.76E-02	4.15E-02	2.30E-02	3.44E-02
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	1.60E-01	7.00E-02	1.85E-02	5.02E-03	2.88E-02	1.35E-02	1.28E-03	2.03E-01	8.46E-03	1.82E-02
Prairie Island 1&2	< 1.00E-02	2.12E-02	1.14E-02	7.56E-03	8.96E-04	3.86E-03	1.83E-03	4.49E-04	3.74E-03	1.40E-02
Rancho Seco 1	< 1.00E-02	< 1.00E-02	< 1.00E-02	5.02E-03	3.21E-02	5.75E-03	9.96E-03	4.65E-03	2.62E-02	2.26E-03
H. B. Robinson 2	5.00E-02	2.00E-02	9.96E-02	3.88E-03	9.26E-04	4.10E-04	1.13E-03	3.32E-04	5.70E-04	1.31E-02
Salem 1			N/D	2.34E-07	4.01E-02	7.68E-03	2.17E-01	4.84E-01	7.85E-03	6.25E-02
Salem 2							5.44E-05	6.31E-03	4.54E-03	3.53E-02
San Onofre 1	< 1.00E-02	4.00E-02	< 1.00E-02	1.86E-04	2.71E-03	1.43E-04	8.41E-01	1.18E-02	4.66E-07	5.44E-06
San Onofre 2-3									3.35E-05	1.56E-01
Seabrook 1										
Sequoyah 1&2							2.57E-03	1.30E-02	1.23E-01	2.22E-03
South Texas 1										
South Texas 2										
St. Lucie 1			< 1.00E-02	1.48E-01	5.17E-01	2.02E-01	6.20E-02	7.69E-02	4.15E-01	2.13E-01
St. Lucie 2										1.27E-02
Summer 1									N/D	4.74E-05
Surry 1&2	1.40E-01	5.00E-02	3.46E-01	1.20E-01	6.49E-02	7.61E-03	1.85E-02	6.53E-02	5.96E-02	8.34E-02
Three Mile Island 1	< 1.00E-02	< 1.00E-02	1.07E-02	3.39E-02	1.35E-01	1.24E-02	2.93E-04	5.05E-04	1.65E-04	6.55E-05
Three Mile Island 2					2.30E-03	1.42E+01	5.67E-04	3.69E-05	6.46E-05	2.79E-05
TMI 2/Epicor							6.83E-06	2.63E-06	3.71E-06	1.80E-06
* Trojan			2.84E-02	3.56E-02	8.28E-03	2.48E-02	1.84E-02	4.97E-02	1.09E-02	5.57E-03

* Changes to the entries for Trojan for 1976-1987 are corrections which were reported and explained in the Trojan July-December 1990 Effluent and Waste Disposal Report.

I-131 not included

** Changes to the entries for Maine Yankee for 1977 - 1988 are corrections which were reported and explained in the Maine Yankee report "Revised Semiannual Effluent Release Reports for 770131 - 901231" Docket Date 92/01/08.

N/D = Not Detectable

Table 4

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)
(Half-Life Equal To or Greater Than 8 Days)

Pressurized Water Reactors

Facility	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Turkey Point 3&4	3.63E+00	4.30E-01	4.22E-01	1.04E+00	4.59E-01	7.91E-02	7.05E-02	2.94E-02	2.20E-01	1.44E-01
Turkey Point 3										
Turkey Point 4										
Vogtle 1&2										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	5.30E-01	1.00E-02 <	1.00E-02	8.70E-05	2.25E-04	2.49E-04	9.56E-05	2.13E-04 <	5.75E-04	3.11E-03
Zion 1&2	1.00E-02	1.40E-01	9.00E-02	5.38E-02	8.91E-02	6.74E-02	3.00E-03	1.25E-02	8.57E-02	2.28E-02
Total	< 5.17E+00	< 4.35E+00	< 1.93E+00	2.53E+00	2.27E+00	1.78E+01	1.88E+00	< 3.11E+00	< 2.08E+00	< 1.65E+00

Table 4

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)
(Half-Life Equal To or Greater Than 8 Days)

Pressurized Water Reactors

Facility	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Arkansas One 1	1.14E-03	3.50E-03	4.01E-03	3.05E-04	1.03E-03	8.17E-04	8.94E-04	2.51E-03	4.99E-02	7.30E-06
Arkansas One 2	2.54E-04	3.27E-03	2.36E-04	5.12E-05	4.21E-04	5.87E-04	2.03E-04	4.27E-02	7.89E-04	4.87E-06
Beaver Valley 1&2	6.21E-03	1.58E-03	7.83E-03	1.36E-02	3.54E-03	1.11E-02	3.20E-04	1.02E-02	1.27E-03	2.20E-02
Braidwood 1				1.34E-05	2.44E-02	2.54E-04	1.56E-03	6.01E-03	2.91E-05	3.19E-04
Braidwood 2					9.52E-05	2.86E-04	5.61E-04	5.07E-03	7.55E-06	2.87E-03
Byron 1&2		2.18E-03	5.45E-02	9.45E-03	1.28E-02	7.93E-04	4.08E-03	1.81E-04	4.36E-04	4.38E-04
Callaway 1	9.41E-07	3.23E-04	1.18E-03	4.46E-04	3.36E-04	1.66E-04	1.46E-04	9.16E-06	4.87E-04	6.28E-04
Calvert Cliffs 1&2	6.02E-02	5.36E-02	8.73E-02	9.18E-02	1.36E-01	4.81E-02	1.69E-03	1.32E-02	1.68E-02	2.16E-02
Catawba 1		5.71E-04	6.69E-03	7.42E-03	4.05E-03	7.46E-04	8.60E-04	1.39E-03	7.71E-04	4.58E-04
Catawba 2			6.69E-03	7.42E-03	4.05E-03	7.46E-04	8.60E-04	1.39E-03	7.71E-04	4.58E-04
Comanche Peak 1							N/D	1.85E-05	8.31E-04	7.56E-05
Donald C. Cook 1&2	2.09E-02	1.78E-01	2.29E-02	6.44E-02	8.92E-03	3.44E-02	7.35E-02	2.41E-03	9.38E-03	5.01E-04
Crystal River 3	2.07E-04	7.31E-04	1.02E-03	3.49E-03	1.25E-03	2.02E-03	7.68E-04	4.57E-04	5.59E-04	2.64E-05
Davis-Besse 1	1.66E-03	5.13E-04	N/D	1.24E-03	4.76E-04	3.06E-03	2.38E-03	8.70E-03	9.57E-04	7.79E-03
Diablo Canyon 1&2	1.20E-05	2.40E-04	1.44E-03	2.36E-03	1.29E-03	9.75E-04	5.94E-05	5.90E-04	2.57E-03	5.06E-05
Joseph M. Farley 1	5.87E-03	5.60E-03	7.96E-04	3.81E-04	1.60E-03	3.64E-05	N/D	1.60E-03	3.80E-04	N/D
Joseph M. Farley 2	1.54E-03	2.97E-04	1.35E-03	1.49E-04	2.51E-06	7.89E-07	3.15E-06	1.43E-05	4.66E-05	1.26E-07
Fort Calhoun 1	1.25E-02	7.29E-03	1.48E-03	5.11E-03	3.10E-04	1.27E-04	1.81E-03	3.22E-04	5.66E-04	2.27E-05
R. E. Ginna	1.62E-03	9.74E-04	4.04E-04	8.71E-03	5.69E-05	8.38E-04	5.14E-03	1.65E-03	1.40E-03	7.46E-04
Haddam Neck	5.72E-02	1.13E-03	9.36E-03	1.35E-03	3.69E-02	1.50E-02	4.71E-03	2.60E-02	5.39E-03	1.25E-02
Harris 1				4.43E-06	4.59E-05	1.79E-06	7.72E-05	4.71E-05	8.16E-04	1.81E-04
Indian Point 1&2	< 1.51E-01	1.44E+00	4.59E-01	1.57E-02	9.18E-03	3.88E-03	5.36E-03	2.10E-03	1.32E-02	5.76E-03
Indian Point 3	2.04E-02	1.90E-03	4.01E-03	2.07E-03	3.42E-03	1.36E-03	1.81E-04	2.44E-05	8.26E-05	1.55E-04
Kewaunee	< 4.05E-03	2.77E-04	< 5.58E-03	< 1.23E-02	< 1.05E-02	1.75E-02	3.24E-03	1.93E-03	1.79E-06	2.02E-05
** Maine Yankee	7.14E-03	8.17E-04	4.60E-03	5.05E-03	5.10E-04	2.39E-04	1.81E-02	7.22E-03	5.24E-03	5.61E-03
McGuire 1	1.25E-02	1.29E-02	3.03E-02	6.08E-02	6.14E-03	3.76E-03	1.02E-03	9.78E-04	1.16E-03	8.66E-04
McGuire 2	1.25E-02	1.29E-02	3.03E-02	6.08E-02	6.14E-03	3.76E-03	1.02E-03	9.78E-04	1.16E-03	8.66E-04
Millstone 2	3.71E-02	6.48E-03	5.37E-03	6.51E-03	5.13E-02	3.78E-02	2.08E-02	1.27E-02	7.87E-03	1.06E-03
Millstone 3			< 3.69E-04	5.09E-03	9.89E-03	1.28E-02	2.46E-03	4.60E-03	9.71E-04	1.05E-03
North Anna 1&2	8.65E-02	8.57E-02	2.27E-02	1.73E-02	2.30E-03	4.33E-03	7.05E-03	2.70E-03	1.36E-02	2.90E-03
Oconee 1,2,& 3	1.07E-01	4.92E-03	4.34E-02	1.46E-01	1.63E-01	3.56E-02	9.02E-03	2.90E-02	1.41E-02	3.32E-03
Palisades	9.92E-04	4.92E-02	3.03E-03	2.77E-02	2.65E-02	1.73E-02	2.13E-03	3.02E-04	9.52E-04	1.12E-03
Palo Verde 1		1.43E-03	7.78E-03	5.81E-02	1.82E-03	7.58E-04	2.69E-03	1.15E-02	1.20E-02	1.00E-02
Palo Verde 2			3.49E-03	1.34E-02	4.67E-02	3.03E-03	2.66E-03	2.08E-02	1.77E-05	7.34E-03
Palo Verde 3				N/D	1.24E-04	6.45E-03	6.34E-04	3.32E-03	1.91E-03	1.72E-03
Point Beach 1&2	1.25E-03	9.05E-03	1.69E-03	3.08E-03	2.23E-03	3.27E-03	3.02E-04	3.46E-03	6.75E-03	1.48E-02
Prairie Island 1&2	1.44E-03	7.35E-03	2.22E-03	2.33E-04	7.74E-05	2.10E-05	1.50E-03	4.87E-04	2.53E-04	7.40E-04
Rancho Seco 1	2.37E-02	7.84E-03	1.49E-03	1.54E-06	4.74E-04	2.76E-04	N/D	N/D	N/D	N/D
H. B. Robinson 2	2.47E-04	1.37E-02	9.92E-03	2.08E-02	1.10E-03	1.41E-04	1.34E-04	1.73E-04	1.39E-04	1.56E-03
Salem 1	5.16E-04	4.45E-02	1.17E-03	1.66E-03	2.13E-03	3.62E-03	1.20E-03	1.66E-03	3.79E-04	5.11E-03
Salem 2	5.41E-03	8.95E-02	3.23E-03	1.52E-03	9.91E-04	8.70E-04	2.06E-04	7.13E-04	7.10E-05	1.13E-03
San Onofre 1	9.49E-06	1.17E-03	2.09E-04	4.17E-04	1.08E-02	2.22E-03	7.25E-03	1.94E-03	1.57E-02	3.01E-04
San Onofre 2-3	4.12E-01	4.47E-01	1.62E-01	4.20E-01	7.75E-02	4.73E-01	7.05E-03	1.14E-02	2.32E-02	4.99E-02
Seabrook 1						N/D	N/D	1.08E-03	1.11E-03	6.60E-07
Sequoyah 1&2	2.12E-02	3.17E-03	1.56E-03	5.04E-04	1.90E-04	4.22E-04	2.65E-04	5.66E-04	9.23E-05	1.41E-05
South Texas 1					8.26E-04	4.02E-03	1.15E-03	1.85E-03	2.52E-03	4.84E-05
South Texas 2						1.42E-03	5.75E-04	2.72E-04	4.63E-05	4.85E-04
St. Lucie 1	2.60E-01	7.91E-01	2.69E-01	3.95E-02	6.40E-03	5.75E-03	8.36E-03	2.69E-03	1.03E-03	2.08E-03
St. Lucie 2	2.84E-01	1.92E-01	4.20E-02	5.51E-02	2.86E-02	8.27E-03	5.79E-03	4.86E-03	4.88E-03	5.06E-04
Summer 1	9.00E-06	2.55E-05	2.99E-05	7.04E-04	2.33E-03	1.61E-03	5.57E-04	2.84E-04	2.14E-04	4.39E-03
Surry 1&2	5.87E-02	2.67E-02	2.09E-02	2.09E-02	2.02E-02	2.37E-03	2.93E-03	1.10E-03	8.04E-04	7.86E-04
Three Mile Island 1	1.27E-09	2.86E-05	3.97E-04	1.28E-04	1.26E-03	8.22E-03	1.53E-03	9.89E-04	4.95E-03	7.38E-03
Three Mile Island 2	1.61E-05	4.59E-05	1.67E-04	7.27E-05	6.78E-05	3.50E-06	3.74E-06	7.80E-05	5.49E-06	5.91E-02
TMI 2/Epicor	7.93E-07	*+	*+	*+	*+	*+	*+	*+	*+	*+
* Trojan	4.65E-03	5.75E-03	8.62E-03	2.61E-03	3.97E-03	4.30E-03	1.64E-03	5.81E-04	2.44E-04	N/D

* Changes to the entries for Trojan for 1976-1987 are corrections which were reported and explained in the Trojan July-December 1990 Effluent and Waste Disposal Report.

** Changes to the entries for Maine Yankee for 1977 - 1988 are corrections which are reported and explained in the Maine Yankee report "Revised Semiannual Effluent Release Reports for 770131 - 901231" Docket Date 92/01/08.

*+ Included with Three Mile Island 2 total

N/D = Not Detectable

Table 4

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)
(Half-Life Equal To or Greater Than 8 Days)

Pressurized Water Reactors

Facility	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Turkey Point 3&4	2.77E-02									
Turkey Point 3		7.98E-03	1.93E-02	1.24E-02	4.83E-03	3.10E-03	4.60E-03	6.53E-04	1.15E-04	1.13E-03
Turkey Point 4		7.88E-03	2.45E-03	1.38E-02	4.78E-03	2.99E-04	1.87E-03	6.52E-04	1.15E-04	1.13E-03
Vogtle 1&2				1.99E-05	1.75E-05	1.25E-03	8.49E-05	2.08E-03	5.87E-03	5.21E-04
Waterford 3		3.48E-03	5.30E-03	1.02E-03	1.24E-03	7.62E-04	5.99E-04	2.36E-03	2.75E-05	1.08E-06
Wolf Creek 1		1.67E-06	2.11E-04	2.14E-04	8.36E-05	2.31E-05	1.71E-04	2.40E-03	1.81E-05	6.92E-04
Yankee Rowe 1	< 6.49E-03	< 7.61E-04	2.02E-04	4.10E-05	5.89E-05	< 1.82E-04	1.61E-04	2.97E-05	7.71E-06	7.97E-07
Zion 1&2	4.27E-02	2.55E-02	4.48E-02	4.07E-03	1.40E-02	2.39E-03	1.38E-03	7.65E-03	5.11E-02	3.46E-02
Total	< 1.76E+00	< 3.56E+00	< 1.42E+00	< 1.25E+00	< 7.59E-01	< 7.96E-01	2.25E-01	2.73E-01	2.86E-01	2.99E-01

Table 6

Liquid Effluents Comparison By Year

Tritium (Curies)

