RIVER BEND STATION

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT FOR 2015

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Summary

The Annual Radiological Environmental Operating Report presents data obtained through analyses of environmental samples collected for the River Bend Station (RBS) Radiological Environmental Monitoring Program (REMP) for the period January 1, 2015 through December 31, 2015. This report fulfills a requirement specified in RBS Technical Requirements Manual (TRM) 5.6.2 as required by Technical Specification 5.6.2 of Appendix A to RBS License Number NPF-47. During 2015, REMP results remained at background levels, as has been the case in previous years.

All required lower limit of detection (LLD) capabilities were achieved in all sample analyses during 2015, as required by the RBS Technical Requirement Manual (TRM). No measurable levels of radiation above baseline levels attributable to River Bend Station operation were detected in the vicinity of RBS. The 2015 Radiological Environmental Monitoring Program thus substantiated the adequacy of source control and effluent monitoring at River Bend Station with no observed impact of plant operations on the environment.

Radiological Environmental Monitoring Program

RBS established the REMP prior to the station's becoming operational (1985) to provide data on background radiation and radioactivity normally present in the area. RBS has continued to monitor the environment by sampling air, water, sediment, fish and food products, as well as measuring direct radiation. RBS also samples milk if milk-producing animals used for human consumption are present within five miles (8 km) of the plant.

The REMP includes sampling indicator and control locations within an approximate 20-mile radius of the plant. The REMP utilizes indicator locations near the site to show any increases or buildup of radioactivity that might occur due to station operation and control locations farther away from the site to indicate the presence of only naturally occurring radioactivity. RBS personnel compare indicator results with control and preoperational results to assess any impact RBS operation might have had on the surrounding environment.

In 2015, environmental samples were collected for radiological analysis. The results of indicator locations were compared with control locations and previous studies. It was concluded that no significant relationship exists between RBS operation and effect on the area around the plant. The review of 2015 data showed radioactivity levels in the environment were undetectable in many locations and near background levels in significant pathways.

Harmful Effects or Irreversible Damage

The REMP monitoring did not detect any harmful effects or evidence of irreversible damage in 2015. Therefore, no analysis or planned course of action to alleviate problems was necessary.

Reporting Levels

River Bend Station reviews indicate that no REMP sample equaled or exceeded reporting levels for radioactivity concentration in environmental samples, as outlined in RBS Technical Requirements Manual Table 3.12.1-2, when averaged over any calendar quarter. Therefore, 2015 results did not require any Radiological Monitoring Program Special Reports.

Radioactivity Not Attributable to RBS

The RBS REMP has detected radioactivity attributable to other sources not associated with the operation of RBS. These instances are summarized as follows:

- In 2011, I-131 was detected in a control vegetation sample, and indicator and control air sample media, which was credibly attributed to the trans-Pacific transport of airborne releases from Dai-Ichi, Fukushima following the March 11, 2011 Tohoku earthquake.

- In 1986, following the radioactive plume release due to reactor core degradation at the Chernobyl Nuclear Power Plant, RBS REMP detected I-131 in water, vegetation, and air samples.

- I-131 was also detected during 1998 in the wastewater treatment plant effluent, which was attributed to the medical treatment of a RBS employee.

- In 2006, Cs-137 was detected in upstream and downstream Mississippi River sediment samples. This activity was not present in the 2015 samples.

- In 2015, low level Cs-137 activity was detected in a soil sample collected during an emergency preparedness drill from a location greater than five miles from River Bend. This activity is attributed to the well documented global presence of low level Cs-137 activity due to residual weapons testing fallout.

Comparison to Federal and State Programs

RBS personnel compared REMP data to federal and state monitoring programs as results became available. Historically, the programs used for comparison have included the U.S. Nuclear Regulatory Commission (NRC) TLD (Thermoluminescent Dosimeter) Direct Radiation Monitoring Network and the Louisiana Department of Environmental Quality – Office of Environmental Compliance (LDEQ-OEC).

The NRC TLD Network Program was discontinued in 1998. Historically these results have compared to those from the RBS REMP. RBS TLD results continue to remain similar to the historical average and continue to verify that plant operation is not affecting the ambient radiation levels in the environment.

The LDEQ-OEC and the RBS REMP entail similar radiological environmental monitoring program elements. These programs include co-located air samplers, and similar locations for sample media such as water, fish and food products. Both programs have obtained similar results over previous years.

Sample Deviations

- **Milk**

  The REMP did not include milk sampling within five miles (8 km) of RBS in 2015 due to unavailability of milk-producing animals used for human consumption. The RBS Technical Requirements Manual requires collection of milk samples if available commercially within 8 km (5 miles) of the plant. RBS personnel collected vegetation samples to monitor the ingestion pathway, as specified in RBS Technical Requirements Manual Table 3.12.1-1, because of milk unavailability.

- **Sampling Deviations**

  There were no sampling deviations in 2015.

- **Missed Samples**

  There were no missed samples in 2015.

- **Unavailable Results**

  There were no unavailable results in 2015.

Program Modifications

RBS made no modifications to the REMP during the year 2015.

Attachments

Attachments 1 through 7 contain results of air, TLD, water, sediment, fish, food products and special samples collected in 2015. River Bend's REMP TLDs were analyzed by Stanford Dosimetry. The Teledyne Brown Engineering Environmental Laboratory analyzed all remaining samples. Attachment 8 contains Teledyne Brown Engineering's participation in the Interlaboratory Comparison Program during the year 2015.

1. Introduction

1.1. Radiological Environmental Monitoring Program

River Bend Station established the REMP to ensure that plant operating controls properly function to minimize any associated radiation endangerment to human health or the environment. The REMP is designed for the following:

- Analyzing important pathways for anticipated types and quantities of radionuclides released into the environment.

- Considering the possibility of a buildup of long-lived radionuclides in the environment and identifying physical and biological accumulations that may contribute to human exposures.

- Considering the potential radiation exposure to plant and animal life in the environment surrounding RBS.

- Correlating levels of radiation and radioactivity in the environment with radioactive releases from station operation.

1.2. Pathways Monitored

The airborne, direct radiation, waterborne and ingestion pathways, as seen in Figure 1-1, are monitored as required by the RBS Technical Requirements Manual 3.12.1. A description of the RBS REMP sample locations utilized to monitor exposure pathways are described in Table 1.1 and shown in Figures 1-2 and 1-3. RBS may occasionally supplement this program with additional sampling in order to provide a comprehensive and well-balanced program.

Section 2.0 of this report provides a discussion of 2015 sampling results with Section 3.0 providing a summary of results for the monitored exposure pathways.

1.3. Land Use Census

RBS personnel conduct a land use census biannually as required by RBS Technical Requirements Manual 3.12.2. The last land use census was performed in 2014. The next scheduled land use census will be performed in 2016. Section 2.8 on the report contains a narrative on the results of the 2014 land use census.

Table 1.1

Radiological Environmental Sampling Program

Exposure Pathway	Requirement	Sample Point Description, Distance and Direction	Sampling and Collection Frequency	Type and Frequency Of Analyses
Airborne	**Radioiodine and Particulates** 2 samples from close to the 2 SITE BOUNDARY locations, in different sectors, of the highest calculated annual average ground level D/Q.	**AN1 (0.9 km W)** - RBS site Hwy 965; 0.4 km south of Activity Center. **AP1 (0.9 km WNW)** – Behind River Bend Station Activity Center.	Continuous sampler operation with sample collection every two weeks, or more frequently if required by dust loading.	Radioiodine Canisters – I-131 analysis every two weeks. Air Particulate – Gross beta radioactivity analysis following filter change.
	Radioiodine and Particulates 1 sample from the vicinity of a community having the highest calculated annual average ground level D/Q.	**AQS2 (5.8 km NW)** - St. Francis Substation on US Hwy. (Bus.) 61 in St. Francisville.		
	Radioiodine and Particulates 1 sample from a control location, as for example 15 - 30 km distance and in the least prevalent wind direction.	**AGC (17.0 km SE)** – Entergy Service Center compound in Zachary. (Control)		
Direct Radiation	**TLDs** One ring of stations, one in each meteorological sector in the general area of the SITE BOUNDARY.	**TA1 (1.7 km N)** - River Bend Training Center. **TB1 (0.5 km NNE)** - Utility pole near River Bend Station cooling tower yard area. **TC1 (1.7 km NE)** - Telephone pole at Jct. US Hwy. 61 and Old Highway 61.	Quarterly	mR exposure quarterly.

Table 1.1

Radiological Environmental Sampling Program

Exposure Pathway	Requirement	Sample Point Description, Distance and Direction	Sampling and Collection Frequency	Type and Frequency Of Analyses
Direct Radiation	<u>TLDs</u> One ring of stations, one in each meteorological sector in the general area of the SITE BOUNDARY.	**TD1 (1.6 km ENE)** – Stub pole along WF7, 150m S of Jct. WF7 and US Hwy. 61. **TE1 (1.3 km E)** – Stub pole along WF7, 1 km S of Jct. WF7 and US Hwy. 61. **TF1 (1.3 km ESE)** – Stub pole along WF7, 1.6 km S of Jct. WF7 and US Hwy. 61. **TG1 (1.6 km SE)** – Stub pole along WF7, 2 km S of Jct. WF7 and US Hwy. 61. **TH1 (1.7 km SSE)** – Stub pole at power line crossing of WF7 (near Grants Bayou). **TJ1 (1.5 km S)** – Stub pole near River Bend Station Gate #23 on Powell Station Road (LA Hwy. 965). **TK1 (0.9 km SSW)** – Utility pole on Powell Station Road (LA Hwy. 965), 20 m S of River Bend Station River Access Road. **TL1 (1.0 km SW)** – First utility pole on Powell Station Road (LA Hwy. 965) S of former Illinois Central Gulf RR crossing.	Quarterly	mR exposure quarterly.

