Nuclear Operating Company

South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

April 30, 2007
NOC-AE-07002160
File No.: G25
10 CFR 50.36b

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Rockville, MD 20852-2738

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
2006 Annual Environmental and Annual
Radiological Environmental Operating Reports

Pursuant to South Texas Project Unit 1 Operating License NPF-76 and Unit 2 Operating License NPF-80 Appendix B, Environmental Protection Plan (Non-radiological), and Technical Specification 6.9.1.3, the STP Nuclear Operating Company provides the attached 2006 Annual Environmental and Annual Radiological Environmental Operating Reports.

There are no commitments included in this report.

If there are any questions, please contact either Philip Walker at (361) 972-8392 or me at (361) 972-7130.

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PLW

Attachment: 2006 Annual Environmental and Annual Radiological Environmental Operating Reports

STI: 32153502

IE25

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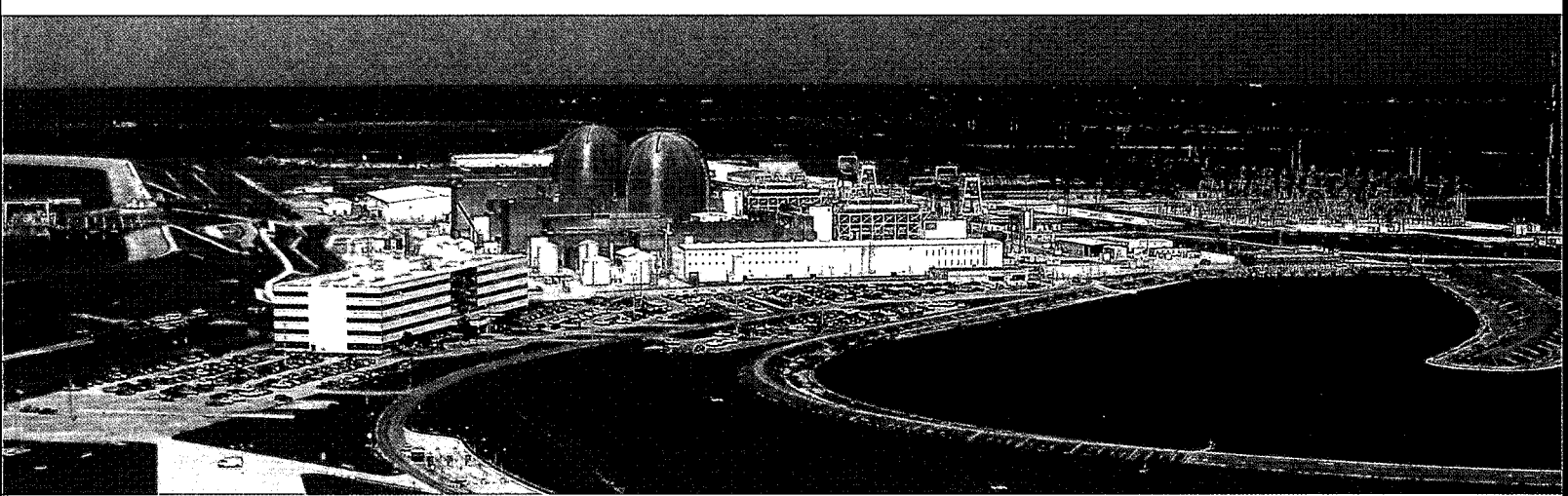
2006

South Texas Project Electric Generating Station



ANNUAL

Environmental Operating Report

The 2006 Annual Environmental Operating Report for the South Texas Project Electric Generating Station combines in one report the requirements for the Annual Environmental Operating Report (Non-radiological) found in Appendix B to Facility Operating License Nos. NPF-76 and NPF-80 and the requirements for the Annual Radiological Environmental Operating Report found in Part A of the station's Offsite Dose Calculation Manual

Graphic and artwork performed by Jean Franklin
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Completed
in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
License Nos.
NPF-76 & NPF-80
April 2007

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2006

Annual Environmental Operating Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

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Chapter 1

:utive Summary

The South Texas Project continues to operate with no negative effect on the population or the environment. The exposure for people living in the area is maintained at less than one millirem per year. Environmental programs at the site monitor known and predictable relationships between the operation of the South Texas Project and the surrounding area. These monitoring programs verify that the operation of the South Texas Project has no impact offsite and is well within state and federal regulations and guidelines. These programs are verified by the state of Texas through collection and analysis of samples and placement of the state's thermoluminescent dosimeters and other onsite and offsite inspections.

This report describes the environmental monitoring programs, radiological and non-radiological, conducted at the South Texas Project during 2006. Included in this report are the Environmental Protection Plan Status, the results of the Radiological Environmental Monitoring Program and the Land Use Census.

Non-radiological environmental monitoring is performed each year as part of the station's overall Environmental Protection program which is intended to provide for protection of non-radiological environmental values during station operations. Non-radiological monitoring encompasses water quality, air quality, waste generation and minimization, local aquatic and terrestrial ecological conditions and more. In 2006, non-radiological monitoring by the station confirmed that the South Texas Project's efforts to honor and protect local environmental conditions were successful. The South Texas Project continued to be rated by the Texas Commission on Environmental Quality as a high performer in the area of environmental compliance, continued to provide high-quality habitat areas for a variety of flora and fauna and continued to have no indications of negative non-radiological impacts to local environmental conditions.

Radiation and radioactivity in the environment are constantly monitored within a 15-mile radius of the South Texas Project. Sampling locations are selected using weather, land use and water use information. Two types of sampling locations are used. The first type, control stations, are located in areas that are beyond measurable influence of the South Texas Project or any other nuclear facility. The sample results from these stations are used to explain radiation from sources other than the South Texas Project. Indicator stations are the second type of stations. The samples from these stations measure any radiation contributed to the environment by the project. Indicator stations are located in areas close to the South Texas Project where any plant releases would be at the highest concentration.

Prior to initial operation of the South Texas Project, samples were collected and analyzed to determine the amount of radioactivity present in the area. These results are used as a "pre-operational baseline." Results from the indicator stations are compared to both current control sample results and the pre-operational baseline values to determine if changes in radioactivity levels are attributable to station operations or other causes such as previous nuclear weapons testing programs and natural variations.

Radioactivity levels in the South Texas Project's environment frequently fall below the minimum detection capabilities of the state-of-the-art scientific instruments. Samples with radiation levels that cannot be detected are below the Lower Limits of Detection. The United States Nuclear Regulatory Commission requires that equipment used for radiological monitoring must be able to detect specified minimum limits for certain types of samples. This ensures that radiation measurements are sufficiently sensitive to detect small changes in the environment. The United States Nuclear Regulatory Commission also has a required "reporting level." Licensed nuclear facilities must prepare a special report and increase their sampling if any measured radiation level is equal to or greater than this reporting level. No sample from the South Texas Project has ever reached or exceeded a reporting level.

Measurements made are divided into four categories or pathways based upon how the results may affect the public. Airborne, waterborne, ingestion and direct radiation are the four pathways that are sampled. Each pathway is described below.

- The airborne pathway is sampled in areas around the South Texas Project by measuring radioactivity of iodine and particulate air filters. The 2006 airborne results were similar to pre-operational levels with only naturally occurring radioactive material unrelated to the operation of the South Texas Project detected.

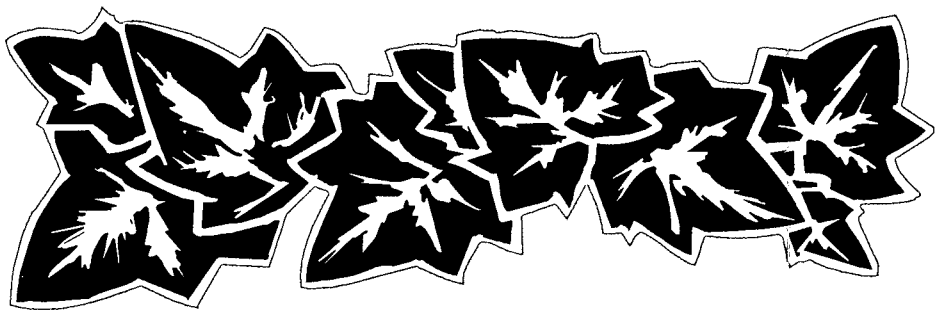
- The waterborne pathway includes samples taken from surface water, ground water and drinking water. Also included in this path are sediment samples taken from the Main Cooling Reservoir and the Colorado River. Tritium was the only man-made isotope consistently detected in water samples and was measured in the shallow aquifer, the Main Cooling Reservoir, ditches and sloughs onsite. The Nuclear Energy Institute (NEI) developed a Groundwater Protective Initiative to standardize the reporting protocols to the local, state, and federal officials. Those protocols will be followed in this report. The levels of tritium found were near the concentration of the Main Cooling Reservoir or lower. Additional onsite wells have been sampled to map tritium migration. The average tritium level in the Main Cooling Reservoir remained similar to past years and remained below United States Nuclear Regulatory Commission reporting limits and within United States Environmental Protection Agency drinking water standards. Sediment samples from the Main Cooling Reservoir continue to show traces of plant-related isotopes. The amount of plant-related isotopes in the reservoir sediment has decreased since 1992 because less Cobalt-60 has been added to the reservoir by plant effluents than has undergone radioactive decay. The current values fit in the expected band of uncertainty for low concentrations. Offsite sediment samples continue to show no radioactivity from the South Texas Project. This indicates that the station produces no detectable effect offsite from this pathway.

- The ingestion pathway includes broadleaf vegetation, agricultural products and food products. Natu rally occurring isotopes were detected at average environmental levels in the samples. Man-made isotopes found in the samples were consistent with values found in pre-operational samples.

- The direct exposure pathway measures environmental radiation doses using thermoluminescent dosimeters. These results are consistent with the readings from previous years and continue to show no effect from plant operations.

The South Texas Project continues to operate with no negative effect on the population or the environment. The exposure for people living in the area is maintained at less than one millirem per year. Environmental programs at the site monitor known and predictable relationships between the operation of the South Texas Project and the surrounding area. These monitoring programs verify that the operation of the South Texas Project has no impact offsite and is well within state and federal regulations and guidelines. These programs are verified by the state of Texas through collection and analysis of samples and placement of the state's thermoluminescent dosimeters and other onsite and offsite inspections.

Site and Area Description



Chapter 2

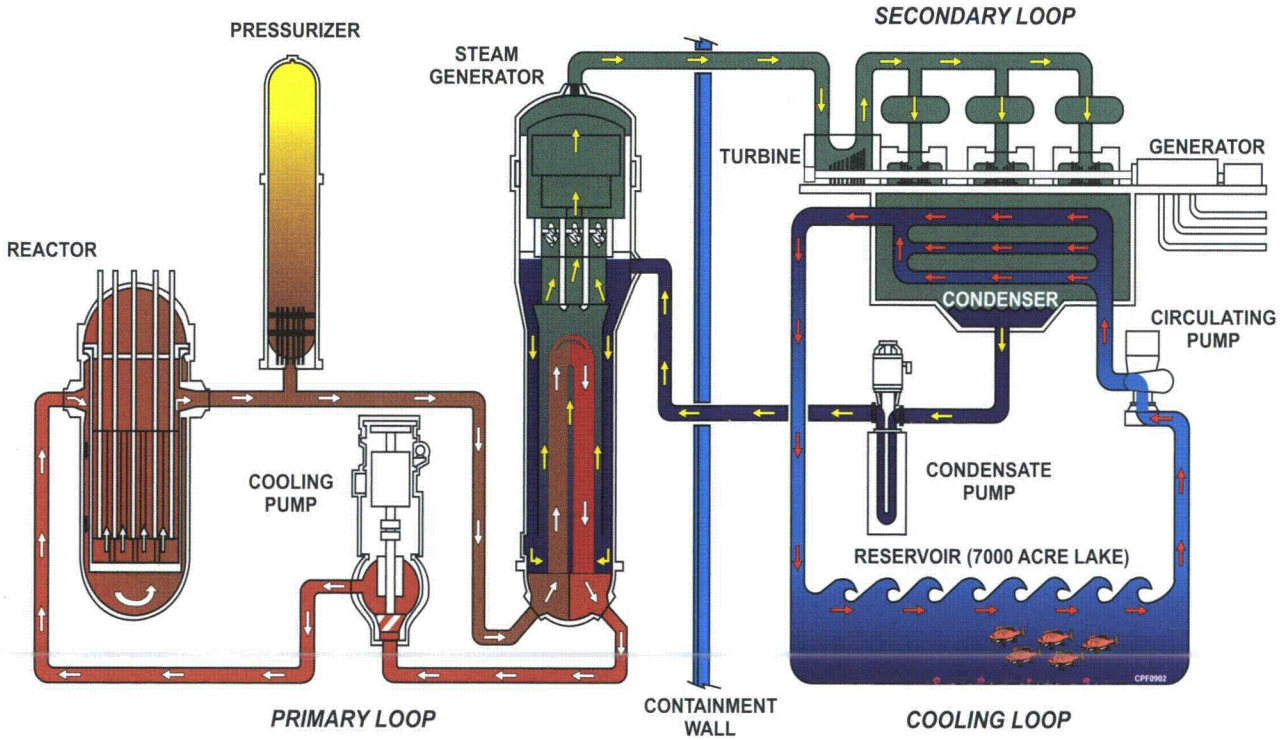
The South Texas Project is located on 12,220 acres in Matagorda County, Texas, approximately 15 miles southwest of Bay City along the west bank of the Colorado River. Ownership of the South Texas Project changed in February of 2006, when the Texas Genco LP interest in the South Texas Project was acquired by NRG Energy, Inc. The South Texas Project Electric Generating Station is currently owned by NRG South Texas LP, the City of Austin and the City Public Service Board of San Antonio as tenants in common. The Houston Lighting & Power Company was the original project manager of the South Texas Project and was responsible for the engineering, design, licensing, construction, startup and initial operation of the South Texas Project. In 1997, the STP Nuclear Operating Company assumed operational control of the South Texas Project and responsibility for implementation of associated environmental programs.

The South Texas Project has two 1,250 megawatt-electric[1] Westinghouse pressurized water reactors. Unit 1 received a low-power testing license on August 21, 1987, obtained initial criticality on March 8, 1988, and was declared commercially operational on August 25, 1988. Unit 2 received a low-power testing license on December 16, 1988, obtained initial criticality on March 12, 1989, and was declared commercially operational on June 19, 1989. Both units together produce enough electricity to serve over a million homes as well as serving as the largest employer and source of revenue for Matagorda County. Currently, NRG South Texas LP is preparing to submit a Combined Operating License application for two Advanced Boiling Water Reactors northwest of the existing two units.

How the South Texas Project Works

Fossil-fueled and nuclear-powered steam generating plants operate on the same principle. Fuel is used to produce heat to convert water into high-pressure steam. The steam is directed through a turbine to turn a generator. In a fossil fuel plant, burning coal, lignite, oil or natural gas in a boiler produces the heat. In a nuclear plant, the reactor replaces the boiler and the "fissioning" or splitting of uranium atoms inside the reactor produces the heat.

[1] Designed net electrical power output.



The fuel for a nuclear reactor is uranium. It is formed into cylindrical ceramic pellets, each about the size of the end of your little finger. One pellet has the energy potential of about a ton of coal. Millions of these pellets are stacked in fuel rods that are arranged into assemblies that make up the core of the reactor. The use of uranium allows us to conserve natural gas, oil and coal and to avoid the associated production of greenhouse gases.