Pressurized Water Reactors

Facility	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Arkansas One 1	2.56E+01	4.60E+02	2.12E+02	2.45E+02	2.94E+02	1.68E+02	2.12E+02	4.42E+02	2.06E+02	1.09E+02
Arkansas One 2						5.27E+01	2.89E+02	2.44E+02	1.39E+02	2.38E+02
Beaver Valley 1&2			8.60E+00	1.08E+02	3.49E+02	9.59E+01	3.98E+01	1.40E+02	1.84E+02	4.60E+02
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2		2.63E+02	2.74E+02	5.75E+02	4.56E+02	5.14E+02	4.91E+02	1.00E+03	4.35E+02	7.56E+02
Catawba 1										
Catawba 2										
Comanche Peak 1										
Donald C. Cook 1&2		5.64E+01	1.92E+02	2.86E+02	6.24E+02	1.22E+03	7.82E+02	9.15E+02	1.23E+03	8.85E+02
Crystal River 3				1.66E+02	1.54E+02	1.66E+02	1.95E+02	2.71E+02	1.82E+02	1.99E+02
Davis-Besse 1				9.01E+00	2.15E+02	2.45E+02	1.08E+02	1.57E+02	5.68E+01	1.14E+02
Diablo Canyon 1&2										
Joseph M. Farley 1					5.91E+01	9.40E+01	5.70E+02	1.65E+02	3.37E+02	4.12E+02
Joseph M. Farley 2								6.34E+02	3.59E+02	3.17E+02
Fort Calhoun 1	1.24E+02	1.11E+02	1.22E+02	1.57E+02	1.50E+02	2.58E+02	5.44E+01	2.42E+02	3.08E+02	1.53E+02
R. E. Ginna	1.95E+02	2.60E+02	2.42E+02	1.19E+02	2.42E+02	2.40E+02	1.60E+02	2.40E+02	3.08E+02	3.50E+02
Haddam Neck	2.24E+03	5.67E+03	4.85E+03	6.67E+03	3.94E+03	3.55E+03	3.29E+03	5.29E+03	4.05E+03	3.90E+03
Harris 1										
Indian Point 1&2	4.79E+01	7.94E+01	3.32E+02	3.71E+02	5.12E+02	3.75E+02	2.76E+02	2.41E+02	1.72E+02	3.43E+02
Indian Point 3			Shown With	Other Unit	2.56E+02	1.15E+02	4.27E+02	6.42E+02	1.94E+02	3.19E+01
Kewaunee	9.24E+01	2.77E+02	1.80E+02	2.95E+02	2.96E+02	2.49E+02	2.33E+02	2.51E+02	3.18E+02	2.92E+02
Maine Yankee	2.19E+02	1.77E+02	3.67E+02	1.53E+02	3.15E+02	2.02E+02	2.18E+02	2.16E+02	1.85E+02	2.87E+02
McGuire 1								6.25E+00	1.60E+02	1.49E+02
McGuire 2										1.49E+02
Millstone 2		7.60E+00	2.77E+02	2.11E+02	2.01E+02	2.54E+02	2.68E+02	3.71E+02	2.91E+02	1.21E+02
Millstone 3										
North Anna 1&2					2.82E+02	3.13E+02	4.03E+02	1.28E+03	5.71E+02	1.61E+03
Oconee 1,2,& 3	3.50E+02	3.55E+03	2.19E+03	1.92E+03	1.17E+03	8.94E+02	7.12E+02	5.07E+02	3.54E+02	1.28E+03
Palisades	8.10E+00	4.16E+01	9.63E+00	5.58E+01	1.01E+02	1.26E+02	7.47E+01	2.78E+02	1.79E+02	2.35E+02
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	8.33E+02	8.85E+02	6.94E+02	9.99E+02	1.29E+03	8.92E+02	7.61E+02	6.52E+02	5.03E+02	5.39E+02
Prairie Island 1&2	1.42E+02	4.54E-01	1.00E-01	1.35E+03	5.51E+02	6.25E+02	5.43E+02	5.62E+02	6.00E+02	5.20E+02
Rancho Seco 1		1.32E+02	N/D	8.55E-02	N/D	N/D	1.47E-02	8.35E+01	6.46E+01	7.43E+01
H. B. Robinson 2	4.49E+02	6.24E+02	9.80E+02	6.85E+02	4.73E+02	4.29E+02	1.89E+02	1.86E+02	9.51E+01	2.40E+02
Salem 1			4.00E-02	2.96E+02	4.46E+02	7.26E+02	N/D	4.93E+02	7.22E+02	2.08E+02
Salem 2							N/R	8.42E+02	5.25E+02	2.23E+02
San Onofre 1	3.81E+03	4.00E+03	3.39E+03	1.79E+03	2.50E+03	2.32E+03	1.03E+03	2.97E+02	5.45E+02	1.57E+01
San Onofre 2-3									8.92E+00	2.38E+02
Seabrook 1										
Sequoyah 1&2							3.23E-01	7.65E+01	9.34E+02	7.35E+02
South Texas 1										
South Texas 2										
St. Lucie 1			1.33E+01	2.42E+02	1.28E+02	1.28E+02	2.72E-02	3.25E+02	3.21E+02	3.46E+02
St. Lucie 2										3.77E+01
Summer 1									3.19E-01	2.27E+02
Surry 1&2	2.45E+02	4.42E+02	7.82E+02	4.08E+02	7.47E+02	3.57E+02	3.85E+02	5.31E+02	9.10E+02	7.17E+02
Three Mile Island 1	1.30E+02	4.63E+02	1.89E+02	1.92E+02	1.55E+02	5.59E+01	3.26E+01	7.11E+00	3.91E+00	3.09E+00
Three Mile Island 2					3.83E+01	7.81E+01	6.10E-04	5.06E-02	7.20E-02	3.75E-04
TMI 2/Epicor							N/D	N/D	N/D	N/D
Trojan			3.60E+01	3.11E+02	1.59E+02	6.80E+01	1.24E+02	1.03E+02	2.00E+02	2.34E+02

N/R = Not Reported
N/D = Not Detectable

Table 6

Liquid Effluents Comparison By Year

Tritium (Curies)

Pressurized Water Reactors

Facility	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Turkey Point 3&4	5.80E+02	7.97E+02	7.71E+02	9.24E+02	1.17E+03	9.40E+02	7.49E+02	1.95E+02	6.27E+02	7.12E+02
Turkey Point 3										
Turkey Point 4										
Vogtle 1&2										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	3.14E+02	2.47E+02	1.56E+02	1.39E+02	1.96E+02	1.75E+02	5.84E+01	1.03E+02	1.86E+02	1.68E+02
Zion 1	2.74E+02	1.03E+03	7.47E+02	7.24E+02	7.25E+02	6.01E+02	7.45E+02	6.04E+02	6.76E+02	1.74E+02
Zion 2								2.66E+02	3.77E+02	2.56E+02
Total	1.01E+04	1.96E+04	1.70E+04	1.94E+04	1.82E+04	1.65E+04	1.37E+04	1.89E+04	1.75E+04	1.81E+04

Table 6

Liquid Effluents Comparison By Year

Tritium (Curies)

Pressurized Water Reactors

Facility	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Arkansas One 1	3.05E+02	3.27E+02	2.12E+02	1.50E+02	2.50E+02	3.81E+02	2.67E+02	5.18E+02	5.06E+02	4.51E+02
Arkansas One 2	3.09E+02	2.41E+02	2.30E+02	3.52E+02	2.44E+02	4.40E+02	5.33E+02	9.40E+02	2.98E+02	3.08E+02
Beaver Valley 1&2	4.12E+02	1.50E+02	2.06E+02	5.72E+02	4.09E+02	6.21E+02	4.91E+02	4.85E+02	4.65E+02	5.53E+02
Braidwood 1				4.12E+01	2.74E+02	5.58E+02	6.50E+02	3.43E+02	9.58E+02	8.05E+02
Braidwood 2					2.44E+02	5.58E+02	6.50E+02	3.43E+02	9.58E+02	8.05E+02
Byron 1&2		2.61E+02	6.70E+01	4.10E+02	1.01E+03	1.29E+03	9.98E+02	1.43E+03	1.58E+03	2.06E+03
Callaway 1	2.90E+01	5.88E+02	4.35E+02	4.48E+02	8.93E+02	6.09E+02	1.02E+03	1.23E+03	5.92E+02	1.41E+03
Calvert Cliffs 1&2	7.87E+02	4.83E+02	7.35E+02	7.38E+02	6.24E+02	2.36E+02	7.29E+01	1.02E+03	1.77E+03	6.36E+02
Catawba 1		1.75E+02	1.18E+02	3.64E+02	3.53E+02	4.45E+02	2.97E+02	3.23E+02	3.86E+02	4.13E+02
Catawba 2			1.18E+02	3.64E+02	3.53E+02	4.45E+02	2.97E+02	3.23E+02	3.86E+02	4.13E+02
Comanche Peak 1							1.87E+02	4.60E+02	6.11E+02	5.04E+02
Donald C. Cook 1&2	1.37E+03	1.14E+03	6.95E+02	1.97E+03	1.10E+03	8.74E+02	1.56E+03	1.55E+03	4.33E+02	6.01E+02
Crystal River 3	4.20E+02	1.76E+02	1.73E+02	3.56E+02	5.11E+02	3.44E+02	5.10E+02	4.49E+02	3.64E+02	5.89E+02
Davis-Besse 1	1.22E+02	6.74E+01	2.09E+01	2.46E+02	3.50E+01	2.39E+02	1.27E+02	3.26E+02	3.80E+02	1.81E+02
Diablo Canyon 1&2	1.07E+00	4.28E+02	6.98E+02	8.91E+02	4.29E+02	9.35E+02	9.68E+02	1.05E+03	1.22E+03	1.03E+03
Joseph M. Farley 1	4.23E+02	6.03E+02	7.14E+02	6.37E+02	5.16E+02	6.99E+02	7.35E+02	4.71E+02	8.18E+02	9.35E+02
Joseph M. Farley 2	3.56E+02	5.02E+02	6.22E+02	5.05E+02	7.53E+02	6.08E+02	6.72E+02	3.53E+02	7.90E+02	8.85E+02
Fort Calhoun 1	2.35E+02	1.67E+02	1.84E+02	2.28E+02	2.32E+02	2.28E+02	1.74E+02	1.77E+02	1.06E+02	2.39E+02
R. E. Ginna	4.59E+02	5.01E+02	3.57E+02	5.64E+02	3.47E+02	5.92E+02	3.21E+02	3.76E+02	2.13E+02	1.77E+02
Haddam Neck	3.66E+03	5.76E+03	2.58E+03	3.17E+03	1.18E+03	4.81E+03	9.89E+02	4.63E+03	8.63E+02	4.00E+03
Harris 1				2.48E+02	4.01E+02	4.58E+02	7.26E+02	2.92E+02	9.02E+02	5.55E+02
Indian Point 1&2	2.22E+02	3.51E+02	3.36E+02	5.63E+02	4.39E+02	5.60E+02	6.44E+02	5.45E+02	6.95E+02	2.89E+02
Indian Point 3	5.87E+02	3.40E+02	5.67E+02	3.40E+02	5.73E+02	3.51E+02	3.33E+02	5.38E+02	4.50E+02	2.95E+02
Kewaunee	4.40E+02	3.79E+02	2.94E+02	3.51E+02	3.32E+02	3.41E+02	3.79E+02	4.34E+02	2.90E+02	2.36E+02
Maine Yankee	1.72E+02	1.84E+02	3.50E+02	1.18E+02	2.91E+02	4.22E+02	2.43E+02	3.89E+02	2.17E+02	2.72E+02
McGuire 1	3.23E+02	4.02E+02	4.58E+02	4.92E+02	5.29E+02	4.23E+02	4.58E+02	4.39E+02	4.33E+02	3.88E+02
McGuire 2	3.23E+02	4.02E+02	4.58E+02	4.92E+02	5.29E+02	4.23E+02	4.58E+02	4.39E+02	4.33E+02	3.88E+02
Millstone 2	3.97E+02	1.66E+02	2.80E+02	2.86E+02	2.59E+02	3.66E+02	5.28E+02	2.66E+02	1.06E+02	3.29E+02
Millstone 3			5.41E+02	5.90E+02	5.47E+02	6.97E+02	7.74E+02	3.04E+02	5.96E+02	5.16E+02
North Anna 1&2	6.20E+02	1.48E+03	1.56E+03	8.36E+02	1.94E+03	1.40E+03	1.67E+03	1.16E+03	9.29E+02	6.93E+02
Oconee 1,2,& 3	1.28E+03	1.24E+03	1.34E+03	9.49E+02	7.10E+02	1.02E+03	9.92E+02	1.13E+03	9.98E+02	1.10E+03
Palisades	6.95E+01	4.29E+02	6.32E+01	1.19E+02	2.83E+02	8.06E+01	1.49E+02	5.52E+01	8.09E+01	2.10E+02
Palo Verde 1		N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Palo Verde 2			N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Palo Verde 3				N/D	N/D	N/D	N/D	N/D	N/D	N/D
Point Beach 1&2	2.10E+03	8.05E+02	8.11E+02	7.09E+02	3.57E+02	5.59E+02	8.72E+02	7.87E+02	4.16E+02	4.64E+02
Prairie Island 1&2	6.41E+02	6.96E+02	6.70E+02	4.49E+02	4.05E+02	4.64E+02	3.98E+02	5.58E+02	4.72E+02	4.80E+02
Rancho Seco 1	2.97E+02	9.00E+01	6.50E+01	1.83E+01	1.01E+02	7.29E+01	1.37E+01	9.84E-01	2.42E+01	7.44E+00
H. B. Robinson 2	1.34E+01	3.09E+02	3.42E+02	2.74E+02	5.36E+02	1.64E+02	3.53E+02	1.88E+02	3.94E+02	8.45E+02
Salem 1	3.30E+02	9.23E+02	4.10E+02	3.79E+02	6.35E+02	6.09E+02	3.53E+02	6.06E+02	2.45E+02	3.93E+02
Salem 2	3.08E+02	5.77E+02	4.38E+02	6.61E+02	3.68E+02	5.11E+02	3.03E+02	4.42E+02	2.25E+02	5.08E+02
San Onofre 1	3.39E+01	2.38E+03	4.53E+02	2.27E+03	1.53E+03	9.62E+02	1.42E+03	1.25E+03	3.00E+03	4.45E+02
San Onofre 2-3	4.55E+02	4.75E+02	7.41E+02	8.20E+02	6.43E+02	1.30E+03	9.27E+02	1.08E+03	9.69E+02	9.78E+02
Seabrook 1						1.33E-03	1.13E+02	3.86E+02	5.01E+02	5.63E+02
Sequoyah 1&2	1.82E+03	6.33E+02	2.46E+02	1.19E+02	2.01E+02	1.15E+03	8.53E+02	1.65E+03	1.44E+03	5.60E+02
South Texas 1					1.99E+02	3.17E+02	3.45E+02	6.21E+02	6.19E+02	1.13E+02
South Texas 2						2.72E+02	4.70E+02	4.69E+02	7.42E+02	1.13E+02
St. Lucie 1	2.21E+02	2.86E+02	2.78E+02	3.38E+02	2.75E+02	4.05E+02	2.84E+02	4.06E+02	4.00E+02	2.58E+02
St. Lucie 2	2.21E+02	3.64E+02	2.78E+02	3.38E+02	2.75E+02	4.05E+02	2.84E+02	4.06E+02	4.00E+02	2.51E+02
Summer 1	2.25E+02	3.11E+02	3.75E+02	7.36E+02	7.55E+02	6.85E+02	4.22E+02	8.13E+02	6.08E+02	4.79E+02
Surry 1&2	8.12E+02	7.50E+02	8.73E+02	8.15E+02	4.94E+02	4.29E+02	1.11E+03	9.13E+02	9.74E+02	1.32E+03
Three Mile Island 1	1.72E+00	9.06E+00	1.69E+02	1.97E+02	3.02E+02	3.73E+02	2.10E+02	3.59E+02	5.61E+02	3.76E+02
Three Mile Island 2	1.56E-04	2.22E-03	1.60E-03	1.48E-03	5.49E-03	9.76E-04	8.80E-04	6.19E-03	3.53E-03	1.59E-02
TMI 2/Epicor	N/D	**	**	**	**	**	**	**	**	**
Trojan	1.87E+02	2.65E+02	2.43E+02	1.75E+02	3.75E+02	3.18E+02	2.19E+02	1.69E+02	1.96E+02	1.22E+03

** Included with Three Mile Island 2 total

N/D = Not Detectable

Table 6

Liquid Effluents Comparison By Year

Tritium (Curies)

Pressurized Water Reactors

Facility	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Turkey Point 3&4	8.91E+02									
Turkey Point 3		4.33E+02	3.64E+02	2.69E+02	2.99E+02	2.29E+02	3.22E+02	1.02E+02	2.21E+02	2.57E+02
Turkey Point 4		4.33E+02	3.64E+02	2.69E+02	2.99E+02	2.29E+02	3.22E+02	1.02E+02	2.21E+02	2.57E+02
Vogtle 1&2				3.21E+02	3.90E+02	9.18E+02	1.17E+03	1.09E+03	1.48E+03	7.61E+02
Waterford 3		2.54E+01	4.31E+02	5.25E+02	5.03E+02	3.58E+02	7.12E+02	3.44E+02	4.95E+02	4.90E+02
Wolf Creek 1		1.83E+02	3.77E+02	3.17E+02	4.06E+02	5.88E+02	5.90E+02	7.17E+02	4.51E+02	9.99E+02
Yankee Rowe 1	1.64E+02	2.28E+02	1.76E+02	2.19E+02	1.96E+02	1.68E+02	1.92E+02	2.03E+02	6.31E+01	5.01E-01
Zion 1	1.74E+02	1.35E+02	2.67E+02	2.16E+02	4.11E+02	1.81E+02	2.90E+02	**	**	**
Zion 2	5.11E+02	5.21E+02	4.46E+02	4.40E+02	5.58E+02	8.66E+02	3.91E+02	9.30E+02	5.22E+02	1.24E+03
Total	2.27E+04	2.78E+04	2.32E+04	2.81E+04	2.71E+04	3.40E+04	3.18E+04	3.74E+04	3.55E+04	3.56E+04