Table 1.1

Radiological Environmental Sampling Program

Exposure Pathway	Requirement	Sample Point Description, Distance and Direction	Sampling and Collection Frequency	Type and Frequency Of Analyses
Direct Radiation	<u>TLDs</u> One ring of stations, one in each meteorological sector in the general area of the SITE BOUNDARY.	**TM1 (0.9 km WSW)** - Third utility pole on Powell Station Road (LA Hwy. 965) N of former Illinois Central Gulf RR crossing. **TN1 (0.9 km W)** – Utility pole along Powell Station Road (LA Hwy. 965), near garden and AN1 air sampler location. **TP1 (0.9 km WNW)** - Behind River Bend Station Activity Center at AP1 air sampler location. **TQ1 (0.6 km NW)** – Across from MA-1 on RBS North Access Road. **TR1 (0.8 km NNW)** – River Bend Station North Access Road across from Main Plant entrance.	Quarterly	mR exposure quarterly.
	<u>TLDs</u> The balance of the stations (8) to be placed in special interest areas such as population centers, nearby residences, schools, and in 1 or 2 areas to serve as control locations.	**TAC (15.8 km N)** – Utility pole at Jct. of US Hwy. 61 and LA Hwy. 421, 7.9 km north of Bains. (Control) **TCS (12.3 km NE)** – Utility pole at gate to East Louisiana State Hospital in Jackson. (Special) **TEC (16.0 km E)** – Stub pole at jct. of Hwy. 955 and Greenbrier Road, 4.8 km North of Jct. of Hwys 955 and 964. (Control)		

Table 1.1

Radiological Environmental Sampling Program

Exposure Pathway	Requirement	Sample Point Description, Distance and Direction	Sampling and Collection Frequency	Type and Frequency Of Analyses
Direct Radiation	<u>TLDs</u> The balance of the stations (8) to be placed in special interest areas such as population centers, nearby residences, schools, and in 1 or 2 areas to serve as control locations.	**TGS (17.0 km SE)** – Entergy Service Center compound in Zachary. (Special) **TNS (6.0 km W)** – Utility pole with electrical meter at west bank ferry landing (LA Hwy. 10). (Special) **TQS1 (4.0 km NW)** – Utility pole front of Pentecostal church (opposite West Feliciana Parish Hospital) near Jct. US Hwy. 61 and Commerce Street. (Special) **TQS2 (5.8 km NW)** – St. Francis Substation on business US Hwy. 61 in St. Francisville. (Special) **TRS (9.2 km NNW)** - Stub pole at Jct. of US Hwy. 61 and WF2 near Bains (West Feliciana High School). (Special)	Quarterly	mR exposure quarterly.
Waterborne	<u>Surface Water</u> 1 sample upstream and 1 sample downstream.	**SWU (5.0 km W)** - Mississippi River about 4 km upstream from the plant liquid discharge outfall, near LA Hwy. 10 ferry crossing. **SWD (7.75 km S)** - Mississippi River about 4 km downstream from plant liquid discharge outfall, near paper mill.	Grab samples quarterly	Gamma isotopic analysis, and tritium analysis quarterly.

Table 1.1

Radiological Environmental Sampling Program

Exposure Pathway	Requirement	Sample Point Description, Distance and Direction	Sampling and Collection Frequency	Type and Frequency Of Analyses
Waterborne	**Groundwater** Samples from 1 or 2 sources only if likely to be affected.	**WU (~470 m NNE)** - Upland Terrace Aquifer well upgradient from plant. **WD (~470 m SW)** – Upland Terrace Aquifer well downgradient from plant.	Semiannually	Gamma isotopic and tritium analysis semiannually.
	Sediment From Shoreline 1 sample from downstream area with existing or potential recreational value.	**SEDD (7.75 km S)** – Mississippi River about 4 km downstream from plant liquid discharge outfall, near paper mill.	Annually	Gamma isotopic analysis annually.
Ingestion	**Milk** If commercially available, 1 sample from milking animals within 8 km distant where doses are calculated to be greater than 1 mrem per year. 1 sample from milking animals at a control location 15 – 30 km distant when an indicator location exists.	Currently, no available milking animals within 8 km of RBS.	Quarterly when animals are on pasture.	Gamma isotopic and I-131 analysis quarterly when animals are on pasture.
	Fish and Invertebrates 1 sample of a commercially and/or recreationally important species in vicinity of plant discharge area. 1 sample of similar species in area not influenced by plant discharge.	**FD (7.75 km S)** - One sample of a commercially and/or recreationally important species from downstream area influenced by plant discharge. **FU (4.0 km WSW)** - One sample of a commercially and/or recreationally important species from upstream area not influenced by plant discharge.	Annually	Gamma isotopic analysis on edible portions annually

Table 1.1

Radiological Environmental Sampling Program

Exposure Pathway	Requirement	Sample Point Description, Distance and Direction	Sampling and Collection Frequency	Type and Frequency Of Analyses
Ingestion	**Food Products** 1 sample of one type of broadleaf vegetation grown near the SITE BOUNDARY location of highest predicted annual average ground level D/Q if milk sampling is not performed. 1 sample of similar broadleaf vegetation grown 15 – 30 km distant, if milk sampling is not performed.	**GN1 (0.9 km W)** – Sampling will be performed in accordance with Table 3.12.1-1 Section 4.a of the Technical Requirements Manual. **GQC (32.0 km NW)** - One sample of similar vegetables from LA State Penitentiary at Angola. (Control)	Quarterly during the growing season.	Gamma isotopic and I-131 analysis quarterly.