A nuclear reactor begins the fission process and generating usable heat when control rods in the core are withdrawn. In pressurized water reactors, like those at the South Texas Project, the fuel rods heat water circulating in sealed, stainless steel piping that passes through large heat exchangers called steam generators. The water in the reactor is under pressure to prevent boiling. This is why the South Texas Project's reactors are called "pressurized water reactors."

This hot, pressurized water heats a separate supply of water in the steam generators to produce steam that is directed through the blades of a turbine generator to produce electricity. The steam is then fed to a condenser where a separate supply of cooling water from the reservoir turns it back into water that is then pumped back to the steam generator for reuse. A diagram of the plant water systems is shown on the previous page.

Photo By: Gwenna Kelton

In addition to its safety systems, the South Texas Project has many built-in physical barriers that would prevent the release of radioactive materials in the unlikely event of an accident. The most visible ones are the 200-foot-tall, domed containment buildings with steel-reinforced concrete walls four feet thick. Inside each of these massive structures, two more concrete walls provide another 11 feet of shielding. The reactor vessel itself has steel walls six inches thick, and the fuel pellets inside it are sheathed in hardened metal tubes.

Nuclear energy has one of the lowest impacts on the environment. It's the most eco-efficient energy source because it produces the most electricity in relation to its minimal environmental impact.[2] In 2006, nuclear generation in the United States prevented 681.2 million metric tons of carbon dioxide, 3.12 million tons of sulfur dioxide and 0.99 million tons of nitrogen oxide from entering the earth's atmosphere. Nuclear power plants were responsible for 36 percent of the total voluntary greenhouse gas emissions reductions reported by U.S. companies in 2005.[3] Additional information on nuclear energy and the environment can be found on the website maintained by the Nuclear Energy Institute at http://www.nei.org.

The Site

Sixty-five of the entire 12,220 acres at the South Texas Project are occupied by the two power plants. Plant facilities include a 7,000-acre main cooling reservoir and a 47-acre essential cooling pond. Many smaller bodies of water onsite include wetlands, Kelly Lake, drainage ditches, sloughs and depressions. Much of the land east of the cooling reservoir is leased for cattle grazing. Approximately 1,700 acres remain in a more natural state

Photo By: Gwenna Kelton

[2] Nuclear Energy Institute (2007). *Environmental Preservation.* http://www.nei.org/index.asp?catnum=2&catid=38. Viewed April 18, 2007.

[3] Nuclear Energy Institute. *Quantifying Nuclear Energy's Environmental Benefits.* http://www.nei.org/index.asp?catnum=2&catid=43. Viewed April 18, 2007.

as a lowland habitat. A 110-acre wetland habitat area was established in 1996 on previously unused land located northeast of the power plants. The area surrounding the South Texas Project is characterized by coastal plain with farmland and pasture predominating. Local relief of the area is characterized by flat land, approximately 23 feet above sea level.

The Area

The economic base for this area primarily is agricultural related. Most of the land near the site is used for the production of five major agricultural products: beef, rice, grain sorghum, soybeans and cotton. In addition to the agriculture industry, there is commercial fishing in the lower Colorado River, East and West Matagorda Bays, Intracoastal Waterway and the Gulf of Mexico. Currently shrimp, oysters and crabs are the predominant commercially important seafood in the county. Aquaculture farms continue to be developed in the area with the main crop being catfish.

Although the surrounding area is heavily cultivated, significant amounts of woodlands, prairies, marsh and open water habitat exist to support wildlife. The area lies in the southern region of the central flyway and is host to an abundance of migratory birds. The local estuary environments provide the necessary habitat for a variety of fish types essential to their life cycles. The area also affords opportunity for recreational hunting and fishing.

The South Texas Project is home to many species of animals. Inhabitants include the American alligators, Ospreys, Bald Eagles and a large population of white-tailed deer. In winter, literally hundreds of thousands of waterfowl, principally migratory geese and white pelicans find that the plant's 7,000-acre cooling reservoir provides an excellent winter sanctuary. Since 1997, the 15-mile-wide area that includes the South Texas Project has typically led or had one of the highest number of bird species nationwide in the National Audubon Society's Annual Christmas Bird Count.

The climate of the region is subtropical maritime, with continental influence. It is characterized by short, mild winters and long, hot and humid summers. Rainfall is usually abundant throughout the year with an annual average of approximately forty-two inches. The prevailing wind direction is from the south-southeast, shifting to north-northeast for short intervals during the winter months.

Photo By: Gwenna Kelton

Non-Radiological Environmental Introduction and Summary

Chapter 3

Non-Radiological Environmental Introduction and Summary

Nonradiological environmental conditions and performance at the South Texas Project during 2006 remained satisfactory and demonstrated that the South Texas Project continued to operate in an environmentally responsible manner during the year. The South Texas Project achieved and maintained expected high standards of environmental performance and compliance throughout 2006.

The South Texas Project is committed to the production of electricity in a safe, reliable, and economical manner using nuclear energy. The station's programs, policies and business plan objectives also incorporate a commitment to environmental protection and sound environmental management. The dedication of station personnel who develop, implement, support and monitor site environmental protection programs and compliance exemplify this commitment.

The station's commitment to sound environmental management is illustrated by the following environmental successes in 2006:

- Continued classification as a high performer by the Texas Commission on Environmental Quality based on the station's above-average environmental compliance record in all areas considered, including water quality, waste management and air quality compliance;
- Station involvement in community efforts to collect hazardous and non-hazardous waste for proper disposal and responsibly manage regional and county water resources; and,
- Implementation of re-structured water supply agreements with granting authorities intended to secure a long-term water supply source for operations at the South Texas Project.

Everyone has a responsibility to protect the environment. Commitment to environmental responsibility is an integral component of the South Texas Project operating policy. This responsibility reaches further than mere compliance with laws and regulations to encompass the integration of sound environmental practices into our daily operational and business decisions. The people at the South Texas Project understand the need to balance economic, operational and environmental issues for the benefit of the station and the public. We recognize our responsibility to hold ourselves to the highest principles of environmental stewardship for station activities.

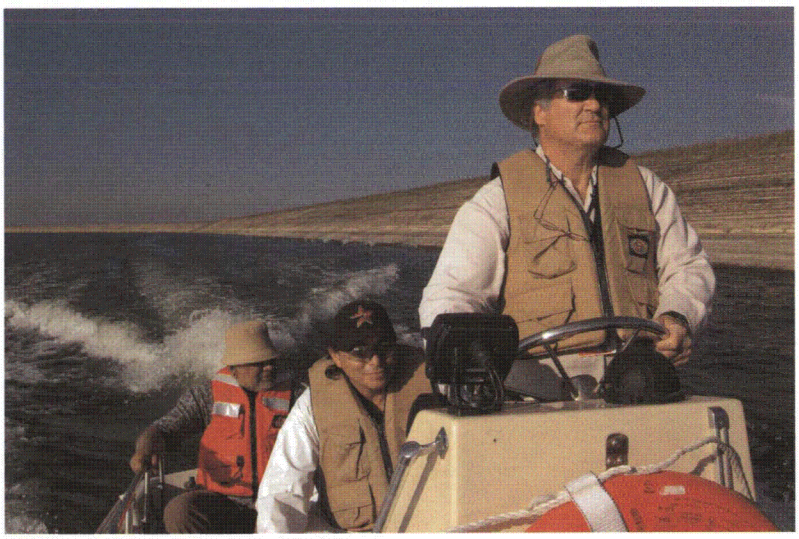


Photo By: Breck Sacra

Non-Radiological Environmental Operating Report

Chapter 4

ENVIRONMENTAL CONDITIONS

This section of the report describes the South Texas Project's non-radiological environmental program performance and environmental conditions from January 1 through December 31, 2006. The STP Nuclear Operating Company environmental staff closely monitors environmental conditions and performance at the South Texas Project. NRG Energy, Inc. provides support and technical assistance to the South Texas Project. In 2006, the Texas Commission on Environmental Quality conducted a compliance inspection for onsite beneficial land application with no findings or violations issued. The Texas Commission on Environmental Quality also conducted an evaluation of the station's compliance with applicable requirements for air quality with no findings or violations issued. The Texas Department of State Health Services identified one minor issue regarding the start date associated with a building demolition project completed in 2006. The Texas General Land Office also conducted a site inspection for the purposes of re-evaluating a jurisdictional determination originally issued in 1993. No change was necessitated and the jurisdictional determination status of the site remained unchanged.

The Texas Commission on Environmental Quality classified the South Texas Project as a high performer in 2006 based on the station's above-average environmental compliance record. Facilities, such as the South Texas Project, are classified by the state as a high performer, average performer or poor performer based on that facility's compliance history. The state's classification of the South Texas Project as a high performer was based on the station's environmental performance over the last five year period.

In 2006, South Texas Project co-sponsored and participated in the Matagorda County Household Hazardous Waste Collection day. The station also supported various bird counts and surveys sponsored by federal and state agencies and volunteer organizations such as the annual National Audubon Society Christmas Bird Count, the Great Texas Birding Classic and the United States Fish and Wildlife Service Colonial Waterbird Survey.

AQUATIC AND ECOLOGICAL MONITORING

The location of the South Texas Project falls within the Texas Land Resource Area designation as coastal prairie and can be divided into two broad ecological areas based on topography, soils and vegetation. The bottomland area is a swampy, marshy area that occupies approximately 1,700 acres of the site near the Colorado River. This area provides an important habitat for birds and other wildlife. A spoil impoundment constructed in 1972 by the United States Army Corps of Engineers is included in this area. In addition, an award-winning 110-acre wetland habitat area that attracts a variety of bird groups and other wildlife was established in 1996 on previously unused land located northeast of the power plants. The remaining area of the site offers diverse habitats for mammals and several types of birds.

Photo by: Gwenna Kelton

The South Texas Project environmental staff regularly monitors the site environs for changing conditions. Ecological conditions onsite in 2006 remained generally unchanged and satisfactory.

The South Texas Project is located on the state-sponsored Great Texas Coastal Birding Trail that spans the entire Texas Gulf Coast from Brownsville to the Louisiana border. Several bird species listed on the state and federal threatened or endangered species lists have been observed at the wetland habitat and elsewhere onsite. These include nesting bald eagles, peregrine falcon, wood stork, white-faced ibis and white-tailed hawk. Additional migratory and resident bird species such as a variety of ducks, geese, turkey and pheasant have been observed during informal surveys of the site's diverse natural and man-made habitats.

The South Texas Project continues to provide vital habitat for more than 125 different species of wintering and resident birds, including the common tern and white pelicans. Matagorda County, which includes the South Texas Project, consistently ranks at or near the top of the National Audubon Society's annual Christmas Bird Count for the number of species identified. In 1998, a small number of black skimmers and least terns established nests on a remote parking lot at the station. Special precautions were taken to protect the nesting area and a small, but growing population of both species has continued to return each year to the site although the preferred nesting site for both has migrated to the internal dikes of the Main Cooling Reservoir. Intensive bird nesting continues throughout the lowland habitat, particularly in a heron rookery around the perimeter of Kelly Lake. U. S. Fish and Wildlife Service biologists estimate that approximately one-third of Texas' breeding adult Gull-billed Tern population, considered to be in decline, nest on the internal dikes of the Main Cooling Reservoir at the South Texas Project.

The South Texas Project continues to monitor important wildlife species to detect population changes. Informal observations by station and NRG Energy, Inc. personnel continue to indicate that the site provides high-quality habitat in which a wide range of animals live. The site continues to attract extensive wildlife populations, offering a refuge for resident species as well as seasonal migrants. The lowland habitat located between the Colorado River and the east bank of the Main Cooling Reservoir offers a significant source of water year-round. These natural resource areas, in concert with numerous additional wetland and grassland areas, offer the key ingredients necessary to sustain the extensive wildlife population at the South Texas Project.

Photo by: Breck Sacra

WATER QUALITY MANAGEMENT

Water is an essential component in electricity production, and all electric utilities must comply with extensive federal, state and local water regulations. These regulations govern virtually every aspect of business operations at the South Texas Project. Water usage and wastewater treatment onsite are regulated under the Safe Drinking Water Act, the Federal Clean Water Act and the Texas Water Quality Act. Collectively, these acts provide for the safeguarding of public drinking water supplies and maintaining the integrity of state and federal waters.

The South Texas Project uses both surface water and groundwater for station purposes. Groundwater is pumped from deep aquifer wells to provide onsite drinking water for station personnel, replenish the Essential Cooling Pond, and for other industrial purposes onsite. Consistent with the station's environmental principles encouraging efficient water usage and conservation, groundwater usage is carefully managed to conserve this important resource. Groundwater provided approximately 2.5 percent of the water utilized in 2006 by the South Texas Project. Surface water from the Main Cooling Reservoir and the Essential Cooling Pond is used as cooling water for plant activities. Water from the Colorado River replenishes the Main Cooling Reservoir via intermittent pumping periods. Surface water diverted to the Main Cooling Reservoir from the Colorado River accounted for approximately 97.5 percent of the water used at the South Texas Project in 2006. Information regarding water use in Texas can be found on the website maintained by the Texas Water Development Board at http://www.twdb.state.tx.us/.

Most of the water used by the South Texas Project is needed to condense steam and provide cooling for plant generating systems. The majority of this water is drawn from and returned to the station's Main Cooling Reservoir. The Main Cooling Reservoir is a 7,000-acre, above grade, off-channel reservoir capable of impounding 202,600 acre-feet of water at its maximum level. Reservoir makeup water is withdrawn intermittently from the adjacent Colorado River. In addition, the Essential Cooling Pond, a 47-acre, below grade, off-channel reservoir that supplies water to cool crucial plant components, is capable of impounding 388 acre-feet of water. Various water rights permits, contractual agreements and compliance documents authorize the South Texas Project to maintain these reservoirs, impound water diverted from the Colorado River, and to circulate, divert and use water from the reservoirs for industrial purposes to operate the plant. These permits also limit the rate of diversion from the Colorado River. The South Texas Project diverted 50,012 acre-feet from the Colorado River in 2006 for the Main Cooling Reservoir fill operations while preserving adequate freshwater flow conditions for downstream bay and estuarine ecosystems. The South Texas Project and the Lower Colorado River Authority previously finalized an amended water rights contract for a secure water supply source to support reliable long-term operation of the station while providing flexibility to the Lower Colorado River Authority for supplying the

Photo by: Gwenna Kelton

source water. The agreement also assists the Lower Colorado River Authority to plan its future water supply strategies to help meet water demands identified in the Senate Bill 1 regional water planning process discussed later in this report. Station operations were modified in 2006 to support the amended agreement and mutually-developed water delivery plan.

Existing federal and state water quality standards are implemented and enforced through the Texas Pollutant Discharge Elimination System (TPDES) permit program to restore and maintain the state's waters. Under this permit program, the South Texas Project monitors, records and reports the types and quantities of pollutants from wastewater discharges to ensure that we meet or exceed the stringent levels set in the permit. A monthly monitoring report is submitted to the Texas Commission on Environmental Quality for wastewater discharges. Reports identifying ground and surface water use are also submitted annually to the Texas Commission on Environmental Quality and Texas Water Development Board. An annual groundwater use report is also submitted to the Coastal Plains Groundwater Conservation District.