** Included with Zion 2 total

Table 8

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Pressurized Water Reactors

Facility	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Arkansas One 1	6.50E+00	3.11E+00	1.31E+01	4.50E+00	6.05E+00	3.09E+00	3.42E+00	7.50E+00	5.80E+00	4.30E+00
Arkansas One 2						1.30E+00	4.13E+00	2.95E+00	5.90E+00	3.70E+00
Beaver Valley 1&2			1.70E-01	6.52E-01	2.63E-01	1.21E-01	1.04E-01	1.44E-01	1.47E-01	6.09E-02
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2		1.44E+00	1.18E+00	3.48E+00	6.13E+00	7.80E+00	4.53E+00	2.68E+00	5.26E+00	2.24E+00
Catawba 1										
Catawba 2										
Comanche Peak 1										
Donald C. Cook 1&2		2.60E-01	1.87E+00	1.52E+00	1.48E+00	2.58E+00	1.37E+00	1.86E+00	1.90E+00	6.83E-01
Crystal River 3				1.54E-02	2.96E-02	4.16E-01	1.46E-01	1.29E-01	1.07E-01	1.50E-01
Davis-Besse 1				2.60E-02	9.01E-02	4.28E-02	2.07E-01	7.92E-01	2.19E-01	5.39E-01
Diablo Canyon 1&2										
Joseph M. Farley 1					1.03E-01	5.86E-02	6.18E-02	1.31E-01	5.94E-02	5.75E-02
Joseph M. Farley 2								2.69E-02	2.90E-02	2.04E-02
Fort Calhoun 1	2.30E+00	3.60E-01	5.50E-01	3.63E-01	5.95E-01	2.45E-01	5.33E-01	1.75E-01	2.03E-01	1.44E-01
R. E. Ginna	1.00E-01	4.20E-01	6.90E-01	6.47E-02	6.07E-02	8.63E-02	1.96E-02	3.85E-02	6.17E-01	1.93E-01
Haddam Neck	2.20E+00	1.20E+00	1.30E-01	1.71E+00	9.50E-01	8.67E-01	2.76E-01	7.12E-01	6.93E-02	4.80E-01
Harris 1										
Indian Point 1&2	4.20E+00	4.93E+00	< 4.98E+00	3.02E+00	1.99E+00	1.94E+00	1.26E+00	5.67E+00	2.41E+00	4.02E+00
Indian Point 3			Shown With	Other Unit	1.03E+00	4.02E-01	2.90E+00	2.62E+00	5.46E-01	5.44E-01
Kewaunee	4.00E-01	7.20E-01	2.83E+00	1.26E+00	6.99E-01	8.94E-01	6.17E-01	8.15E-01	1.52E+00	5.43E-01
Maine Yankee	4.00E+00	3.21E+00	< 2.84E+00	4.42E-01	1.04E-01	4.63E-01	2.97E-01	4.36E-01	7.03E-01	1.99E-01
McGuire 1								3.94E-01	1.75E+00	1.87E+00
McGuire 2										1.87E+00
Millstone 2		2.00E-02	2.60E-01	1.56E+00	2.79E+00	4.87E+00	2.81E+00	4.18E+00	1.39E+01	7.81E+00
Millstone 3										
North Anna 1&2					2.68E-01	5.89E-01	1.05E+00	6.76E-01	1.32E+00	5.88E+00
Oconee 1,2,& 3	1.90E+00	5.05E+00	7.93E+00	3.62E+01	6.51E+00	9.24E-01	1.54E+00	1.75E+00	1.04E+00	1.43E+00
Palisades	5.90E+00	3.45E+00	4.40E-01	9.29E-02	9.65E-02	1.28E-01	8.73E-03	3.31E-02	1.27E-01	7.48E-02
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	2.00E-01	2.34E+00	3.24E+00	1.50E+00	6.86E-01	7.25E-01	6.29E-01	1.01E+00	2.95E+00	1.27E+00
Prairie Island 1&2	< 1.00E-01	4.50E-01	1.00E-01	1.33E-02	4.94E-03	9.00E-03	1.32E-02	9.12E-03	2.23E-03	3.16E-02
Rancho Seco 1	< 1.00E-02	N/D	N/D	N/D	N/D	N/D	3.78E-03	5.92E-01	2.16E-01	2.81E-01
H. B. Robinson 2	2.50E+00	4.50E-01	3.80E-01	3.29E-01	1.78E-01	2.99E-01	3.58E-01	1.84E+00	1.20E+00	8.23E-01
Salem 1		< 1.00E-02	2.88E+00	4.02E+00	3.98E+00	2.65E+00	2.80E+00	3.22E+00	2.97E+00	
Salem 2							3.89E-01	1.51E+00	3.21E+00	2.85E+00
San Onofre 1	5.00E+00	1.22E+00	7.43E+00	9.84E+00	1.18E+01	1.10E+01	1.12E+01	3.64E+00	2.15E+00	1.22E+00
San Onofre 2-3									6.32E-01	2.79E+00
Seabrook 1										
Sequoyah 1&2							N/R	2.76E+00	9.82E+00	4.61E+00
South Texas 1										
South Texas 2										
St. Lucie 1			8.00E-02	5.80E+00	2.80E+00	2.67E+00	2.36E+00	2.46E+00	3.07E+00	2.99E+00
St. Lucie 2										4.37E-01
Summer 1									1.24E-04	1.47E+00
Surry 1&2	3.80E+00	9.27E+00	3.37E+01	6.55E+01	2.41E+00	2.53E+00	3.85E+00	6.11E+00	6.68E+00	1.45E+01
Three Mile Island 1	1.30E+00	7.00E-02	1.00E-01	1.94E-01	6.14E-01	4.91E-01	1.83E-01	8.69E-02	5.29E-02	8.12E-02
Three Mile Island 2					3.92E-01	3.31E-01	1.45E-05	2.22E-05	4.25E-05	9.03E-05
TMI 2/Epicor							N/D	N/D	N/D	N/D
Trojan			2.77E+00	4.19E+00	7.07E-01	5.55E-01	7.87E-01	9.94E-01	8.56E-01	3.10E-01

N/R = Not Reported
N/D = Not Detectable

Table 8

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Pressurized Water Reactors

Facility	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Turkey Point 3&4	1.60E+00	3.07E+00	< 8.65E+00	8.90E+00	3.32E+00	4.10E-01	6.78E-01	3.03E-01	1.68E+00	1.13E+00
Turkey Point 3										
Turkey Point 4										
Vogtle 1&2										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	< 1.00E-01	2.00E-02	< 1.00E-02	1.80E-02	8.14E-02	1.17E-02	1.75E-02	1.43E-02	9.53E-03	1.30E-02
Zion 1	< 1.00E-01	< 1.00E-02	1.60E-01	9.50E-01	9.51E-01	7.00E-01	4.74E-01	1.61E+00	7.22E-01	1.50E+00
Zion 2								1.05E+00	1.65E+00	1.15E+00
Total	< 4.22E+01	< 4.11E+01	< 9.36E+01	1.55E+02	5.72E+01	5.05E+01	4.89E+01	6.05E+01	8.17E+01	7.72E+01

Table 8

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Pressurized Water Reactors

Facility	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Arkansas One 1	4.10E+00	3.53E+00	5.09E+00	2.45E+00	3.73E+00	2.04E+00	2.36E+00	1.12E+00	3.59E+00	1.75E+00
Arkansas One 2	2.48E+00	4.36E+00	3.43E+00	1.85E+00	4.46E+00	2.65E+00	2.52E-01	2.73E+00	1.85E+00	4.77E-01
Beaver Valley 1&2	2.03E-01	1.13E-01	1.19E-01	6.69E-01	1.02E-01	5.45E-01	2.55E+00	3.14E-01	3.41E-01	3.96E-01
Braidwood 1				5.00E-02	8.57E+00	2.50E+00	2.13E+00	1.01E+01	5.23E-01	4.77E-01
Braidwood 2					3.04E+00	2.52E+00	2.13E+00	1.01E+01	5.23E-01	4.77E-01
Byron 1&2		1.63E+01	4.05E+00	2.48E+00	1.40E+00	6.35E-01	1.18E+00	6.70E-01	4.10E+00	1.26E+00
Callaway 1	1.07E-03	4.97E-03	3.83E-02	4.92E-01	7.74E-02	1.01E-02	3.86E-02	1.59E-02	4.54E-03	4.01E-02
Calvert Cliffs 1&2	1.64E+00	2.38E+00	1.79E+00	5.19E+00	2.64E+00	2.07E+00	1.42E+00	1.59E+00	1.44E+00	1.55E+00
Catawba 1		1.26E+00	3.82E-01	6.53E-01	5.42E-01	3.42E-01	9.78E-01	3.81E-01	4.65E-01	4.47E-01
Catawba 2			3.82E-01	6.53E-01	5.42E-01	3.42E-01	9.78E-01	3.81E-01	4.65E-01	4.47E-01
Comanche Peak 1							1.19E-02	1.57E-01	3.99E-01	4.18E-01
Donald C. Cook 1&2	1.19E+00	2.26E+00	3.34E-01	2.00E+00	4.44E-01	8.06E-01	1.61E+00	1.03E+00	1.12E+00	5.37E-01
Crystal River 3	2.34E-01	1.51E+00	8.12E-01	9.55E-01	2.31E-01	2.36E-01	6.19E-01	1.80E-01	1.63E+00	5.30E-01
Davis-Besse 1	1.89E-01	1.85E-01	6.15E-02	6.51E-02	1.68E-01	1.84E-01	1.41E-01	1.84E-01	1.10E-01	5.21E-02
Diablo Canyon 1&2	1.16E-02	3.20E+00	1.11E+01	2.86E+00	2.00E+00	1.61E+00	2.80E+00	8.47E-01	7.44E-01	9.85E-01
Joseph M. Farley 1	6.34E-02	6.72E-02	1.02E-01	5.09E-02	7.97E-02	7.31E-02	7.47E-02	2.14E-01	1.77E-01	7.60E-02
Joseph M. Farley 2	8.63E-02	3.77E-02	8.28E-02	4.63E-02	8.53E-02	7.34E-02	8.29E-02	1.90E-01	1.77E-01	1.12E-01
Fort Calhoun 1	2.91E+00	2.88E-01	8.37E-02	2.03E-01	3.08E-01	5.62E-01	8.05E-01 *	2.08E+00	5.90E-01	5.19E-01
R. E. Ginna	1.69E-01	5.22E-01	6.47E-02	5.88E-02	3.43E-02	8.12E-02	1.50E-01	1.52E-01	3.42E-01	1.37E-01
Haddam Neck	2.63E-01	8.44E-02	3.10E-01	4.26E-01	6.87E-01	3.90E-01	2.69E+00	7.43E-01	1.73E-01	8.36E-01
Harris 1				9.08E-01	8.04E-02	2.42E-01	7.31E-01	6.62E-01	3.14E-01	7.79E-02
Indian Point 1&2	2.67E+00	1.85E+00	3.61E+00	6.02E+00	2.84E+00	6.38E-01	1.06E+00	1.30E+00	1.53E+00	7.24E-01
Indian Point 3	1.26E+00	4.18E-01	1.95E-01	3.47E-01	3.22E-01	5.92E-01	3.09E-01	2.86E-01	2.13E-01	1.07E-01
Kewaunee	1.01E+00	1.35E+00	5.33E-01	1.29E+00	5.01E-01	1.22E+00	2.06E-01	2.35E-01	6.42E-02	1.20E-01
Maine Yankee	8.62E-02	3.11E-02	2.99E-01	8.81E-01	3.49E-01	1.83E-01	1.87E-01	4.13E-01	2.51E-01	1.62E-01
McGuire 1	1.51E+00	6.21E-01	7.73E-01	1.57E+00	2.57E+00	1.54E+00	2.00E+00	1.04E+00	3.27E-01	2.85E-01
McGuire 2	1.51E+00	6.21E-01	7.73E-01	1.57E+00	2.57E+00	1.54E+00	2.00E+00	1.04E+00	3.27E-01	2.85E-01
Millstone 2	3.55E+00	4.60E+00	4.49E+00	4.07E+00	8.89E+00	1.06E+01	8.76E+00	2.06E+00	2.14E+00	1.18E+00
Millstone 3			3.01E+00	5.40E+00	3.15E+00	5.94E+00	2.47E+00	2.99E+00	2.42E+00	2.24E+00
North Anna 1&2	4.51E+00	5.07E+00	9.41E-01	1.33E+00	4.32E-01	1.16E+00	6.75E-01	3.20E-01	4.98E-01	4.83E-01
Oconee 1,2,& 3	1.58E+00	4.16E+00	3.02E+00	2.90E+00	3.10E+00	3.82E+00	3.11E+00	1.40E+00	2.58E+00	4.70E-01
Palisades	3.68E-02	5.83E-02	1.40E-01	9.23E-02	3.43E-02	3.75E-03	7.75E-03	1.14E-02	3.88E-03	1.40E-02
Palo Verde 1		N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Palo Verde 2			N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Palo Verde 3				N/D	N/D	N/D	N/D	N/D	N/D	N/D
Point Beach 1&2	1.22E+01	1.90E+00	1.60E+01	7.55E-01	9.58E-02	5.58E-02	1.16E-02	5.89E-02	4.29E-01	2.32E-01
Prairie Island 1&2	1.91E-02	2.75E-02	6.01E-01	6.04E-02	2.55E-01	1.73E-01	1.30E-01	1.85E-01	6.66E-01	1.95E-01
Rancho Seco 1	6.33E-01	7.39E-03	1.45E-03	5.78E-04	5.79E-03	2.15E-03	2.08E-04	2.04E-04	4.83E-04	3.92E-04
H. B. Robinson 2	3.90E-01	9.41E-02	2.61E-01	7.36E-01	9.64E-01	2.82E-01	3.60E-01	2.36E-01	2.20E-01	5.47E-02
Salem 1	3.31E+00	2.88E+00	4.35E+00	3.33E+00	3.21E+00	3.11E+00	3.00E+00	3.35E+00	3.27E+00	3.21E+00
Salem 2	2.75E+00	2.80E+00	6.11E+00	4.07E+00	3.23E+00	3.56E+00	3.14E+00	2.31E+00	3.63E+00	3.65E+00
San Onofre 1	2.74E+00	7.79E+00	8.51E-01	8.42E-01	7.11E-01	6.87E-01	4.03E-01	4.22E-01	3.79E-01	1.14E+00
San Onofre 2-3	1.30E+01	1.12E+01	8.20E-01	5.37E-01	1.16E+00	9.19E-01	2.02E-01	9.94E-02	1.03E-01	2.94E-01
Seabrook 1						1.09E-04	2.21E-03	1.22E-01	1.19E-01	9.18E-02
Sequoyah 1&2	3.23E+00	1.45E+00	1.65E-01	4.66E-01	4.48E-01	3.54E-01	1.22E+00	1.48E+00	1.45E+00	1.52E+00
South Texas 1					2.24E-01	3.02E+00	7.09E+00	5.08E+00	2.12E+00	5.73E-01
South Texas 2						1.17E-02	5.72E+00	3.61E+00	1.74E+00	2.94E-01
St. Lucie 1	1.93E+00	2.72E+00	2.53E+00	5.95E-01	2.64E-01	2.56E-01	8.27E-01	3.98E-01	5.12E-01	7.55E-01
St. Lucie 2	1.93E+00	2.75E+00	2.43E+00	5.42E-01	2.59E-01	2.53E-01	7.68E-01	3.09E-01	5.12E-01	6.79E-01
Summer 1	4.54E+00	7.09E-01	3.26E-01	4.88E-01	7.55E-01	1.37E+00	3.56E-01	6.08E-01	2.23E-01	1.93E-01
Surry 1&2	9.73E+00	8.55E+00	8.77E+00	5.17E+00	2.41E+00	3.87E+00	4.60E+00	2.84E+00	8.27E-02	2.08E-02
Three Mile Island 1	3.41E-02	6.30E-03	1.41E-02	4.41E-02	4.68E-02	1.61E-02	2.36E-02	3.50E-02	2.60E-02	8.82E-02
Three Mile Island 2	6.46E-04	1.77E-04	1.87E-04	1.16E-04	1.12E-03	3.15E-04	1.77E-04	8.82E-05	1.22E-04	7.68E-04
TMI 2/Epicor	N/D	--	--	--	--	--	--	--	--	--
Trojan	3.49E-01	4.65E-01	2.64E-01	2.09E-01	2.01E-01	1.61E-01	1.44E-01	5.80E-02	8.95E-02	1.06E-01

* This number is a correction to that reported in the 1990 report

** Included with Three Mile Island 2 total

N/D = Not Detectable

Table 8

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Pressurized Water Reactors

Facility	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Turkey Point 3&4	2.27E-01									
Turkey Point 3		4.48E-01	2.53E-01	3.74E-01	3.27E-01	1.58E-01	1.41E-01	4.06E-01	2.98E-01	2.38E-01
Turkey Point 4		4.48E-01	2.53E-01	3.74E-01	3.26E-01	1.58E-01	1.40E-01	3.29E-01	2.98E-01	2.39E-01
Vogtle 1&2				5.77E-01	1.66E+00	4.03E-01	1.01E+00	2.76E-01	1.94E-01	1.52E+00
Waterford 3		2.88E-01	4.02E+00	1.28E+00	1.41E+00	1.28E+00	7.30E-01	9.10E-01	1.31E+00	6.04E-01
Wolf Creek 1		6.35E-01	2.26E+00	2.90E-01	3.79E-01	7.23E-01	3.15E-01	2.12E+00	2.91E-01	7.05E-01
Yankee Rowe 1	3.06E-02	1.69E-02	1.36E-02	1.56E-02	7.10E-02	4.88E-03	4.17E-03	1.33E-02	6.23E-03	7.19E-04
Zion 1	6.82E+00	3.24E-01	5.57E-01	7.53E-01	1.61E+00	9.07E-01	2.65E+00	--	--	--
Zion 2	7.06E+00	2.05E+00	1.04E+00	8.20E-01	1.97E+00	2.57E+00	9.26E-01	1.68E+00	1.81E+00	1.13E+00
Total	1.02E+02	1.02E+02	9.79E+01	6.99E+01	7.60E+01	6.95E+01	7.84E+01	7.19E+01	4.92E+01	3.52E+01

-- Included with Zion 2 total

NRC STAFF

RESPONSE TO THE PETITION FOR
WAIVER OF COMMISSION REGULATIONS
FILED BY CONNECTICUT RESIDENTS OPPOSED
TO RELICENSING OF INDIAN POINT (CRORIP)

EXHIBIT 2

J. S. Nuclear Regulatory Commission

Effluent Database for Nuclear Power Plants

Effluent Database

The data herein is presented in the format provided in Regulatory Guide 1.21, however, licensees are not required to follow guidance and in some instances the data was not submitted in the RG 1.21 format. In those cases the data was carefully reformatted, ensuring no data was changed, to fit the format of the database. A guide describing how to use the database an list and explanation of the most common changes can be found in the **Frequently Asked Questions**.

This database does not replace the requirement for licensees to submit their annual effluent and environmental monitoring rep to the NRC in either paper or electronic form.

In case of questions regarding the accuracy of the data presented, the original report submitted by the licensee must be consulted. All of the annual reports are available to the public through ADAMS. A list of **ADAMS Accession Numbers** organi by plant and year is provided. Once you have the right Accession number you must access the **ADAMS Public Library**.

Data from 1993 and prior years was published as NUREG/CR-2967. This publication can be found at the **ADAMS Public Libra** using the following Accession Number: ML041450170

Enter Effluent Database

U. S. Nuclear Regulatory Commission

Effluent Database for Nuclear Power Plants

This database is currently being developed by the U.S. Nuclear Regulatory Commission's (NRC) Office of Nuclear Regulatory Research to track annual aqueous and atmospheric effluent release data and offsite doses calculated for each nuclear power p in the United States.

Effluent release data and calculated doses to individuals offsite are submitted annually to the NRC in accordance with requirements outlined in **10 CFR 50.36(a)(2)**. Further discussion of these reports can be found in Regulatory Guide 1.21, wh can be accessed through the **NRC's website.**

Effluent and dose data are entered directly from the annual reports submitted by each licensee. Questions related to a speci plant should be directed to the **NRC Project Manager** for that particular plant. General questions about the database should directed to the **Office of Public Affairs**.