Figure 1-1
Exposure Pathways

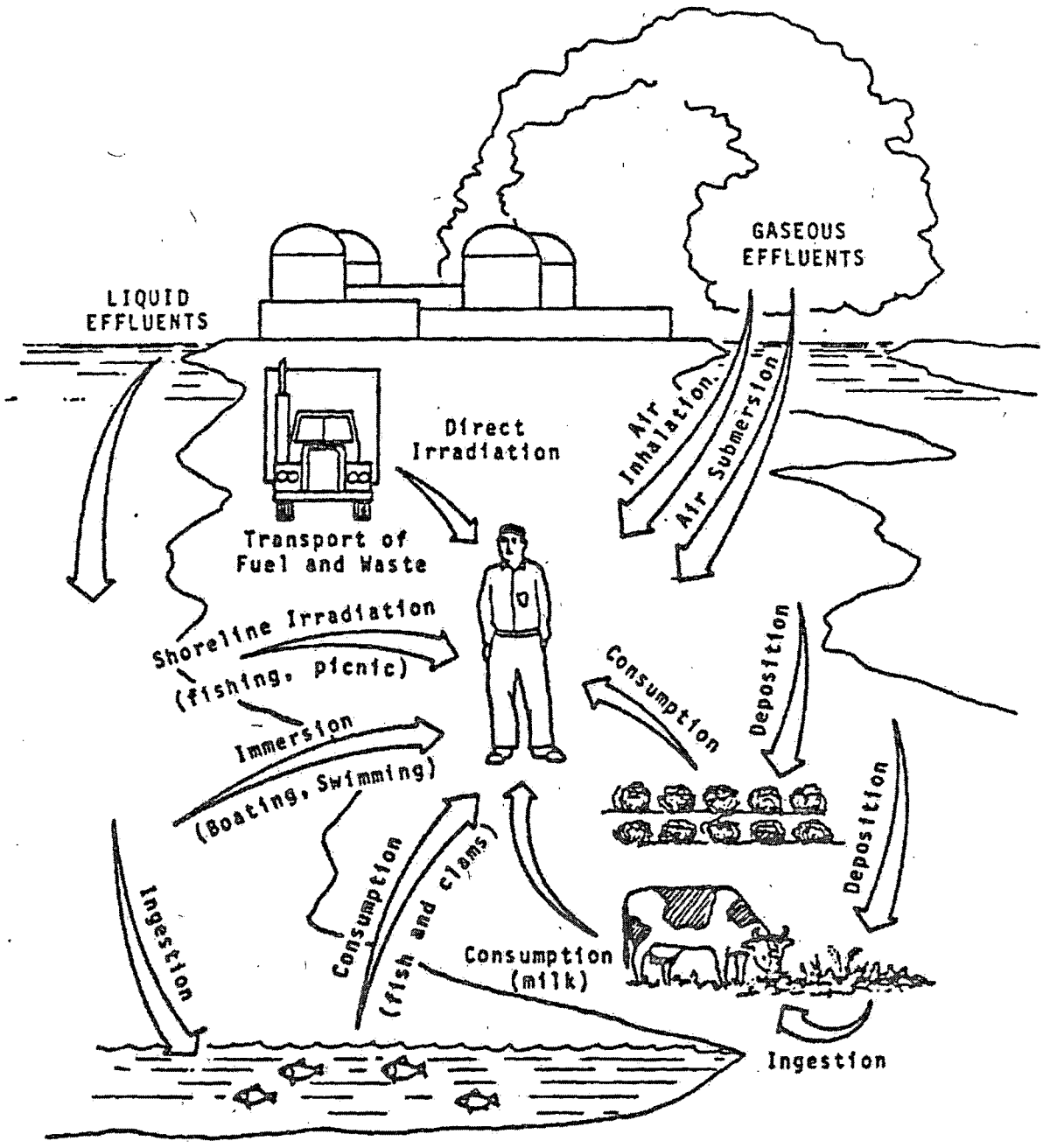


Figure 1-2
Sample Collection Sites – Near Field

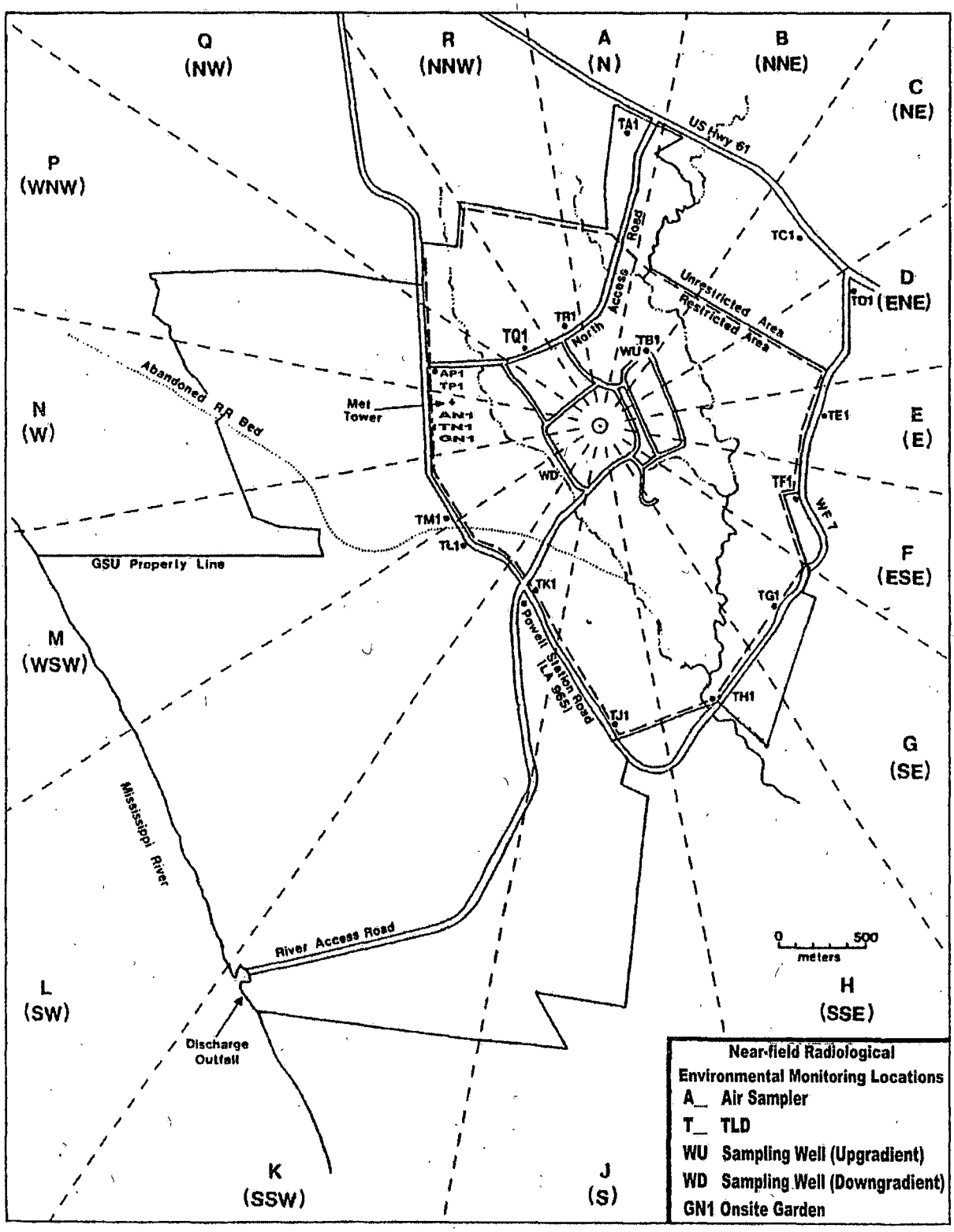
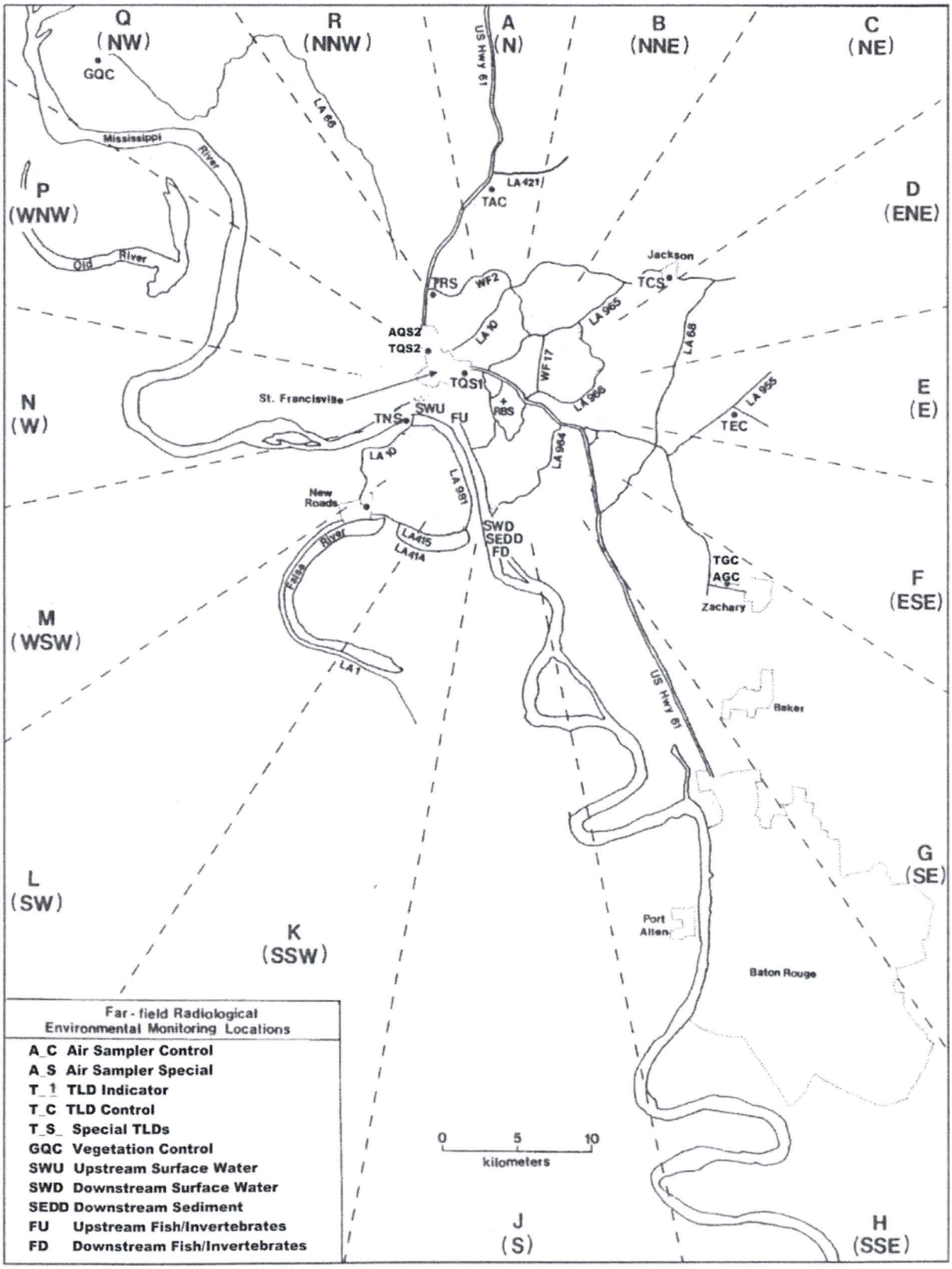


Figure 1-3
Sample Collection Sites – Far Field



2. Interpretation and Trends of Results

Table 3.1 provides a comparison of the indicator and control location mean values for the 2014 data, and indicates that the environment around the plant is unaffected by plant operations.

2.1. Air Particulate and Radioiodine Sample Results

Iodine-131 attributable to RBS was not detected in the radioiodine cartridges during 2015 as has been the case in previous years. Indicator gross beta air particulate results for 2015 were similar to preoperational and operational levels as seen below. Results are reported as annual average pCi/m^3 (picocuries per cubic meter). (Attachment 1.1)

Monitoring Period	Result
Preoperational	**0.030**
2015	**0.017**
2014	**0.019**
2013	**0.019**
2012	**0.025**
2011	**0.026**
2010	**0.024**
2009	**0.023**
2008	**0.023**

2.2. Thermoluminescent Dosimetry Sample Results

Gamma radiation exposure in the reporting period compares to previous years. Figure 2-1 compares quarterly indicator results for 2015 with control location data from 1986 to 2015. All indicator results were within three-sigma of the control data.

RBS normalizes measured exposure to 90 days and relies on comparison of the indicator locations to the control as a measure of plant impact. RBS's comparison of the indicator and special interest area TLD results to the controls, as seen in Table 3.1, indicates that the ambient radiation levels are unaffected by plant operations. Therefore, levels continue to remain at or near background. (Attachment 2.1)

2.3. Water Sample Results

Analytical results for 2015 surface water and groundwater samples were similar to those reported in previous years.

Surface water samples were collected from two locations (indicator and control) and analyzed for gamma radionuclides and tritium. Gamma radionuclides were below detectable limits at the indicator and control locations. Tritium was also below detectable limits at all locations. Listed below is a comparison of 2015 results from the indicator location as compared to the preoperational and previous operational years. Results are reported as annual average pCi/l (picocuries per liter). (Attachment 3.1)

Radionuclide	2015	2003 – 2014	Preoperational
Gammas	<LLD	<LLD	<LLD
Tritium	<LLD	<LLD	<LLD

Groundwater samples were collected from two locations (indicator and control) and analyzed for gamma radionuclides and tritium. Gamma radionuclides and tritium were below detectable limits at the indicator and control locations. Listed below is a comparison of 2015 results from the indicator location as compared to the preoperational and previous operational years. Results are reported as annual average pCi/l. (Attachment 4.1)

Radionuclide	2015	2003 – 2014	Preoperational
Gammas	<LLD	<LLD	<LLD
Tritium	<LLD	<LLD	<LLD

Based on these comparisons, the operation of RBS had no impact on this pathway during 2014, and levels of radionuclides monitored for this pathway continue to remain similar to those obtained in operational and preoperational years.

2.4. Shoreline Sediment Sample Results

A shoreline sediment sample was collected from the indicator location in 2015 and analyzed for gamma radionuclides. RBS also samples a non-REMP upstream control sediment sample. A review of historical indicator and upstream sediment samples periodically shows Cs-137. No Cs-137 was indicated on the samples in 2015. Therefore, based on these measurements, RBS operations had no significant radiological impact upon the environment or public via this pathway. (Attachment 5.1)

2.5. Milk Sample Results

The REMP did not include milk sampling within five miles (8 km) of RBS in 2015 due to unavailability of milk-producing animals used for human consumption. The RBS Technical Requirements Manual requires collection of milk samples if available commercially within 8 km (5 miles) of the plant. RBS personnel collected vegetation samples to monitor the ingestion pathway, as specified in RBS Technical Requirements Manual Table 3.12.1-1, because of milk unavailability.

2.6. Food Product Sample Results

Food product samples were collected when available from two locations (indicator and control) in 2015 and analyzed for gamma radionuclides in accordance with Table TRM 3.12.1-1. The 2015 levels attributable to RBS remained undetectable, which is consistent with previous operational years. Therefore, since levels continue to remain at background, it can be concluded that plant operations is not impacting this pathway. (Attachment 6.1)

2.7. Fish and Invertebrate Sample Results

Fish samples were collected from two locations (indicator and control) and analyzed for gamma radionuclides. In 2015, gamma radionuclides were below detectable limits that were consistent with the preoperational and operational monitoring periods. Therefore, based on these measurements, RBS operations had no significant radiological impact upon the environment or public by this pathway. (Attachment 7.1)

2.8. Land Use Census Results

The Land Use Census was conducted in accordance with procedure ESP-8-051, as required by Technical Requirements Manual (TRM) (TR 3.12.2).

A garden census is not conducted pursuant to the note in the TRM (TLCO 3.12.2) that allows the sampling of broadleaf vegetation in the highest calculated average ground-level D/Q sector near site boundary in lieu of the garden census.

The milk animal census identified no milk animals within 8 km (5 miles) of River Bend site. This information was verified by the County Agents from West Feliciana, East Feliciana, and Pointe Coupee parishes.

No resident census changes were noted, as indicated in Table 2.1.

No locations were identified in 2015 that would yield a calculated dose or dose commitment greater than those contained in the TRM (TR 3.11).

Table 2.1 contains data from the most recently completed Land Use Census.

2.9. Interlaboratory Comparison Results

The purpose of the Interlaboratory Comparison Program (ICP) is to confirm the accuracy of results produced by Teledyne Brown Engineering. Samples of various matrices (i.e. soil, water, vegetation, air filters, and milk) are spiked with known amounts of radioactivity by commercial vendors of this service and by departments within the government. TBE participates in three programs. Two are commercial, Analytics Inc. and Environmental Resource Associates (ERA) and one is a government sponsored program, the Department of Energy's (DOE) Mixed Analyte Performance Evaluation Program (MAPEP). The DOE's Idaho National Engineering Laboratory administers the MAPEP. All three programs are blind performance evaluation studies in which samples with known activities are sent to TBE for analysis. Once analyzed, TBE submits the results to the respective agency for evaluation. The results of these evaluations are published in TBE's quarterly and annual QA reports.

