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April 21, 2004

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
TRANSMITTAL OF THE ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT FOR 2003

Gentlemen:

Enclosed is one (1) copy of the Annual Radiological Environmental Operating Report for the CPSES Radiological Environmental Monitoring Program. This report is submitted pursuant to Section 5.6.2 of the CPSES Unit 1 and 2 Technical Specifications (Appendix A to Operating License Nos. NPF-87 and NPF-89). The report covers the period from January 1, 2003 through December 31, 2003 and summarizes the results of measurements and analysis of data obtained from samples collected during this interval.

If there are any questions regarding this report, contact Connie Wilkerson at (254) 897-0144 or Scott Bradley at (254) 897-5495.

IE25

This communication contains no new licensing basis commitments regarding CPSES Units 1 and 2.

Sincerely,

TXU Generation Company LP
By: TXU Generation Management Company LLC
Its General Partner

Mike Blevins

By: Fred W. Madden
Regulatory Affairs Manager

CLW/clw
Enclosure

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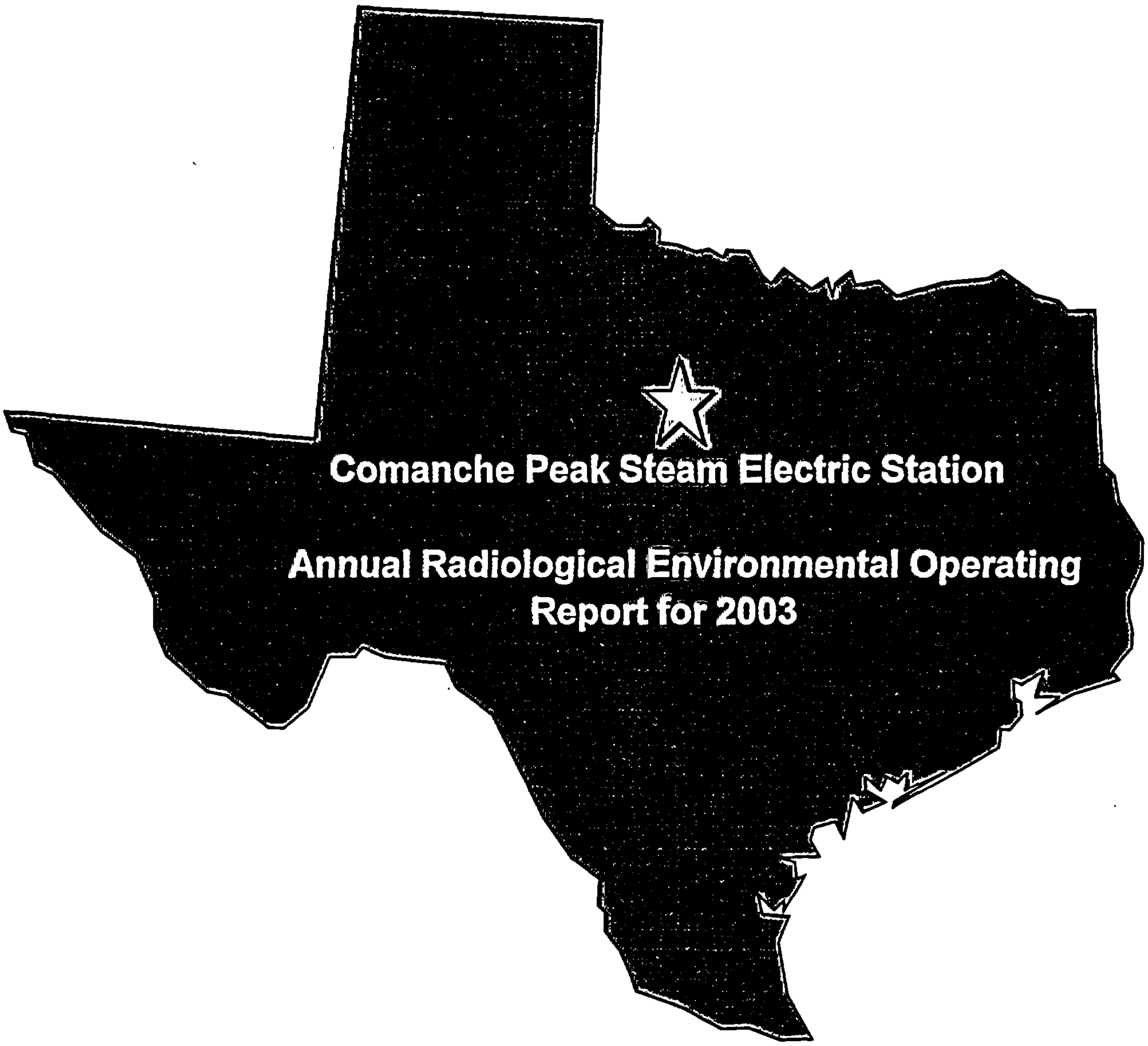
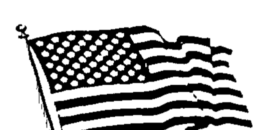
Resident Inspectors, CPSES w/encl.