- **What's New**
- **What does this database contain?**
- **Effluent Database**
- **Frequently Asked Questions**
- **Basis**
- **Contact Us**

U. S. Nuclear Regulatory Commission

Effluent Database for Nuclear Power Plants

Effluent Database Menu

Reports by Licensee and Year

- **Release Amounts**
- **Release Summaries**
- **Dose Information**

Other Reports

- **Licensees by Release Year**
- **Total Dose Query**
- **Effluent Release Query**

U. S. Nuclear Regulatory Commission

Effluent Database for Nuclear Power Plants

Effluent Release Query Parameters

Effluent Database Me
(do not use browser 'I

Step 1: Select Release Year 1999

Step 2: (a) Choose Site Type ◉ All ○ BWR ○ PWR

OR (b) Select a Site

Step 3: Choose Effluent Type ○ Gaseous ○ Liquid ◉ Both

Step 4: Effluents Released

◉ Release Amounts	○ Batch
○ Summary Amounts	○ Continuous
	◉ Both

*** Must select at least 1 Release Type**

Release Types

All
Dissolved and entrained gases
Fission and activation gases
Fission and activation products
Fission gases
Iodines
Other
Particulates
Tritium

Step 5: Submit Query Submit

U. S. Nuclear Regulatory Commission

Effluent Database for Nuclear Power Plants

Effluent and Waste Disposal Semiannual Report (Year)
Licensee Release Amounts - Query Results

Licensee: ARKANSAS 1 DPR-51 PWR
Year: 1999

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.42E-07	1.53E-06	1.06E-04	8.22E-05	
Co-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.27E-05	1.13E-05	0.00E+00	5.73E-05	
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E-03	1.64E-03	8.81E-03	1.82E-01	
Co-60	Ci			0.00E+00	0.00E+00			1.17E-03	2.92E-03	
Co-60	Ci	0.00E+00	0.00E+00			9.13E-04	8.59E-04			
Cr-51	Ci			0.00E+00	0.00E+00			2.52E-03	1.07E-04	
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-04	5.45E-05	3.17E-04	3.33E-05	
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.72E-03	2.06E-03	2.42E-03	8.77E-04	
Cs-138	Ci	0.00E+00	0.00E+00			0.00E+00	1.51E-04			
Fe-59	Ci			0.00E+00	0.00E+00			1.42E-02	2.40E-04	
G Alpha	Ci			0.00E+00	0.00E+00			5.50E-04	3.60E-04	
H-3	Ci	0.00E+00	0.00E+00	0.00E+00	4.05E-02	1.69E+02	1.89E+02	2.73E+02	3.62E+01	
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E-04	1.69E-04	9.43E-04	1.91E-03	
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.64E-05	2.50E-05	0.00E+00	9.20E-05	
I-133	Ci	0.00E+00	0.00E+00			3.27E-04	3.58E-05			
I-134	Ci	0.00E+00	0.00E+00			4.75E-05	4.34E-05			
I-135	Ci	0.00E+00	0.00E+00			2.95E-04	5.72E-06			
Kr-85	Ci			0.00E+00	0.00E+00			1.41E-02	0.00E+00	
La-140	Ci			0.00E+00	0.00E+00			1.90E-05	0.00E+00	
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-05	8.52E-06	2.21E-06	
Na-24	Ci			0.00E+00	0.00E+00			9.59E-04	9.55E-04	
Na-24	Ci	0.00E+00	0.00E+00			1.77E-03	1.27E-03			
Nb-95	Ci			0.00E+00	0.00E+00			1.10E-05	9.99E-05	
Nb-95	Ci	0.00E+00	0.00E+00			1.66E-04	7.00E-06			
Nb-97	Ci			0.00E+00	0.00E+00			1.32E-05	0.00E+00	
Sb-122	Ci			0.00E+00	0.00E+00			5.82E-05	0.00E+00	
Sb-124	Ci			0.00E+00	0.00E+00			3.61E-04	7.07E-03	
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.58E-03	6.62E-04	7.60E-02	5.15E-02	
Se-75	Ci			0.00E+00	0.00E+00			0.00E+00	9.18E-05	

Te-132	Ci	0.00E+00	0.00E+00			7.31E-05	1.82E-05			
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-02	3.25E-02	3.00E-01	4.28E-04	
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.30E-05	5.60E-03	0.00E+00	
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.02E-05	1.42E-02	2.52E-04	
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-05	0.00E+00	1.06E-05	6.99E-06	
Total for Period					4.05E-02	1.69E+02	1.89E+02	2.73E+02	3.64E+01	

Licensee: ARKANSAS 2 NPF-06 PWR
Year: 1999

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Relea
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-03	2.47E-03	4.52E-03	1.17E-03	
Be-7	Ci			0.00E+00	0.00E+00			2.57E-04	4.11E-04	
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.66E-03	3.56E-04	2.63E-04	1.03E-03	
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.57E-04	5.60E-05	2.21E-04	3.38E-04	
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-03	0.00E+00	0.00E+00	9.55E-04	
Cs-134	Ci	0.00E+00	0.00E+00			1.75E-04	1.31E-06			
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.61E-04	7.10E-05	1.49E-04	2.35E-04	
Fe-55	Ci	0.00E+00	0.00E+00			3.19E-02	0.00E+00			
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-04	0.00E+00	0.00E+00	1.56E-03	
G Alpha	Ci	0.00E+00	0.00E+00			0.00E+00	4.39E-04			
H-3	Ci	0.00E+00	0.00E+00	0.00E+00	4.85E-01	4.59E+01	5.04E+01	1.46E+02	3.44E+02	
I-131	Ci	0.00E+00	0.00E+00			2.27E-04	0.00E+00			
I-132	Ci			0.00E+00	0.00E+00			0.00E+00	2.11E-04	
I-133	Ci	0.00E+00	0.00E+00			9.64E-05	0.00E+00			
La-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-05	1.10E-05	0.00E+00	1.89E-04	
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.61E-05	6.88E-05	0.00E+00	3.11E-05	
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.14E-04	0.00E+00	1.98E-04	0.00E+00	
Nb-97	Ci	0.00E+00	0.00E+00			3.02E-05	0.00E+00			
Sb-124	Ci			0.00E+00	0.00E+00			2.51E-05	1.25E-03	
Sb-125	Ci	0.00E+00	0.00E+00			1.35E-04	0.00E+00			
Sb-125	Ci			0.00E+00	0.00E+00			2.21E-03	2.58E-02	
Sb-126	Ci			0.00E+00	0.00E+00			0.00E+00	6.08E-05	
Sn-117m	Ci	0.00E+00	0.00E+00			7.30E-05	0.00E+00			
Te-132	Ci			0.00E+00	0.00E+00			0.00E+00	8.82E-05	
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-02	1.13E-03	7.07E-04	9.49E-03	
Xe-135	Ci	0.00E+00	0.00E+00			0.00E+00	1.52E-06			
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.39E-05	0.00E+00	0.00E+00	8.02E-05	
Total for Period		0.00E+00	0.00E+00	0.00E+00	4.85E-01	4.60E+01	5.04E+01	1.46E+02	3.44E+02	

Licensee: CALVERT CLIFFS 1 DPR-53 PWR
Year: 1999

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	ND	ND	ND	ND	6.50E-03	1.05E-02	1.23E-02	1.25E-02	
Ba-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Be-7	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-144	Ci	ND	ND	ND	ND	2.75E-03	ND	ND	ND	
Co-57	Ci	ND	ND	ND	ND	1.51E-05	2.00E+00	3.27E-05	8.40E-05	
Co-58	Ci	ND	ND	ND	ND	9.22E-03	8.39E-02	2.50E-02	1.93E-02	
Co-60	Ci	ND	ND	ND	ND	1.86E-02	9.41E-03	3.64E-03	5.99E-03	
Cr-51	Ci	ND	ND	ND	ND	3.43E-04	6.95E-02	6.87E-03	1.39E-03	
Cs-134	Ci	ND	ND	ND	ND	7.31E-05	3.01E-04	1.86E-04	4.21E-05	
Cs-136	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-137	Ci	ND	ND	ND	ND	6.41E-04	4.82E-04	2.40E-04	1.80E-04	
Eu-154	Ci	ND	ND	ND	ND	3.41E-03	ND	ND	ND	
Eu-155	Ci	ND	ND	ND	ND	1.40E-03	ND	ND	5.86E-05	
Fe-55	Ci	ND	ND	ND	ND	5.08E-02	8.10E-02	9.89E-03	1.19E-02	
Fe-59	Ci	ND	ND	ND	ND	1.72E-05	1.01E-02	8.09E-04	2.43E-04	
I-131	Ci	ND	ND	ND	ND	1.79E-04	1.98E-05	1.23E-05	7.13E-06	
I-133	Ci	ND	ND	ND	ND	4.94E-05	6.01E-06	7.95E-06	5.66E-06	
I-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Kr-85	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
La-140	Ci	ND	ND	ND	ND	ND	1.59E-04	ND	ND	
Mn-54	Ci	ND	ND	ND	ND	3.53E-03	2.97E-03	1.35E-03	1.66E-03	
Mo-99	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Na-22	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Na-24	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-95	Ci	ND	ND	ND	ND	9.68E-03	6.11E-02	1.85E-02	1.47E-02	
Nb-97	Ci	ND	ND	ND	ND	ND	ND	6.21E-06	ND	
Rh-105	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ru-103	Ci	ND	ND	ND	ND	ND	8.93E-04	ND	ND	
Ru-105	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ru-106	Ci	ND	ND			3.46E-04	8.84E-04			
Sb-122	Ci	ND	ND	ND	ND	ND	ND	1.63E-06	ND	
Sb-124	Ci	ND	ND	ND	ND	ND	1.35E-03	2.24E-04	ND	
Sb-125	Ci	ND	ND	ND	ND	3.38E-03	6.88E-03	3.77E-03	1.34E-03	
Sn-113	Ci	ND	ND	ND	ND	8.77E-04	3.79E-03	1.42E-03	7.96E-04	
Sn-117m	Ci	ND	ND	ND	ND	1.32E-05	4.69E-04	ND	ND	
Sr-89	Ci	ND	ND	ND	ND	ND	ND	1.49E-08	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	8.51E-06	ND	
Sr-92	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Te-125m	Ci	ND	ND			4.61E-03	ND			
Te-132	Ci	ND	ND	ND	ND	ND	ND	ND	ND	

W-187	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-131m	Ci	ND	ND	ND	ND	ND	ND	3.68E-05	ND	
Xe-133	Ci	ND	ND	ND	ND	1.28E-02	2.41E-02	8.42E-03	5.61E-02	
Xe-135	Ci	ND	ND	ND	ND	8.58E-05	ND	6.00E-06	6.58E-05	
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zr-95	Ci	ND	ND	ND	ND	5.21E-03	3.80E-02	1.03E-02	7.32E-03	
Zr-97	Ci	ND	ND	ND	ND	ND	1.77E-04	ND	ND	
Total for Period						1.35E-01	2.41E+00	1.03E-01	1.34E-01	

Licensee: INDIAN POINT 2 DPR-26 PWR
Year: 1999

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci			0.00E+00	0.00E+00			3.11E-04	9.59E-05	
Co-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-05	0.00E+00	3.30E-05	0.00E+00	
Co-58	Ci	0.00E+00	0.00E+00	5.30E-05	0.00E+00	6.30E-03	3.08E-06	1.87E-03	7.11E-04	
Co-60	Ci	0.00E+00	0.00E+00	6.72E-04	1.73E-07	3.38E-03	8.22E-05	1.63E-02	1.10E-02	
Cr-51	Ci	0.00E+00	0.00E+00			1.10E-04	0.00E+00			
Cs-134	Ci	0.00E+00	0.00E+00	6.38E-05	1.13E-08	0.00E+00	5.02E-06	4.35E-04	3.11E-04	
Cs-137	Ci	4.87E-02	5.72E-02	2.21E-02	6.87E-03	3.02E-04	2.62E-05	1.47E-03	4.16E-03	
Fe-55	Ci	0.00E+00	3.92E-03	1.93E-03	1.30E-06	1.55E-02	0.00E+00	4.71E-03	6.78E-03	
H-3	Ci	1.14E-02	1.07E-02	1.03E-02	6.86E-02	8.53E+01	0.00E+00	1.33E+01	6.25E+01	
I-131	Ci			0.00E+00	0.00E+00			0.00E+00	1.94E-05	
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.60E-05	1.86E-06	8.53E-04	3.99E-04	
Ni-63	Ci	3.62E-04	9.10E-08	5.15E-04	2.03E-04	8.38E-03	0.00E+00	7.85E-03	1.46E-02	
Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.55E-03	0.00E+00	0.00E+00	1.43E-03	
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.63E-03	0.00E+00	3.83E-03	7.73E-03	
Sr-89	Ci			7.07E-05	0.00E+00			0.00E+00	0.00E+00	
Sr-90	Ci	7.00E-04	4.70E-04	4.72E-04	5.35E-04	0.00E+00	0.00E+00	3.56E-05	1.14E-04	
Total for Period		6.12E-02	7.23E-02	3.62E-02	7.62E-02	8.53E+01	1.18E-04	1.33E+01	6.25E+01	

NRC STAFF

RESPONSE TO THE PETITION FOR
WAIVER OF COMMISSION REGULATIONS
FILED BY CONNECTICUT RESIDENTS OPPOSED
TO RELICENSING OF INDIAN POINT (CRORIP)

EXHIBIT 3

U. S. Nuclear Regulatory Commission

Effluent Database for Nuclear Power Plants

Effluent Release Query Parameters

Effluent Database Me
(do not use browser 'I

Step 1: Select Release Year 2003

Step 2: (a) Choose Site Type ◉ All ○ BWR ○ PWR

OR (b) Select a Site

Step 3: Choose Effluent Type ○ Gaseous ○ Liquid ◉ Both

Step 4: Effluents Released

◉ Release Amounts	○ Batch
○ Summary Amounts	○ Continuous
	◉ Both

*** Must select at least 1 Release Type**

Release Types

- All
- Dissolved and entrained gases
- Fission and activation gases
- Fission and activation products
- Fission gases
- Iodines
- Other
- Particulates
- Tritium

Step 5: Submit Query Submit

U. S. Nuclear Regulatory Commission

Effluent Database for Nuclear Power Plants

Effluent and Waste Disposal Semiannual Report (Year)
Licensee Release Amounts - Query Results

Licensee: ARKANSAS 1 DPR-51 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	4.29E-05	1.88E-04	
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.09E-04	2.63E-04	1.14E-03	8.72E-03	
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.70E-05	7.76E-05	2.17E-04	7.82E-04	
Cr-51	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	0.00E+00	9.29E-04	
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.73E-07	2.60E-06	4.05E-07	6.73E-05	
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.80E-05	4.80E-04	1.34E-04	4.23E-04	
Fe-55	Ci	1.90E-04	5.05E-03	NR	NR	0.00E+00	2.86E-03	NR	NR	
G Alpha	Ci	1.63E-03	0.00E+00	NR	NR	1.08E-03	0.00E+00	NR	NR	
H-3	Ci	1.59E-01	2.46E-01	3.35E-01	1.71E-01	2.08E+01	4.34E+01	1.62E+02	2.37E+02	
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-06	0.00E+00	0.00E+00	5.93E-05	
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.12E-06	0.00E+00	0.00E+00	8.59E-05	
Kr-85	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	0.00E+00	3.43E-03	
Mn-54	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	6.47E-06	7.91E-05	
Na-24	Ci	NR	NR	0.00E+00	1.81E-03	NR	NR	0.00E+00	0.00E+00	
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06	0.00E+00	8.45E-05	2.11E-03	
Nb-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-06	0.00E+00	3.85E-06	0.00E+00	
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.93E-04	5.61E-04	4.97E-04	4.71E-03	
Xe-133	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	2.06E-03	1.33E-03	
Xe-135	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	3.13E-05	9.00E+00	
Zr-95	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	2.12E-05	1.39E-03	
Total for Period		1.61E-01	2.51E-01	3.35E-01	1.73E-01	2.08E+01	4.34E+01	1.62E+02	2.46E+02	

Licensee: ARKANSAS 2 NPF-06 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	

All										
Ag-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.72E-03	9.54E-05	2.84E-03	1.56E-04	
Ar-41	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	1.66E-05	0.00E+00	
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.65E-04	1.33E-05	2.22E-03	8.52E-03	
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.36E-04	1.44E-04	1.55E-03	5.01E-04	
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E-04	0.00E+00	1.25E-03	5.37E-03	
Cs-134	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	0.00E+00	4.19E-06	
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.63E-05	5.54E-05	4.61E-04	1.21E-04	
Cs-138	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	3.44E-05	0.00E+00	
Fe-59	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	3.47E-05	6.00E-04	
H-3	Ci	1.04E-01	9.20E-02	1.97E-02	7.11E-02	2.53E+02	1.49E+02	2.75E+02	2.53E+01	
I-131	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	7.58E-05	0.00E+00	
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	0.00E+00	2.19E-04	2.86E-04	
Na-24	Ci	0.00E+00	3.12E-04	3.10E-04	1.50E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.23E-05	0.00E+00	1.44E-04	1.11E-03	
Nb-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-05	1.56E-05	0.00E+00	
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-04	6.19E-05	1.88E-03	1.60E-04	
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-04	9.49E-02	2.21E-03	
Xe-133m	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	8.34E-04	0.00E+00	
Xe-135	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	5.88E-04	0.00E+00	
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.82E-05	0.00E+00	1.74E-04	8.00E-04	
Total for Period		1.04E-01	9.23E-02	2.00E-02	7.13E-02	2.53E+02	1.49E+02	2.75E+02	2.53E+01	

Licensee: BRAIDWOOD 1 NPF-72 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Relea
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110	Ci	NR	NR	NR	NR	ND	ND	ND	ND	
Ag-110m	Ci	ND	ND	ND	ND	1.52E-05	ND	ND	ND	
Ar-41	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ba/La-140	Ci	ND	ND	ND	ND	NR	NR	NR	NR	
Ba-140	Ci	NR	NR	NR	NR	1.62E-05	ND	ND	ND	
Br-82	Ci	NR	NR	NR	NR	ND	ND	ND	ND	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-144	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-57	Ci	ND	ND	ND	ND	6.45E-06	0.00E+00	9.68E-06	1.08E-05	
Co-58	Ci	ND	ND	ND	ND	2.12E-04	9.59E-03	6.19E-03	1.53E-02	
Co-60	Ci	ND	ND	ND	ND	3.66E-03	3.42E-03	1.02E-03	1.61E-03	
Cr-51	Ci	ND	ND	ND	ND	ND	8.12E-04	ND	1.24E-03	
Cs-134	Ci	ND	ND	ND	ND	ND	ND	6.20E-06	ND	
Cs-136	Ci	NR	NR	NR	NR	ND	ND	ND	5.95E-06	
Cs-137	Ci	ND	ND	ND	ND	1.49E-05	9.50E-06	8.50E-06	ND	