The 2015 Interlaboratory Comparison Program includes all contractually required matrices and analyses TBE supplies to customers and specifically RBS's Technical Requirements Manual 3.12.3. Attachment 8 contains these results.

In reviewing our environmental inter-laboratory crosscheck programs, we identified 1) duplication of efforts on some matrices and isotopes and 2) that we are performing crosscheck samples on some matrices and isotopes that we do not perform for clients. Since the DOE MAPEP is designed to evaluate the ability of analytical facilities to correctly analyze for radiological constituents representative of those at DOE sites, the needed changes were made to the MAPEP program. Therefore, the following isotopes were removed from the MAPEP program:

Soil – gamma – will be provided by Analytics twice per year in 2015.

AP – gamma – is currently provided by Analytics.

Water – gamma, H-3, Sr-90, uranium, gross alpha and gross beta currently provided by ERA.

MAPEP evaluates non-reported (NR) analyses as failed if they were reported in the previous series.

For the TBE laboratory, 129 out of 139 analyses performed met the specified acceptance criteria. Ten analyses (AP - Cr-51, U-234/233, Gr A, Sr-90; Soil Sr-90; Water - Ni-63, Sr-89/90, U natural; Vegetation Sr-90 samples) did not meet the specified acceptance criteria for the following reasons and were addressed through the TBE Corrective Action Program:

Note: The Department of Energy (DOE) Mixed Analyte Performance Evaluation Program (MAPEP) samples are created to mimic conditions found at DOE sites which do not resemble typical environmental samples obtained at commercial nuclear power facilities.

1. Teledyne Brown Engineering's Analytics' June 2015 air particulate Cr-51 result of 323 ± 45.5 pCi was higher than the known value of 233 pCi with a ratio of 1.39. The upper ratio of 1.30 (acceptable with warning) was exceeded. The air particulate sample is counted at a distance above the surface of the detector to avoid detector summing which could alter the results. Chromium-51 has the shortest half-life (27.7 days) and the lowest gamma energy (320.08 keV) of this mixed nuclide sample. Additionally, Cr-51 has only one gamma energy and also has a low intensity (9.38 gamma photons produced per 100 disintegrations). This geometry produces a larger error for the Cr-51 and other gamma emitters as any distance from the detector decreases the counting rate and the probability of accurately detecting the nuclide energy. Taking into consideration the uncertainty, the activity of Cr-51 overlaps with the known value at a ratio of 1.19, which would statistically be considered acceptable. NCR 15-18

2. Teledyne Brown Engineering's MAPEP March 2015 soil Sr-90 result of 286 Total Bq/kg was lower than the known value of 653 Bq/kg, exceeding the lower acceptance range of 487 Bq/kg. The failure was due to incomplete digestion of the sample. Incomplete digestion of samples causes some of the sample to be left behind and is not present in the digested sample utilized for analysis. The procedure has been updated to include a more robust digestion using stirring during the heating phase. The MAPEP September 2014 soil Sr-90 series prior to this study was evaluated as acceptable with a result of 694 and an acceptance range of 601 – 1115 Bq/kg. The MAPEP September 2015 series soil Sr-90 after this study was evaluated as acceptable with a result of 429 and an acceptance range of 298 – 553 Bq/kg. We feel the issue is specific to the March 2015 MAPEP sample. NCR 15-13

3. Teledyne Brown Engineering's MAPEP March 2015 air particulate U-234/233 result of 0.0211 ± 0.0120 Bq/sample was higher than the known value of 0.0155 Bq/sample, exceeding the upper acceptance range of 0.0202 Bq/sample. Although evaluated as a failure, taking into consideration the uncertainty, TBE's result would overlap with the known value, which is statistically considered acceptable. MAPEP spiked the sample with significantly more U-238 activity (a found to known ratio of 0.96) than the normal U-234/233. Due to the extremely low activity, it was difficult to quantify the U-234/233. NCR 15-13

4. Teledyne Brown Engineering's MAPEP March 2015 air particulate gross alpha result of 0.448 Bq/sample was lower than the known value of 1.77 Bq/sample, exceeding the lower acceptance range of 0.53 Bq/sample. The instrument efficiency used for gross alpha is determined using a non-attenuated alpha standard. The MAPEP filter has the alphas embedded in the filter, requiring an attenuated efficiency. When samples contain alpha particles that are embedded in the sample media, due to the size of the alpha particle, some of the alpha particles are absorbed by the media and cannot escape to be counted. When the sample media absorbs the alpha particles this is known as self-absorption or attenuation. The calibration must include a similar configuration/media to correct for the attenuation. In order to correct the low bias, TBE will create an attenuated efficiency for MAPEP air particulate filters. The MAPEP September series air

particulate gross alpha result of 0.47 Bq/sample was evaluated as acceptable with a range of 0.24 – 1.53 Bq/sample. Unlike the MAPEP samples, air particulate Gross alpha analyses for power plants are not evaluated as a direct count sample. Power plant air particulate filters for gross alpha go through an acid digestion process prior to counting and the digested material is analyzed. NCR 15-13

5. Teledyne Brown Engineering's MAPEP September water Ni-63 result of 11.8 ± 10.8 Bq/L was higher than the known value of 8.55 Bq/L, exceeding the upper acceptance range of 11.12 Bq/L. The Ni-63 half-life is approximately 100 years. Nickel-63 is considered to be a "soft" or low energy beta emitter, which means that the beta energy is very low. The maximum beta energy for Ni-63 is approximately 65 keV, much lower than other more common nuclides such as Co-60 (maximum beta energy of 1549 keV). The original sample was run with a 10 mL aliquot which was not sufficient for the low level of Ni-63 in the sample. The rerun aliquot of 30 mL produced an acceptable result of 8.81 Bq/L. NCR 15-21

6. Teledyne Brown Engineering's MAPEP September air particulate Sr-90 result of 1.48 Bq/sample was lower than the known value of 2.18 Bq/sample, exceeding the lower acceptance range of 1.53 Bq/sample. In the past, MAPEP has added substances (unusual compounds found in DOE complexes) to various matrices that have resulted in incomplete removal of the isotope of interest for the laboratories analyzing the cross checks. TBE suspects that this may be the cause of this error. Many compounds, if not properly accounted for or removed in the sample matrix, can cause interferences to either indicate lower activity or higher activity. TBE will no longer analyze the air particulate Sr-90 through MAPEP but will participate in the Analytics cross check program to perform both Sr-89 and Sr-90 in the air particulate matrix. NCR 15-21

7. Teledyne Brown Engineering's MAPEP September vegetation Sr-90 result of 0.386 Bq/sample was lower than the known value of 1.30 Bq/sample, exceeding the lower acceptance range of 0.91 Bq/sample. In the past, MAPEP has added substances (unusual compounds found in DOE complexes) to various matrices that have resulted in incomplete removal of the isotope of interest for the laboratories analyzing the cross checks. TBE suspects that this maybe the cause of this error. Many compounds, if not properly accounted for or removed in the sample matrix, can cause interferences to either indicate lower activity or higher activity. Results from previous performance evaluations were reviewed and shown to be acceptable. NCR 15-21

8. & 9. Teledyne Brown Engineering's ERA May water Sr-89/90 results of 45.2 and 28.0 pCi/L, respectively were lower than the known values of 63.2 and 41.9 pCi/L, respectively, exceeding the lower acceptance limits of 51.1 and 30.8 pCi/L, respectively. The yields were on the high side of the TBE acceptance range, which indicates the present of excess calcium contributed to the yield, resulting in low results. NCR 15-09

10. Teledyne Brown Engineering's ERA November water Uranium natural result of 146.9 pCi/L was higher than the known value of 56.2 pCi/L, exceeding the upper acceptance limit of 62.4 pCi/L. The technician failed to dilute the original sample, but used the entire 12 mL sample. When the results were recalculated without the dilution and using the 12 mL aliquot, the result of 57.16 agreed with the assigned value of 56.2. NCR 15-19

Table 2-1

Land Use Census Results

2014

Item #	Sector		Nearest Residence	Range (km)	Nearest Milk Animal	Range (km)	Comment #
1	**A**	(N)	5498 Hwy 61 St.Francisville, LA 70775	1.9	-	-	
2	**B**	(NNE)	4549 Old Hwy 61 St.Francisville, LA 70775	1.4	-	-	
3	**C**	(NE)	4553 Old Hwy 61 St.Francisville, LA 70775	1.5	-	-	
4	**D**	(ENE)	12657 Powell Station Rd. St.Francisville, LA 70775	1.4	-	-	
5	**E**	(E)	4635 Hwy 61 St.Francisville, LA 70775	2.4	-	-	
6	**F**	(ESE)	12019 Fairview Way Jackson, LA 7748	2.6	-	-	
7	**G**	(SE)	3319 Hwy 964 Jackson, LA 70748	3.7	-	-	
8	**H**	(SSE)	11813 Powell Station Rd. St.Francisville, LA 70775	1.7	-	-	
9	**J**	(S)	11649 Powell Station Rd. St.Francisville, LA 70775	1.8	-	-	
10	**K**	(SSW)	8909 Hwy 981 New Roads, LA 70760	6.6	-	-	
11	**L**	(SW)			-	-	**1**
12	**M**	(WSW)	10933 Cajun 2 Rd. New Roads, LA 70760	5.1	-	-	
13	**N**	(W)			-	-	**1**
14	**P**	(WNW)	10426 Old Field Rd. St.Francisville, LA 70775	3.7	-	-	
15	**Q**	(NW)	9537 Hwy 965 St.Francisville, LA 70775	1.3	-	-	
16	**R**	(NNW)	9794 Hwy 965 St.Francisville, LA 70775	1.6	-	-	

#	Comment
1	No residence located within 8 km.

FIGURE 2-1
TLD Indicator Results (2015) Versus Control Data (1986-2015)