Comanche Peak Steam Electric Station

Annual Radiological Environmental Operating Report for 2003



TXU ENERGY

COMANCHE PEAK STEAM ELECTRIC STATION

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT FOR 2003

JANUARY 1, 2003 through DECEMBER 31, 2003

TXU REVIEW and APPROVAL

REVIEWED BY: Ed T Floyd 4-10-04
Edwin T. Floyd
Radiation Protection Technician
Date

APPROVED BY: Scott E Bradley 4/11/04
Scott E. Bradley
Health Physics Supervisor
Date

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I. Introduction

Results of the Radiological Environmental Monitoring Program for the Comanche Peak Steam Electric Station (CPSES) for the year 2003 are contained within this report. This report covers the period from January 1, 2003 through December 31, 2003 and summarizes the results of measurements and analysis of data obtained from environmental samples collected during this same timeframe.

A. *Site and Station Description*

CPSES consists of two pressurized water reactor units, each designed to operate at a power level of about 1150 megawatts (electrical). The Station is located on Squaw Creek reservoir in Somervell and Hood counties, about forty miles southwest of Fort Worth, Texas. Unit 1 received a low power operating license February 8, 1990 and achieved initial criticality on April 3, 1990. A full power license for Unit 1 was issued on April 17, 1990 and commercial operation was declared on August 13, 1990. Unit 2 achieved initial criticality on March 24, 1993 and synchronized to the electrical grid on April 9, 1993.

B. Objectives and Overviews of the CPSES Radiological Environmental Monitoring Program

The United States Nuclear Regulatory Commission (USNRC) regulations require that nuclear power plants be designed, constructed, and operated to keep levels of radioactive material in effluents to unrestricted areas as low as reasonably achievable (ALARA). To assure that these criteria are met, each license authorizing reactor operation includes technical specifications governing the release of radioactive effluents.

In-plant monitoring is used to assure that these predetermined release limits are not exceeded. However, as a precaution against unexpected and undefined processes that might allow undue accumulation of radioactivity in any sector of the environment, a program for monitoring the plant environs is also included.

Sampling locations were selected on the basis of local ecology, meteorology, physical characteristics of the region, and demographic and land use features of the site vicinity. The radiological environmental monitoring program was designed on the basis of the USNRC Branch Technical Position "An Acceptable Radiological Environmental Monitoring Program" on radiological environmental monitoring issued by the Radiological Assessment Branch, Revision 1 (November 1979), the CPSES Technical Specification "Comanche Peak Steam Electric Station

Units 1 and 2 Technical Specifications" and the "CPSES Offsite Dose Calculation Manual" (ODCM).

In 2003, the Radiological Environmental Monitoring Program included the following:

- The measurement of ambient gamma radiation by thermoluminescent dosimetry;
- The determination of airborne gross beta, gamma emitters, and Iodine-131;
- The determination of tritium and gamma emitters in surface water;
- The determination of gross beta, tritium, Iodine-131, and gamma emitters in drinking water;
- The determination of tritium and gamma emitters in ground water;
- The determination of gamma emitters in sediment and fish;
- The determination of gamma emitters in food products and;
- The determination of gamma emitters and Iodine-131 in broadleaf vegetation.

The regulations governing the quantities of radioactivity in reactor effluents allow nuclear power plants to contribute, at most, only a small percentage increase above normal background radioactivity. Background levels at any one location are not constant but vary with time as they are influenced by external events such as cosmic ray bombardment, weapons test fallout, and seasonal variations. These levels also can vary spatially within relatively short distances reflecting variations in geological composition. To differentiate between background radiation levels and increases resulting from operation of CPSES, the radiological surveys of the plant environs were divided into pre-operational and operational phases.