Wastewater generated at the South Texas Project is processed and discharged to the onsite Main Cooling Reservoir to be re-used by the station as cooling water for plant systems. No water was released from the reservoir in 2006. The station continued its outstanding wastewater discharge compliance performance record in 2006. Station conditions did not require site aquatic monitoring studies be conducted in 2006 nor were any additional studies required by the United States Environmental Protection Agency or the State of Texas either by way of station discharge permits or otherwise. Wastewater discharges met state and federal water quality standards demonstrating a 100 percent compliance record for the year while conserving and maximizing efficient water usage at the station.

In addition to the wastewater discharge permit program, the Federal Clean Water Act, as amended, requires permits for storm water discharges associated with industrial activity. The South Texas Project Storm Water Pollution Prevention Plan ensures that potential pollution sources at the site are evaluated, and that appropriate measures are selected and implemented to prevent or control the discharge of pollutants in storm water runoff. This plan is a working document that is revised whenever there is a change in design, construction, operation or maintenance that has a significant effect on the potential for the discharge of pollutants from the station. The station filed a Notice of Intent for coverage under the Multi-Sector General Permit and the Storm Water Pollution Prevention Plan was modified accordingly in 2006.

Following a severe drought in 1996, the Texas Legislature recognized the need to address a wide range of state water resource management issues. In 1997, the Texas Senate drafted legislation known as Senate Bill 1 to address these issues and to develop a comprehensive state water policy. Towards this end, this legislation required that the Texas Water Development Board create a statewide water plan that emphasizes regional planning. Sixteen planning regions were created, each tasked to prepare a regional plan for the orderly development, management and conservation of water resources. The South Texas Project was chosen to represent the electric generating utility interest for the water-planning region that encompasses the lower Colorado River Basin. Plans subsequently submitted by each planning region were incorporated into a State Water Plan in the year 2001. However, water resource planning is a continuous process and the Regional and State water plans must be updated every five years. The updated plan was approved by the Texas Water Development Board in November 2006. The South Texas Project continues to actively participate in the Lower Colorado Regional Water Planning Group to identify strategies to meet future water supply demand projections for the region and update the existing plan accordingly. Additional information regarding regional water planning in Texas can be found on the website maintained by the Texas Water Development Board at http://www.twdb.state.tx.us/.

Senate Bill 1 also required groundwater conservation districts to develop groundwater management plans with estimates on the availability of groundwater in the district, details of how the district would manage groundwater and management goals for the district. The water planning and management provisions were further clarified in 2001 with the enactment of Senate Bill 2. Accordingly, the Coastal Plains Groundwater Conservation District encompassing Matagorda County was confirmed by local election in late 2001. The purpose of the District is to "...manage and protect the groundwater resources of the District." The South Texas Project was actively involved in providing review and comment on the Coastal Plains Groundwater Conservation district rules prior to their adoption. In 2005, the South Texas Project registered the station's onsite groundwater wells with the District and continues to monitor usage according to the requirements of the District's rules. In 2006, the Coastal Plains Groundwater Conservation District personnel toured the station's registered well areas and verified registration information. Additional information regarding the Coastal Plains Groundwater Conservation District can be found on their website at http://www.coastalplainsgcd.com/.

The South Texas Project initially developed, submitted and implemented a station Water Conservation Plan in 1999 in accordance with state water use regulations. The purpose of the station's Water Conservation Plan is to identify and establish principles, practices and standards to effectively conserve and efficiently use available water supplies and provide historical and projected average industrial water demand. This plan was revised, updated and re-submitted to the state in 2005.

The South Texas Project personnel understand that the water resources of the state are a critical natural resource requiring careful management and conservation to preserve water quality and availability. Accordingly, the station continues to explore and support efforts focusing on the efficient use of water resources and reduction of water waste.

Photo By: Gwenna Kelton

AIR QUALITY MANAGEMENT

Air emission sources at the South Texas Project fall under the scope of air pollution regulations promulgated under the Texas Clean Air Act and the Federal Clean Air Act and the numerous associated amendments. The purpose of these regulations is to protect air resources from pollution by controlling or abating air pollution and emissions. Regulated emission sources at the South Texas Project include a fossil-fuel boiler, emergency diesel generators, fire-fighting training and other minor maintenance equipment and activities.

Unlike conventional electrical generating stations, nuclear power plants do not burn fossil fuel. Therefore, the South Texas Project produces virtually no greenhouse gases or other air pollutants that are the typical by-products of industrial production processes. The use of emissions-free nuclear power is a significant contributor to the preservation of our community's clean air resources. The South Texas Project uses small amounts of fossil fuel for backup and emergency equipment. The major regulated air emission sources at the South Texas Project include one fossil-fueled boiler and various emergency diesel generators.

The South Texas Project has one oil-fired auxiliary steam boiler available to furnish steam for plant use when steam is not available from the nuclear steam supply system. In addition to the auxiliary steam boiler, a number of fossil-fueled diesel generators are located onsite. These diesels are designed to provide emergency power to various plant systems or buildings in the event of a loss of power. This equipment is not normally needed for daily operations and the station does not use it to produce electricity for distribution. Routine maintenance runs are conducted to ensure availability if needed and for equipment maintenance.

In 1990, amendments to the Federal Clean Air Act mandated a new permitting program to clearly define applicable air quality requirements for affected facilities such as the South Texas Project. This program is commonly known as the Title V Operating Permit Program and is administered by the state. The Texas Natural Resource Conservation Commission (now known as the Texas Commission on Environmental Quality) issued a Federal Operating Permit in January of 2000 for the South Texas Project granting authority to operate identified emission sources at the station in accordance with applicable permit and regulatory requirements. The Texas Commission on Environmental Quality revised the permit in July of 2003 to add applicable requirements regarding minor new source review authorizations. The station initiated a request for permit renewal in 2004 and the Texas Commission on Environmental Quality issued the renewed permit for the station in January of 2006. No deviations with the Federal Operating Permit's requirements occurred in 2006.

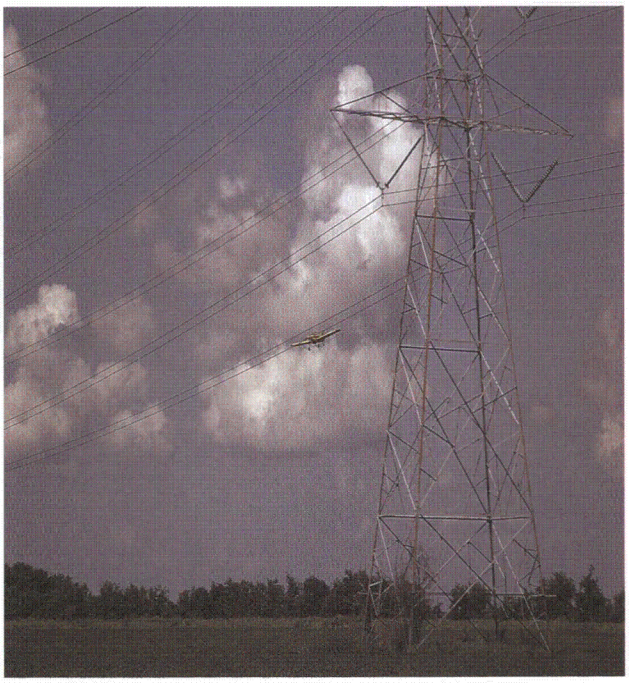


Photo By: Gwenna Kelton

NON-RADIOACTIVE WASTE MANAGEMENT

Solid waste management procedures for hazardous and non-hazardous wastes generated at the South Texas Project ensure that wastes are properly dispositioned in accordance with applicable federal, state and local environmental and health regulations. By regulatory definition, solid waste includes solid, semi-solid, liquid and gaseous waste material. The Texas Commission on Environmental Quality, which administers the Texas Solid Waste Disposal Act and also the federal Resource Conservation and Recovery Act program, is the primary agency regulating non-radioactive wastes generated at the South Texas Project. The Texas Commission on Environmental Quality regulates the collection, handling, storage and disposal of solid wastes, including hazardous wastes. The transportation of waste materials is regulated by the United States Department of Transportation.

The South Texas Project is classified as a small quantity generator of industrial solid wastes. Texas Commission on Environmental Quality regulations require that industrial solid wastes generated at the South Texas Project be identified to the Commission and these are listed in the Texas Commission on Environmental Quality Notice of Registration for the South Texas Project. The registration is revised whenever there is a change in waste management practices at the site. Waste handling and disposal activities are summarized and documented in a waste summary report for the South Texas Project that is submitted annually to the Texas Commission on Environmental Quality.

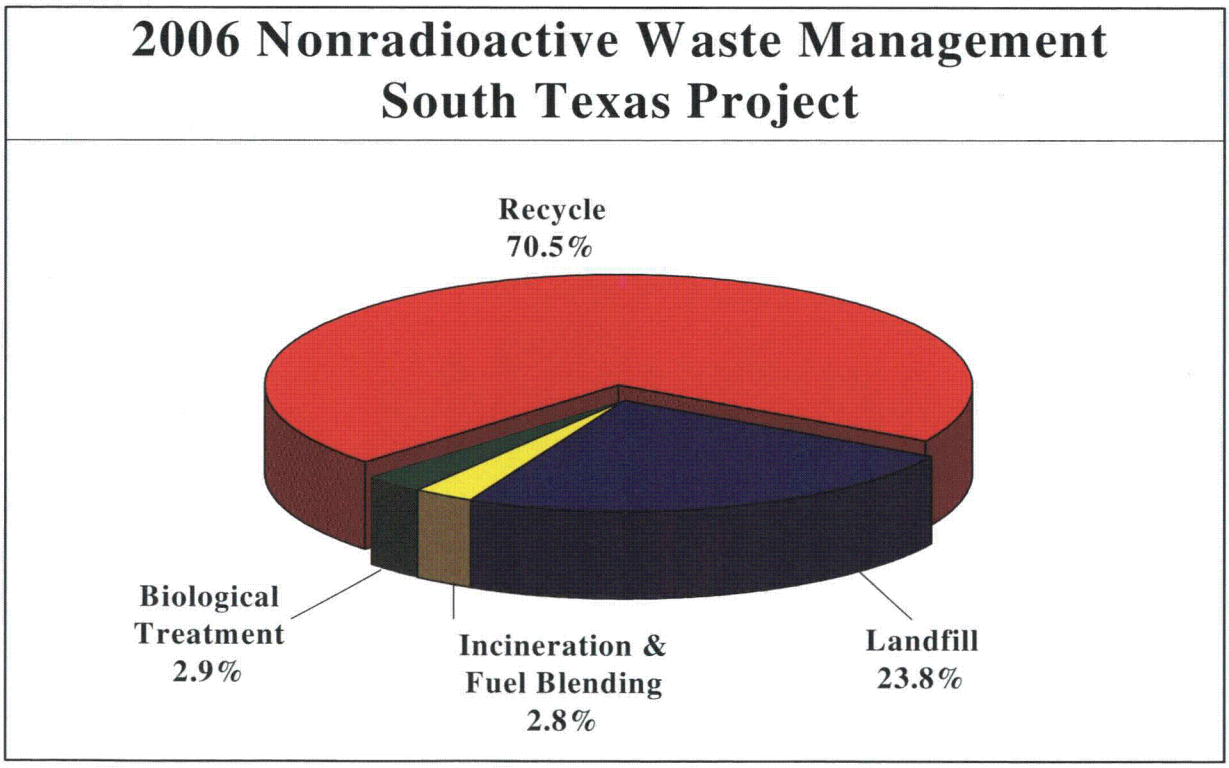


Figure 4-1

Hazardous waste accumulation at the South Texas Project in 2006 was limited to a maximum holding period of 180 days. The Resource Conservation and Recovery Act and Texas Solid Waste Disposal Act also requires the use of proper storage and shipping containers, labels, manifests, reports, personnel training, a spill control plan and an accident contingency plan. Plant personnel routinely inspect areas throughout the site to ensure wastes are not stored or accumulated inappropriately.

Station policies and regulations encourage the recycling, recovery or re-use of waste when possible to reduce the amount of waste generated or disposed of in landfills. Waste generated from heat exchanger cleaning activities in 2006 was shipped for biological treatment. Approximately 71 percent of the industrial non-radioactive waste generated in 2006 at the South Texas Project was recycled or processed for re-use. (Reference Figure 4-1) The South Texas Project ships waste oil, grease, electrohydraulic fluid, adhesives, liquid paint and solvent for fuel blending and thermal energy recovery. Used oil, diesel fuels and antifreeze solutions are sent to a recycling vendor for re-processing. Lead-acid batteries are returned, when possible, to the original manufacturer for recycling or are shipped to a registered battery recycler, thereby reducing the volume of hazardous waste that might otherwise be generated. A site paper recycling program results in the collection of several tons of paper each year. In 2006, the station collected approximately 18 tons of paper for recycling. Every ton of paper recycled saves approximately 17 trees, eliminates approximately three cubic yards of landfill material and saves enough energy to power the average home for six months. Approximately 132 tons of scrap metal were also removed from the station for recycle in 2006. The station continues to explore new areas where recycling may be expanded or initiated.

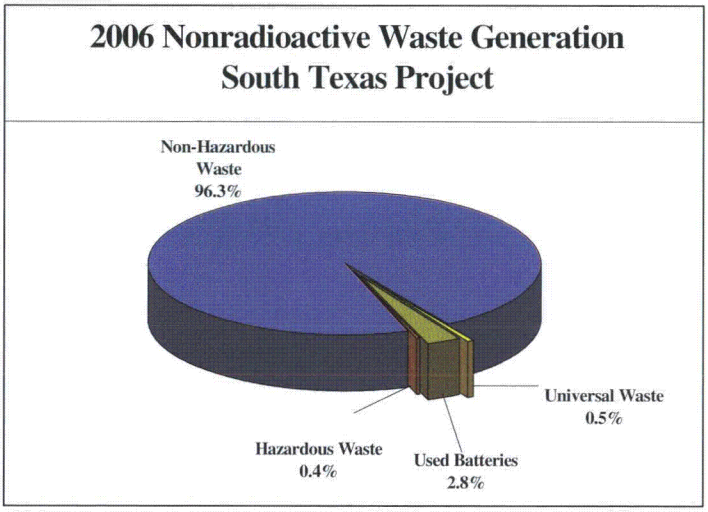


Figure 4-2

Non-radioactive solid waste that cannot be shipped for recycling is shipped for disposal. Municipal-type trash is transported to an offsite landfill. Successful waste minimization and source reduction efforts by employees have allowed the South Texas Project to remain classified as a small-quantity generator since 2004. Hazardous waste accounts for only a small portion of the waste generated at the South Texas Project; however, minimization and reduction of hazardous waste generation where feasible remains an important goal at the station. (Reference Figures 4-2 and 4-3)

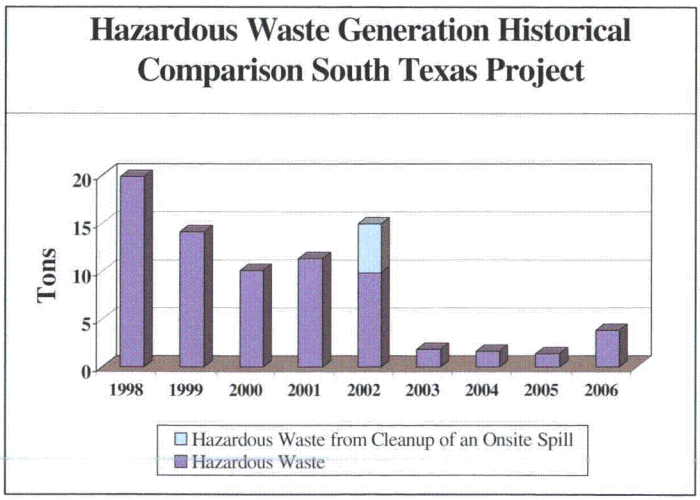


Figure 4-3

CHEMICAL CONTROL AND MANAGEMENT

The station's *Integrated Spill Contingency Plan for the South Texas Project Electric Generating Station*, updated in 2006, consolidates multiple federal and state requirements into one plan. The plan is implemented through standard site operating procedures and guidelines. The South Texas Project uses standard operating procedures, policies and programs to minimize the generation of waste materials, control chemical usage and prevent spills. The South Texas Project also evaluates chemicals and products proposed for use, which could come in contact with plant components. Site procedures address the evaluation, storage, use, spill control, and disposal requirements of chemicals. These guidelines assist in reducing wastes, ensure proper packaging for disposal and mitigate the consequences of inadvertent spillage.