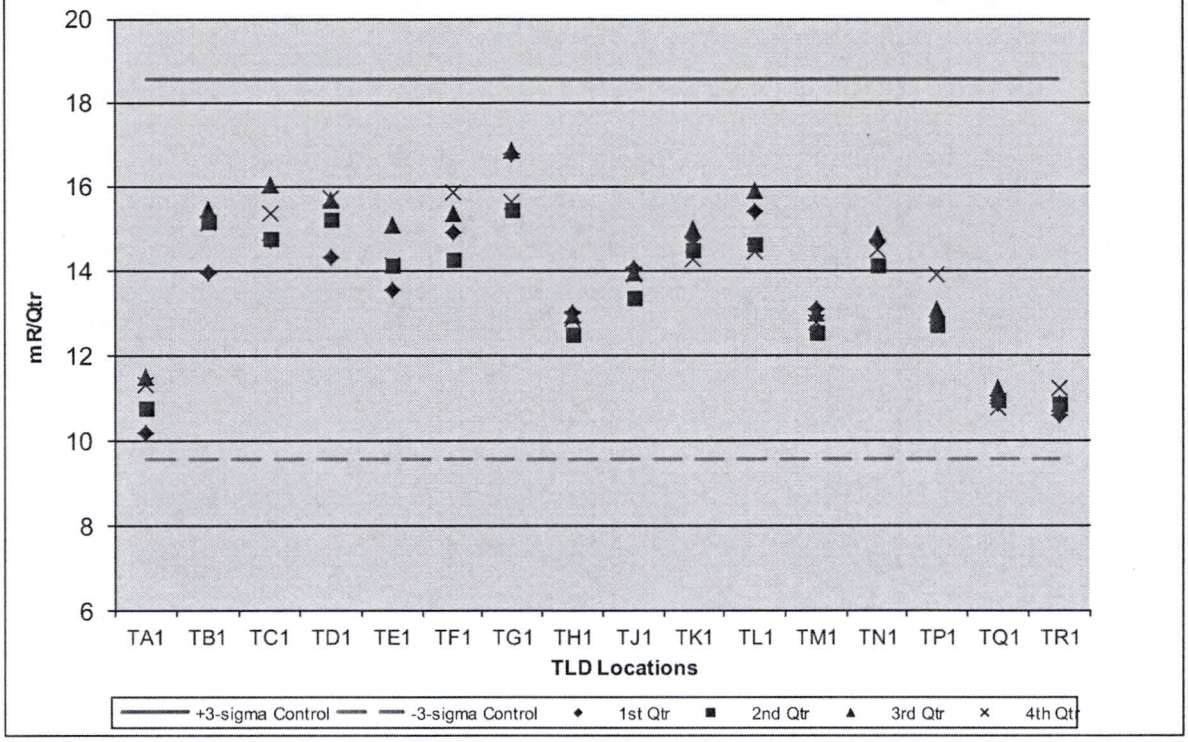
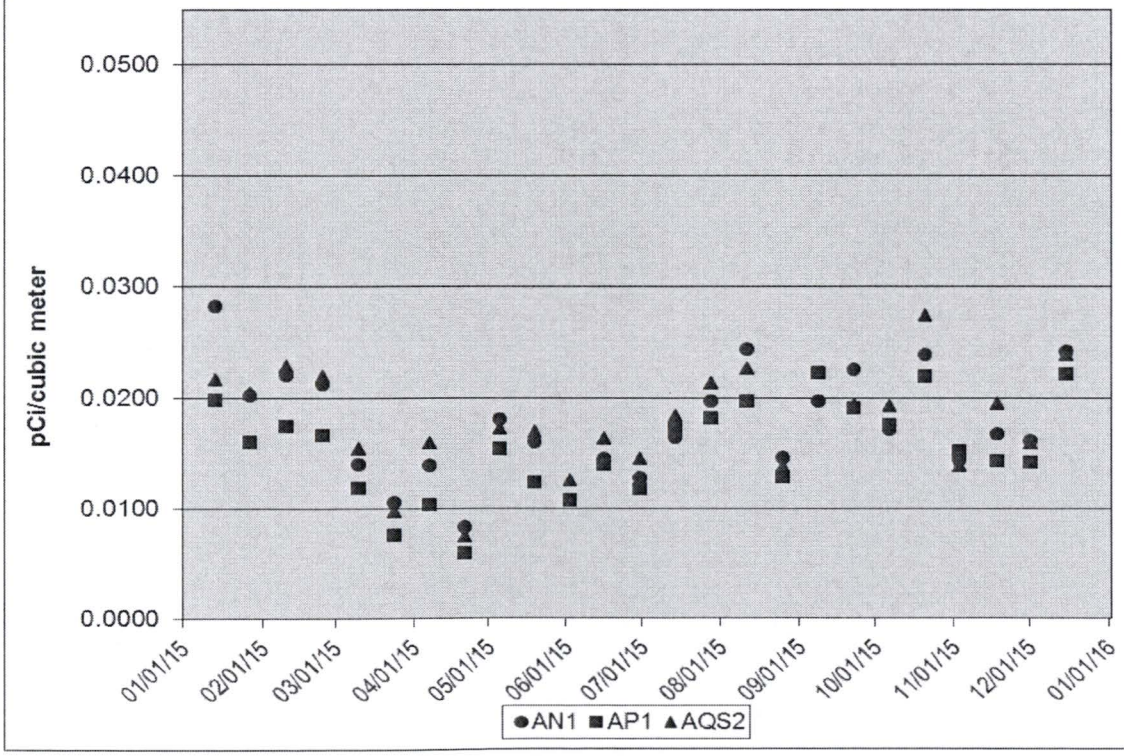


FIGURE 2-2
Gross Beta Indicator Results (2015)



3. Radiological Environmental Monitoring Program Summary

3.1. 2015 Program Results Summary

Table 3.1 summarizes the 2015 REMP results. RBS personnel did not use values reported as less than the lower limit of detection (<LLD) when determining ranges and means for indicator and control locations.

Table 3.1

Environmental Radiological Monitoring Program Summary

TABLE 3.1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

Name of Facility River Bend Station
Location of Facility St. Francisville, Louisiana
(County/State)

Docket No. 50-458
Reporting Period January 1 2015 to December 31 2015

Medium of Pathway Sampled (Unit of Measurement)	Type & Total No. of Analysis Performed		Lower Limit of Detection(1) (LLD)	All Indicator Locations Mean(2) Range(2)	Location with Highest Annual Mean Name	Mean(2) Range(2)	Control Location Mean(2) Range(2)	No. of Reportable Occurrences
Air Particulate (pCi/m^3)	GR-B	104	0.01	.017 (78/78) (.006/.028)	AQS2 (5.8 km NW)	.018 (26/26) (.008/.027)	.019 (26/26) (.009/.043)	0
Air Iodine (pCi/m^3)	I-131	104	0.07	ND(0/77) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/26) (ND-ND)	0
Indicators TLDs (mR/Quarter)	Gamma Dose Quarterly	64	NA	13.8 (64/64) (10.2/16.9)	TG1 (1.6 km SE)	16.2 (4/4) (15.4/16.9)	NA	0
Special Interest TLDs (mR/Quarter)	Gamma Dose Quarterly	24	NA	14.5 (24/24) (12.4/16.8)	TGS (17.0 km SE)	16.4 (4/4) (16.1/16.8)	NA	0
Control TLDs (mR/Quarter)	Gamma Dose Quarterly	8	NA	NA	TAC (15.8 km N)	15.7 (4/4) (15.5/16.1)	15 (8/8) (13.6/16.1)	0
Surface Water (pCi/L)	H-3	10	2000	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Mn-54	10	15	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Co-58	10	15	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Fe-59	10	30	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0

TABLE 3.1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

Name of Facility River Bend Station
Location of Facility St. Francisville, Louisiana
(County/State)

Docket No. 50-458
Reporting Period January 1 2015 to December 31 2015

Medium of Pathway Sampled (Unit of Measurement)	Type & Total No. of Analysis Performed		Lower Limit of Detection(1) (LLD)	All Indicator Locations Mean(2) Range(2)	Location with Highest Annual Mean Name	Mean(2) Range(2)	Control Location Mean(2) Range(2)	No. of Reportable Occurrences
Surface Water (cont'd) (pCi/L)	Co-60	10	15	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Zn-65	10	30	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Nb-95	10	15	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Zr-95	10	30	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	I-131	10	15	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Cs-134	10	15	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Cs-137	10	18	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	Ba-140	10	60	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
	La-140	10	15	ND(0/5) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/5) (ND-ND)	0
Ground Water (pCi/L)	H-3	4	2000	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0

TABLE 3.1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

Name of Facility River Bend Station
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(County/State)

Docket No. 50-458
Reporting Period January 1 2015 to December 31 2015

Medium of Pathway Sampled (Unit of Measurement)	Type & Total No. of Analysis Performed		Lower Limit of Detection(1) (LLD)	All Indicator Locations Mean(2) Range(2)	Location with Highest Annual Mean Name	Mean(2) Range(2)	Control Location Mean(2) Range(2)	No. of Reportable Occurrences
Ground Water (cont'd) (pCi/L)	Mn-54	4	15	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	Co-58	4	15	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	Fe-59	4	30	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	Co-60	4	15	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	Zn-65	4	30	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	Nb-95	4	15	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	Zr-95	4	30	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	I-131	4	15	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	Cs-134	4	15	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	Cs-137	4	18	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0

TABLE 3.1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

Name of Facility River Bend Station
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(County/State)

Docket No. 50-458
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Medium of Pathway Sampled (Unit of Measurement)	Type & Total No. of Analysis Performed	Lower Limit of Detection(1) (LLD)	All Indicator Locations Mean(2) Range(2)	Location with Highest Annual Mean Name	Mean(2) Range(2)	Control Location Mean(2) Range(2)	No. of Reportable Occurrences
Ground Water (cont'd) (pCi/L)	Ba-140 4	60	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
	La-140 4	15	ND(0/2) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/2) (ND-ND)	0
Shoreline Sediment (pCi/kg,dry)	Mn-54 2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	Co-58 2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	Fe-59 2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	Co-60 2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	Zn-65 2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	Nb-95 2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	Zr-95 2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	I-131 2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0

TABLE 3.1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

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(County/State)

Docket No. 50-458
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Shoreline Sediment (cont'd) (pCi/kg,dry)	Cs-134	2	150	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	Cs-137	2	180	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	Ba-140	2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
	La-140	2	NA	ND(0/1) (ND)	NA	NA(0/0) (ND)	ND(0/1) (ND)	0
Food Products (pCi/kg,wet)	Mn-54	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	Co-58	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	Fe-59	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	Co-60	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	Zn-65	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	Nb-95	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0

TABLE 3.1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

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Food Products (cont'd) (pCi/kg,wet)	Zr-95	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	I-131	8	60	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	Cs-134	8	60	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	Cs-137	8	80	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	Ba-140	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
	La-140	8	NA	ND(0/4) (ND-ND)	NA	NA(0/0) (NA-NA)	ND(0/4) (ND-ND)	0
Fish (pCi/kg,wet)	Mn-54	2	130	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	Co-58	2	130	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	Fe-59	2	260	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	Co-60	2	130	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0

TABLE 3.1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

Name of Facility River Bend Station
Location of Facility St. Francisville, Louisiana
(County/State)

Docket No. 50-458
Reporting Period January 1 2015 to December 31 2015

Medium of Pathway Sampled (Unit of Measurement)	Type & Total No. of Analysis Performed		Lower Limit of Detection(1) (LLD)	All Indicator Locations Mean(2) Range(2)	Location with Highest Annual Mean Name	Mean(2) Range(2)	Control Location Mean(2) Range(2)	No. of Reportable Occurrences
Fish (cont'd) (pCi/kg,wet)	Zn-65	2	260	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	Nb-95	2	NA	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	Zr-95	2	NA	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	I-131	2	NA	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	Cs-134	2	130	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	Cs-137	2	150	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	Ba-140	2	NA	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0
	La-140	2	NA	ND(0/1) (ND-ND)	NA	NA(0/0) (NA-NA)	NA(0/1) (ND)	0

(1) Nominal Lower Limit of Detection (LLD), as stated in ODCM.
(2) Mean and Range based upon detectable measurements only. Fraction of detectable measurements at specified location indicated in brackets().
(3) ND = Non Detectable.
(4) NA = Not Applicable.