The pre-operational phase of the program provided a general characterization of the radiation levels and concentrations prevalent in these areas prior to plant operation along with an indication of the degree of natural variation to be expected. The operational phase of the program obtains data which, when considered along with the data obtained in the pre-operational phase, assists in the evaluation of the radiological impact of plant operation.

Pre-operational measurements were conducted at CPSES from 1981 to 1989. These pre-operational measurements were performed to:

- Evaluate procedures, equipment, and techniques;
- Identify potentially important pathways to be monitored after plant operation;

- Measure background levels and the variations along potentially important pathways and;
- Provide baseline data for statistical comparisons with future operational analytical results.

The operational Radiological Environmental Monitoring Program is conducted to:

- Verify that measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways;
- Verify the effectiveness of in-plant measures used for controlling the release of radioactive materials and;
- Identify changes in the areas at and beyond the site boundary that may impact the principal pathways of exposure.

This report documents the fourteenth year of operational measurements and is submitted in accordance with the requirements of the CPSES Offsite Dose Calculation Manual, Part I, Administrative Control 6.9.1.3.

II. Program Descriptions and Results

A. Sample Locations

Within a radius of twenty miles of the CPSES site there are seventy-two (72) sample locations included in the monitoring program for the year 2003. The number of sample points and the specific locations for the sample points were determined by considering locations where the highest off-site environmental concentrations have been predicted from plant effluent source terms, site hydrology, and site meteorological conditions. Other factors considered were applicable regulations, population distribution, and ease of access to sampling stations, availability of samples at desired locations, security and future program integrity. Additionally an annual land use census is conducted to identify changes in the areas surrounding the plant. If changes are identified that impact the principle pathways of exposure, appropriate changes to the radiological environmental monitoring program are implemented. A copy of the report "Comanche Peak Steam Electric Station Land Use Census 2003" is provided in Appendix A to this report.

Table 1 – Comanche Peak Steam Electric Station Radiological Environmental Monitoring Program for 2003 contains a brief outline of the current program. This table specifies the sample media type, the number of locations for each media type, the sector and distance identifier

for each sample location, the sample frequency, the type of analysis required and the analytical frequency required.

Table 2 – Key To Environmental Sampling Locations provides a reference that links the sampling point designations used in procedures and forms to the appropriate physical sample location (sector and distance) and to the correct sample type. This cross-reference enhances the ability to review data and tie the data to the correct sample points and to ensure all samples are collected and analyzed as specified.

Currently there are no milk sample locations within ten miles of the CPSES site and there are no milk sample locations within twenty miles that will participate in the environmental program. CPSES already samples extra broadleaf locations as required due to no milk locations within the ten-mile radius therefore, no changes to the program are necessary. Milk sampling will be resumed if any future annual land use census determines a dairy has been established within the specified area.

Table 1 - Comanche Peak Steam Electric Station Radiological Environmental Monitoring Program for 2003

Media	Number of Locations	Identification by Sector and Distance (miles)	Sampling Frequency(a)	Analysis	Analytical Frequency (a)
Gamma Exposure	43	N-1.45; N-4.4; N-65; N-9.4; NNE-1.1; NNE-5.65 NE-1.7; NE-4.8; ENE-2.5; ENE-5.0; E-0.5; E-1.9 E-3.5; E-4.2; ESE-1.4; ESE-4.7; SE-1.3; SE-3.85 SE-4.6; SSE-1.3; SSE-4.4; SSE-4.5; S-1.5; S-4.2 SSW-1.1; SSW-4.4; SW-0.9; SW-4.8; SW-12.3 WSW-1.0; WSW-5.35; WSW-7.0; W-1.0; W-2.0 W-5.5; WNW-1.0; WNW-5.0; WNW-6.7; NW-1.0 NW-5.7; NW-9.9; NNW-1.35; NNW-4.6	Q, A	Thermoluminescent Dosimetry	Q, A
Air Particulate Air Iodine	8	N-9.4; E-3.5; SSE-4.5; SW-12.3; NW-1.0; N-1.45 SW/WSW-0.95; S/SSW-1.2	W	Gross Beta Gamma Isotopic Filter Gamma Isotopic Charcoal	W QC W
Surface Water	4	N-19.3; ESE-1.4; N-1.5; NE-7.4	M(b)	Gamma Isotopic Tritium	M QC
Surface Water-drinking	2	NNW-0.1; N-9.9	M(c)	Gross Beta Gamma Isotopic Iodine-131 Tritium	M M M QC
Ground Water	5	SSE-4.6; W-1.2; WSW-0.1; N-9.8; N-1.45	Q	Gamma Isotopic Tritium	Q Q
Sediment	4	N-9.9; NNE-1.0; NE-7.4; SE-5.3	SA	Gamma Isotopic	SA
Fish	2	NNE-8.0; ENE-2.0	SA	Gamma Isotopic	SA
Food Products	1	ENE-9.0	MH	Gamma Isotopic Iodine-131	MH MH
Broadleaf Vegetation	3	N-1.45; SW-1.0; SW-13.5	M	Gamma Isotopic	M