Cs-138	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Fe-55	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Fe-59	Ci	ND	ND	ND	ND	ND	1.10E-04	ND	8.04E-05
H-3	Ci	1.36E+02	8.99E+00	9.06E+01	7.60E+00	4.75E+02	1.59E+02	2.85E+02	1.60E+02
I-131	Ci	ND	ND	ND	ND	ND	ND	ND	3.84E-04
I-132	Ci	ND	ND	ND	ND	ND	ND	ND	5.80E-06
I-133	Ci	ND	ND	ND	ND	1.97E-06	ND	ND	9.20E-06
I-134	Ci	NR	NR	NR	NR	ND	ND	ND	ND
I-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Kr-85	Ci	ND	ND	ND	ND	ND	ND	ND	1.68E-03
Kr-87	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Kr-88	Ci	ND	ND	ND	ND	ND	ND	ND	ND
La-140	Ci	NR	NR	NR	NR	ND	ND	ND	ND
Mn-54	Ci	ND	ND	ND	ND	2.09E-04	5.38E-04	2.15E-04	3.99E-04
Mo-99	Ci	ND	ND	ND	ND	ND	8.35E-05	ND	ND
Na-24	Ci	NR	NR	NR	NR	ND	ND	ND	ND
Nb-95	Ci	ND	ND	ND	ND	ND	4.42E-05	4.74E-05	1.69E-04
Nb-97	Ci	ND	ND	ND	ND	9.12E-06	4.98E-06	ND	ND
Ni-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Rb-88	Ci	NR	NR	NR	NR	ND	ND	ND	ND
Sb-122	Ci	ND	ND	ND	ND	ND	ND	ND	2.38E-05
Sb-124	Ci	ND	ND	ND	ND	1.75E-05	0.00E+00	0.00E+00	9.06E-05
Sb-125	Ci	ND	ND	ND	ND	2.04E-03	7.48E-04	2.87E-05	3.13E-04
Sn-117m	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Tc-101	Ci	NR	NR	NR	NR	ND	ND	ND	ND
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Te-123m	Ci	ND	ND	ND	ND	1.45E-04	4.12E-04	1.98E-05	4.84E-04
Te-125m	Ci	ND	ND	ND	ND	1.94E-03	2.30E-03	1.53E-03	0.00E+00
Te-132	Ci	NR	NR	NR	NR	ND	7.90E-06	ND	5.85E-06
Xe-131m	Ci	ND	ND	ND	ND	ND	ND	ND	2.72E-04
Xe-133	Ci	ND	ND	4.10E-04	ND	1.37E-03	1.55E-04	3.92E-04	1.67E-02
Xe-133m	Ci	ND	ND	ND	ND	ND	ND	ND	8.00E-05
Xe-135	Ci	ND	ND	ND	ND	3.01E-05	ND	ND	3.00E-05
Xe-138	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Zr-95	Ci	ND	ND	ND	ND	ND	9.05E-06	1.33E-05	6.17E-05
Zr-97	Ci	ND	ND	ND	ND	ND	ND	ND	ND
Total for Period		1.36E+02	8.99E+00	9.06E+01	7.60E+00	4.75E+02	1.59E+02	2.85E+02	1.60E+02

Licensee: BRAIDWOOD 2 NPF-77 PWR
Year: 2003

Effluent Type: Liquid

Nuclides		Continuous Mode				Batch Mode			

Released	Unit	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Relea
All										
Ag-110	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ag-110m	Ci	ND	ND	ND	ND	1.52E-05	ND	ND	ND	
Ar-41	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ba-140	Ci	ND	ND	ND	ND	1.62E-05	ND	ND	ND	
Br-82	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-144	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-57	Ci	ND	ND	ND	ND	6.45E-06	0.00E+00	9.68E-06	1.08E-05	
Co-58	Ci	ND	ND	ND	ND	2.12E-04	9.59E-03	6.19E-03	1.53E-02	
Co-60	Ci	ND	ND	ND	ND	3.66E-03	3.42E-03	1.02E-03	1.61E-03	
Cr-51	Ci	ND	ND	ND	ND	ND	8.12E-04	ND	1.24E-03	
Cs-134	Ci	ND	ND	ND	ND	ND	ND	6.20E-06	ND	
Cs-136	Ci	ND	ND	ND	ND	ND	ND	ND	5.95E-06	
Cs-137	Ci	ND	ND	ND	ND	1.49E-05	9.50E-06	8.50E-06	ND	
Cs-138	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Fe-55	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Fe-59	Ci	ND	ND	ND	ND	ND	1.10E-04	ND	8.04E-05	
H-3	Ci	1.36E+02	8.99E+00	9.06E+01	7.60E+00	4.75E+02	1.59E+02	2.85E+02	1.60E+02	
I-131	Ci	ND	ND	ND	ND	ND	ND	ND	3.84E-04	
I-132	Ci	ND	ND	ND	ND	ND	ND	ND	5.80E-06	
I-133	Ci	ND	ND	4.10E-04	ND	1.97E-06	ND	ND	9.20E-06	
I-134	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
I-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Kr-85	Ci	ND	ND	ND	ND	ND	ND	ND	1.68E-03	
Kr-87	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Kr-88	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
La-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mn-54	Ci	ND	ND	ND	ND	2.09E-04	5.38E-04	2.15E-04	3.99E-04	
Mo-99	Ci	ND	ND	ND	ND	ND	8.35E-05	ND	ND	
Na-24	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-95	Ci	ND	ND	ND	ND	ND	4.42E-05	4.74E-05	1.69E-04	
Nb-97	Ci	ND	ND	ND	ND	9.12E-06	4.98E-06	ND	ND	
Ni-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Rb-88	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sb-122	Ci	ND	ND	ND	ND	ND	ND	ND	2.38E-05	
Sb-124	Ci	ND	ND	ND	ND	1.75E-05	0.00E+00	0.00E+00	9.06E-05	
Sb-125	Ci	ND	ND	ND	ND	2.04E-03	7.48E-04	2.87E-05	3.13E-04	
Sn-117m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Tc-101	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Te-123m	Ci	ND	ND	ND	ND	1.45E-04	4.12E-04	1.98E-05	4.84E-04	

Te-125m	Ci	ND	ND	ND	ND	1.94E-03	2.30E-03	1.53E-03	0.00E+00	
Te-132	Ci	ND	ND	ND	ND	ND	7.90E-06	ND	5.85E-06	
Xe-131m	Ci	ND	ND	ND	ND	ND	ND	ND	2.72E-04	
Xe-133	Ci	ND	ND	ND	ND	1.37E-03	1.55E-04	3.92E-04	1.67E-02	
Xe-133m	Ci	ND	ND	ND	ND	ND	ND	ND	8.00E-05	
Xe-135	Ci	ND	ND	ND	ND	3.01E-05	ND	ND	3.00E-05	
Xe-138	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zr-95	Ci	ND	ND	ND	ND	ND	9.05E-06	1.33E-05	6.17E-05	
Zr-97	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Total for Period		1.36E+02	8.99E+00	9.06E+01	7.60E+00	4.75E+02	1.59E+02	2.85E+02	1.60E+02	

Licensee: BROWNS FERRY 1 DPR-33 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci					ND	2.31E-05	ND	NR	
Ba-140	Ci					ND	ND	ND	NR	
Ce-141	Ci					ND	ND	ND	NR	
Co-58	Ci					ND	3.32E-05	ND	NR	
Co-60	Ci					ND	5.49E-03	ND	NR	
Cr-51	Ci					ND	ND	ND	NR	
Cs-134	Ci					ND	1.38E-01	ND	NR	
Cs-137	Ci					ND	1.19E-01	ND	NR	
F-18	Ci					ND	9.86E-03	1.70E-02	NR	
Fe-55	Ci					ND	3.14E-04	ND	NR	
Fe-59	Ci					ND	ND	ND	NR	
I-131	Ci					ND	ND	ND	NR	
La-140	Ci					ND	ND	ND	NR	
Mn-54	Ci					ND	1.14E-03	ND	NR	
Mo-99	Ci					ND	ND	ND	NR	
Nb-95	Ci					ND	ND	ND	NR	
Sr-89	Ci					ND	9.13E-05	ND	NR	
Sr-90	Ci					ND	ND	ND	NR	
Tc-99m	Ci					ND	ND	ND	NR	
Xe-133	Ci					ND	ND	ND	NR	
Xe-135	Ci					ND	ND	ND	NR	
Y-91m	Ci					ND	1.05E-05	ND	NR	
Zn-65	Ci					ND	4.10E-04	ND	NR	
Zr-95	Ci					ND	ND	ND	NR	
Total for Period							2.74E-01	1.70E-02		

Licensee: CALLAWAY 1 NPF-30 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.52E-05	8.75E-05	0.00E+00	
Be-7	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	0.00E+00	2.31E-05	
Co-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-05	3.09E-05	1.50E-04	7.04E-06	
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.97E-03	2.42E-02	5.48E-03	3.24E-04	
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.17E-04	1.25E-03	2.36E-03	3.64E-03	
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-04	1.30E-03	4.83E-04	0.00E+00	
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-04	5.99E-04	5.30E-04	3.52E-03	
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.90E-04	1.95E-03	1.89E-03	1.25E-02	
G Alpha	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-03	0.00E+00	1.02E-03	1.93E-04	
H-3	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E+02	1.89E+02	1.10E+02	4.46E+02	
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-04	3.53E-04	1.47E-04	4.78E-05	
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-04	2.54E-04	0.00E+00	0.00E+00	
Kr-85	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	0.00E+00	2.47E-03	
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.52E-06	0.00E+00	0.00E+00	0.00E+00	
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E-06	0.00E+00	3.17E-05	2.44E-04	
Mo-99	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	4.16E-06	3.86E-06	
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.04E-05	0.00E+00	0.00E+00	
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-05	0.00E+00	0.00E+00	0.00E+00	
Np-237	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	1.80E-06	0.00E+00	
Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.40E-05	1.95E-03	1.08E-04	0.00E+00	
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-02	3.39E-02	2.05E-02	1.52E-03	
Sr-92	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	5.05E-06	0.00E+00	
Tc-99m	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	4.16E-06	3.86E-06	
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-04	1.94E-04	0.00E+00	0.00E+00	
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.21E-03	9.33E-04	0.00E+00	6.93E-03	
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-01	8.19E-02	2.23E-04	1.88E-01	
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-03	1.18E-04	0.00E+00	5.53E-04	
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-06	0.00E+00	0.00E+00	0.00E+00	
Xe-135m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.20E-06	0.00E+00	0.00E+00	0.00E+00	
Zn-65	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	5.54E-06	0.00E+00	
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-04	1.82E-05	0.00E+00	
Zr-97	Ci	NR	NR	0.00E+00	0.00E+00	NR	NR	0.00E+00	2.06E-06	
Total for Period		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E+02	1.89E+02	1.10E+02	4.46E+02	

Licensee: DRESDEN 1 DPR-02 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci					ND	ND	ND	ND	LPCI System Efflue
Ag-110m	Ci					1.10E-04	NR	NR	NR	Radwaste Liquid Ef
As-76	Ci					ND	ND	ND	ND	LPCI System Efflue
As-76	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Ba-140	Ci					ND	ND	ND	ND	LPCI System Efflue
Ba-140	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Ce-141	Ci					ND	ND	ND	ND	LPCI System Efflue
Ce-141	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Co-58	Ci					ND	ND	ND	ND	LPCI System Efflue
Co-58	Ci					2.26E-05	NR	NR	NR	Radwaste Liquid Ef
Co-60	Ci					ND	ND	ND	3.71E-06	LPCI System Efflue
Co-60	Ci					3.54E-04	NR	NR	NR	Radwaste Liquid Ef
Cr-51	Ci					ND	ND	ND	ND	LPCI System Efflue
Cr-51	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Cs-134	Ci					ND	ND	ND	ND	LPCI System Efflue
Cs-134	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Cs-136	Ci					ND	ND	ND	ND	LPCI System Efflue
Cs-136	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Cs-137	Ci					1.21E-05	ND	ND	ND	LPCI System Efflue
Cs-137	Ci					1.14E-04	NR	NR	NR	Radwaste Liquid Ef
Cs-138	Ci					ND	ND	ND	ND	LPCI System Efflue
Cs-138	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Fe-55	Ci					ND	ND	ND	ND	LPCI System Efflue
Fe-55	Ci					8.12E-04	NR	NR	NR	Radwaste Liquid Ef
Fe-59	Ci					ND	ND	ND	ND	LPCI System Efflue
Fe-59	Ci					4.63E-05	NR	NR	NR	Radwaste Liquid Ef
H-3	Ci					ND	ND	ND	ND	LPCI System Efflue
H-3	Ci					1.40E+01	NR	NR	NR	Radwaste Liquid Ef
I-131	Ci					ND	ND	ND	ND	LPCI System Efflue
I-131	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
I-132	Ci					ND	ND	ND	ND	LPCI System Efflue
I-132	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
I-133	Ci					ND	ND	ND	ND	LPCI System Efflue
I-133	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
I-134	Ci					ND	ND	ND	ND	LPCI System Efflue
I-134	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
I-135	Ci					ND	ND	ND	ND	LPCI System Efflue
I-135	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Kr-87	Ci					ND	ND	ND	ND	LPCI System Efflue
Kr-87	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Kr-88	Ci					ND	ND	ND	ND	LPCI System Efflue
Kr-88	Ci					ND	NR	NR	NR	Radwaste Liquid Ef

La-140	Ci					ND	ND	ND	ND	LPCI System Efflue
La-140	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Mn-54	Ci					ND	ND	ND	ND	LPCI System Efflue
Mn-54	Ci					2.89E-04	NR	NR	NR	Radwaste Liquid Ef
Mo-99	Ci					ND	ND	ND	ND	LPCI System Efflue
Mo-99	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Np-239	Ci					ND	ND	ND	ND	LPCI System Efflue
Ru-103	Ci					ND	ND	ND	ND	LPCI System Efflue
Ru-103	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Sb-124	Ci					ND	ND	ND	ND	LPCI System Efflue
Sb-124	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Sr-89	Ci					ND	ND	ND	ND	LPCI System Efflue
Sr-89	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Sr-90	Ci					ND	ND	ND	ND	LPCI System Efflue
Sr-90	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Sr-91	Ci					ND	ND	ND	ND	LPCI System Efflue
Sr-91	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Tc-99m	Ci					ND	ND	ND	ND	LPCI System Efflue
Tc-99m	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Xe-133	Ci					ND	ND	ND	ND	LPCI System Efflue
Xe-133	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Xe-133m	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Xe-135	Ci					ND	ND	ND	ND	LPCI System Efflue
Xe-135	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Xe-138	Ci					ND	ND	ND	ND	LPCI System Efflue
Xe-138	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Zn-65	Ci					ND	ND	ND	ND	LPCI System Efflue
Zn-65	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Zr-95	Ci					ND	ND	ND	ND	LPCI System Efflue
Zr-95	Ci					ND	NR	NR	NR	Radwaste Liquid Ef
Total for Period						1.40E+01			3.71E-06	

Licensee: GINNA 1 DPR-18 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci					NR	NR	NR	NR	
Ba/La-140	Ci					NR	NR	NR	NR	
Ce-141	Ci					NR	NR	NR	NR	
Co-57	Ci					9.18E-06	NR	NR	NR	
Co-58	Ci					1.72E-04	1.65E-05	3.29E-04	8.77E-05	
Co-60	Ci					9.91E-05	7.20E-06	2.30E-04	1.62E-05	

Cr-51	Ci					NR	NR	9.01E-05	NR	
Cs-134	Ci					NR	NR	NR	NR	
Cs-136	Ci					NR	NR	NR	NR	
Cs-137	Ci					NR	NR	NR	NR	
Fe-55	Ci					9.18E-05	2.75E-05	NR	NR	
Fe-59	Ci					NR	NR	NR	NR	
I-131	Ci					NR	NR	NR	NR	
I-132	Ci					NR	NR	NR	5.02E-05	
I-133	Ci					NR	NR	NR	NR	
I-135	Ci					NR	NR	NR	NR	
Mn-54	Ci					NR	NR	NR	NR	
Mo-99	Ci					NR	NR	NR	NR	
Nb-95	Ci					NR	NR	5.87E-06	NR	
Sb-122	Ci					NR	NR	NR	NR	
Sb-124	Ci					NR	NR	NR	NR	
Sb-125	Ci					NR	NR	7.57E-05	NR	
Sn-113	Ci					NR	NR	NR	NR	
Sr-89	Ci					NR	NR	NR	NR	
Sr-90	Ci					NR	NR	NR	NR	
Te-123m	Ci					NR	NR	NR	NR	
Te-132	Ci					NR	NR	NR	4.96E-05	
Unidentified	Ci					NR	NR	NR	NR	
Xe-133	Ci					4.15E-06	NR	6.14E-04	1.51E-04	
Xe-135	Ci					NR	NR	1.70E-06	NR	
Zn-65	Ci					NR	NR	NR	NR	
Zr/Nb-95	Ci					NR	NR	NR	NR	
Zr-95	Ci					NR	NR	NR	NR	
Total for Period						3.76E-04	5.12E-05	1.35E-03	3.55E-04	

Licensee: HARRIS 1 NPF-63 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ba-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-144	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-57	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-58	Ci	ND	ND	ND	ND	5.61E-06	2.95E-02	1.59E-03	2.60E-04	
Co-60	Ci	ND	ND	ND	ND	3.56E-03	1.96E-02	3.18E-03	9.57E-04	
Cr-51	Ci	ND	ND	ND	ND	ND	3.46E-03	ND	ND	
Cs-134	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-137	Ci	ND	ND	ND	ND	1.45E-05	2.07E-05	ND	ND	

Fe-55	Ci	ND	ND	ND	ND	9.48E-04	5.23E-03	1.43E-03	1.13E-03	
Fe-59	Ci	ND	ND	ND	ND	ND	7.60E-05	ND	ND	
H-3	Ci	9.72E-02	9.77E-02	9.72E-02	1.63E-01	4.88E-01	2.19E+02	8.00E+01	1.17E+01	
I-131	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
I-132	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
I-133	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
La-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mn-54	Ci	ND	ND	ND	ND	1.41E-04	6.08E-04	ND	ND	
Na-24	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-95	Ci	ND	ND	ND	ND	ND	2.26E-04	ND	1.40E-05	
Nb-97	Ci	ND	ND	ND	ND	ND	ND	ND	2.64E-05	
Ni-63	Ci	ND	ND	ND	ND	1.92E-03	1.07E-02	2.85E-03	1.24E-03	
Ru-106	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sb-124	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sb-125	Ci	ND	ND	ND	ND	5.70E-04	3.01E-03	2.41E-03	5.35E-04	
Sb-126	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Te-132	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zr-95	Ci	ND	ND	ND	ND	ND	1.16E-04	ND	ND	
Zr-97	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Total for Period		9.72E-02	9.77E-02	9.72E-02	1.63E-01	4.95E-01	2.19E+02	8.00E+01	1.17E+01	