Attachment 1 through 7

Data Tables

ATTACHMENT 1.1
RIVER BEND STATION
AIRBORNE PARTICULATE AND CHARCOAL CARTRIDGES - INDICATOR LOCATION

LOCATION NUMBER AGC

COLLECT START DATE	TIME STOP DATE	SAMPLE VOLUME	UNITS	AP FILTER GROSS BETA (pCi/cu.m.)	CHARCOAL FILTER I-131 (pCi/cu.m.)
12/30/14	01/13/15	6.48E+02	CU.M	2.62E-02 ± 2.81E-03	L.T. 3.40E-02
01/13/15	01/27/15	6.67E+02	CU.M	1.96E-02 ± 2.45E-03	L.T. 4.82E-02
01/27/15	02/10/15	6.73E+02	CU.M	1.96E-02 ± 2.38E-03	L.T. 3.65E-02
02/10/15	02/24/15	6.51E+02	CU.M	2.15E-02 ± 2.55E-03	L.T. 3.49E-02
02/24/15	03/10/15	6.44E+02	CU.M	1.42E-02 ± 2.17E-03	L.T. 4.80E-02
03/10/15	03/24/15	6.31E+02	CU.M	1.06E-02 ± 2.03E-03	L.T. 4.98E-02
03/24/15	04/07/15	6.28E+02	CU.M	1.68E-02 ± 2.37E-03	L.T. 3.79E-02
04/07/15	04/21/15	6.56E+02	CU.M	8.81E-03 ± 1.83E-03	L.T. 2.99E-02
04/21/15	05/05/15	6.51E+02	CU.M	1.80E-02 ± 2.36E-03	L.T. 3.60E-02
05/05/15	05/19/15	6.32E+02	CU.M	1.63E-02 ± 2.29E-03	L.T. 3.45E-02
05/19/15	06/02/15	6.37E+02	CU.M	1.06E-02 ± 1.93E-03	L.T. 2.08E-02
06/02/15	06/16/15	6.36E+02	CU.M	1.70E-02 ± 2.33E-03	L.T. 2.86E-02
06/16/15	06/30/15	6.10E+02	CU.M	1.72E-02 ± 2.48E-03	L.T. 4.34E-02
06/30/15	07/14/15	6.46E+02	CU.M	1.55E-02 ± 2.20E-03	L.T. 4.39E-02
07/14/15	07/28/15	6.60E+02	CU.M	1.89E-02 ± 2.43E-03	L.T. 3.68E-02
07/28/15	08/11/15	6.33E+02	CU.M	2.23E-02 ± 2.63E-03	L.T. 3.66E-02
08/11/15	08/25/15	6.23E+02	CU.M	1.38E-02 ± 2.15E-03	L.T. 3.58E-02
08/25/15	09/08/15	3.32E+02	CU.M	4.27E-02 ± 5.16E-03	L.T. 6.32E-02
09/08/15	09/22/15	6.28E+02	CU.M	2.19E-02 ± 2.61E-03	L.T. 3.33E-02
09/22/15	10/06/15	6.28E+02	CU.M	2.03E-02 ± 2.60E-03	L.T. 6.43E-02
10/06/15	10/20/15	6.46E+02	CU.M	2.54E-02 ± 2.98E-03	L.T. 3.53E-02
10/20/15	11/03/15	6.58E+02	CU.M	1.59E-02 ± 2.23E-03	L.T. 6.46E-02
11/03/15	11/18/15	6.26E+02	CU.M	2.51E-02 ± 2.77E-03	L.T. 5.09E-02
11/18/15	12/01/15	7.08E+02	CU.M	1.58E-02 ± 2.15E-03	L.T. 3.25E-02
12/01/15	12/15/15	7.52E+02	CU.M	2.33E-02 ± 2.41E-03	L.T. 3.25E-02
12/15/15	12/29/15	7.75E+02	CU.M	1.28E-02 ± 1.86E-03	L.T. 3.30E-02

ATTACHMENT 1.1
RIVER BEND STATION
AIRBORNE PARTICULATE AND CHARCOAL CARTRIDGES - INDICATOR LOCATION

LOCATION NUMBER AN1

COLLECT START DATE	TIME STOP DATE	SAMPLE VOLUME	UNITS	AP FILTER GROSS BETA (pCi/cu.m.)	CHARCOAL FILTER I-131 (pCi/cu.m.)
12/30/14	01/13/15	7.47E+02	CU.M	2.82E-02 ± 2.67E-03	L.T. 2.95E-02
01/13/15	01/27/15	7.84E+02	CU.M	2.02E-02 ± 2.27E-03	L.T. 4.11E-02
01/27/15	02/10/15	7.84E+02	CU.M	2.20E-02 ± 2.30E-03	L.T. 3.13E-02
02/10/15	02/24/15	7.50E+02	CU.M	2.12E-02 ± 2.34E-03	L.T. 1.64E-02
02/24/15	03/10/15	7.51E+02	CU.M	1.40E-02 ± 1.97E-03	L.T. 4.12E-02
03/10/15	03/24/15	7.66E+02	CU.M	1.05E-02 ± 1.79E-03	L.T. 4.11E-02
03/24/15	04/07/15	7.50E+02	CU.M	1.39E-02 ± 1.97E-03	L.T. 3.18E-02
04/07/15	04/21/15	7.64E+02	CU.M	8.34E-03 ± 1.63E-03	L.T. 2.58E-02
04/21/15	05/05/15	7.41E+02	CU.M	1.80E-02 ± 2.19E-03	L.T. 3.17E-02
05/05/15	05/19/15	7.10E+02	CU.M	1.60E-02 ± 2.12E-03	L.T. 3.09E-02
05/19/15	06/02/15	7.13E+02	CU.M	1.07E-02 ± 1.81E-03	L.T. 4.45E-02
06/02/15	06/16/15	7.16E+02	CU.M	1.45E-02 ± 2.03E-03	L.T. 2.55E-02
06/16/15	06/30/15	7.00E+02	CU.M	1.27E-02 ± 2.03E-03	L.T. 3.79E-02
06/30/15	07/14/15	6.88E+02	CU.M	1.64E-02 ± 2.17E-03	L.T. 4.13E-02
07/14/15	07/28/15	7.25E+02	CU.M	1.96E-02 ± 2.34E-03	L.T. 3.35E-02
07/28/15	08/11/15	7.22E+02	CU.M	2.43E-02 ± 2.53E-03	L.T. 3.22E-02
08/11/15	08/25/15	7.12E+02	CU.M	1.46E-02 ± 2.03E-03	L.T. 3.14E-02
08/25/15	09/08/15	7.19E+02	CU.M	1.96E-02 ± 2.38E-03	L.T. 2.92E-02
09/08/15	09/22/15	7.17E+02	CU.M	2.25E-02 ± 2.45E-03	L.T. 2.93E-02
09/22/15	10/06/15	7.19E+02	CU.M	1.71E-02 ± 2.24E-03	L.T. 5.64E-02
10/06/15	10/20/15	7.18E+02	CU.M	2.38E-02 ± 2.73E-03	L.T. 3.19E-02
10/20/15	11/03/15	7.21E+02	CU.M	1.44E-02 ± 2.03E-03	L.T. 5.92E-02
11/03/15	11/18/15	7.67E+02	CU.M	1.67E-02 ± 2.07E-03	L.T. 4.18E-02
11/18/15	12/01/15	7.32E+02	CU.M	1.61E-02 ± 2.13E-03	L.T. 3.15E-02
12/01/15	12/15/15	8.00E+02	CU.M	2.41E-02 ± 2.37E-03	L.T. 3.06E-02
12/15/15	12/29/15	8.16E+02	CU.M	1.20E-02 ± 1.75E-03	L.T. 1.22E-02

ATTACHMENT 1.1
RIVER BEND STATION
AIRBORNE PARTICULATE AND CHARCOAL CARTRIDGES - INDICATOR LOCATION

LOCATION NUMBER AP1

COLLECT START DATE	TIME STOP DATE	SAMPLE VOLUME	UNITS	AP FILTER GROSS BETA (pCi/cu.m.)	CHARCOAL FILTER I-131 (pCi/cu.m.)
12/30/14	01/13/15	8.19E+02	CU.M	1.97E-02 ± 2.19E-03	L.T. 2.70E-02
01/13/15	01/27/15	7.90E+02	CU.M	1.60E-02 ± 2.05E-03	L.T. 4.08E-02
01/27/15	02/10/15	7.81E+02	CU.M	1.74E-02 ± 2.08E-03	L.T. 1.22E-02
02/10/15	02/24/15	7.43E+02	CU.M	1.66E-02 ± 2.12E-03	L.T. 3.05E-02
02/24/15	03/10/15	7.83E+02	CU.M	1.18E-02 ± 1.79E-03	L.T. 3.95E-02
03/10/15	03/24/15	7.40E+02	CU.M	7.64E-03 ± 1.64E-03	L.T. 4.26E-02
03/24/15	04/07/15	8.03E+02	CU.M	1.03E-02 ± 1.68E-03	L.T. 2.98E-02
04/07/15	04/21/15	8.08E+02	CU.M	5.94E-03 ± 1.40E-03	L.T. 2.44E-02
04/21/15	05/05/15	7.92E+02	CU.M	1.54E-02 ± 1.97E-03	L.T. 2.97E-02
05/05/15	05/19/15	7.57E+02	CU.M	1.23E-02 ± 1.83E-03	L.T. 2.90E-02
05/19/15	06/02/15	7.62E+02	CU.M	1.07E-02 ± 1.74E-03	L.T. 4.17E-02
06/02/15	06/16/15	7.65E+02	CU.M	1.40E-02 ± 1.93E-03	L.T. 2.39E-02
06/16/15	06/30/15	7.56E+02	CU.M	1.17E-02 ± 1.87E-03	L.T. 3.52E-02
06/30/15	07/14/15	7.24E+02	CU.M	1.72E-02 ± 2.15E-03	L.T. 3.93E-02
07/14/15	07/28/15	7.35E+02	CU.M	1.81E-02 ± 2.24E-03	L.T. 3.31E-02
07/28/15	08/11/15	7.30E+02	CU.M	1.96E-02 ± 2.29E-03	L.T. 3.18E-02
08/11/15	08/25/15	7.30E+02	CU.M	1.28E-02 ± 1.90E-03	L.T. 3.06E-02
08/25/15	09/08/15	7.17E+02	CU.M	2.22E-02 ± 2.51E-03	L.T. 2.93E-02
09/08/15	09/22/15	7.45E+02	CU.M	1.90E-02 ± 2.23E-03	L.T. 2.82E-02
09/22/15	10/06/15	7.27E+02	CU.M	1.75E-02 ± 2.25E-03	L.T. 5.58E-02
10/06/15	10/20/15	7.05E+02	CU.M	2.19E-02 ± 2.67E-03	L.T. 3.24E-02
10/20/15	11/03/15	7.09E+02	CU.M	1.52E-02 ± 2.10E-03	L.T. 6.02E-02
11/03/15	11/18/15	7.75E+02	CU.M	1.43E-02 ± 1.93E-03	L.T. 4.14E-02
11/18/15	12/01/15	7.46E+02	CU.M	1.42E-02 ± 2.00E-03	L.T. 3.10E-02
12/01/15	12/15/15	8.25E+02	CU.M	2.21E-02 ± 2.24E-03	L.T. 2.97E-02
12/15/15	12/29/15	7.90E+02	CU.M	1.20E-02 ± 1.79E-03	L.T. 3.24E-02