(a) Frequency codes are: W - Weekly M - Monthly Q - Quarterly QC - Quarterly Composite MH - Monthly at Harvest SA - Semiannual A - Annual

(b) Surface water samples from Squaw Creek are monthly composites of weekly grab samples. Surface water samples from Lake Granbury are monthly grab samples.

(c) Surface water - drinking samples are a monthly composite of weekly grab samples.

Table 2
Key To Environmental Sampling Locations

SAMPLING POINT	LOCATION (SECTOR-MILE)	SAMPLE TYPE*	SAMPLING POINT	LOCATION (SECTOR-MILE)	SAMPLE TYPE*
A1	N-1.45	A	R28	SW-4.8	R
A2	N-9.4	A	R29	SW-12.3	R
A3	E-3.5	A	R30	WSW-1.0	R
A4	SSE-4.5	A	R31	WSW-5.35	R
A5	S/SSW-1.2	A	R32	WSW-7.0	R
A6	SW-12.3	A	R33	W-1.0	R
A7	SW/WSW-0.95	A	R34	W-2.0	R
A8	NW-1.0	A	R35	W-5.5	R
			R36	WNW-1.0	R
			R37	WNW-5.0	R
			R38	WNW-6.7	R
			R39	NW-1.0	R
			R40	NW-5.7	R
R1	N-1.45	R	R41	NW-9.9	R
R2	N-4.4	R	R42	NNW-1.35	R
R3	N-6.5	R	R43	NNW-4.6	R
R4	N-9.4	R	SW1	N-1.5	SW
R5	NNE-1.1	R	SW2	N-9.9	SW/DW
R6	NNE-5.65	R	SW3	N-19.9	SW
R7	NE-1.7	R	SW4	NE-7.4	SW
R8	NE-4.8	R	SW5	ESE-1.4	SW
R9	ENE-2.5	R	SW6	NNW-0.1	SW/DW
R10	ENE-5.0	R	GW1	W-1.2	GW/DW
R11	E-0.5	R	GW2	WSW-0.1	GW/DW
R12	E-1.9	R	GW3	SSE-4.6	GW/DW
R13	E-3.5	R	GW4	N-9.8	GW/DW
R14	E-4.2	R	GW5	N-1.45	GW/DW
R15	ESE-1.4	R	SS1	NNE-1.0	SS
R16	ESE-4.7	R	SS2	N-9.9	SS
R17	SE-1.3	R	SS3	NE-7.4	SS
R18	SE-3.85	R	SS4	SE-5.3	SS
R19	SE-4.6	R	F1	ENE-2.0	F
R20	SSE-1.3	R	F2	NNE-8.0	F
R21	SSE-4.4	R	FP1	ENE-9.0	FP
R22	SSE-4.5	R	BL1	N-1.45	BL
R23	S-1.5	R	BL2	SW-1.0	BL
R24	S-4.2	R	BL3	SW-13.5	BL
R25	SSW-1.1	R			
R26	SSW-4.4	R			
R27	SW-0.9	R			

Sample Type*
A - AIR SAMPLE
R - DIRECT RADIATION
SW - SURFACE WATER
DW - DRINKING WATER
GW - GROUNDWATER
S S - SHORELINE SEDIMENT
BL - BROADLEAF VEGETATION
F - FISH
FP - FOOD PRODUCT