The South Texas Project emphasizes awareness training for spill prevention and maintains station readiness to respond should a spill occur. Spill response team members receive annual refresher training in hazardous material incident response. No significant or consequential spills occurred in 2006.

ENVIRONMENTAL PROTECTION PLAN STATUS

The South Texas Project's Environmental Protection Plan was issued in March of 1989 to provide for the protection of non-radiological environmental values during operation of the South Texas Project. This report reviews Environmental Protection Plan non-compliances identified by the plant in 2006 and the associated corrective actions taken to prevent their recurrence. Potential nonconformities are promptly addressed, as identified, to maintain operations in an environmentally acceptable manner. The station

Photo By: Breck Sacra

uses its Corrective Action Program to document these conditions and track corrective actions to completion. Internal assessments, reviews and inspections are also used to document plant compliance.

This report also reviews non-routine reports submitted by plant personnel and any activities that involved a potentially significant unreviewed environmental question. A proposed change, test or experiment is considered to present an unreviewed environmental questions if it concerns:

1) A matter that may result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement related to the Operation of South Texas Project, Units 1 and 2 (Docket Nos. 50-498 and 50-499), environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or,
2) A significant change in effluents or power level; or,
3) A matter not previously reviewed and evaluated in the documents specified in (1) above, that may have a significant adverse environmental impact.

No unreviewed environmental questions were identified in 2006.

Events that require reports to federal, state or local agencies other than the Nuclear Regulatory Commission are reported in accordance with the applicable reporting requirements. The Nuclear Regulatory Commission is provided with a copy of any such report at the time it is submitted to the cognizant agency. If a non-routine event occurs and a report is not required by another agency, then a 30-day report to the Nuclear Regulatory Commission is required by the Environmental Protection Plan. No such 30-day or other non-routine report of this type was required in 2006.

Photo by: Breck Sacra

Radiological Environmental Introduction and Summary

Chapter 5

Radiological Environmental Introduction and Summary

The Radiological Environmental Monitoring Program is designed to evaluate the radiological impact of the South Texas Project on the environment by collecting and analyzing samples for low levels of radioactivity. Measurements of samples from the different pathways indicate that there is no detectable effect offsite of the operation of the power plants.

Photo by: Adobe Photos

The amount of Cobalt-60 in the Main Cooling Reservoir continues to decrease due to the processing of effluents. Only natural radioactive material has been identified in air samples in 2006. The measurements of direct radiation onsite and offsite indicate no effect from the power plants. Samples of fish and meat collected and analyzed show no plant related isotopes are present. Water samples from the onsite drinking water supply from the deep aquifer and offsite sampling stations on the Colorado River show only natural background radioactivity.

Tritium is a radioactive isotope of hydrogen that is produced in the reactor and cannot be removed from effluents released to the Main Cooling Reservoir because it is a part of the water molecule. During the design of the plant this was recognized and the presence of tritium in the Main Cooling Reservoir, various sloughs and ditches onsite, and the shallow aquifer were expected. Tritium has been identified and analyzed in these types of samples and the concentrations remain below the Environmental Protection Agency (EPA) drinking water limits.

Beginning in 2005, several nuclear plants discovered tritium in groundwater on site at levels exceeding the EPA drinking water limits, mainly near underground process or effluent pipes. To determine if this were the case at the South Texas Project, test wells near underground process and effluent pipes were sampled and analyzed for tritium. Although some results were positive, all results were below the EPA drinking water limits. The current sampling program samples two of these wells quarterly and three annually. There has not been a significant change noted in tritium concentration from these wells since sampling commenced.

Additional on site shallow aquifer wells have been added to the sampling schedule to monitor the migration of tritium from the Main Cooling Reservoir (MCR). The additional wells are on all sides of the MCR. Only one well, near the site boundary on the west side of the MCR, was positive for tritium and that result was well below the EPA drinking water limit.

Analysis of the data collected from the implementation of the Radiological Environmental Monitoring Program indicates that the operation of the South Texas Project has no radiological impact.

Photo by: Gwenna Kelton

Radiological Environmental Operating Report

Chapter 6

PROGRAM DESCRIPTION

The South Texas Project initiated a comprehensive pre-operational Radiological Environmental Monitoring Program in July 1985. That program terminated on March 7, 1988, when the operational program was implemented. The pre-operational monitoring program data forms the baseline against which operational changes are measured.

Critical pathway analysis requires that samples be taken from water, air, and land environments. These samples are obtained to evaluate potential radiation exposure. Sample types are based on established pathways and experience gained at other nuclear facilities. Sample locations were determined after considering site meteorology, Colorado River hydrology, local demography and land use. Sampling locations are further evaluated and modified according to field and analysis experience. Table 1 lists the minimum sampling locations and frequency of collection at the end of this section.

Sampling locations consist of indicator and control stations. Indicator stations are locations on or off the site that may be influenced by plant discharges during plant operation. Control stations are located beyond the measurable influence of the South Texas Project or any other nuclear facility. Although most samples analyzed are accompanied by a control sample, it should be noted that this practice is not always possible or meaningful with all sample types. Fluctuations in the concentration of radionuclides and direct radiation exposure at indicator stations are evaluated in relation to historical data and against the control stations. Indicator stations are compared with characteristics identified during the pre-operational program to monitor for radiological effects from plant operation.

Several sample identification methods are used to implement the program. Figures 6-1 and 6-2 are maps that identify permanent sample stations. Descriptions of sample stations shown on Figure 6-1 and 6-2 are found in Table 2. Table 2 also includes additional sampling locations and media types that may be used for additional information. Figure 6-3 illustrates the zones used when collection locations are not permanent sample stations.

NEI GROUNDWATER PROTECTION INITIATIVE

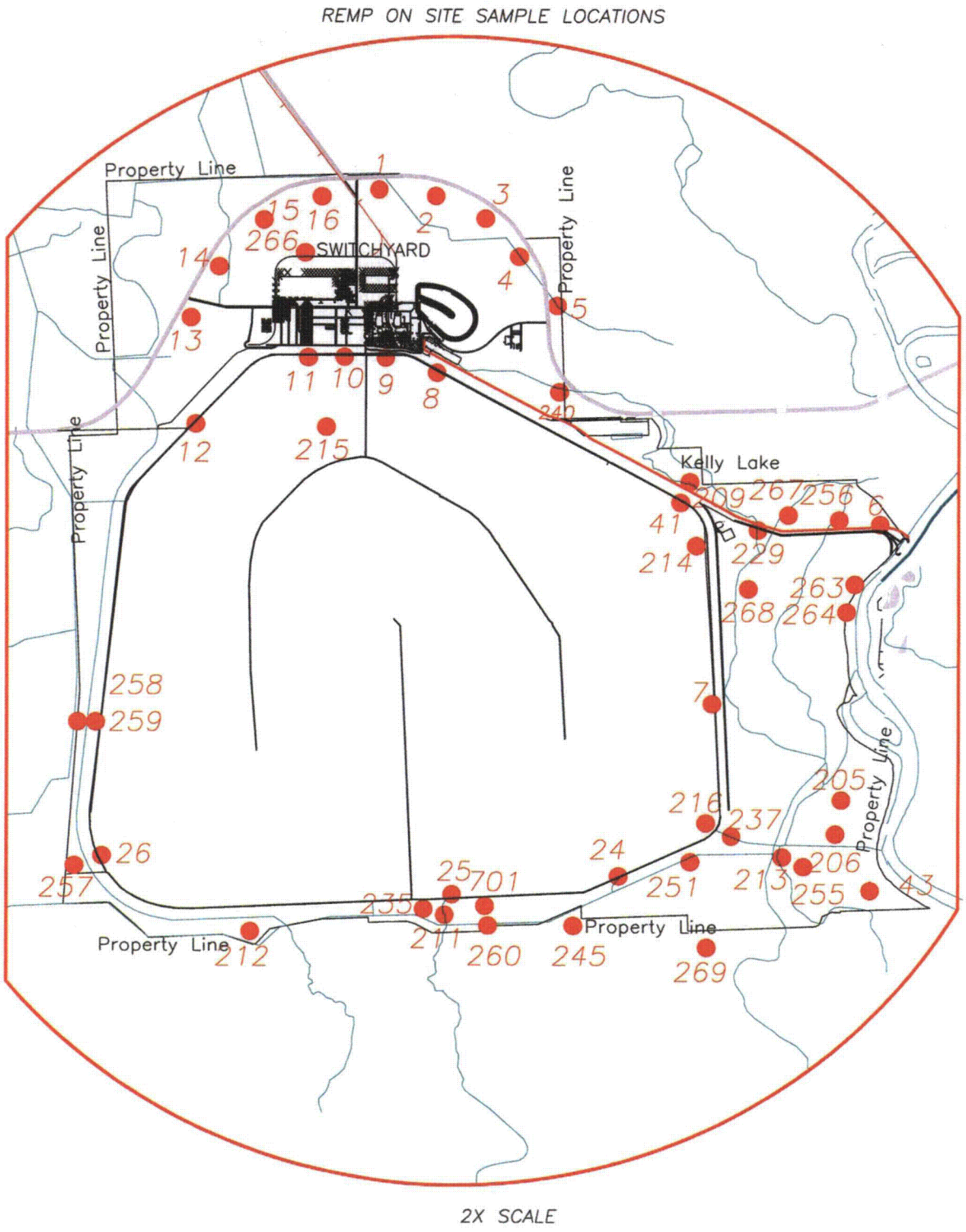
During 2006, the Nuclear Energy Institute sponsored a task force to establish consistent methods and approaches to the monitoring and reporting of information about radioactive isotopes in groundwater, the resulting program is called the Groundwater Protection Initiative. In 2006, the South Texas Project participated in the task force and is implementing its recommendations. In support of the NEI Groundwater Protection Initiative, additional sampling for tritium was performed within the Protected Area of the South Texas Project during 2006. The Protected Area is the area within the security fence containing both power reactors and some additional buildings. Although the Annual Environmental Operating Report does not normally include results from the Protected Area, the results from this additional sampling are included here for completeness.

During 2006, sixteen shallow aquifer wells were sampled within the Protected Area. Eight had positive values that were below the EPA drinking water limit of 20,000 pCi/kg[4] and eight had no detectable tritium. The positive results were attributed to migration from the Main Cooling Reservoir and an underground pipe

[4]Standards for radioactivity in drinking water limits dose to the public to 4 mrem/year.

Designated Sample Locations

Figure 6-1


REMP ON SITE SAMPLE LOCATIONS
Property Line
Property Line
Property Line
Property Line
Property Line
Property Line
SWITCHYARD
Kelly Lake
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
24
25
26
41
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237
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245
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263
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266
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268
269
701
2X SCALE

Figure 6-2

Zone Location Map

Figure 6-3

that leaked and was repaired five years ago. To monitor this tritium, several shallow aquifer test wells were added to the sampling schedule inside the Protected Area during 2006. The two wells with the highest concentration of tritium were sampled quarterly. The concentrations have remained fairly constant, one at approximately 15,000 pCi/kg and the other at approximately 1,250 pCi/kg. Three wells of varying distances from the plants that had no detectable tritium are sampled annually to determine if there is migration of the tritium the Protected Area. The three wells continue to have no detectable tritium.

As discussed in previous reports, the tritium has been monitored in the shallow aquifer for several years on the south side of the Main Cooling reservoir. This was predicted by models used when licensing the site. The models predicted that the tritium would be at the highest concentration in the shallow aquifer on the southeast side of the Main Cooling Reservoir. This prediction has shown to be true with the positive results from station #251 and station #235 which have been sampled for several years and is discussed later in this report. To enhance the database, thirteen additional shallow aquifer wells onsite, outside of the Protected Area, have been sampled this year. Station #259, on the west side of the Main Cooling Reservoir, is the only well that had detectable tritium and the concentration was very low (200 to 600 pCi/kg). This data indicates that the model used during the licensing phase appears to predict the movement of tritium in the shallow aquifer appropriately.

A geological study was performed north of the Main Cooling Reservoir which included drilling test wells. The wells were greater than 200 yards from the dike. Twelve wells nearest the MCR were sampled and the water was analyzed for tritium. All results were below the minimum detectable limits.

During 2006 there were two occurrences of the Total Dissolved Solids discharge line leaking some liquid near unit one. The water from the leaks was recovered. These leaks were evaluated under site programs and procedures and recorded in the Corrective Action Program database. The evaluations revealed that there was no release to an unidentified pathway, no radioactive material was released offsite and did not reach a drinking water aquifer. While the soil and gravel were excavated for one of the repairs, samples of the soil and gravel were analyzed for gamma emitting isotopes. The only isotopes detected were the long-lived isotopes of Cs-137, Cs-134 and Co-60 at less than 200 picoCuries/kilogram, which is barely detectable. These particular isotopes being present indicate that this was not from this leak, but related to a historical spill from another source. The soil was analyzed for tritium and it was not detectable.

ANALYSIS OF RESULTS AND TRENDS

Environmental samples from areas surrounding the South Texas Project continue to indicate no significant radiological effects from plant operation. Analytical values from offsite indicator sample stations continue to trend with the control stations. Onsite indicator samples continued to increase or decrease in measured values at their expected rates.

Average quarterly beta activity from three onsite indicator stations and a single control station for air particulate samples have been compared historically from 1988 through 2006 (see Figure 6-4). The average of the onsite indicators trends closely with the offsite control values. The comparison illustrates that plant operations are not having an impact on air particulate activity even at the Sensitive Indicator Stations (#1, #15, and #16). These stations are located near the plant and are located downwind from the plant based on the prevailing wind direction. The beta activity measured in the air particulate samples is from natural radioactive material. As a routine part of the program, we perform gamma analysis on quarterly composites of the air particulate samples to determine if any activity is from the South Texas Project. The gamma analysis revealed that it was all natural radioactivity.

Direct gamma radiation is monitored in the environment by thermoluminescent dosimeters located at 40 sites. The natural direct gamma radiation varies according to location because of differences in the natural radioactive materials in the soil, its moisture content and the vegetation cover. Figure 6-5 compares the amount of direct gamma radiation measured at the plant since the fourth quarter of 1985 for three different types of stations. The Control Stations are greater than 10 miles from the site and are in the direction of the least prevailing winds (Stations #23 and #37). The Sensitive Indicator Stations are in the directions that the wind blows most often and are one mile from the power plants on Farm-to-Market Road 521 (Stations #1, #15 and #16). The Indicator Stations are the remainder of the stations excluding Stations #38, #40, and #42. The values plotted are the averages for all of the stations according to type. Figure 6-5 indicates changing conditions in the area of the individual stations. The average of the Control Stations is higher than the other stations because station #23 is in an area that has a slightly higher natural background radiation, probably due to the soil composition. The trends of Figure 6-5 clearly show that the power plants are not adding to the direct radiation in the environment.