ATTACHMENT 1.1
RIVER BEND STATION
AIRBORNE PARTICULATE AND CHARCOAL CARTRIDGES - INDICATOR LOCATION

LOCATION NUMBER AQS2

COLLECT START DATE	TIME STOP DATE	SAMPLE VOLUME	UNITS	AP FILTER GROSS BETA (pCi/cu.m.)	CHARCOAL FILTER I-131 (pCi/cu.m.)
12/30/14	01/13/15	8.10E+02	CU.M	2.16E-02 ± 2.24E-03	L.T. 2.72E-02
01/13/15	01/27/15	8.11E+02	CU.M	2.04E-02 ± 2.23E-03	L.T. 3.97E-02
01/27/15	02/10/15	8.10E+02	CU.M	2.28E-02 ± 2.29E-03	L.T. 3.03E-02
02/10/15	02/24/15	8.00E+02	CU.M	2.19E-02 ± 2.29E-03	L.T. 2.84E-02
02/24/15	03/10/15	8.05E+02	CU.M	1.54E-02 ± 1.96E-03	L.T. 3.84E-02
03/10/15	03/24/15	8.12E+02	CU.M	9.68E-03 ± 1.67E-03	L.T. 3.88E-02
03/24/15	04/07/15	7.86E+02	CU.M	1.59E-02 ± 2.03E-03	L.T. 1.65E-02
04/07/15	04/21/15	8.09E+02	CU.M	7.46E-03 ± 1.51E-03	L.T. 2.43E-02
04/21/15	05/05/15	7.95E+02	CU.M	1.72E-02 ± 2.06E-03	L.T. 2.95E-02
05/05/15	05/19/15	7.66E+02	CU.M	1.69E-02 ± 2.08E-03	L.T. 2.85E-02
05/19/15	06/02/15	7.72E+02	CU.M	1.25E-02 ± 1.84E-03	L.T. 4.10E-02
06/02/15	06/16/15	7.88E+02	CU.M	1.63E-02 ± 2.03E-03	L.T. 2.31E-02
06/16/15	06/30/15	5.73E+02	CU.M	1.45E-02 ± 2.42E-03	L.T. 4.63E-02
06/30/15	07/14/15	7.45E+02	CU.M	1.83E-02 ± 2.18E-03	L.T. 3.81E-02
07/14/15	07/28/15	7.88E+02	CU.M	2.13E-02 ± 2.32E-03	L.T. 3.09E-02
07/28/15	08/11/15	8.12E+02	CU.M	2.26E-02 ± 2.30E-03	L.T. 2.86E-02
08/11/15	08/25/15	8.01E+02	CU.M	1.38E-02 ± 1.86E-03	L.T. 1.08E-02
08/25/15	09/08/15	8.09E+02	CU.M	2.22E-02 ± 2.33E-03	L.T. 2.60E-02
09/08/15	09/22/15	8.07E+02	CU.M	1.93E-02 ± 2.14E-03	L.T. 2.59E-02
09/22/15	10/06/15	8.08E+02	CU.M	1.92E-02 ± 2.19E-03	L.T. 5.01E-02
10/06/15	10/20/15	8.08E+02	CU.M	2.74E-02 ± 2.68E-03	L.T. 2.83E-02
10/20/15	11/03/15	8.11E+02	CU.M	1.39E-02 ± 1.87E-03	L.T. 5.26E-02
11/03/15	11/18/15	7.81E+02	CU.M	1.94E-02 ± 2.18E-03	L.T. 4.09E-02
11/18/15	12/01/15	7.47E+02	CU.M	1.59E-02 ± 2.09E-03	L.T. 3.09E-02
12/01/15	12/15/15	7.92E+02	CU.M	2.38E-02 ± 2.37E-03	L.T. 3.09E-02
12/15/15	12/29/15	7.86E+02	CU.M	1.45E-02 ± 1.94E-03	L.T. 3.25E-02

ATTACHMENT 2.1
RIVER BEND STATION
THERMOLUMINESCENT DOSIMETERS (TLD)
mR/Qtr

Sample Nuclide	Location	First Quarter 01/01-03/31	Second Quarter 04/01-06/30	Third Quarter 07/01-09/30	Fourth Quarter 10/01-01/01	Quarter Average - 1 S.D.
TLD	TA1	10.2	10.8	11.5	11.3	10.9 ± 0.6
	TAC	15.5	16.1	15.8	15.6	15.7 ± 0.3
	TB1	14.0	15.2	15.4	15.1	14.9 ± 0.6
	TC1	14.7	14.8	16.0	15.3	15.2 ± 0.5
	TCS	13.9	13.1	13.1	12.4	13.1 ± 0.5
	TD1	14.3	15.2	15.7	15.7	15.2 ± 0.6
	TE1	13.6	14.2	15.1	14.1	14.2 ± 0.5
	TEC	13.6	13.9	15.2	14.5	14.3 ± 0.6
	TF1	14.9	14.3	15.4	15.9	15.1 ± 0.6
	TG1	16.8	15.4	16.9	15.6	16.2 ± 0.6
	TGS	16.6	16.1	16.8	16.1	16.4 ± 0.3
	TH1	13.0	12.5	12.9	12.9	12.8 ± 0.2
	TJ1	14.0	13.4	13.9	13.9	13.8 ± 0.3
	TK1	14.8	14.5	15.0	14.3	14.6 ± 0.3
	TL1	15.4	14.6	15.9	14.5	15.1 ± 0.6
	TM1	13.1	12.6	13.0	12.8	12.9 ± 0.2
	TN1	14.7	14.1	14.9	14.5	14.6 ± 0.3
	TNS	13.8	13.4	13.4	14.2	13.7 ± 0.3
	TP1	12.8	12.7	13.1	13.9	13.1 ± 0.5
	TQ1	10.9	11.0	11.2	10.8	10.9 ± 0.2
	TR1	10.6	10.8	10.9	11.2	10.9 ± 0.2
	TRS	14.5	14.4	15.8	15.6	15.1 ± 0.6
	TQS1	15.8	15.2	16.2	15.9	15.8 ± 0.3
	TQS2	13.4	12.9	12.8	13.2	13.1 ± 0.2
Average/Quarter		13.9 ± 1.7	13.8 ± 1.5	14.4 ± 1.8	14.1 ± 1.6	
Range		(10.2-16.8)	(10.8-16.1)	(10.9-1-16.9)	(10.8-16.1)	
Detection/Total		23/23	23/23	23/23	23/23	

ATTACHMENT 3.1
RIVER BEND STATION
SURFACE WATER
pCi/L

STATION NUMBER SWD

DATE COLLECTED	02/05/15	05/14/15	08/17/15	11/30/15
RADIOCHEMICAL ANALYSIS:				
H-3	L.T. 5.24E+02	L.T. 5.80E+02	L.T. 6.34E+02	L.T. 6.17E+02
GAMMA SPECTRUM ANALYSIS:				
MN-54	L.T. 2.70E+00	L.T. 5.31E+00	L.T. 7.11E+00	L.T. 4.75E+00
CO-58	L.T. 2.36E+00	L.T. 5.16E+00	L.T. 5.87E+00	L.T. 5.45E+00
FE-59	L.T. 3.95E+00	L.T. 1.12E+01	L.T. 1.40E+01	L.T. 1.11E+01
CO-60	L.T. 3.35E+00	L.T. 5.58E+00	L.T. 5.96E+00	L.T. 4.58E+00
ZN-65	L.T. 4.67E+00	L.T. 1.08E+01	L.T. 1.14E+01	L.T. 1.11E+01
NB-95	L.T. 2.48E+00	L.T. 5.63E+00	L.T. 6.70E+00	L.T. 5.23E+00
ZR-95	L.T. 4.77E+00	L.T. 9.60E+00	L.T. 1.18E+01	L.T. 8.66E+00
I-131	L.T. 1.10E+01	L.T. 1.42E+01	L.T. 1.20E+01	L.T. 1.08E+01
CS-134	L.T. 2.36E+00	L.T. 4.92E+00	L.T. 6.43E+00	L.T. 4.68E+00
CS-137	L.T. 2.82E+00	L.T. 5.87E+00	L.T. 6.42E+00	L.T. 4.58E+00
BA-140	L.T. 1.89E+01	L.T. 3.45E+01	L.T. 2.89E+01	L.T. 3.30E+01
LA-140	L.T. 6.70E+00	L.T. 1.18E+01	L.T. 1.41E+01	L.T. 9.32E+00

ATTACHMENT 3.1
RIVER BEND STATION
SURFACE WATER
pCi/L

STATION NUMBER SWD DUP

DATE COLLECTED	05/14/15
RADIOCHEMICAL ANALYSIS:	
H-3	L.T. 5.74E+02
GAMMA SPECTRUM ANALYSIS:	
MN-54	L.T. 3.56E+00
CO-58	L.T. 3.95E+00
FE-59	L.T. 7.65E+00
CO-60	L.T. 3.50E+00
ZN-65	L.T. 7.62E+00
NB-95	L.T. 4.24E+00
ZR-95	L.T. 6.87E+00
I-131	L.T. 1.13E+01
CS-134	L.T. 3.63E+00
CS-137	L.T. 3.85E+00
BA-140	L.T. 2.54E+01
LA-140	L.T. 7.34E+00