B. Direct Radiation

Thermoluminescent dosimeters (TLDs) were used to determine the direct (ambient) radiation levels at the designated monitoring locations. The monitoring locations were chosen according to the criteria given in the USNRC Branch Technical Position on Radiation Monitoring (Revision 1, November 1979). The area around the station was divided into 16 radial sectors of 22-1/2 degrees each, corresponding to the cardinal points of the compass. TLDs were placed in each of these sectors. The thermoluminescent dosimeters were placed in two rings around the station. An inner ring was located as close as possible to the site boundary and an outer ring was located at a distance of 4 to 6 miles from the station. Eleven additional TLDs were located at points of special interest, including two control locations. For routine direct radiation measurements, two sets of the Panasonic CaSO4:Dy TLDs were used at each of the 43 monitoring locations. One set of TLDs was exchanged on a quarterly basis and a second set of TLDs was exchanged on a yearly basis. Additional sets of in-transit TLD's were used as control TLDs for the quarterly and annual TLDs.

The thermoluminescent dosimeters were processed on-site by CPSES National Voluntary Laboratory Accreditation Program (NVLAP) Certified dosimetry personnel. Individual dosimeters were calibrated by exposure to an accurately known radiation field from a certified Cs-137 source. The year 2001 was the first year that CPSES used the Panasonic TLD System to supply all the required direct radiation (ambient) monitoring. Dosimetry data for the year 2003 provided consistent results in support of the year 2001 dosimetry results previously obtained with the onsite dosimetry processing system.

D. C. Oakley's report "National Radiation Exposure in the United States", published in 1972, calculated a background radiation dose rate equivalent of 0.22 mr/day for the area surrounding Fort Worth, Texas. This calculated value varies widely with changes in location but represents an appropriate reference value to compare with actual measured TLD doses.

Using data from the pre-operational program for the two years prior to the startup of Unit 1, the quarterly TLDs averaged a calculated dose rate of 0.14 mr/day while the yearly TLDs averaged a calculated dose rate of 0.16 mr/day. The range of measured values from this same two-year period varied from a minimum of 0.11 mr/day to a maximum of 0.22 mr/day.

Table 3 – 2003 Environmental Direct Radiation Results contains the measured dose (mr) for each quarterly TLD from each of the 43 monitoring locations. The corresponding quarterly calculated dose rate (mr/day) values are listed as well. The statistical average doses (mr) and

dose rate (mr/day) values for each set of quarterly TLDs is also displayed. Additionally, the table includes the total dose (mr) of all four quarters for each specific location. The table also includes the measured dose (mr) for each annual TLD from each of the 43 monitoring locations. The corresponding annual calculated dose rate (mr/day) values are listed as well. The statistical annual average dose (mr) for the entire set of annual TLDs is reported along with the average dose rate (mr/day) for the entire set of annual TLDs.

For the year 2003, the statistical average dose rate of all the quarterly TLD's was **0.077** mr/day. The quarterly measured dose rates ranged from a minimum of **0.0049** mr/day to a maximum of **0.2383** mr/day. The statistical average dose rate of all the annual TLDs was **0.0634** mr/day. The annual measured dose rates ranged from a minimum of **0.0184** mr/day to a maximum of **0.1518** mr/day. There was good agreement between the sum of the measured doses of the individual quarterly TLDs and the measured dose of the annual TLDs. The summation of the individual quarterly measured doses averaged **28.19** mr for all the forty –three monitoring stations while the annual measured dose averaged **23.15** mr for all the monitoring stations.

Comparing the pre-operational data and operational data collected through the year 2003 did not produce any anomalies. The direct radiation dose data for 2003 was consistently lower than previous years of data during both the pre-operational program and the previous years of the operational program. The implementation of the Panasonic TLD system and the algorithms used to process the data from these new type TLDs accounts for the lower values as well as different type holders for the TLD's. An expanded study into background TLD's is also being conducted to confirm 2003 data variations.

During the year 2003, there were exceptions to the Direct Radiation Program. All quarterly and annual TLDs were placed into the field at their proper locations and on the appropriate frequency. Collection of all TLDs occurred as specified with the exception of TLD's at locations R-6 and R-26 being stolen.. No abnormal quarterly results were obtained by either CPSES or by the State of Texas, Bureau of Radiation Control.