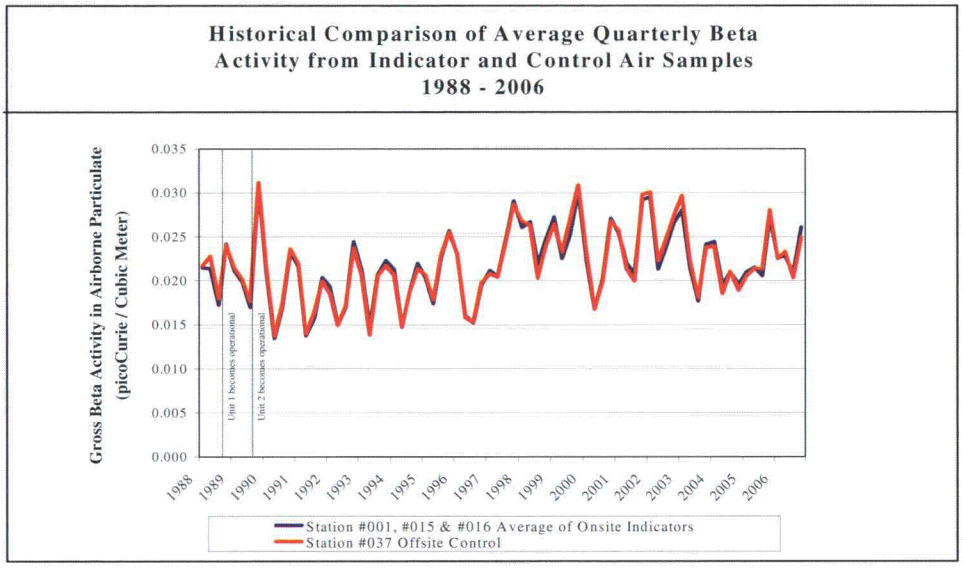

Figure 6-4

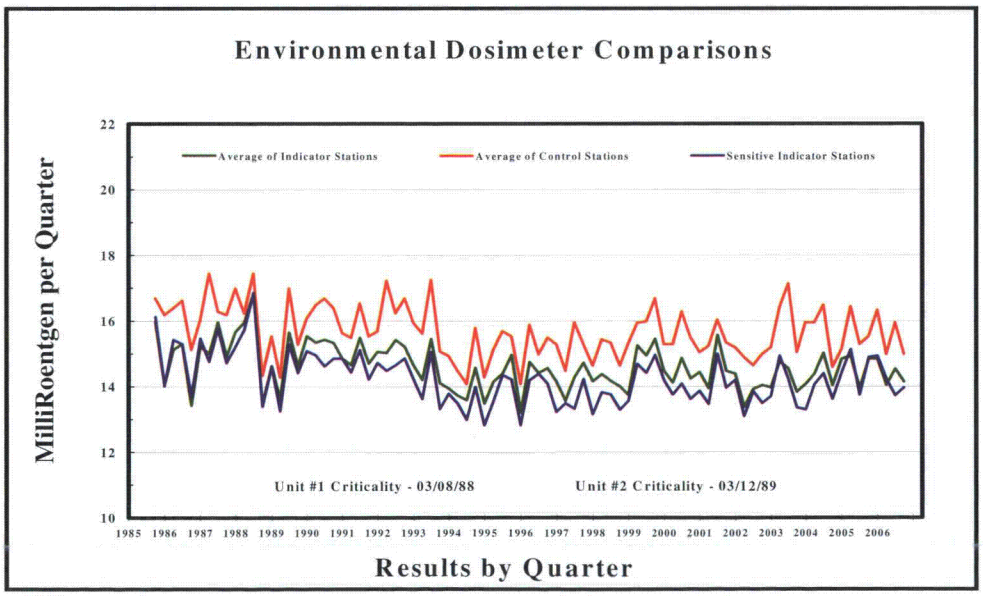

Figure 6-5

Bottom sediment samples are taken from the Main Cooling Reservoir each year. Figure 6-6 shows the positive results from two plant-produced radioactive materials, Cobalt-58 and Cobalt-60. The Cobalt-58 and Cobalt-60 inventory in the reservoir has decreased since 1992 because of equipment installed to reduce radioactive effluents. The amount of Cobalt-58 has decreased below levels that can be reliably detected. The concentration of Cobalt-60 in the reservoir bottom sediment samples varies but is within the expected range. Figure 6-7 demonstrates the decline in the total amount of Cobalt-60 in the reservoir.

Cesium-137 was also measured in the Main Cooling Reservoir bottom sediment samples and in one of the upstream shoreline sediment samples on the Colorado River. However, Cesium-137 was present in the environment before the operation of the South Texas Project and the sample concentrations were approximately equal to pre-operational values. No other isotopes released from the plant were identified in the shoreline samples, this indicates that the plant was probably not the source of Cesium-137 in these samples. The Cesium-137 measured in the Main Cooling Reservoir does not suggest an increase due to plant operation.

Tritium is a radioactive isotope of hydrogen and is produced during plant operation. Tritium produced in the reactors is a part of the water molecule. Wastewater is treated to remove impurities before release, but tritium cannot be removed because it is chemically part of the water molecule. Some of the tritium is released into the atmosphere and the remainder is released into the Main Cooling Reservoir. The tritium escapes from the Main Cooling Reservoir by evaporation, movement into the shallow aquifer, and by percolation from the relief wells that are a part of the dike's stabilization system. Figure 6-8 shows the amount of tritium released to the Main Cooling Reservoir each year and the amount present during the last quarter of each year. This indicates that almost half of the tritium is removed from the reservoir annually. One of the pathways tritium escapes from the reservoir is by evaporation. Rainwater was collected during 2006 to determine if the tritium remained in the local area. Tritium was not found in any rain water samples.

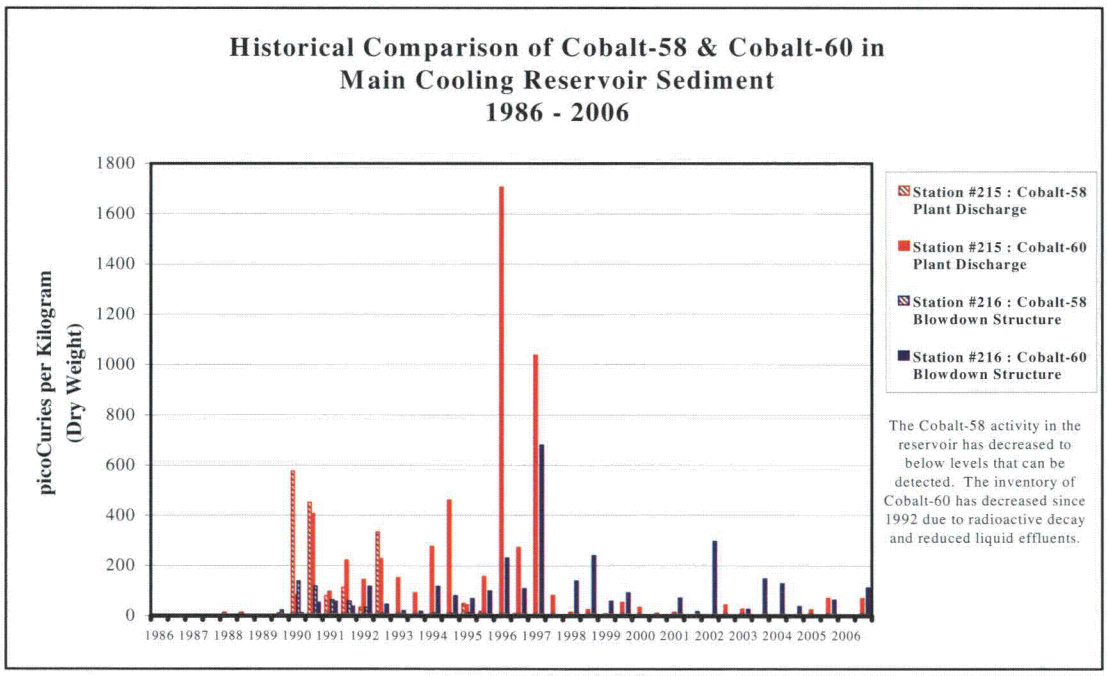

Figure 6-6

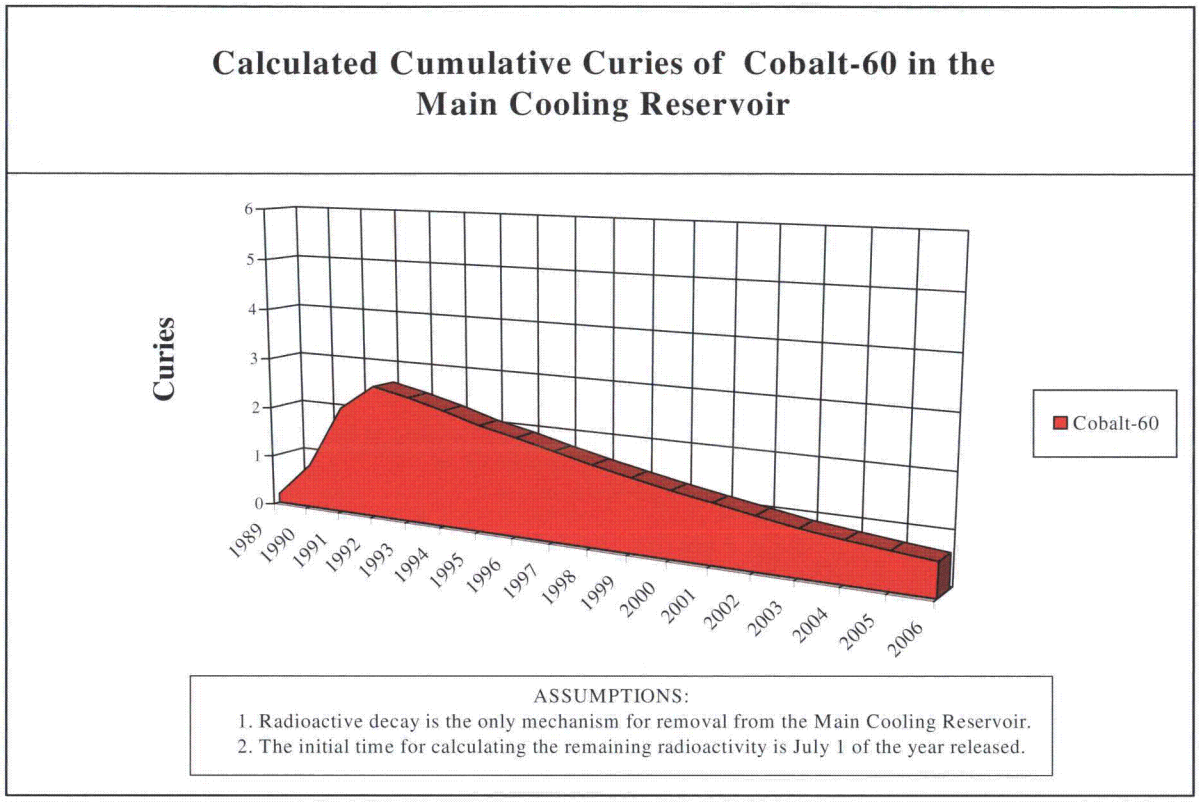

Figure 6-7

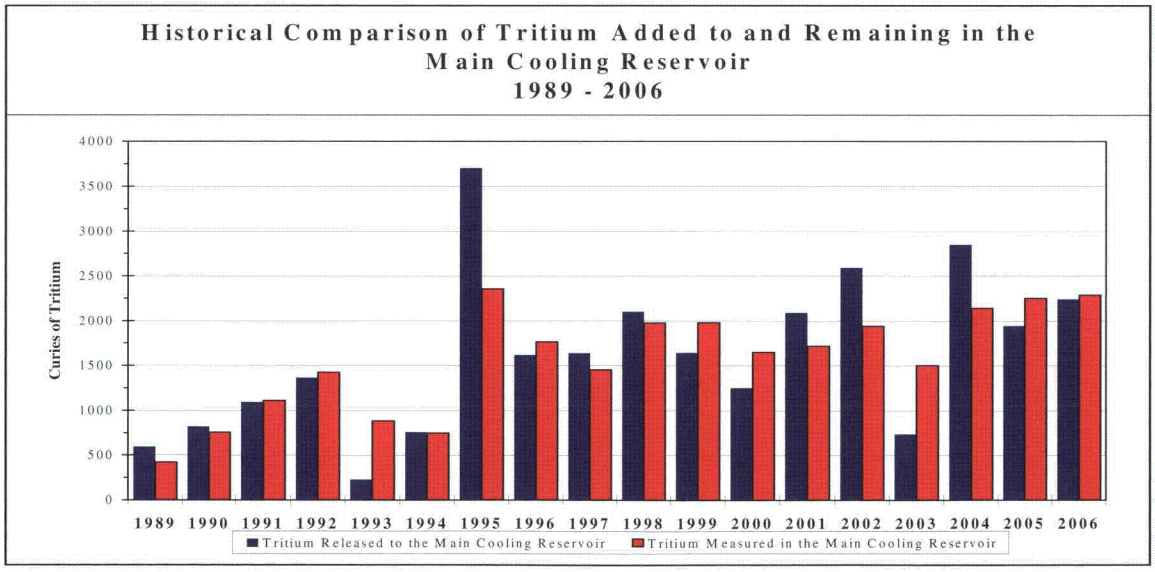

Figure 6-8

The concentration of tritium in the Main Cooling Reservoir increased in 2006. Tritium enters the sloughs and ditches of the site as runoff from the relief wells that surround the reservoir. Examples of tritium in the relief wells are shown in Figure 6-9. Relief well #238 was sampled until 1996 when a more dependable relief well #701, was identified. The tritium concentration in eight surface water sample points for 1988 through 2006 is shown in Figure 6-10. The specific sample point locations can be found in Table 2. Tritium levels in the onsite sloughs and ditches vary due to the concentration in the reservoir and the amount of rainfall received. The average tritium concentration in the sloughs and ditches should never equal that of the reservoir because it decays as it migrates through the dike relief system and it is also diluted by rainwater.