ATTACHMENT 3.1
RIVER BEND STATION
SURFACE WATER
pCi/L

STATION NUMBER SWU

DATE COLLECTED	02/05/15	05/14/15	08/17/15	11/30/15
RADIOCHEMICAL ANALYSIS:				
H-3	L.T. 5.65E+02	L.T. 5.87E+02	L.T. 6.53E+02	L.T. 5.94E+02
GAMMA SPECTRUM ANALYSIS:				
MN-54	L.T. 2.54E+00	L.T. 4.39E+00	L.T. 5.73E+00	L.T. 4.92E+00
CO-58	L.T. 3.13E+00	L.T. 4.75E+00	L.T. 8.25E+00	L.T. 5.08E+00
FE-59	L.T. 6.66E+00	L.T. 7.33E+00	L.T. 1.18E+01	L.T. 1.55E+01
CO-60	L.T. 3.60E+00	L.T. 3.68E+00	L.T. 7.77E+00	L.T. 4.69E+00
ZN-65	L.T. 5.03E+00	L.T. 8.52E+00	L.T. 1.70E+01	L.T. 1.23E+01
NB-95	L.T. 2.98E+00	L.T. 3.82E+00	L.T. 8.23E+00	L.T. 6.38E+00
ZR-95	L.T. 5.58E+00	L.T. 9.15E+00	L.T. 1.03E+01	L.T. 1.18E+01
I-131	L.T. 1.42E+01	L.T. 1.32E+01	L.T. 1.24E+01	L.T. 1.26E+01
CS-134	L.T. 2.83E+00	L.T. 3.64E+00	L.T. 7.06E+00	L.T. 4.69E+00
CS-137	L.T. 3.31E+00	L.T. 4.43E+00	L.T. 8.29E+00	L.T. 6.19E+00
BA-140	L.T. 2.23E+01	L.T. 2.64E+01	L.T. 3.22E+01	L.T. 3.55E+01
LA-140	L.T. 8.10E+00	L.T. 1.15E+01	L.T. 9.71E+00	L.T. 8.34E+00

ATTACHMENT 3.1
RIVER BEND STATION
SURFACE WATER
pCi/L

STATION NUMBER SWU DUP

DATE COLLECTED	10/23/14
RADIOCHEMICAL ANALYSIS:	
H-3	L.T. 5.84E+02
GAMMA SPECTRUM ANALYSIS:	
MN-54	L.T. 4.86E+00
CO-58	L.T. 4.33E+00
FE-59	L.T. 1.09E+01
CO-60	L.T. 4.80E+00
ZN-65	L.T. 8.87E+00
NB-95	L.T. 4.70E+00
ZR-95	L.T. 8.41E+00
I-131	L.T. 1.20E+01
CS-134	L.T. 4.30E+00
CS-137	L.T. 4.32E+00
BA-140	L.T. 2.87E+01
LA-140	L.T. 9.75E+00

ATTACHMENT 4.1
RIVER BEND STATION
GROUNDWATER
pCi/L

	LOCATION GWD		LOCATION GWU	
DATE COLLECTED	04/29/15	11/30/15	04/29/15	11/30/15
RADIOCHEMICAL ANALYSIS:				
H-3	L.T. 5.54E+02	L.T. 6.03E+02	L.T. 5.60E+02	L.T. 6.09E+02
GAMMA SPECTRUM ANALYSIS:				
MN-54	L.T. 2.43E+00	L.T. 5.35E+00	L.T. 1.99E+00	L.T. 4.30E+00
CO-58	L.T. 3.05E+00	L.T. 5.06E+00	L.T. 2.18E+00	L.T. 5.75E+00
FE-59	L.T. 6.09E+00	L.T. 1.10E+01	L.T. 5.28E+00	L.T. 1.42E+01
CO-60	L.T. 2.08E+00	L.T. 4.31E+00	L.T. 2.17E+00	L.T. 5.78E+00
ZN-65	L.T. 5.21E+00	L.T. 9.53E+00	L.T. 4.33E+00	L.T. 1.10E+01
NB-95	L.T. 2.63E+00	L.T. 5.28E+00	L.T. 2.71E+00	L.T. 6.60E+00
ZR-95	L.T. 5.52E+00	L.T. 9.48E+00	L.T. 4.23E+00	L.T. 1.09E+01
I-131	L.T. 1.45E+01	L.T. 1.32E+01	L.T. 1.24E+01	L.T. 1.43E+01
CS-134	L.T. 2.34E+00	L.T. 4.97E+00	L.T. 2.00E+00	L.T. 5.28E+00
CS-137	L.T. 2.62E+00	L.T. 6.34E+00	L.T. 2.20E+00	L.T. 5.78E+00
BA-140	L.T. 2.57E+01	L.T. 3.21E+01	L.T. 2.43E+01	L.T. 3.54E+01
LA-140	L.T. 8.36E+00	L.T. 9.66E+00	L.T. 8.28E+00	L.T. 1.30E+01

ATTACHMENT 5.1
RIVER BEND STATION
SHORELINE SEDIMENT
pCi/kg, dry

	LOCATION SEDD	LOCATION SEDU
DATE COLLECTED	09/01/15	09/01/15
GAMMA SPECTRUM ANALYSIS:		
MN-54	L.T. 6.62E+01	L.T. 1.08E+02
CO-58	L.T. 5.79E+01	L.T. 1.04E+02
FE-59	L.T. 1.33E+02	L.T. 2.22E+02
CO-60	L.T. 7.14E+01	L.T. 9.13E+01
ZN-65	L.T. 1.41E+02	L.T. 2.19E+02
NB-95	L.T. 7.78E+01	L.T. 1.16E+02
ZR-95	L.T. 1.11E+02	L.T. 2.09E+02
I-131	L.T. 1.63E+02	L.T. 2.64E+02
CS-134	L.T. 5.18E+01	L.T. 8.00E+01
CS-137	L.T. 5.69E+01	L.T. 9.88E+01
BA-140	L.T. 4.07E+02	L.T. 7.00E+02
LA-140	L.T. 1.48E+02	L.T. 1.96E+02

ATTACHMENT 6.1
RIVER BEND STATION
FOOD PRODUCTS
pCi/kg, wet

LOCATION GN1

DATE COLLECTED	02/05/15	05/20/15	09/01/15	12/07/15
GAMMA SPECTRUM ANALYSIS:				
MN-54	L.T. 1.47E+01	L.T. 1.09E+01	L.T. 3.18E+01	L.T. 2.93E+01
CO-58	L.T. 1.65E+01	L.T. 1.00E+01	L.T. 2.82E+01	L.T. 3.08E+01
FE-59	L.T. 3.67E+01	L.T. 2.21E+01	L.T. 5.95E+01	L.T. 6.53E+01
CO-60	L.T. 1.51E+01	L.T. 9.88E+00	L.T. 2.66E+01	L.T. 2.29E+01
ZN-65	L.T. 2.94E+01	L.T. 2.30E+01	L.T. 6.24E+01	L.T. 7.79E+01
NB-95	L.T. 1.88E+01	L.T. 1.23E+01	L.T. 3.11E+01	L.T. 4.69E+01
ZR-95	L.T. 3.47E+01	L.T. 1.83E+01	L.T. 5.39E+01	L.T. 7.08E+01
I-131	L.T. 2.73E+01	L.T. 1.69E+01	L.T. 3.89E+01	L.T. 5.12E+01
CS-134	L.T. 1.39E+01	L.T. 1.01E+01	L.T. 2.87E+01	L.T. 3.52E+01
CS-137	L.T. 1.72E+01	L.T. 1.01E+01	L.T. 3.18E+01	L.T. 4.07E+01
BA-140	L.T. 1.28E+02	L.T. 5.01E+01	L.T. 1.43E+02	L.T. 1.74E+02
LA-140	L.T. 2.73E+01	L.T. 1.69E+01	L.T. 3.89E+01	L.T. 5.12E+01

ATTACHMENT 6.1
RIVER BEND STATION
FOOD PRODUCTS
pCi/kg, wet

LOCATION GQC

DATE COLLECTED	02/26/15	06/08/15	09/17/15	12/17/15
GAMMA SPECTRUM ANALYSIS:				
MN-54	L.T. 2.36E+01	L.T. 1.80E+01	L.T. 2.31E+01	L.T. 1.88E+01
CO-58	L.T. 2.31E+01	L.T. 1.95E+01	L.T. 5.66E+01	L.T. 1.65E+01
FE-59	L.T. 5.23E+01	L.T. 4.22E+01	L.T. 9.31E+01	L.T. 5.23E+01
CO-60	L.T. 2.11E+01	L.T. 1.67E+01	L.T. 3.32E+01	L.T. 2.39E+01
ZN-65	L.T. 4.50E+01	L.T. 3.94E+01	L.T. 9.95E+01	L.T. 3.90E+01
NB-95	L.T. 2.26E+01	L.T. 1.94E+01	L.T. 5.51E+01	L.T. 2.23E+01
ZR-95	L.T. 3.78E+01	L.T. 3.28E+01	L.T. 6.85E+01	L.T. 3.56E+01
I-131	L.T. 5.95E+01	L.T. 3.47E+01	L.T. 4.80E+01	L.T. 3.12E+01
CS-134	L.T. 2.17E+01	L.T. 1.74E+01	L.T. 4.02E+01	L.T. 1.51E+01
CS-137	L.T. 2.21E+01	L.T. 1.61E+01	L.T. 5.15E+01	L.T. 1.78E+01
BA-140	L.T. 1.44E+02	L.T. 8.74E+01	L.T. 2.42E+02	L.T. 8.76E+01
LA-140	L.T. 2.07E+01	L.T. 3.37E+01	L.T. 7.11E+01	L.T. 2.78E+01

ATTACHMENT 7.1
RIVER BEND STATION
FISH
pCi/kg, wet

	LOCATION FD	LOCATION FU
DATE COLLECTED	06/20/15	05/15/15
GAMMA SPECTRUM ANALYSIS:		
MN-54	L.T. 4.72E+01	L.T. 5.53E+01
CO-58	L.T. 5.83E+01	L.T. 8.12E+01
FE-59	L.T. 5.19E+01	L.T. 1.45E+02
CO-60	L.T. 5.35E+01	L.T. 4.82E+01
ZN-65	L.T. 1.37E+02	L.T. 1.21E+02
NB-95	L.T. 6.09E+01	L.T. 6.57E+01
ZR-95	L.T. 1.13E+02	L.T. 1.39E+02
I-131	L.T. 5.24E+02	L.T. 2.48E+03
CS-134	L.T. 5.11E+01	L.T. 5.56E+01
CS-137	L.T. 3.70E+01	L.T. 5.16E+01
BA-140	L.T. 6.48E+02	L.T. 2.10E+03
LA-140	L.T. 1.25E+02	L.T. 6.78E+02