Table 3 -- 2003 Environmental Direct Radiation Results
(Units of mr dose and mr/day dose rate)

Location	1ST QTR Total	Average mr/day	2ND QTR Total	Average mr/day	3RD QTR Total	Average mr/day	4TH QTR Total	Average mr/day	QTR Total	Annual Total	Average mr/day
N-1.45	2.90	0.0322	3.55	0.0390	4.85	0.0527	11.20	0.1191	22.50	19.60	0.0537
N-4.4	7.40	0.0822	6.85	0.0753	9.15	0.0995	14.45	0.1537	37.85	32.30	0.0885
N-6.5	6.40	0.0711	4.65	0.0511	6.00	0.0652	17.00	0.1809	34.05	24.15	0.0662
N-9.4	6.10	0.0678	4.20	0.0462	4.45	0.0484	4.85	0.0516	19.60	26.10	0.0715
NNE-1.1	3.90	0.0429	4.50	0.0495	4.70	0.0511	15.25	0.1622	28.35	19.05	0.0519
NNE-5.65	6.50	0.0722	5.70	0.0626	***	0.0000	***	0.0000	***	***	0.0000
NE-1.7	3.00	0.0330	3.45	0.0379	3.10	0.0337	9.35	0.0995	18.90	18.25	0.0497
NE-4.8	6.30	0.0700	4.55	0.0500	6.10	0.0663	21.40	0.2277	38.35	24.10	0.0660
ENE-2.5	8.90	0.0989	7.15	0.0786	6.30	0.0685	13.85	0.1473	36.20	30.30	0.0830
ENE-5.0	9.30	0.1033	9.30	0.1022	10.70	0.1163	16.85	0.1793	46.15	41.90	0.1148
E-0.5	7.00	0.0778	5.80	0.0637	6.40	0.0696	12.05	0.1282	31.25	26.15	0.0716
E-1.9	3.10	0.0344	3.00	0.0330	2.65	0.0288	14.75	0.1569	23.50	10.20	0.0279
E-3.5	8.70	0.0967	7.50	0.0824	8.70	0.0946	22.05	0.2346	46.95	55.40	0.1518
E-4.2	7.50	0.0833	6.35	0.0698	7.20	0.0783	16.75	0.1782	37.80	29.15	0.0799
ESE-1.4	4.00	0.0444	3.95	0.0434	4.65	0.0505	14.70	0.1564	27.30	20.55	0.0563
ESE-4.7	7.30	0.0811	6.25	0.0687	7.90	0.0859	16.20	0.1723	37.65	28.35	0.0777
SE-1.3	7.00	0.0778	5.60	0.0615	7.35	0.0799	22.40	0.2383	42.35	29.45	0.0807
SE-3.85	4.00	0.0444	4.15	0.0456	4.90	0.0533	11.50	0.1223	24.55	19.75	0.0541
SE-4.6	4.70	0.0522	5.65	0.0621	5.35	0.0582	11.65	0.1239	27.35	21.85	0.0599
SSE-1.3	4.00	0.0444	4.10	0.0451	5.10	0.0554	11.65	0.1239	24.85	18.25	0.0500
SSE-4.4	5.80	0.0644	5.60	0.0615	5.50	0.0598	10.90	0.1160	27.80	25.15	0.0689
SSE-4.5	4.80	0.0533	5.10	0.0560	4.80	0.0522	10.85	0.1154	25.55	21.50	0.0589
S-1.5	2.80	0.0311	3.50	0.0385	3.70	0.0402	10.75	0.1144	20.75	16.60	0.0455
S-4.2	3.90	0.0433	4.45	0.0489	5.45	0.0592	11.10	0.1181	24.90	21.10	0.0578
SSW-1.1	4.60	0.0511	4.05	0.0445	4.40	0.0478	8.55	0.0910	21.60	17.30	0.0474
SSW-4.8	***	0.0000	4.10	0.0451	4.45	0.0484	9.95	0.1059	***	***	0.0000
SW-0.9	2.00	0.0222	4.25	0.0467	4.95	0.0538	7.25	0.0771	18.45	18.50	0.0507
SW-4.8	2.60	0.0289	3.85	0.0423	4.30	0.0467	8.85	0.0941	19.60	20.85	0.0568
SW-12.3 Control	5.00	0.0556	4.60	0.0505	5.15	0.0560	13.50	0.1436	28.25	24.10	0.0660
WSW-1.0	4.80	0.0533	4.70	0.0516	5.30	0.0576	15.20	0.1617	30.00	22.45	0.0615
WSW-5.35	5.10	0.0567	3.95	0.0434	4.75	0.0516	15.45	0.1644	29.25	23.05	0.0632
WSW-7.0 Control	5.50	0.0611	4.20	0.0462	5.60	0.0609	14.80	0.1574	30.10	26.65	0.0730
W-1.0	3.80	0.0422	2.80	0.0308	2.80	0.0304	8.10	0.0862	17.50	13.40	0.0367
W-2.0	2.30	0.0256	2.40	0.0264	2.60	0.0283	9.45	0.1005	16.75	13.70	0.0375
W-5.5	3.90	0.0433	3.80	0.0418	3.95	0.0429	10.60	0.1128	22.25	18.00	0.0493
WNW-1.0	4.10	0.0456	4.95	0.0544	5.65	0.0614	13.00	0.1383	27.70	25.60	0.0701
WNW-5.0	6.00	0.0667	5.75	0.0632	5.05	0.0549	8.75	0.0931	25.55	23.45	0.0642
WNW-6.7	5.60	0.0622	3.40	0.0374	4.50	0.0489	10.45	0.1112	23.95	23.65	0.0648
NW-1.0	4.60	0.0511	3.65	0.0401	4.30	0.0467	17.45	0.1856	30.00	21.35	0.0585
NW-5.7	4.90	0.0544	4.80	0.0527	5.45	0.0592	12.20	0.1298	27.35	23.45	0.0642
NW-9.9	4.90	0.0544	3.95	0.0434	2.95	0.0321	18.10	0.1926	29.90	17.35	0.0475
NNW-1.35	1.40	0.0154	0.45	0.0049	1.00	0.0109	11.40	0.1213	14.25	6.70	0.0184
NNW-4.6	6.90	0.0767	6.10	0.0670	7.65	0.0832	18.20	0.1936	38.85	30.40	0.0833
AVERAGES	5.08	0.0564	4.67	0.0513	5.23	0.0569	13.16	0.1400	28.19	23.15	0.0634