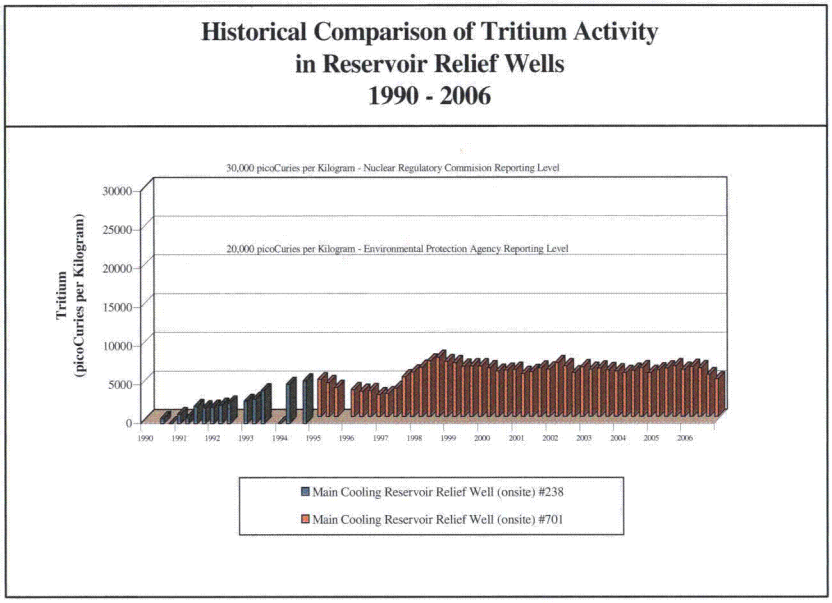

Figure 6-9

Tritium was identified in the shallow (ten to thirty feet deep) aquifer test well #235, approximately seventy-five yards south of the reservoir dike base during 1999. In 2006, the concentration decreased during the last quarter in this well which could be the result of rainwater seeping into the well. The concentration should be expected to rise and fall if it follows the trends observed in surface water samples onsite. Beginning in 2000, samples were collected from the shallow aquifer well #251, southeast of the Main Cooling Reservoir. Samples have been collected quarterly and the tritium levels have remained near that of the relief wells. The results of the analysis from these two shallow aquifer wells are shown in Figure 6-11.

The drinking water onsite is pumped from deep aquifer wells and is tested quarterly to verify tritium is not present. The waters in the reservoir and other surface bodies of water onsite are not used as drinking water. The drinking water onsite and in the local area is from the deep aquifer which does not communicate with the shallow aquifer as discussed in the original licensing documents. The only way tritium could be introduced into humans is by eating fish from the reservoir, which is not permitted. If a person ate forty pounds of fish a year from water that contained the United States Nuclear Regulatory Commission reporting level (30,000 picoCuries per kilogram), that person would receive less than one millirem. This is insignificant compared to the almost twenty millirem a year everyone receives from naturally occurring radioactive potassium in the body. The current reservoir concentration is less than 1/2 the reporting level.

Additional samples are collected and analyzed in addition to those required by our licensing documents or internal procedures. These samples are obtained to provide a more complete analysis of the environment than is required by the minimal regulatory compliance. These samples include pasture grass, sediment samples, rain water, shallow aquifer well water, water from various ditches and sloughs onsite, and air samples near communities or other areas of interest. The results of these analyses indicate that there is no detectable radiological effect on the environment by plant operation.

Historical Comparison of Tritium Activity in Surface Water 1988 - 2006

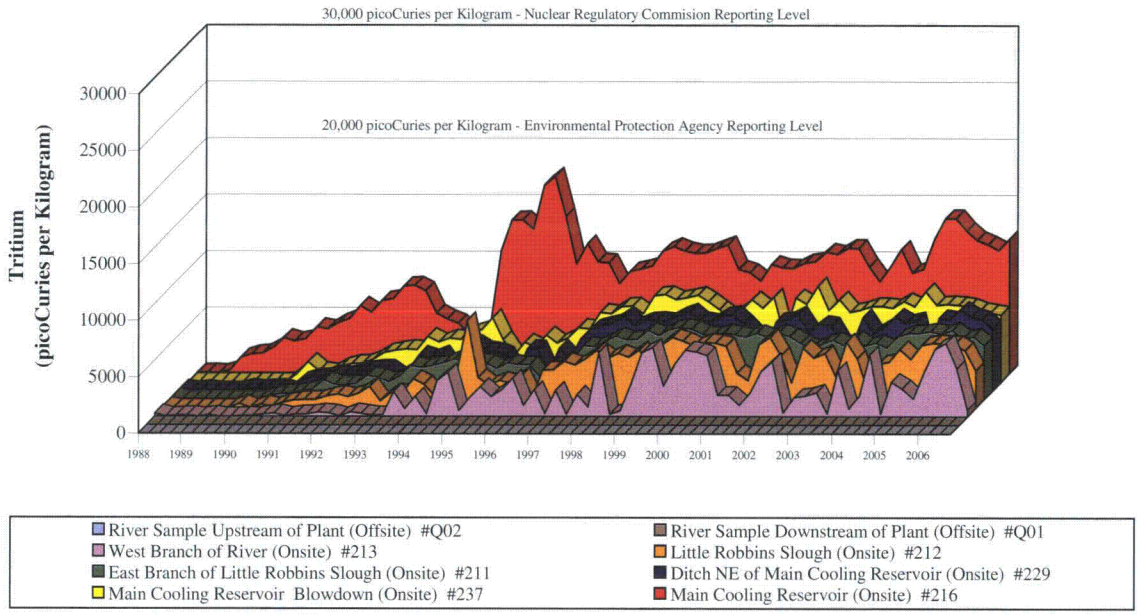

Figure 6-10

Historical Comparison of Tritium Activity in Shallow Aquifer Ground Water 1997 - 2006

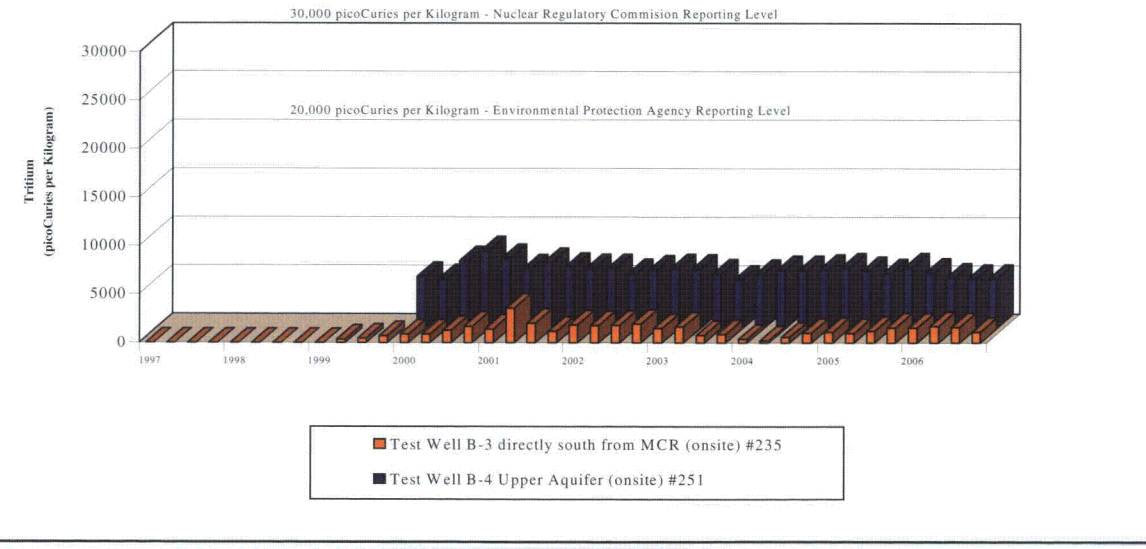

Figure 6-11

LAND USE CENSUS

The Annual Land Use Census is performed to determine if any changes have occurred in the location of residents and the use of the land within five miles of the South Texas Project generating units. The information is used to determine whether any changes are needed in the Radiological Environmental Monitoring Program. The census is performed by contacting area residents and local government agencies that provide the information. The results of the survey indicated that no changes were required.

In addition, a survey is performed to verify the nearest residents within five miles of the South Texas Project generating units in each of 16 sectors. The nine sectors that have residents within five miles and the distance to the nearest residence in each sector are listed below.

Sector	Distance (approx. miles)	Location
ENE	4.5	CR 232 (Ryman Road)
ESE	3.5	Selkirk Island
SE	3.5	Selkirk Island
SW	4.5	CR 386 (Corporon Road)
WSW	2.5	FM 521
W	4.5	FM 1095
WNW	4.5	CR 356 (Ashby-Buckeye Road)
NW	4.5	CR 354 (Mondrik Road)
NNW	3.5	Runnells Ranch (FM 1468)
N	3.5	Runnells Ranch (FM 1468)

The following items of interest were noted during the census:

Colorado River water from below the Bay City Dam has not been used to irrigate crops.

There were no identified commercial vegetable farms located within the five mile zone.

No commercial dairy operates within Matagorda County and there is no source of milk within the five mile zone.

Two commercial fish farms continue to operate. One is two miles west of the plant near FM 521 and the second is five miles southwest of the plant at the intersection of Robbins Slough Road and South Citrus Road. The water supply for the ponds is not affected by the operations of the STP power plants.

Broadleaf vegetation sampling is performed at the site boundary in the three most leeward sectors and at a control location in lieu of a garden census. The broadleaf vegetation samples taken also satisfy the collection requirement when milk samples are not available.

QUALITY ASSURANCE

Quality assurance encompasses planned and systematic actions to ensure that an item or facility will perform satisfactorily. Reviews, surveillance and audits have determined that the programs, procedures and personnel are adequate and perform satisfactorily.

Quality audits and independent technical reviews help to determine areas that need attention and re-evaluation. Areas that need attention are addressed in accordance with the station's Corrective Action Program.

The measurement capabilities of the Radiological Laboratory are demonstrated by participating in inter-laboratory measurement assurance programs. These programs provide samples that are similar in matrix and size to those measured for the Radiological Environmental Monitoring Program.

Figure 6-12 summarizes the results of these inter-comparison programs. In addition, approximately ten percent of the analyses made are quality control samples that consist of duplicate, split and blind samples.

Radiochemical measurements must meet sensitivity requirements at the lower level of detection for environmental samples. These stringent requirements were met in all samples taken in 2006 that were required by the Offsite Dose Calculation Manual.

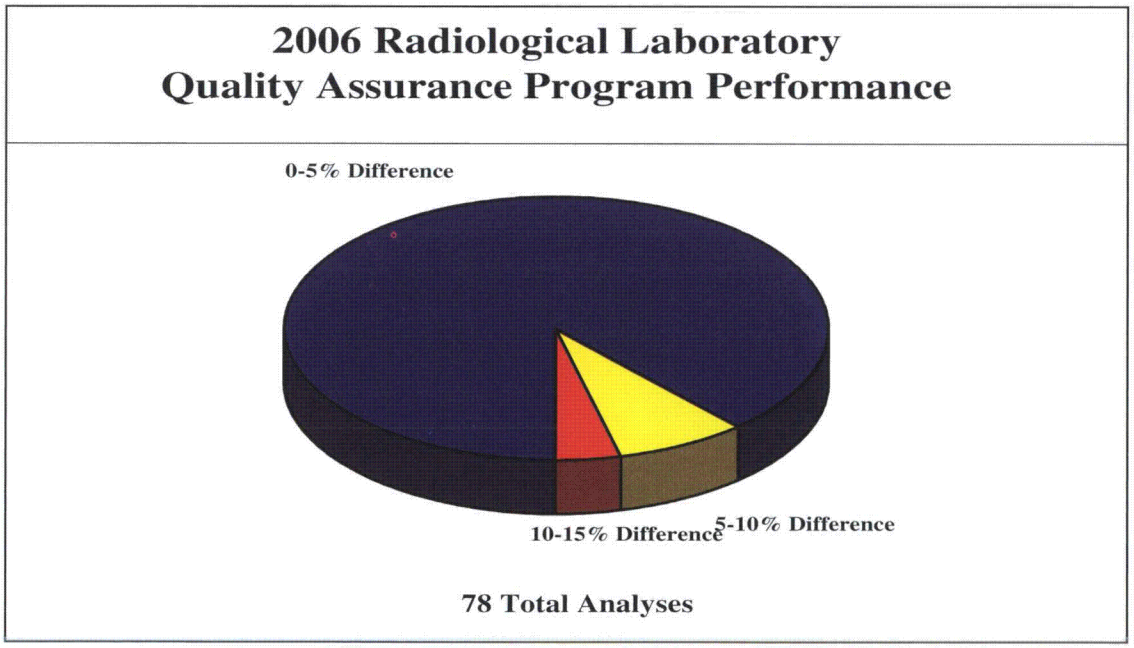

Figure 6-12

PROGRAM DEVIATIONS

Deviations from the sampling program must be acknowledged and explained in this report. During 2006 the following samples were not collected or were unacceptable for analysis:

- Three measurements of direct radiation out of one hundred and sixty required were missed due to the TLD missing from the field. This was caused either by inadvertent human removal or destruction by birds.

- Six out of thirty-six required broadleaf vegetation samples were not collected due to seasonal unavailability in March and December.

- Five out of two hundred and sixty air samples were not continuously collected for the full time interval due to power failures. One sample was a suspect due to equipment malfunction. All samples met the required lower level of detection and are listed in Table 3.

Photo By: Breck Sacra

The minimum Radiological Environmental Monitoring Program is presented in Table 1. The table is organized by exposure pathway. Specific requirements like location, sampling method, collection frequency, and analyses are given for each pathway.

TABLE 1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE: **DIRECT RADIATION** — 40 TOTAL SAMPLING STATIONS

Sample Media, Number, Approximate Location and Distance of Sample Stations from Containment.	Routine Sampling Mode	Sampling and Collection Frequency	Analysis Type	Minimum Analysis Frequency
Exposure Media: TLD 16- Located in all 16 meteorological sectors, 0.2* to 4 miles. 16- Located in all 16 meteorological sectors, 2 to 7 miles. 6- Located in special interest areas (e.g. school, population centers), within 14 miles. 2- Control stations located in areas of minimal wind direction (WSW,ENE), 10-16 miles.	Continuously	Quarterly	Gamma dose	Quarterly

* The inner ring of stations in the southern sectors are located within 1 mile because of the main cooling reservoir

EXPOSURE: **AIRBORNE** — 5 TOTAL SAMPLING STATIONS

Sample Media, Number, Approximate Location, and Distance of Sample Stations from Containment.	Routine Sampling Mode	Nominal Collection Frequency	Analysis Type	Minimum Analysis Frequency
Charcoal and Particulate Filters 3- Located at the exclusion zone, N, NNW, NW Sectors, 1 mile. 1- Located in Bay City, 14 miles. 1- Control Station, located in a minimal wind direction (WSW), 10 miles.	Continuous sampler operations	Weekly or more frequently if required by dust loading	Radioiodine Canister: I-131 Particulate Sampler: Gross Beta Activity Gamma-Isotopic of composite (by location)	Weekly Following filter change Quarterly

EXPOSURE: **WATERBORNE** — 2 TOTAL SAMPLING STATIONS

Sample Media, Number And Approximate Location of Sample Stations	Routine Sampling Mode	Nominal Collection Frequency	Analysis Type	Minimum Analysis Frequency
Surface 1- Located in MCR at the MCR blowdown structure. 1- Located above the site on the Colorado River not influenced by plant discharge (control). 1- Located downstream from blow down entrance into the Colorado River. Ground 1- Located at well down gradient in the shallow aquifer.	Composite sample Over a 1 month period (grab if not available) Grab	Monthly Quarterly	Gamma-Isotopic Tritium Gamma-Isotopic & Tritium	Monthly Quarterly Composite Quarterly

TABLE 1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE: **WATERBORNE** (CONTINUED)

Sample Media, Number And Approximate Location of Sample Stations	Routine Sampling Mode	Nominal Collection Frequency	Analysis Type	Minimum Analysis Frequency
Drinking Water				
1- Located on site. *	Grab	Monthly	Gross Beta & Gamma-Isotopic	Monthly
1- Located at a control station.			Tritium	Quarterly Composites
Sediment				
1- Located above the site on the Colorado River, not influenced by plant discharge.	Grab	Semi-annually	Gamma-Isotopic	Semi-annually
1- Located downstream from blowdown entrance into the Colorado River.				
1- Located in MCR.				