Licensee: HUMBOLDT BAY 1 DPR-07 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Am-241	Ci					ND	ND	ND	ND	
Co-60	Ci					ND	ND	ND	1.12E-06	
Cs-137	Ci					3.65E-05	3.87E-05	2.21E-05	1.90E-05	
Sr-90	Ci					2.00E+00	1.59E-05	3.51E-06	1.07E-05	
Total for Period						2.00E+00	5.46E-05	2.56E-05	3.08E-05	

Licensee: INDIAN POINT 1 DPR-05 PWR
Year: 2003

Effluent Type: Liquid

Nuclides		Continuous Mode				Batch Mode			

Released	Unit	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Release
All										
Ag-110m	Ci	NR	NR	NR	NR	NR	NR	7.76E-06	7.71E-04	
Co-57	Ci	NR	NR	NR	NR	9.16E-05	1.44E-04	1.29E-04	1.64E-04	
Co-58	Ci	NR	NR	NR	NR	1.48E-02	5.49E-03	2.68E-03	2.33E-03	
Co-60	Ci	NR	NR	NR	NR	1.29E-03	9.88E-04	5.13E-03	4.45E-03	
Cr-51	Ci	NR	NR	NR	NR	3.90E-05	2.28E-04	NR	NR	
Cs-134	Ci	NR	NR	NR	NR	5.34E-06	2.03E-05	2.22E-04	NR	
Cs-137	Ci	NR	NR	NR	NR	2.65E-02	3.91E-04	1.08E-03	1.56E-03	
Fe-55	Ci	NR	7.71E-03	5.18E-05	NR	NR	NR	9.51E-03	1.13E-02	
I-131	Ci	NR	NR	NR	NR	3.09E-05	NR	3.24E-06	NR	
Mn-54	Ci	NR	NR	NR	NR	6.65E-03	4.17E-03	2.49E-03	6.43E-03	
Nb-95	Ci	NR	NR	NR	NR	4.58E-06	NR	NR	NR	
Ni-63	Ci	5.37E-04	1.10E-03	7.42E-07	4.45E-03	8.53E-03	1.21E-02	1.17E-02	8.98E-03	
Sb-124	Ci	NR	NR	NR	NR	3.34E-03	1.69E-03	NR	NR	
Sb-125	Ci	NR	NR	NR	NR	5.66E-03	8.46E-03	3.01E-03	4.83E-03	
Sr-89	Ci	7.06E-05	NR	1.69E-04	NR	4.63E-04	2.18E-04	7.08E-05	5.88E-04	
Sr-90	Ci	1.59E-04	2.47E-04	1.86E-04	3.22E-04	5.51E-04	4.39E-04	2.31E+00	5.17E-03	
Te-123m	Ci	NR	NR	NR	NR	3.61E-05	1.79E-03	NR	NR	
Total for Period		7.67E-04	9.06E-03	4.08E-04	4.77E-03	6.80E-02	3.61E-02	2.35E+00	4.66E-02	

Licensee: INDIAN POINT 3 DPR-64 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci					1.69E-03	6.97E-03	1.58E-03	6.97E-05	
Ar-41	Ci					NR	9.04E-06	NR	NR	
Co-58	Ci					4.20E-03	8.90E-03	2.32E-03	5.69E-04	
Co-60	Ci					8.67E-03	1.46E-03	8.62E-04	1.81E-04	
Cr-51	Ci					5.47E-04	6.25E-03	3.55E-04	NR	
Cs-134	Ci					5.08E-03	7.84E-05	2.50E-05	1.69E-04	
Cs-137	Ci					4.31E-03	4.69E-05	5.06E-05	2.00E-04	
Fe-55	Ci					3.11E-03	6.70E-04	NR	NR	
Fe-59	Ci					NR	2.87E-05	NR	NR	
I-131	Ci					NR	4.03E-05	NR	NR	
Kr-85	Ci					9.55E-02	2.46E-03	NR	NR	
Kr-85m	Ci					NR	NR	NR	NR	
Mn-54	Ci					3.79E-04	6.34E-05	6.31E-05	NR	
Nb-95	Ci					8.32E-04	3.79E-04	4.25E-04	1.19E-05	
Ni-63	Ci					4.15E-03	1.41E-03	7.05E-04	5.46E-04	
Sb-124	Ci					4.33E-05	5.63E-05	NR	4.36E-04	
Sb-125	Ci					5.76E-03	NR	3.56E-04	4.16E-03	

Te-123m	Ci					NR	8.03E-04	6.24E-04	NR	
Xe-131m	Ci					1.28E-04	NR	NR	NR	
Xe-133	Ci					4.48E-02	5.79E-03	1.60E-03	NR	
Zr-95	Ci					4.34E-04	1.41E-04	1.47E-04	NR	
Total for Period						1.80E-01	3.56E-02	9.11E-03	6.34E-03	

Licensee: KEWAUNEE 1 DPR-43 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	NR	NR	NR	NR	4.24E-04	3.23E-03	4.00E-04	8.77E-04	
Co-58	Ci	NR	NR	NR	NR	2.86E-04	7.97E-03	5.14E-04	1.79E-04	
Co-60	Ci	NR	NR	NR	NR	3.99E-04	7.95E-03	1.25E-04	7.08E-05	
Cr-51	Ci	NR	NR	NR	NR	NR	4.29E-03	NR	NR	
Cs-137	Ci	NR	NR	NR	NR	7.28E-06	NR	NR	NR	
Fe-55	Ci	1.22E-03	2.92E-03	3.91E-03	NR	2.53E-03	1.91E-02	1.16E-03	9.21E-04	
Fe-59	Ci	NR	NR	NR	NR	NR	1.24E-03	NR	NR	
H-3	Ci	2.86E-02	NR	NR	NR	2.16E+02	3.79E+01	1.52E+01	1.09E+01	
Mn-54	Ci	NR	NR	NR	NR	NR	4.02E-04	NR	NR	
Nb-95	Ci	NR	NR	NR	NR	NR	5.51E-04	NR	NR	
Sb-125	Ci	NR	NR	NR	NR	1.10E-03	NR	4.75E-04	1.52E-03	
Sn-113	Ci	NR	NR	NR	NR	NR	5.56E-05	NR	NR	
Sr-89	Ci	1.49E-04	1.38E-04	1.30E-04	NR	4.66E-07	NR	NR	6.70E-07	
Sr-90	Ci	1.74E-05	9.18E-07	2.60E-06	6.17E-06	9.66E-07	8.72E-06	1.06E-06	NR	
Xe-133	Ci	NR	NR	NR	NR	1.53E-04	NR	NR	NR	
Xe-135	Ci	NR	NR	NR	NR	2.90E-06	NR	NR	NR	
Zr-95	Ci	NR	NR	NR	NR	NR	3.00E+00	NR	NR	
Total for Period		3.00E-02	3.06E-03	4.04E-03	6.17E-06	2.16E+02	4.10E+01	1.52E+01	1.09E+01	

Licensee: LACROSSE 1 DPR-45 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Co-60	Ci	2.85E-05	5.49E-05	2.55E-04	1.52E-04					
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00					
Cs-137	Ci	2.05E-03	4.20E-03	4.07E-03	2.48E-03					
Fe-55	Ci	0.00E+00	6.55E-06	1.28E-05	3.56E-06					
Kr-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00					
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00					

Sr-90	Ci	2.12E-05	5.35E-05	3.45E-05	3.35E-05					
Total for Period		2.10E-03	4.31E-03	4.37E-03	2.67E-03					

Licensee: LASALLE 1 NPF-11 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ba/La-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-144	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-58	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-60	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cr-51	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-134	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-137	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Fe-55	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Fe-59	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
G Alpha	Ci	ND	ND	ND	ND	NR	NR	NR	NR	
H-3	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
I-131	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mn-54	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mo-99	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-95	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sb-122	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sb-124	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
W-187	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-131m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-135m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zr-95	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Total for Period										

Licensee: MAINE YANKEE 1 DPR-36 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ba/La-140	Ci					ND	ND	ND	ND	
Ce-141	Ci					ND	ND	ND	ND	
Co-58	Ci					ND	ND	ND	ND	
Co-60	Ci					2.39E-05	1.44E-04	2.05E-04	3.37E-04	
Cr-51	Ci					ND	ND	ND	ND	
Cs-134	Ci					ND	ND	ND	ND	
Cs-137	Ci					ND	7.29E-06	4.11E-06	5.89E-04	
Fe-55	Ci					ND	1.39E-05	4.47E-05	ND	
Fe-59	Ci					ND	ND	ND	ND	
I-131	Ci					ND	ND	ND	ND	
Mn-54	Ci					ND	ND	ND	ND	
Mo-99	Ci					ND	ND	ND	ND	
Sb-125	Ci					3.38E-06	3.92E-06	1.63E-05	4.56E-06	
Sr-89	Ci					ND	ND	ND	ND	
Sr-90	Ci					ND	ND	ND	ND	
Tc-99m	Ci					ND	ND	ND	ND	
Unidentified	Ci					ND	ND	ND	ND	
Xe-133	Ci					ND	ND	ND	ND	
Xe-135	Ci					ND	ND	ND	ND	
Zn-65	Ci					ND	ND	ND	ND	
Zr/Nb-95	Ci					ND	ND	ND	ND	
Total for Period						2.73E-05	1.69E-04	2.70E-04	9.31E-04	

Licensee: MONTICELLO 1 DPR-22 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Co-58	Ci	0.00E+00	6.21E-08	NR	NR	0.00E+00	0.00E+00	NR	NR	
Co-60	Ci	0.00E+00	1.49E-07	NR	NR	0.00E+00	0.00E+00	NR	NR	
I-131	Ci	0.00E+00	5.53E+00	NR	NR	0.00E+00	0.00E+00	NR	NR	
Mn-54	Ci	0.00E+00	1.44E-07	NR	NR	0.00E+00	0.00E+00	NR	NR	
Xe-133	Ci	0.00E+00	6.58E-08	NR	NR	0.00E+00	0.00E+00	NR	NR	
Zn-65	Ci	0.00E+00	9.68E-08	NR	NR	0.00E+00	0.00E+00	NR	NR	
Total for Period		0.00E+00	5.53E+00			0.00E+00	0.00E+00			

Licensee: NINE MILE POINT 1 DPR-63 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ba/La-140	Ci					NR	ND	ND	NR	
Ce-141	Ci					NR	ND	ND	NR	
Co-58	Ci					NR	ND	1.11E-07	NR	
Co-60	Ci					NR	4.41E-07	1.23E-06	NR	
Cr-51	Ci					NR	ND	ND	NR	
Cs-134	Ci					NR	ND	ND	NR	
Cs-137	Ci					NR	ND	5.79E-08	NR	
Fe-55	Ci					NR	ND	ND	NR	
Fe-59	Ci					NR	ND	ND	NR	
H-3	Ci					NR	1.56E-02	4.47E-02	NR	
I-131	Ci					NR	ND	ND	NR	
I-133	Ci					NR	ND	ND	NR	
Mn-54	Ci					NR	1.68E-07	6.43E-07	NR	
Mo-99	Ci					NR	ND	ND	NR	
Sr-89	Ci					NR	ND	ND	NR	
Sr-90	Ci					NR	ND	ND	NR	
Tc-99m	Ci					NR	ND	ND	NR	
W-187	Ci					NR	ND	ND	NR	
Zn-65	Ci					NR	ND	ND	NR	
Zr/Nb-95	Ci					NR	ND	ND	NR	
Total for Period							1.56E-02	4.47E-02		

Licensee: NINE MILE POINT 2 NPF-69 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci					NR	NR	ND	NR	
Au-199	Ci					NR	NR	ND	NR	
Ba-140	Ci					NR	NR	1.61E-04	NR	
Ce-141	Ci					NR	NR	ND	NR	
Ce-144	Ci					NR	NR	ND	NR	
Co-58	Ci					NR	NR	2.57E-03	NR	
Co-60	Ci					NR	NR	4.56E-02	NR	
Cr-51	Ci					NR	NR	6.15E-03	NR	
Cs-134	Ci					NR	NR	ND	NR	
Cs-136	Ci					NR	NR	ND	NR	
Cs-137	Ci					NR	NR	ND	NR	
Cu-64	Ci					NR	NR	6.02E-04	NR	

Fe-55	Ci					NR	NR	ND	NR	
Fe-59	Ci					NR	NR	5.00E-03	NR	
H-3	Ci					NR	NR	9.30E+00	NR	
I-131	Ci					NR	NR	ND	NR	
I-132	Ci					NR	NR	ND	NR	
I-133	Ci					NR	NR	ND	NR	
La-140	Ci					NR	NR	ND	NR	
Mn-54	Ci					NR	NR	2.81E-02	NR	
Mn-56	Ci					NR	NR	ND	NR	
Mo-99	Ci					NR	NR	ND	NR	
Na-24	Ci					NR	NR	ND	NR	
Nb-95	Ci					NR	NR	ND	NR	
Ni-65	Ci					NR	NR	ND	NR	
Np-239	Ci					NR	NR	ND	NR	
Sb-124	Ci					NR	NR	1.81E-04	NR	
Sr-89	Ci					NR	NR	ND	NR	
Sr-90	Ci					NR	NR	ND	NR	
Sr-92	Ci					NR	NR	ND	NR	
Tc-99m	Ci					NR	NR	ND	NR	
Te-132	Ci					NR	NR	ND	NR	
W-187	Ci					NR	NR	ND	NR	
Zn-65	Ci					NR	NR	4.27E-03	NR	
Zn-69m	Ci					NR	NR	4.02E-05	NR	
Zr-95	Ci					NR	NR	ND	NR	
Zr-97	Ci					NR	NR	ND	NR	
Total for Period								9.39E+00		

Licensee: OYSTER CREEK 1 DPR-16 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ba-140	Ci					NR	NR	NR	NR	
Ce-141	Ci					NR	NR	NR	NR	
Co-58	Ci					NR	NR	NR	NR	
Co-60	Ci					NR	NR	NR	NR	
Cr-51	Ci					NR	NR	NR	NR	
Cs-134	Ci					NR	NR	NR	NR	
Cs-137	Ci					NR	NR	NR	NR	
Fe-59	Ci					NR	NR	NR	NR	
I-131	Ci					NR	NR	NR	NR	
La-140	Ci					NR	NR	NR	NR	
Mn-54	Ci					NR	NR	NR	NR	

Nb-95	Ci					NR	NR	NR	NR	
Sr-89	Ci					NR	NR	NR	NR	
Sr-90	Ci					NR	NR	NR	NR	
Tc-99m	Ci					NR	NR	NR	NR	
Xe-133	Ci					NR	NR	NR	NR	
Xe-135	Ci					NR	NR	NR	NR	
Zn-65	Ci					NR	NR	NR	NR	
Zr-95	Ci					NR	NR	NR	NR	
Total for Period										

Licensee: PEACH BOTTOM 2 DPR-44 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	7.25E-05	7.33E-05	2.51E-05	1.27E-04	ND	ND	5.53E-05	3.12E-04	
Ba-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-58	Ci	2.88E-04	2.92E-04	2.95E-04	8.44E-04	ND	ND	ND	ND	
Co-60	Ci	1.64E-02	1.66E-02	8.32E-03	1.25E-02	3.45E-05	3.64E-05	1.12E-04	2.02E-04	
Cr-51	Ci	7.73E-04	7.81E-04	7.90E-04	8.06E-03	ND	ND	ND	3.08E-04	
Cs-134	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-137	Ci	3.73E-04	3.77E-04	9.47E-05	6.74E-05	1.18E-04	1.26E-05	ND	2.26E-06	
Fe-55	Ci	ND	ND	ND	ND	ND	ND	1.01E-04	4.55E-04	
Fe-59	Ci	3.47E-04	3.51E-04	3.55E-04	1.42E-03	ND	ND	ND	ND	
Hf-181	Ci	ND	ND	ND	2.98E-05	ND	ND	ND	ND	
I-131	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
La-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mn-54	Ci	7.15E-03	7.23E-03	4.80E-03	7.15E-03	ND	ND	3.38E-05	3.51E-05	
Mo-99	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-95	Ci	5.15E-05	5.21E-05	5.27E-05	1.27E-04	ND	ND	ND	ND	
P-32	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sb-124	Ci	3.08E-05	3.11E-05	3.14E-05	9.76E-05	ND	ND	ND	ND	
Sr-89	Ci	1.86E-06	1.88E-06	6.90E-07	6.73E-06	ND	ND	ND	ND	
Sr-90	Ci	6.90E-07	6.98E-07	1.79E-07	1.29E-07	ND	ND	ND	ND	
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133	Ci	ND	ND	ND	ND	ND	ND	2.09E-06	ND	
Xe-135	Ci	ND	ND	ND	ND	ND	1.57E-06	ND	ND	
Zn-65	Ci	1.30E-03	1.31E-03	8.25E-04	2.94E-03	6.52E-05	4.92E-05	2.41E-04	1.48E-04	
Zr-95	Ci	1.21E+00	1.22E-04	5.43E-05	4.77E-05	ND	ND	ND	ND	
Total for Period		1.24E+00	2.72E-02	1.56E-02	3.34E-02	2.18E-04	9.98E-05	5.45E-04	1.46E-03	