* No municipal water systems are affected by STP. This sample taken from deep aquifer supplying drinking water to employees while at work.

EXPOSURE: **INGESTION** 7 TOTAL SAMPLING STATIONS

Sample Media, Number And Approximate Location of Sample Stations	Routine Sampling Mode	Nominal Collection Frequency	Analysis Type	Minimum Analysis Frequency
Milk				
*	Grab	Semi-monthly when animals are on pasture; monthly at other times.	Gamma-Isotopic and I-131	Semi-monthly when animals are on pasture; monthly at other times.
Broadleaf Vegetation**				
2- Located at the exclusion zone, N, NW, or NNW sectors.	Grab	Monthly during growing season (When available)	Gamma-Isotopic and I-131	As collected
1- Located in a minimal wind direction.				

* Limited source of sample in vicinity of the South Texas Project. (Attempts will be made to obtain samples when available.)

** Three different kinds of broadleaf vegetation are to be collected over the growing season, not each collection period.

EXPOSURE **INGESTION** (CONTINUED)

Sample Media, Number And Approximate Location of Sample Stations	Routine Sampling Mode	Nominal Collection Frequency	Analysis Type	Minimum Analysis Frequency
Fish and Invertebrates (edible portions)				
1- Representing commercially or recreational important species in vicinity of STP that maybe influenced by plant operation.	Grab	Sample semi-annually	Gamma-Isotopic on edible portions	As collected
1- Same or analogous species in area not influenced by STP.				
1- Same or analogous species in the MCR.				
Agricultural Products	Grab	At time of harvest	Gamma-Isotopic Analysis in edible portion	As collected
*				
Domestic Meat				
1- Represents domestic stock fed on crops grown exclusively within 10 miles of the plant.	Grab	Annually	Gamma-Isotopic	As collected

- No sample stations have been identified in the vicinity of the site. Presently no agricultural land is irrigated by water into which liquid plant wastes will be discharged. Agricultural products will be considered if these conditions change.

TABLE 2
SAMPLE MEDIA AND LOCATION DESCRIPTIONS

AI	AIRBORNE RADIOIODINE	L5	CABBAGE
AP	AIRBORNE PARTICULATE	L6	COLLARD GREENS
B1	RESIDENT DABBLER DUCK	L7	MUSTARD GREENS
B2	RESIDENT DIVER DUCK	M1	BEEF MEAT
B3	MIGRATORY DABBLER DUCK	M2	POULTRY MEAT
B4	MIGRATORY DIVER DUCK	M3	WILD SWINE
B5	GOOSE	M4	DOMESTIC SWINE
B6	DOVE	M6	GAME DEER
B7	QUAIL	M7	ALLIGATOR
B8	PIGEON	M8	RABBIT
CC	CRUSTACEAN CRAB	OY	OYSTER
CS	CRUSTACEAN SHRIMP	SO	SOIL
DR	DIRECT RADIATION	S1	SEDIMENT - SHORELINE
F1	FISH - PISCIVOROUS	S2	SEDIMENT - BOTTOM
F2	FISH - CRUSTACEAN & INSECT FEEDERS	VB	ANY COMBINATION OF L* SAMPLES
F3	FISH - PLANKTIVORES & DETRITUS FEEDERS	VP	PASTURE GRASS
L1	BANANA LEAVES	WD	DRINKING WATER
L2	CANA LEAVES	WG	GROUND WATER
L4	TURNIP GREENS	WS	SURFACE WATER
		WW	RELIEF WELL WATER

TABLE 2
SAMPLE MEDIA AND LOCATION DESCRIPTIONS

	STATION CODE	VECTOR (Approximate)	LOCATION DESCRIPTION
DR AI AP VB VP SO	001	1 mile N	FM 521
DR	002	1 mile NNE	FM 521
DR	003	1 mile NE	FM 521
DR	004	1 mile ENE	FM 521
DR	005	1 mile E	STP Visitor Center on FM 521
DR AI AP SO	006	3.5 miles ESE	Site near Reservoir Makeup Pumping Facility
DR	007	3.5 miles SE	MCR Dike
DR	008	0.25 mile SSE	MCR Dike
DR	009	0.25 mile S	MCR Dike
DR	010	0.25 mile SSW	MCR Dike
DR	011	0.5 mile SW	MCR Dike
DR	012	1.5 mile WSW	MCR Dike
DR	013	1.5 mile W	FM 521
DR	014	1.5 mile WNW	FM 521
DR AI AP VB SO VP	015	1 mile NW	FM 521
DR AI AP VB SO VP	016	1 mile NNW	FM 521
DR	017	6.5 miles N	Buckeye - FM 1468
DR AI AP SO	018	5.5 miles NNE	Celanese Plant - FM 3057
DR	019	5.5 miles NE	FM 2668
DR	020	5 miles ENE	FM 2668 & FM 2078
DR	021	5 miles E	FM 521 & FM 2668
DR	022	7 miles E	Equistar Chemical Plant
DR	023 *	16 miles ENE	Intersection of FM 521 and FM 2540

*Control Stations
Bold media codes are required.

TABLE 2
SAMPLE MEDIA AND LOCATION DESCRIPTIONS

DR	024	4 miles SSE	MCR Dike
DR	025	4 miles S	MCR Dike
DR	026	4 miles SSW	MCR Dike
DR	027	2.5 miles SW	MCR Dike
DR	028	5 miles WSW	FM 1095 & Ellis Road
DR SO	029	4.5 miles W	FM 1095
DR	030	6 miles WNW	Tres Palacios Oaks, FM 2853
DR	031	5.5 miles NW	Wilson Creek Road
DR	032	3.5 miles NNW	FM 1468
DR AI AP SO	033	14 miles NNE	Microwave Tower at end of Kilowatt Road in Bay City
DR	034	7.5 miles ENE	Wadsworth Water Supply Pump Station
DR AI AP SO	035	8.5 miles SSE	Matagorda
DR	036	9 miles WSW	College Port
DR AI AP VB VP SO	037*	10 miles WSW	Palacios AEP Substation
DR	038	10.5 miles NW	CP&L Substation on TX 71 near Blessing
DR AI AP SO	039	9 miles NW	TX 35 under High Voltage Power lines near Tidehaven High School
DR	040	4.5 miles SW	Citrus Grove
DR	041	2.0 miles ESE	MCR Dike
DR	042	8.5 miles NW	FM 459 at Tidehaven Intermediate School
DR	043	4.5 miles SE	Site boundary at blowdown outlet
WG	205	4.0 miles SE	Piezometer Well #446A, 40' deep
WG	206	4.0 miles SE	Piezometer Well #446, 78' deep
WS	209	2 miles ESE	Kelly Lake
WD	210	On Site	Approved drinking water supply from STP

TABLE 2
SAMPLE MEDIA AND LOCATION DESCRIPTIONS

WS S1	211	3.5 miles S	Site, E. Branch Little Robbins Slough
WS S1	212	4 miles S	Little Robbins Slough
WS S1	213	4 miles SE	West Branch Colorado River
F (1,2, or 3) CC	214	2.5 miles SE	MCR at Makeup Water Discharge
S2	215	0.5 mile SW	MCR at Circulating Water Discharge
WS S2	216	3.5 miles SSE	MCR at blowdown structure
F (1, 2, or 3) CC CS OY	222	>10 miles	West Matagorda Bay
WS S(1 or 2)	227	5-6 miles SE	West bank of Colorado River downstream of STP across from channel marker #22
WD	228*	14 miles NNE	Le Tulle Park public water supply
WS S1	229	2-3 miles ESE	Drainage ditch north of the reservoir that empties into Colorado River upstream of the reservoir makeup pumping facility
S(1 or 2)	230	3.5 miles ESE	Colorado River at point where drainage ditch (#229) empties into it
S(1 or 2) WS	233	4.5 miles SE	Colorado River where MCR blowdown discharge channel empties into it.
WG	235	3.8 miles S	Well B-3 directly south from MCR
B8	236	N/A	STP Protected Area
WS	237	3.7 miles SSE	Blowdown discharge channel from MCR
S(1 or 2) WS	242*	>10 miles N	Colorado River where it intersects Highway 35
WS	243*	>10 miles N	Colorado River upstream of Bay City Dam at the Lower Colorado River Authority pumping station
WG	245	4.5 miles SSE	Water well approximately 60' deep located on private property about 0.5 miles south of MCR
WS	247	<1 mile E	Essential Cooling Pond
F(1,2, or 3)	249*	N/A	Control sample purchased from a local retailer
SO	250	0.75 miles NW	Sewage sludge land farming area
WG	251	4.0 miles SSE	Test Well B-4, upper aquifer
WG	255	4.2 miles SE	Piezometer Well # 415 depth 102'

TABLE 2
SAMPLE MEDIA AND LOCATION DESCRIPTIONS

WG	256	2.8 miles ESE	Piezometer Well # 417 100' deep
WG	257	3.9 miles SSW	Piezometer Well # 421-02, 80' deep 1.1 miles down STP Road from Well # 258 approximately 20' inside east fence (site boundary)
WG	258	2.9 miles SW	Piezometer Well # 435-01, 1.5 miles down STP Road from HWY 521 along east fence (site boundary)
WG	259	2.9 miles SW	Piezometer Well # 435-02, 1.5 miles down STP Road from HWY 521 20' east of fence (site boundary)
WG	260	3.7 miles S	Piezometer Well # 437, 74' deep
WG	263	3.2 miles ESE	Piezometer Well # 447, 104' deep
WG	264	3.2 miles ESE	Piezometer Well # 447A , 46' deep
WG	266	0.68 miles NW	Piezometer Well # 602A, 40' deep
WG	267	2.7 miles ESE	Windmill north of Heavy Haul Road
WG	268	3.0 miles SE	Windmill west of MCR
WG	269	4.2 miles SSE	Windmill south of STP owner contolled area on private land
F(1, 2, or 3) CC S2	300	S	STP Main Cooling Reservoir
WW	701	4 miles S	MCR Relief Well # 440
WS	Q01	N/A	Quarterly composite of station #227 and/or alternate #233
WS	Q02	N/A	Quarterly composite of station #243 and/or alternate #242

2006 Radiological Environmental Monitoring Program Analysis Summary

An analysis summary for all of the required samples is given in Table 3. The table has been formatted to resemble a United States Nuclear Regulatory Commission industry standard. Modifications have been made for the sole purpose of reading ease. Only positive values are given in this table.

Media type is printed at the top left of each table, and the units of measurement are printed at the top right. The first column lists the type of radioactivity or specific radionuclide for which each sample was analyzed. The second column gives the total number of analyses performed and the total number of non-routine analyses for each indicated nuclide. (A non-routine measurement is a sample whose measured activity is greater than the reporting levels for Radioactivity Concentrations in Environmental Samples.) The "LOWER LIMIT OF DETECTION" column lists the normal measurement sensitivities achieved which were more sensitive than specified by the Nuclear Regulatory Commission.

A set of statistical parameters is listed for each radionuclide in the remaining columns. The parameters contain information from the indicator locations, the location having the highest annual mean, and information from the control stations. Some sample types do not have control stations. When this is the case, "no samples" is listed in the control location column. For each of these groups of data, the following is calculated:

- The mean value of positive real values.
- The number of positive real measurements / the total number of analyses.
- The lowest and highest values for the analysis.

The data placed in the table are from the samples listed in Table 1. Additional thermoluminescent dosimeters were utilized each quarter for quality purposes. The minimum number of other analyses required by Table 1 were supplemented in 2006 by six surface water samples, two groundwater samples, two drinking water samples, four rainwater samples and one shoreline sediment sample. Fish and vegetation samples vary in number according to availability but also exceeded the minimum number required by Table 1.

Photo By: Breck Sacra

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Direct Radiation — Units: MilliRoentgen/Standard Quarter

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Gamma	174/0	---	1.4E+01 (165/ 165) (1.1E+01 - 1.9E+01)	1 mile W (#013)	1.8E+01 (4 / 4) (1.8E+01 - 1.9E+01)	1.6E+01 (9 / 9) (1.4E+01 - 1.8E+01)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Airborne Radioiodine — Units: PicoCuries per Cubic Meter

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	REQUIRED LIMIT OF OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Iodine-131	260/ 0	9.1E-03	--- (0 / 208)	---	---	--- (0 / 52)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Airborne Particulate — Units: PicoCuries per Cubic Meter

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Gross Beta	260/ 0	1.5E-03	+2.3E-02 (208 / 208) (+9.8E-03 - +4.5E-02)	14 miles NNE (#033)	+2.4E-02 (52 / 52) (+1.3E-02 - +4.3E-02)	+2.3E-02 (52 / 52) (+1.2E-02 - +4.1E-02)
Cesium-134	20/ 0	3.1E-04	--- (0 / 16)	---	---	--- (0 / 4)
Cesium-137	20/ 0	2.6E-04	--- (0 / 16)	---	---	--- (0 / 4)
Manganese-54	20/ 0	3.0E-04	--- (0 / 16)	---	---	--- (0 / 4)
Iron-59	20/ 0	1.7E-03	--- (0 / 16)	---	---	--- (0 / 4)
Cobalt-58	20/ 0	4.5E-04	--- (0 / 16)	---	---	--- (0 / 4)
Cobalt-60	20/ 0	3.0E-04	--- (0 / 16)	---	---	--- (0 / 4)
Zinc-65	20/ 0	7.2E-04	--- (0 / 16)	---	---	--- (0 / 4)
Zirconium-95	20/ 0	8.3E-04	--- (0 / 16)	---	---	--- (0 / 4)
Niobium-95	20/ 0	8.1E-04	--- (0 / 16)	---	---	--- (0 / 4)
Lanthanum-140 Barium-140	20/ 0	4.8E-03	--- (0 / 16)	---	---	--- (0 / 4)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Surface Water — Units: PicoCuries per Kilogram

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Hydrogen-3	13/ 0	1.8E+02	+1.2E+04 (4/ 8) (+1.1E+04 - +1.2E+04)	3 miles SSE (#216)	+1.2E+04 (4/ 4) (+1.1E+04 - +1.2E+04)	--- (0/ 5)
Iodine-131	46/ 0	5.6E+00	--- (0/ 31)	---	---	--- (0/ 15)
Cesium-134	46/ 0	1.8E+00	--- (0/ 31)	---	---	--- (0/ 15)
Cesium-137	46/ 0	1.7E+00	--- (0/ 31)	---	---	--- (0/ 15)
Manganese-54	46/ 0	1.7E+00	--- (0/ 31)	---	---	--- (0/ 15)
Iron-59	46/ 0	5.2E+00	--- (0/ 31)	---	---	--- (0/ 15)
Cobalt-58	46/ 0	1.8E+00	--- (0/ 31)	---	---	--- (0/ 15)
Cobalt-60	46/ 0	1.7E+00	--- (0/ 31)	---	---	--- (0/ 15)
Zinc-65	46/ 0	3.5E+00	--- (0/ 31)	---	---	--- (0/ 15)
Zirconium-95	46/ 0	3.2E+00	--- (0/ 31)	---	---	--- (0/ 15)
Niobium-95	46/ 0	2.2E+00	--- (0/ 31)	---	---	--- (0/ 15)
Lanthanum-140 Barium-140	46/ 0	4.4E+00	--- (0/ 31)	---	---	--- (0/ 15)

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Ground Water *(On site test well)* — Units: PicoCuries per Kilogram

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Hydrogen-3	6/ 0	2.2E+02	+1.6E+03 (6/ 6) (+1.1E+03 - +1.8E+03)	3.8 miles S (#235)	+1.6E+03 (6/ 6) (+1.1E+03 - +1.8E+03)	no samples
Iodine-131	6/ 0	3.7E+00	--- (0/ 6)	---	---	no samples
Cesium-134	6/ 0	1.9E+00	--- (0/ 6)	---	---	no samples
Cesium-137	6/ 0	1.8E+00	--- (0/ 6)	---	---	no samples
Manganese-54	6/ 0	1.7E+00	--- (0/ 6)	---	---	no samples
Iron-59	6/ 0	4.7E+00	--- (0/ 6)	---	---	no samples
Cobalt-58	6/ 0	1.7E+00	--- (0/ 6)	---	---	no samples
Cobalt-60	6/ 0	1.7E+00	--- (0/ 6)	---	---	no samples
Zinc-65	6/ 0	4.0E+00	--- (0/ 6)	---	---	no samples
Zirconium-95	6/ 0	3.1E+00	--- (0/ 6)	---	---	no samples
Niobium-95	6/ 0	2.1E+00	--- (0/ 6)	---	---	no samples
Lanthanum-140 Barium-140	6/ 0	3.4E+00	--- (0/ 6)	---	---	no samples

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Drinking Water — Units: PicoCuries per Kilogram

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Gross Beta	25/ 0	1.2E-01	+1.9E+00 (12 / 13) (+1.1E+00 - +3.1E+00)	14 miles NNE (#228)	+2.2E+00 (11 / 12) (+1.5E+00 - +2.7E+00)	+2.2E+00 (11 / 12) (+1.5E+00 - +2.7E+00)
Hydrogen-3	8/ 0	2.6E+02	--- (0 / 4)	---	---	--- (0 / 4)
Iodine-131	25/ 0	3.9E+00	--- (0 / 13)	---	---	--- (0 / 12)
Cesium-134	25/ 0	2.1E+00	--- (0 / 13)	---	---	--- (0 / 12)
Cesium-137	25/ 0	2.0E+00	--- (0 / 13)	---	---	--- (0 / 12)
Manganese-54	25/ 0	1.9E+00	--- (0 / 13)	---	---	--- (0 / 12)
Iron-59	25/ 0	5.2E+00	--- (0 / 13)	---	---	--- (0 / 12)
Cobalt-58	25/ 0	1.9E+00	--- (0 / 13)	---	---	--- (0 / 12)
Cobalt-60	25/ 0	1.9E+00	--- (0 / 13)	---	---	--- (0 / 12)
Zinc-65	25/ 0	4.2E+00	--- (0 / 13)	---	---	--- (0 / 12)
Zirconium-95	25/ 0	3.4E+00	--- (0 / 13)	---	---	--- (0 / 12)
Niobium-95	25/ 0	2.4E+00	--- (0 / 13)	---	---	--- (0 / 12)
Lanthanum-140 Barium-140	25/ 0	3.4E+00	--- (0 / 13)	---	---	--- (0 / 12)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Rain Water — Units: PicoCuries per Kilogram

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Hydrogen-3	4/ 0	2.6E+02	--- (0 / 4)	---	---	no samples
Iodine-131	4/ 0	5.4E+00	--- (0 / 4)	---	---	no samples
Cesium-134	4/ 0	2.1E+00	--- (0 / 4)	---	---	no samples
Cesium-137	4/ 0	2.0E+00	--- (0 / 4)	---	---	no samples
Manganese-54	4/ 0	1.7E+00	--- (0 / 4)	---	---	no samples
Iron-59	4/ 0	5.5E+00	--- (0 / 4)	---	---	no samples
Cobalt-58	4/ 0	1.9E+00	--- (0 / 4)	---	---	no samples
Cobalt-60	4/ 0	2.0E+00	--- (0 / 4)	---	---	no samples
Zinc-65	4/ 0	3.9E+00	--- (0 / 4)	---	---	no samples
Zirconium-95	4/ 0	3.6E+00	--- (0 / 4)	---	---	no samples
Niobium-95	4/ 0	2.3E+00	--- (0 / 4)	---	---	no samples
Lanthanum-140 Barium-140	4/ 0	4.2E+00	--- (0 / 4)	---	---	no samples

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Sediment-Shoreline — Units: PicoCuries per Kilogram dry weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Cesium-134	4/ 0	3.2E+01	--- (0/ 2)	---	---	--- (0/ 2)
Cesium-137	4/ 0	1.5E+01	--- (0/ 2)	>10 miles N (#242)	+5.8E+01 (1/ 2) (+5.8E+01 - +5.8E+01)	+5.8E+01 (1/ 2) (+5.8E+01 - +5.8E+01)
Manganese-54	4/ 0	2.5E+01	--- (0/ 2)	---	---	--- (0/ 2)
Iron-59	4/ 0	9.4E+01	--- (0/ 2)	---	---	--- (0/ 2)
Cobalt-58	4/ 0	2.7E+01	--- (0/ 2)	---	---	--- (0/ 2)
Cobalt-60	4/ 0	2.8E+01	--- (0/ 2)	---	---	--- (0/ 2)
Zinc-65	4/ 0	6.5E+01	--- (0/ 2)	---	---	--- (0/ 2)
Zirconium-95	4/ 0	5.4E+01	--- (0/ 2)	---	---	--- (0/ 2)
Niobium-95	4/ 0	4.9E+01	--- (0/ 2)	---	---	--- (0/ 2)
Lanthanum-140 Barium-140	4/ 0	1.3E+02	--- (0/ 2)	---	---	--- (0/ 2)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Sediment-Bottom — Units: PicoCuries per Kilogram dry weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Cesium-134	5/ 0	3.4E+01	--- (0/ 5)	---	---	no samples
Cesium-137	5/ 0	5.6E+00	+6.6E+01 (4/ 5) (+1.7E+01 - +1.4E+02)	3 miles SSE (#216)	+8.9E+01 (2/ 2) (+3.5E+01 - +1.4E+02)	no samples
Manganese-54	5/ 0	2.7E+01	--- (0/ 5)	---	---	no samples
Iron-59	5/ 0	8.0E+01	--- (0/ 5)	---	---	no samples
Cobalt-58	5/ 0	2.5E+01	--- (0/ 5)	---	---	no samples
Cobalt-60	5/ 0	1.3E+01	+8.1E+01 (3/ 5) (+6.2E+01 - +1.1E+02)	3 miles SSE (#216)	+1.1E+02 (1/ 2) (+1.1E+02 - +1.1E+02)	no samples
Zinc-65	5/ 0	6.1E+01	--- (0/ 5)	---	---	no samples
Zirconium-95	5/ 0	5.3E+01	--- (0/ 5)	---	---	no samples
Niobium-95	5/ 0	3.9E+01	--- (0/ 5)	---	---	no samples
Lanthanum-140 Barium-140	5/ 0	6.5E+01	--- (0/ 5)	---	---	no samples

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Banana Leaves — Units: PicoCuries per Kilogram wet weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Iodine-131	16/ 0	1.1E+01	--- (0/ 11)	---	---	--- (0/ 5)
Cesium-134	16/ 0	2.5E+00	--- (0/ 11)	---	---	--- (0/ 5)
Cesium-137	16/ 0	2.1E+00	--- (0/ 11)	---	---	--- (0/ 5)
Manganese-54	16/ 0	2.3E+00	--- (0/ 11)	---	---	--- (0/ 5)
Iron-59	16/ 0	1.1E+01	--- (0/ 11)	---	---	--- (0/ 5)
Cobalt-58	16/ 0	2.6E+00	--- (0/ 11)	---	---	--- (0/ 5)
Cobalt-60	16/ 0	4.0E+00	--- (0/ 11)	---	---	--- (0/ 5)
Zinc-65	16/ 0	7.3E+00	--- (0/ 11)	---	---	--- (0/ 5)
Zirconium-95	16/ 0	4.5E+00	--- (0/ 11)	---	---	--- (0/ 5)
Niobium-95	16/ 0	3.1E+00	--- (0/ 11)	---	---	--- (0/ 5)
Lanthanum-140 Barium-140	16/ 0	4.7E+00	--- (0/ 11)	---	---	--- (0/ 5)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Cana Leaves — Units: PicoCuries per Kilogram wet weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Iodine-131	9/ 0	1.1E+01	--- (0/ 6)	---	---	--- (0/ 3)
Cesium-134	9/ 0	2.7E+00	--- (0/ 6)	---	---	--- (0/ 3)
Cesium-137	9/ 0	2.3E+00	--- (0/ 6)	---	---	--- (0/ 3)
Manganese-54	9/ 0	2.5E+00	--- (0/ 6)	---	---	--- (0/ 3)
Iron-59	9/ 0	1.1E+01	--- (0/ 6)	---	---	--- (0/ 3)
Cobalt-58	9/ 0	2.8E+00	--- (0/ 6)	---	---	--- (0/ 3)
Cobalt-60	9/ 0	4.3E+00	--- (0/ 6)	---	---	--- (0/ 3)
Zinc-65	9/ 0	7.8E+00	--- (0/ 6)	---	---	--- (0/ 3)
Zirconium-95	9/ 0	4.8E+00	--- (0/ 6)	---	---	--- (0/ 3)
Niobium-95	9/ 0	3.2E+00	--- (0/ 6)	---	---	--- (0/ 3)
Lanthanum-140 Barium-140	9/ 0	4.6E+00	--- (0/ 6)	---	---	--- (0/ 3)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Mustard Greens — Units: PicoCuries per Kilogram wet weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Iodine-131	6/ 0	4.5E+00	--- (0/ 4)	---	---	--- (0/ 2)
Cesium-134	6/ 0	1.4E+00	--- (0/ 4)	---	---	--- (0/ 2)
Cesium-137	6/ 0	1.2E+00	--- (0/ 4)	---	---	--- (0/ 2)
Manganese-54	6/ 0	1.3E+00	--- (0/ 4)	---	---	--- (0/ 2)
Iron-59	6/ 0	6.0E+00	--- (0/ 4)	---	---	--- (0/ 2)
Cobalt-58	6/ 0	1.5E+00	--- (0/ 4)	---	---	--- (0/ 2)
Cobalt-60	6/ 0	2.3E+00	--- (0/ 4)	---	---	--- (0/ 2)
Zinc-65	6/ 0	4.1E+00	--- (0/ 4)	---	---	--- (0/ 2)
Zirconium-95	6/ 0	2.5E+00	--- (0/ 4)	---	---	--- (0/ 2)
Niobium-95	6/ 0	1.6E+00	--- (0/ 4)	---	---	--- (0/ 2)
Lanthanum-140 Barium-140	6/ 0	1.9E+00	--- (0/ 4)	---	---	--- (0/ 2)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Fish - Piscivorous — Units: PicoCuries per Kilogram wet weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Cesium-134	6/ 0	3.0E+01	--- (0/ 4)	---	---	--- (0/ 2)
Cesium-137	6/ 0	2.8E+01	--- (0/ 4)	---	---	--- (0/ 2)
Manganese-54	6/ 0	2.7E+01	--- (0/ 4)	---	---	--- (0/ 2)
Iron-59	6/ 0	8.7E+01	--- (0/ 4)	---	---	--- (0/ 2)
Cobalt-58	6/ 0	2.9E+01	--- (0/ 4)	---	---	--- (0/ 2)
Cobalt-60	6/ 0	3.1E+01	--- (0/ 4)	---	---	--- (0/ 2)
Zinc-65	6/ 0	6.2E+01	--- (0/ 4)	---	---	--- (0/ 2)
Zirconium-95	6/ 0	5.2E+01	--- (0/ 4)	---	---	--- (0/ 2)
Niobium-95	6/ 0	3.6E+01	--- (0/ 4)	---	---	--- (0/ 2)
Lanthanum-140 Barium-140	6/ 0	9.0E+01	--- (0/ 4)	---	---	--- (0/ 2)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Fish - Crustacean & Insect Feeders — Units: PicoCuries per Kilogram wet weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Cesium-134	4/ 0	3.3E+01	--- (0/ 4)	---	---	no samples
Cesium-137	4/ 0	3.1E+01	--- (0/ 4)	---	---	no samples
Manganese-54	4/ 0	3.0E+01	--- (0/ 4)	---	---	no samples
Iron-59	4/ 0	8.7E+01	--- (0/ 4)	---	---	no samples
Cobalt-58	4/ 0	2.8E+01	--- (0/ 4)	---	---	no samples
Cobalt-60	4/ 0	3.3E+01	--- (0/ 4)	---	---	no samples
Zinc-65	4/ 0	6.4E+01	--- (0/ 4)	---	---	no samples
Zirconium-95	4/ 0	5.5E+01	--- (0/ 4)	---	---	no samples
Niobium-95	4/ 0	3.5E+01	--- (0/ 4)	---	---	no samples
Lanthanum-140 Barium-140	4/ 0	6.7E+01	--- (0/ 4)	---	---	no samples

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Crustacean Shrimp — Units: PicoCuries per Kilogram wet weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Cesium-134	4/ 0	3.7E+01	--- (0/ 2)	---	---	--- (0/ 2)
Cesium-137	4/ 0	3.5E+01	--- (0/ 2)	---	---	--- (0/ 2)
Manganese-54	4/ 0	3.4E+01	--- (0/ 2)	---	---	--- (0/ 2)
Iron-59	4/ 0	9.7E+01	--- (0/ 2)	---	---	--- (0/ 2)
Cobalt-58	4/ 0	3.3E+01	--- (0/ 2)	---	---	--- (0/ 2)
Cobalt-60	4/ 0	3.5E+01	--- (0/ 2)	---	---	--- (0/ 2)
Zinc-65	4/ 0	7.2E+01	--- (0/ 2)	---	---	--- (0/ 2)
Zirconium-95	4/ 0	6.1E+01	--- (0/ 2)	---	---	--- (0/ 2)
Niobium-95	4/ 0	3.9E+01	--- (0/ 2)	---	---	--- (0/ 2)
Lanthanum-140 Barium-140	4/ 0	6.4E+01	--- (0/ 2)	---	---	--- (0/ 2)

† Number of positive measurements / total measurements at specified locations.

TABLE 3

2006 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANALYSIS SUMMARY

Medium: Beef Meat — Units: PicoCuries per Kilogram wet weight

ANALYSIS TYPE	TOTAL ANALYSES /NONROUTINE MEASUREMENTS	LOWER LIMIT OF DETECTION	INDICATOR LOCATIONS MEAN † RANGE	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION INFORMATION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN † RANGE	CONTROL LOCATIONS MEAN † RANGE
Cesium-134	1/0	2.3E+01	--- (0/ 1)	---	---	no samples
Cesium-137	1/0	2.0E+01	--- (0/ 1)	---	---	no samples
Manganese-54	1/0	2.3E+01	--- (0/ 1)	---	---	no samples
Iron-59	1/0	1.7E+02	--- (0/ 1)	---	---	no samples
Cobalt-58	1/0	4.0E+01	--- (0/ 1)	---	---	no samples
Cobalt-60	1/0	2.3E+01	--- (0/ 1)	---	---	no samples
Zinc-65	1/0	5.7E+01	--- (0/ 1)	---	---	no samples
Zirconium-95	1/0	7.7E+01	--- (0/ 1)	---	---	no samples
Niobium-95	1/0	8.8E+01	--- (0/ 1)	---	---	no samples
Lanthanum-140 Barium-140	1/0	1.4E+03	--- (0/ 1)	---	---	no samples

† Number of positive measurements / total measurements at specified locations.