Licensee: PERRY 1 NPF-58 BWR

Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	9.39E-05	1.01E-03	1.26E-03	0.00E+00					
Au-199	Ci	ND	ND	6.96E-06	0.00E+00					
Co-58	Ci	1.48E-04	1.12E-03	2.11E-04	0.00E+00					
Co-60	Ci	2.15E-03	1.17E-02	2.17E-03	0.00E+00					
Cr-51	Ci	ND	3.83E-03	5.09E-05	0.00E+00					
Cs-134	Ci	4.94E-05	2.48E-04	1.18E-04	0.00E+00					
Cs-137	Ci	1.31E-04	3.26E-04	1.75E-04	0.00E+00					
Cs-138	Ci	ND	ND	ND	0.00E+00					
Fe-55	Ci	ND	4.40E-03	ND	0.00E+00					
Fe-59	Ci	ND	3.60E-04	ND	0.00E+00					
H-3	Ci	5.13E+01	4.48E+01	1.64E+01	0.00E+00					
I-131	Ci	ND	ND	ND	0.00E+00					
La-140	Ci	3.31E-04	1.03E-04	ND	0.00E+00					
Mn-54	Ci	2.58E-04	4.00E-03	5.34E-04	0.00E+00					
Nb-95	Ci	ND	2.40E-05	ND	0.00E+00					
Ru-105	Ci	ND	ND	ND	0.00E+00					
Sb-124	Ci	ND	ND	ND	0.00E+00					
Sb-125	Ci	ND	ND	ND	0.00E+00					
Sr-92	Ci	ND	2.01E-05	3.65E-04	0.00E+00					
Tc-99m	Ci	1.03E-04	ND	ND	0.00E+00					
Xe-133	Ci	ND	ND	ND	0.00E+00					
Zn-65	Ci	8.09E-05	8.62E-04	1.59E-04	0.00E+00					
Zr-95	Ci	ND	2.44E-05	ND	0.00E+00					
Total for Period		5.13E+01	4.48E+01	1.64E+01	0.00E+00					

Licensee: POINT BEACH 1 DPR-24 PWR
Year: 2003

Effluent Type: Gaseous - Elevated Release

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ar-41	Ci	2.01E-01	2.29E-01	2.00E-01	1.46E-01					
F-18	Ci	0.00E+00	7.84E-05	1.54E-08	0.00E+00					
H-3	Ci	1.99E+01	1.61E+01	1.25E+01	1.30E+01					
I-131	Ci	0.00E+00	9.39E-07	2.35E-05	1.22E-04					
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	1.82E-08					
I-133	Ci	0.00E+00	3.66E-06	0.00E+00	0.00E+00					
Kr-85	Ci	0.00E+00	0.00E+00	3.95E-04	0.00E+00					

Mo-99	Ci	0.00E+00	0.00E+00	4.34E-06	0.00E+00					
Tc-99m	Ci	0.00E+00	0.00E+00	4.22E-06	0.00E+00					
Xe-131m	Ci	0.00E+00	7.00E-05	0.00E+00	0.00E+00					
Xe-133	Ci	1.77E-02	4.38E-02	1.72E-02	3.30E-02					
Xe-133m	Ci	0.00E+00	2.59E-04	5.37E-04	4.11E-05					
Xe-135	Ci	8.13E-05	1.18E-05	2.72E-06	6.30E-05					
Xe-135m	Ci	0.00E+00	3.46E-04	0.00E+00	0.00E+00					
Total for Period		2.01E+01	1.64E+01	1.27E+01	1.31E+01					

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	4.98E-04	3.09E-04	1.16E-03	1.88E-03					
As-76	Ci	0.00E+00	0.00E+00	0.00E+00	2.07E-05					
Co-57	Ci	9.11E-06	1.62E-05	2.65E-05	7.76E-05					
Co-58	Ci	7.78E-04	1.21E-03	7.45E-02	2.79E-02					
Co-60	Ci	3.87E-04	4.10E-04	7.95E-03	3.96E-03					
Cr-51	Ci	0.00E+00	0.00E+00	9.05E-04	7.34E-03					
Cs-136	Ci	0.00E+00	0.00E+00	6.83E-06	0.00E+00					
Cs-137	Ci	0.00E+00	1.65E-05	5.19E-05	9.97E-06					
F-18	Ci	0.00E+00	1.12E-04	7.10E-04	2.62E-04					
Fe-55	Ci	7.79E-05	1.02E-03	1.21E-03	4.90E-03					
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	3.11E-04					
G Alpha	Ci	3.16E-05	6.71E-07	1.04E-05	5.16E-06					
H-3	Ci	9.49E+01	3.38E+02	2.23E+02	9.21E+01					
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	1.97E-06					
Mn-54	Ci	5.88E-05	2.56E-05	5.19E-04	4.56E-04					
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	8.72E-06					
Nb-95	Ci	4.84E-05	3.30E-05	2.75E-04	1.37E-03					
Nb-97	Ci	1.06E-06	1.04E-05	1.02E-06	6.72E-06					
Ru-106	Ci	0.00E+00	0.00E+00	0.00E+00	3.13E-05					
Sb-122	Ci	0.00E+00	0.00E+00	0.00E+00	4.25E-05					
Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	4.72E-04					
Sb-125	Ci	9.46E-05	1.07E-05	9.36E-03	3.55E-03					
Sn-113	Ci	9.08E-06	2.04E-06	1.58E-05	3.89E-04					
Sn-117m	Ci	2.06E-05	2.13E-06	1.21E-05	1.42E-03					
Sr-90	Ci	0.00E+00	0.00E+00	1.57E-05	0.00E+00					
Sr-92	Ci	0.00E+00	1.74E-06	3.81E-06	0.00E+00					
Tc-99m	Ci	0.00E+00	0.00E+00	0.00E+00	8.45E-06					
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	1.17E-04					
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	6.35E-05					
Zr-95	Ci	3.37E-05	0.00E+00	1.32E-04	7.23E-04					
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	7.14E-06					
Total for Period		9.49E+01	3.38E+02	2.23E+02	9.22E+01					

Licensee: QUAD CITIES 1 DPR-29 BWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	ND	ND	ND	ND	ND	1.57E-04	ND	6.68E-05	
Ba-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-58	Ci	8.34E-05	1.65E-04	3.34E-04	2.19E-04	ND	ND	ND	ND	
Co-60	Ci	5.34E-03	4.88E-03	9.98E-03	9.33E-03	4.18E-04	7.77E-04	3.28E-04	4.14E-04	
Cr-51	Ci	ND	1.37E-04	9.57E-05	ND	ND	1.90E-04	ND	ND	
Cs-134	Ci	ND	ND	3.90E-05	9.24E-05	ND	ND	ND	ND	
Cs-137	Ci	5.88E-04	2.61E-04	2.48E-04	5.11E-04	2.96E-05	1.45E+00	4.23E-05	2.30E-05	
Fe-55	Ci	ND	1.12E-03	1.14E-04	ND	ND	9.80E-03	ND	ND	
Fe-59	Ci	ND	4.16E-05	2.08E-05	ND	ND	ND	ND	ND	
I-131	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
La-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mn-54	Ci	1.09E-03	9.21E-04	2.29E-03	2.49E-03	ND	4.74E-04	9.10E-05	3.14E-05	
Mo-99	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-95	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zn-65	Ci	6.14E-03	3.70E-03	3.04E-03	2.95E-03	ND	5.52E-05	ND	1.08E-04	
Zr-95	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Total for Period		1.32E-02	1.12E-02	1.62E-02	1.56E-02	4.48E-04	1.46E+00	4.61E-04	6.43E-04	

Licensee: ROBINSON 2 DPR-23 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	NR	NR	ND	ND	NR	NR	4.51E-06	ND	
Co-57	Ci	NR	NR	ND	ND	NR	NR	2.70E-06	ND	
Co-58	Ci	ND	ND	ND	ND	7.81E-05	6.99E-05	6.52E-05	3.23E-06	
Co-60	Ci	ND	ND	ND	ND	7.52E-04	6.91E-04	1.08E-03	8.96E-04	
Cs-134	Ci	ND	ND	NR	NR	ND	ND	NR	NR	
Cs-137	Ci	ND	ND	ND	ND	ND	5.64E-06	1.63E-05	1.31E-05	
Fe-55	Ci	ND	ND	ND	ND	5.23E-06	1.43E-05	6.53E-05	1.38E-04	
H-3	Ci	ND	ND	ND	ND	2.29E+00	3.85E+01	8.80E+00	1.16E+02	

Mn-54	Ci	NR	NR	ND	ND	NR	NR	1.46E-05	ND	
Nb-95	Ci	NR	NR	ND	ND	NR	NR	1.70E-05	ND	
Sb-124	Ci	ND	ND	NR	NR	3.38E-05	ND	NR	NR	
Sb-125	Ci	ND	ND	ND	ND	3.98E-04	3.73E-04	1.44E-04	3.41E-04	
Sn-113	Ci	NR	NR	ND	ND	NR	NR	3.52E-06	ND	
Te-123m	Ci	ND	ND	NR	NR	ND	5.57E-06	NR	NR	
Xe-133	Ci	ND	ND	ND	ND	ND	6.47E-05	ND	1.33E-05	
Zr-95	Ci	NR	NR	ND	ND	NR	NR	6.73E-06	ND	
Total for Period						2.29E+00	3.85E+01	8.80E+00	1.16E+02	

Licensee: SAXTON DPR-4 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Co-60	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-134	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-137	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
H-3	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sb-125	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Total for Period										

Licensee: SEABROOK 1 NPF-86 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	NR	NR	NR	NR	ND	ND	9.21E-05	ND	
Ba/La-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-57	Ci	NR	NR	NR	NR	ND	8.99E-06	6.91E-05	ND	
Co-58	Ci	ND	ND	ND	1.41E-03	6.12E-04	7.96E-04	1.50E-03	1.01E-02	
Co-60	Ci	ND	ND	ND	5.83E-06	9.27E-05	1.61E-03	8.18E-03	1.05E-03	
Cr-51	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-134	Ci	ND	ND	ND	ND	ND	4.51E-05	1.00E+00	1.80E-04	
Cs-137	Ci	ND	ND	ND	4.78E-06	2.89E-06	1.03E-04	2.44E-05	5.02E-04	
Fe-55	Ci	ND	ND	ND	ND	4.46E-03	2.45E-03	3.22E-03	1.68E-02	
Fe-59	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
I-131	Ci	ND	ND	ND	ND	1.92E-04	1.49E-04	7.54E-05	6.28E-05	
I-133	Ci	ND	ND	ND	ND	2.05E-04	7.05E-05	4.17E-05	1.05E-05	

Mn-54	Ci	ND	ND	ND	ND	ND	1.09E-04	1.01E-03	1.82E-05	
Mo-99	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Na-24	Ci	NR	NR	NR	NR	ND	ND	ND	ND	
Nb-97	Ci	NR	NR	NR	NR	ND	ND	ND	ND	
Sb-124	Ci	NR	NR	NR	NR	1.16E-05	ND	ND	1.62E-03	
Sb-125	Ci	NR	NR	NR	NR	1.18E-02	2.56E-03	2.43E-03	2.72E-02	
Sb-126	Ci	NR	NR	NR	NR	ND	ND	ND	7.86E-05	
Sn-117m	Ci	NR	NR	NR	NR	ND	ND	ND	3.28E-05	
Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Tc-99m	Ci	ND	ND	ND	ND	1.93E-04	6.86E-05	9.19E-06	2.10E-05	
Te-129m	Ci	NR	NR	NR	NR	ND	ND	ND	4.76E-03	
Te-132	Ci	NR	NR	NR	NR	ND	ND	ND	5.33E-05	
Unidentified	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-131m	Ci	ND	ND	ND	ND	NR	NR	NR	NR	
Xe-133	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133m	Ci	ND	ND	ND	ND	NR	NR	NR	NR	
Xe-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zr/Nb-95	Ci	ND	ND	ND	ND	ND	ND	ND	3.08E-05	
Total for Period					1.42E-03	1.76E-02	7.97E-03	1.02E+00	6.25E-02	

Licensee: SOUTH TEXAS 1 NPF-76 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	ND	ND	ND	ND	ND	1.15E-05	3.29E-05	1.54E-06	
Ar-41	Ci	ND	ND	ND	ND	6.14E-03	ND	ND	ND	
Co-57	Ci	ND	ND	ND	ND	4.76E-06	ND	6.51E-06	2.97E-07	
Co-58	Ci	ND	ND	ND	ND	4.02E-03	1.62E-03	3.73E-03	1.22E-04	
Co-60	Ci	ND	ND	ND	ND	3.84E-03	1.19E-03	1.22E-03	1.09E-04	
Cr-51	Ci	ND	ND	ND	ND	5.66E-04	6.07E-04	1.82E-04	ND	
Cs-134	Ci	ND	ND	ND	ND	3.19E-04	3.45E-05	1.27E-04	6.17E-06	
Cs-137	Ci	ND	ND	ND	ND	3.60E-04	1.01E-04	1.97E-04	2.46E-05	
Fe-55	Ci	ND	ND	ND	ND	6.24E-03	6.00E-03	2.00E-03	7.97E-04	
Fe-59	Ci	ND	ND	ND	ND	3.36E-05	1.25E-05	1.13E-05	ND	
H-3	Ci	1.71E-02	8.98E-04	1.81E-02	1.22E-01	2.54E+02	1.24E+01	1.36E+01	3.59E+01	
I-131	Ci	ND	ND	ND	ND	1.62E-04	4.46E-03	ND	ND	
I-133	Ci	ND	ND	ND	ND	4.57E-06	ND	ND	ND	
Kr-85	Ci	ND	ND	ND	ND	3.96E-03	1.10E-03	1.20E-03	ND	
Kr-85m	Ci	ND	ND	ND	ND	4.65E-03	ND	ND	ND	
Kr-87	Ci	ND	ND	ND	ND	1.37E-04	ND	ND	ND	

Kr-88	Ci	ND	ND	ND	ND	2.62E-03	ND	ND	ND	
Mn-54	Ci	ND	ND	ND	ND	3.81E-04	5.71E-04	1.56E-03	2.34E-05	
Nb-95	Ci	ND	ND	ND	ND	3.19E-05	8.90E-05	6.89E-05	2.52E-06	
Sb-124	Ci	ND	ND	ND	ND	1.78E-05	1.19E-04	2.46E-06	ND	
Sb-125	Ci	ND	ND	ND	ND	2.16E-03	1.92E-03	3.54E-03	1.66E-03	
Sn-117m	Ci	ND	ND	ND	ND	1.10E-05	4.19E-06	1.25E-05	2.88E-06	
Sr-89	Ci	ND	ND	ND	ND	6.06E-05	1.70E-05	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	1.79E-06	ND	ND	9.33E-07	
Tc-99m	Ci	ND	ND	ND	ND	1.10E-05	ND	ND	ND	
Te-125m	Ci	ND	ND	ND	ND	1.10E-03	3.97E-04	3.79E-03	ND	
Xe-131m	Ci	ND	ND	ND	ND	7.94E-02	2.13E-05	ND	ND	
Xe-133	Ci	ND	ND	ND	ND	6.70E+00	4.38E-04	ND	ND	
Xe-133m	Ci	ND	ND	ND	ND	9.10E-02	ND	ND	ND	
Xe-135	Ci	ND	ND	ND	ND	6.11E-02	ND	ND	ND	
Zr-95	Ci	ND	ND	ND	ND	4.04E-06	3.77E-05	2.27E-05	ND	
Total for Period		1.71E-02	8.98E-04	1.81E-02	1.22E-01	2.61E+02	1.24E+01	1.36E+01	3.59E+01	

Licensee: SOUTH TEXAS 2 NPF-80 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci	ND	ND	ND	ND	1.09E-05	ND	1.43E-04	2.55E-04	
Ar-41	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-57	Ci	ND	ND	ND	ND	6.54E-05	1.83E-05	1.01E-05	6.75E-05	
Co-58	Ci	ND	ND	ND	ND	1.13E-02	2.55E-03	5.39E-04	2.31E+00	
Co-60	Ci	ND	ND	ND	ND	1.46E-03	3.54E-04	1.91E-03	3.47E-03	
Cr-51	Ci	ND	ND	ND	ND	6.79E-05	1.47E-04	4.82E-05	2.83E-04	
Cs-134	Ci	ND	ND	ND	ND	3.33E-05	8.47E-05	3.43E-06	2.81E-06	
Cs-137	Ci	ND	ND	ND	ND	1.12E-04	1.12E-04	1.50E-05	5.54E-06	
Fe-55	Ci	ND	ND	ND	ND	4.99E-03	1.92E-03	1.76E-03	1.08E-02	
Fe-59	Ci	ND	ND	ND	ND	ND	2.04E-06	ND	ND	
H-3	Ci	8.28E-03	2.99E-02	8.00E-02	1.68E-01	5.97E+01	1.59E+01	5.01E+01	2.90E+02	
I-131	Ci	ND	ND	ND	ND	ND	1.62E-05	ND	ND	
I-133	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Kr-85	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Kr-85m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Kr-87	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Kr-88	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mn-54	Ci	ND	ND	ND	ND	6.26E-04	2.53E-04	1.03E-04	3.47E-04	
Nb-95	Ci	ND	ND	ND	ND	1.01E-04	3.81E-05	9.73E-06	1.64E-04	
Sb-124	Ci	ND	ND	ND	ND	7.37E-04	2.06E-05	5.77E-05	ND	
Sb-125	Ci	ND	ND	ND	ND	6.84E-03	8.79E-04	2.69E-03	1.07E-03	

Sn-117m	Ci	ND	ND	ND	ND	ND	ND	ND	1.23E-05	
Sr-89	Ci	ND	ND	ND	ND	4.73E-06	6.49E-06	7.78E-06	2.70E-06	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Te-125m	Ci	ND	ND	ND	ND	ND	ND	ND	3.82E-03	
Xe-131m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133	Ci	ND	ND	ND	ND	2.34E-04	ND	ND	1.20E-03	
Xe-133m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zr-95	Ci	ND	ND	ND	ND	3.20E-05	1.36E-05	ND	6.46E-05	
Total for Period		8.28E-03	2.99E-02	8.00E-02	1.68E-01	5.97E+01	1.59E+01	5.01E+01	2.92E+02	

Licensee: ST. LUCIE 1 DPR-67 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-04	5.86E-05	0.00E+00	
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ba-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Br-82	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ce-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ce-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.78E-05	0.00E+00	0.00E+00	
Co-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-05	0.00E+00	0.00E+00	
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-03	2.89E-03	4.55E-04	1.45E-04	
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.96E-04	2.15E-03	3.81E-04	9.29E-04	
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E+00	8.15E-04	0.00E+00	0.00E+00	
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.87E-05	9.80E-06	0.00E+00	4.44E-05	
Cs-136	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.84E-05	1.99E-04	1.31E-04	2.02E-04	
Cs-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-02	8.25E-03	2.08E-03	4.05E-03	
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-04	0.00E+00	0.00E+00	0.00E+00	
I-130	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-05	
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-05	0.00E+00	0.00E+00	
I-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
I-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Kr-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Kr-85m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Kr-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

La-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.45E-05	1.10E-04	2.26E-05	1.57E-05	
Mn-56	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.54E-04	0.00E+00	0.00E+00	
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-04	2.12E-04	3.65E-05	2.79E-05	
Nb-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E-06	3.39E-04	2.14E-05	3.02E-05	
Ni-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Np-239	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Pr-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Rb-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ru-103	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Sb-122	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-04	0.00E+00	0.00E+00	
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-03	3.38E-03	1.03E-03	1.83E-03	
Sn-113	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.48E-05	1.20E-05	2.02E-05	0.00E+00	
Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.74E-06	0.00E+00	8.20E-06	4.60E-06	
Sr-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-04	0.00E+00	0.00E+00	
Sr-91	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Sr-92	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.65E-05	1.00E+00	
Tc-99m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Te-129	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Te-129m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
W-187	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-03	2.24E-02	3.74E-04	5.93E-03	
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-04	5.55E-06	0.00E+00	
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-05	0.00E+00	0.00E+00	
Xe-135m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-05	9.20E-06	5.28E-06	
Xe-138	Ci			0.00E+00	0.00E+00			0.00E+00	0.00E+00	
Y-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-04	0.00E+00	0.00E+00	
Y-92	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-05	7.37E-05	4.02E-05	2.47E-05	
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Total for Period		0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.02E+00	4.23E-02	4.77E-03	1.01E+00	

Licensee: ST. LUCIE 2 NPF-16 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Relea
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										

Ag-110	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-04	5.86E-05	0.00E+00	
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ba-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Br-82	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ce-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ce-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.78E-05	0.00E+00	0.00E+00	
Co-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-05	0.00E+00	0.00E+00	
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-03	2.89E-03	4.55E-04	1.45E-04	
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.96E-04	2.15E-03	3.81E-04	9.29E-04	
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E-04	8.15E-04	0.00E+00	0.00E+00	
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.87E-05	9.80E-06	0.00E+00	4.44E-05	
Cs-136	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.84E-05	1.99E-04	1.31E-04	2.02E-04	
Cs-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-02	8.25E-03	2.08E-03	4.05E-03	
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-04	0.00E+00	0.00E+00	0.00E+00	
I-130	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-05	
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-05	0.00E+00	0.00E+00	
I-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
I-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Kr-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Kr-85m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Kr-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
La-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.45E-05	1.10E-04	2.26E-05	1.57E-05	
Mn-56	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.54E-04	0.00E+00	0.00E+00	
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-04	2.12E-04	3.65E-05	2.79E-05	
Nb-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E-06	3.39E-04	2.14E-05	3.02E-05	
Ni-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Np-239	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Pr-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Rb-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ru-103	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Sb-122	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-04	0.00E+00	0.00E+00	
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-03	3.38E-03	1.03E-03	1.83E-03	
Sn-113	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.48E-05	1.20E-05	2.02E-05	0.00E+00	
Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.74E-06	0.00E+00	8.20E-06	4.60E-06	
Sr-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-04	0.00E+00	0.00E+00	
Sr-91	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Sr-92	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.65E-05	1.57E-04	

Tc-99m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Te-129	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Te-129m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
W-187	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-03	2.24E-04	3.74E-04	5.93E-03	
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-04	5.55E-06	0.00E+00	
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-05	0.00E+00	0.00E+00	
Xe-135m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-05	9.20E-06	5.28E-06	
Xe-138	Ci			0.00E+00	0.00E+00			0.00E+00	0.00E+00	
Y-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-04	0.00E+00	0.00E+00	
Y-92	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-05	7.37E-05	4.02E-05	2.47E-05	
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Total for Period		0.00E+00		0.00E+00	0.00E+00	1.70E-02	2.02E-02	4.77E-03	1.34E-02	

Licensee: SUMMER 1 NPF-12 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-110m	Ci					ND	ND	3.57E-05	3.98E-05	
Ar-41	Ci					ND	9.94E-06	ND	ND	
As-76	Ci					ND	ND	ND	2.45E-05	
Ba/La-140	Ci					ND	ND	ND	ND	
Ba-139	Ci					ND	ND	ND	4.19E-06	
Ce-141	Ci					ND	ND	ND	ND	
Co-57	Ci					2.26E-05	3.93E-06	2.24E-05	6.28E-06	
Co-58	Ci					1.40E-03	2.98E-04	2.66E-04	2.10E-03	
Co-60	Ci					3.09E-03	2.41E-03	8.54E-03	2.72E-03	
Cr-51	Ci					ND	1.92E-05	ND	1.81E-03	
Cs-134	Ci					ND	ND	4.00E-06	1.04E-06	
Cs-137	Ci					7.51E-05	6.99E-06	8.20E-05	3.38E-05	
Fe-55	Ci					4.82E-03	2.36E-03	6.96E-03	8.79E-03	
Fe-59	Ci					ND	ND	ND	3.25E-05	
I-131	Ci					ND	ND	ND	1.51E-04	
I-133	Ci					ND	ND	ND	1.54E-05	
Kr-85	Ci					ND	ND	2.76E-04	2.92E-03	
Kr-85m	Ci					ND	2.01E-06	2.76E-06	1.64E-05	
Kr-88	Ci					ND	ND	ND	3.86E-06	
Mn-54	Ci					4.63E-04	3.35E-04	9.85E-04	3.21E-04	

Mo-99	Ci					ND	ND	ND	ND	
Na-24	Ci					ND	ND	ND	ND	
Sb-122	Ci					ND	ND	ND	9.24E-06	
Sb-124	Ci					ND	ND	ND	1.04E-05	
Sb-125	Ci					2.01E-04	1.20E-04	6.69E-04	2.67E-04	
Sn-113	Ci					ND	ND	ND	2.84E-07	
Sn-117m	Ci					ND	ND	2.00E-06	2.35E-04	
Sr-89	Ci					ND	1.18E-06	3.00E-05	ND	
Sr-90	Ci					ND	ND	ND	ND	
Tc-99m	Ci					ND	ND	ND	ND	
Te-125m	Ci					ND	1.49E-04	1.61E-03	1.41E-02	
Te-132	Ci					ND	ND	ND	3.05E-07	
Xe-131m	Ci					ND	ND	1.92E-03	4.71E-03	
Xe-133	Ci					ND	8.22E-04	1.91E-01	3.53E-01	
Xe-133m	Ci					ND	ND	1.73E-03	3.08E-03	
Xe-135	Ci					ND	ND	2.86E-04	1.51E-03	
Zn-65	Ci					6.44E-06	ND	2.16E-05	1.57E-05	
Zr/Nb-95	Ci					1.04E-05	2.98E-06	2.03E-05	3.57E-04	
Total for Period						1.01E-02	6.54E-03	2.14E-01	3.96E-01	

Licensee: SURRY 1 DPR-32 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ba-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-144	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-57	Ci	ND	ND	ND	ND	2.24E-04	1.52E-04	1.06E-04	4.91E-05	
Co-58	Ci	ND	ND	ND	8.91E-06	5.89E-03	4.57E-03	3.40E-03	5.03E-03	
Co-60	Ci	ND	ND	ND	ND	1.29E-02	9.72E-03	7.66E-03	3.42E-03	
Cr-51	Ci	ND	ND	ND	ND	4.20E-05	3.76E-05	ND	1.37E-03	
Cs-134	Ci	ND	ND	ND	ND	4.00E+00	2.76E-07	ND	ND	
Cs-137	Ci	5.53E-04	5.19E-04	8.67E-04	3.25E-04	2.65E-04	1.76E-03	4.41E-04	3.12E-04	
Fe-55	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Fe-59	Ci	ND	ND	ND	ND	8.78E-08	ND	ND	ND	
I-131	Ci	ND	ND	ND	ND	ND	7.97E-05	ND	ND	
La-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mn-54	Ci	ND	ND	ND	ND	1.97E-03	1.53E-03	1.13E-03	3.72E-04	
Mo-99	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-95	Ci	ND	ND	ND	ND	7.41E-08	2.32E-05	1.10E-05	4.91E-05	
Sb-124	Ci	ND	ND	ND	ND	3.93E-05	ND	8.90E-06	1.69E-05	
Sb-125	Ci	ND	ND	ND	ND	4.55E-03	1.34E-03	3.28E-03	6.02E-04	

Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-92	Ci	ND	ND	ND	ND	1.70E-08	ND	ND	ND	
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-135	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zr-95	Ci	ND	ND	ND	ND	ND	ND	7.36E-06	ND	
Total for Period		5.53E-04	5.19E-04	8.67E-04	3.34E-04	4.03E+00	1.92E-02	1.60E-02	1.12E-02	

Licensee: THREE MILE ISLAND 1 DPR-50 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ba-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-58	Ci	ND	ND	ND	ND	ND	ND	ND	3.14E-05	
Co-60	Ci	ND	ND	ND	ND	ND	4.40E-06	1.35E-06	ND	
Cr-51	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-134	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-137	Ci	1.52E-04	ND	6.20E-05	1.04E-03	5.38E-06	2.75E-05	6.85E-05	1.40E-05	
Fe-55	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Fe-59	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
I-131	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
La-140	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mn-54	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Mo-99	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-95	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	3.91E-06	
Tc-99m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-133	Ci	ND	ND	ND	ND	ND	ND	3.04E-04	ND	
Xe-135	Ci	ND	ND	ND	ND	ND	ND	7.60E-06	ND	
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zr-95	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Total for Period		1.52E-04		6.20E-05	1.04E-03	5.38E-06	3.19E-05	3.81E-04	4.93E-05	

Licensee: THREE MILE ISLAND 2 DPR-73 PWR
Year: 2003

Effluent Type: Liquid

Nuclides		Continuous Mode				Batch Mode				

Released	Unit	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Release
All										
Co-60	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-134	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Cs-137	Ci	ND	ND	ND	ND	4.92E-06	1.19E-05	6.07E-06	2.93E-06	
H-3	Ci	ND	ND	ND	ND	ND	2.80E-04	1.58E-04	2.90E-05	
Nb-95	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sb-125	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	1.15E-06	ND	ND	
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Total for Period						4.92E-06	2.93E-04	1.64E-04	3.19E-05	

Licensee: TROJAN 1 NPF-01 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-108m	Ci	NR	NR	NR	NR	ND	ND	ND	ND	
Am-241	Ci	NR	NR	NR	NR	3.23E-05	ND	ND	ND	
Ce-144	Ci	NR	NR	NR	NR	ND	ND	ND	ND	
Co-57	Ci	NR	NR	NR	NR	5.16E-06	ND	ND	8.37E-07	
Co-60	Ci	NR	NR	NR	NR	2.29E-04	3.43E-04	2.85E-03	3.51E-04	
Cs-134	Ci	NR	NR	NR	NR	ND	8.84E-07	3.54E-06	6.58E-07	
Cs-137	Ci	NR	NR	NR	NR	8.54E-05	9.53E-04	1.24E-03	3.31E-04	
Eu-152	Ci	NR	NR	NR	NR	ND	ND	ND	ND	
Eu-154	Ci	NR	NR	NR	NR	1.03E-05	ND	1.10E-05	ND	
Eu-155	Ci	NR	NR	NR	NR	3.18E-06	ND	1.84E-05	ND	
Fe-55	Ci	NR	NR	NR	NR	5.76E-06	2.29E-05	1.77E-02	1.07E-03	
Na-22	Ci	NR	NR	NR	NR	4.21E-06	ND	1.29E-07	2.74E-07	
Nb-95	Ci	NR	NR	NR	NR	8.38E-06	3.55E-07	1.01E-04	1.47E-05	
Sb-125	Ci	NR	NR	NR	NR	ND	ND	1.29E-05	ND	
Sr-90	Ci	NR	NR	NR	NR	8.79E-07	4.83E-06	1.82E-04	5.15E-05	
Unidentified	Ci	NR	NR	NR	NR	ND	ND	ND	ND	
Total for Period						3.85E-04	1.32E-03	2.21E-02	1.82E-03	

Licensee: WATERFORD 3 NPF-38 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Relea
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										

Ag-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-04	0.00E+00	1.36E-04	6.35E-05	
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.88E-06	0.00E+00	
Co-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-04	3.41E-06	9.71E-06	1.08E-04	
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	1.49E-06	4.37E-03	8.41E-05	2.59E-04	3.37E-02	
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	1.55E-05	1.20E-03	7.00E-05	1.21E-03	9.93E-04	
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-04	
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	4.80E-06	2.51E-05	1.55E-05	6.60E-05	0.00E+00	
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	4.47E-05	2.80E-05	1.99E-05	1.01E-04	2.15E-06	
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-03	2.71E-03	3.64E-03	3.83E-03	
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.86E-06	0.00E+00	0.00E+00	1.67E-05	
H-3	Ci	1.02E+00	3.99E-01	1.87E-01	3.16E-02	3.81E+01	8.56E+01	1.04E+03	1.69E+02	
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	6.95E-05	6.68E-06	0.00E+00	0.00E+00	0.00E+00	
Kr-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.32E-03	1.75E-02	1.21E-01	1.67E-02	
Kr-85m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-05	0.00E+00	
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-05	0.00E+00	
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.67E-04	2.00E-05	2.25E-04	3.87E-05	
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.03E-04	1.46E-05	3.50E-05	9.89E-06	
Sb-122	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-05	
Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-04	
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-03	2.61E-04	4.11E-04	2.60E-03	
Sb-126	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.72E-06	
Sn-113	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.22E-05	0.00E+00	5.96E-05	4.41E-05	
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-02	6.06E-03	
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.70E-03	2.61E-03	1.09E+00	3.35E-01	
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E-05	2.00E-05	3.83E-03	1.07E-03	
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.67E-06	4.29E-06	9.77E-04	3.12E-06	
Xe-135m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-05	0.00E+00	0.00E+00	0.00E+00	
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-05	1.02E-05	
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-04	0.00E+00	0.00E+00	2.72E-05	
Total for Period		1.02E+00	3.99E-01	1.87E-01	3.17E-02	3.81E+01	8.56E+01	1.04E+03	1.69E+02	

Licensee: WOLF CREEK 1 NPF-42 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Releas
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ar-41	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ba-139	Ci	NR	NR	NR	NR	NR	NR	7.00E-06	NR	
Ce-141	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Ce-144	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Co-57	Ci	NR	NR	NR	NR	NR	1.42E-06	NR	1.34E-05	
Co-58	Ci	ND	ND	ND	ND	1.82E-04	5.88E-05	1.24E-05	5.01E-03	
Co-60	Ci	ND	ND	ND	ND	1.17E-04	1.96E-04	4.30E-04	5.10E-04	

Cr-51	Ci	NR	NR	NR	NR	NR	NR	3.65E-05	4.92E-04	
Cs-134	Ci	ND	ND	ND	ND	1.48E-06	2.24E-06	9.90E-06	8.46E-06	
Cs-137	Ci	ND	ND	ND	ND	3.14E-05	8.97E-05	5.84E-05	4.34E-05	
Fe-55	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Fe-59	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
G Alpha	Ci	ND	ND	ND	ND	4.23E-06	ND	8.88E-05	1.53E-05	
H-3	Ci	1.11E+00	7.55E-01	5.43E-01	1.41E+00	3.10E+02	3.23E+02	7.10E+02	1.51E+02	
I-131	Ci	ND	ND	ND	ND	ND	ND	2.13E-04	1.77E-04	
I-132	Ci	NR	NR	NR	NR	NR	NR	NR	2.23E-06	
I-133	Ci	NR	NR	NR	NR	1.30E-06	NR	NR	2.97E-05	
Kr-85	Ci	ND	ND	ND	ND	ND	7.44E-04	ND	ND	
Kr-85m	Ci	ND	ND	ND	ND	ND	ND	3.91E-05	ND	
Kr-87	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Kr-88	Ci	ND	ND	ND	ND	ND	ND	4.48E-05	ND	
Mn-54	Ci	ND	ND	ND	ND	ND	ND	8.68E-06	7.52E-07	
Mn-56	Ci	NR	NR	NR	NR	NR	NR	NR	3.66E-06	
Mo-99	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Nb-97	Ci	NR	NR	NR	NR	NR	NR	NR	7.39E-06	
Rb-88	Ci	NR	NR	NR	NR	NR	NR	3.27E-04	NR	
Sb-124	Ci	NR	NR	NR	NR	NR	NR	NR	2.36E-05	
Sb-125	Ci	NR	NR	NR	NR	7.54E-04	1.51E-03	3.65E-03	6.19E-03	
Sb-126	Ci	NR	NR			NR	2.53E-06			
Sn-117m	Ci	NR	NR	NR	NR	NR	NR	NR	6.83E-06	
Sr-89	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Sr-90	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Xe-131m	Ci	ND	ND	ND	ND	ND	ND	5.09E-05	ND	
Xe-133	Ci	ND	ND	ND	ND	3.30E-03	2.80E-03	3.62E-02	2.15E-02	
Xe-133m	Ci	ND	ND	ND	ND	ND	ND	5.13E-04	3.84E-04	
Xe-135	Ci	ND	ND	ND	ND	ND	ND	2.08E-03	1.32E-03	
Xe-135m	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Zn-65	Ci	ND	ND	ND	ND	ND	ND	ND	ND	
Total for Period		1.11E+00	7.55E-01	5.43E-01	1.41E+00	3.10E+02	3.23E+02	7.10E+02	1.51E+02	

Licensee: YANKEE-ROWE 1 DPR-03 PWR
Year: 2003

Effluent Type: Liquid

Nuclides Released	Unit	Continuous Mode				Batch Mode				Release
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
All										
Ag-108m	Ci	NR	NR	NR	NR	NR	NR	7.76E-06	8.07E-07	
C-14	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Ce-144	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Co-58	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Co-60	Ci	NR	NR	NR	NR	NR	NR	2.35E-05	3.06E-06	

Cs-134	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Cs-137	Ci	NR	NR	NR	NR	NR	NR	2.04E-06	ND	
Fe-55	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Kr-85	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Mn-54	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Sr-89	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Sr-90	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Unidentified	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Zn-65	Ci	NR	NR	NR	NR	NR	NR	ND	ND	
Total for Period								3.33E-05	3.87E-06	

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	Docket Nos. 50-247/286-LR
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "NRC STAFF'S RESPONSE TO THE PETITION FOR WAIVER OF COMMISSION REGULATIONS FILED BY CONNECTICUT RESIDENTS OPPOSED TO RELICENSING OF INDIAN POINT (CRORIP)", dated January 22, 2008, have been served upon the following through deposit in the NRC's internal mail system, with copies by electronic mail, as indicated by an asterisk, or by deposit in the U.S. Postal Service, first class mail, as indicated by double asterisk, with copies by electronic mail this 22nd day of January, 2008:

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