C. Airborne Program

Air particulate and air iodine samples were collected each week from the eight monitoring locations described in Table 1 – Comanche Peak Steam Electric Station Radiological Monitoring Program for 2003. Each air particulate sample was collected by drawing air through a 47millimeter-diameter glass-fiber filter. Air iodine was collected by drawing air through a TEDA impregnated charcoal cartridge which was connected in series behind the air particulate filter. Shipped to an independent laboratory, air particulate filters were analyzed weekly for gross beta activity and were composited quarterly for gamma spectrometry analysis. Charcoal cartridges were analyzed weekly for Iodine-131.

For the year 2003, a total of 415 air particulate filters were collected and analyzed for gross beta activity. The reported gross beta activity ranged from a minimum value of **7.80E-03 pCi/m3** to a maximum value of **8.93E-02 pCi/m3.** Table 4 – 2003 Environmental Airborne Particulate Gross Beta Results contains the reported values of all samples. There were no anomalies noted in the data reported for 2003 when compared to pre-operational and previous operational data. Graph 1 – 2003 Environmental Air Sample Gross Beta Results – Maximum and Minimum trends the weekly high and low gross beta values to show the seasonal variation of the results as well as providing indication of consistency between the individual monitoring locations.

A total of 416 charcoal cartridges were analyzed for airborne Iodine-131. **No Iodine-131 was detected** at any of the eight monitoring locations. Table 5 – 2003 Environmental Air Sample Iodine-131 Results contains the reported values of each Iodine-131 analysis, all of which are less than the required lower limit of detection (LLD).

All air particulate filters were collected and composited quarterly and then analyzed by gamma spectrometry. The gamma isotopic data is presented in Table 6 – 2003 Environmental Air Particulate Composite Gamma Isotopic Results. Typical of pre-operational and previous operational data results, the only radioactive nuclide identified in all the samples was cosmogenic Beryllium-7, a naturally occurring isotope.

During the year 2003, there were exceptions to the Airborne Program.

The monthly sample collection run for January 25, 2003 was not performed until January 27, 2003 due to inclement weather conditions on highways.

The air particulate sample at station SSE-4.5 was invalid due to improper loading of filter on February 18, 2003. No data was collected and the cause of improper loading could not be determined.

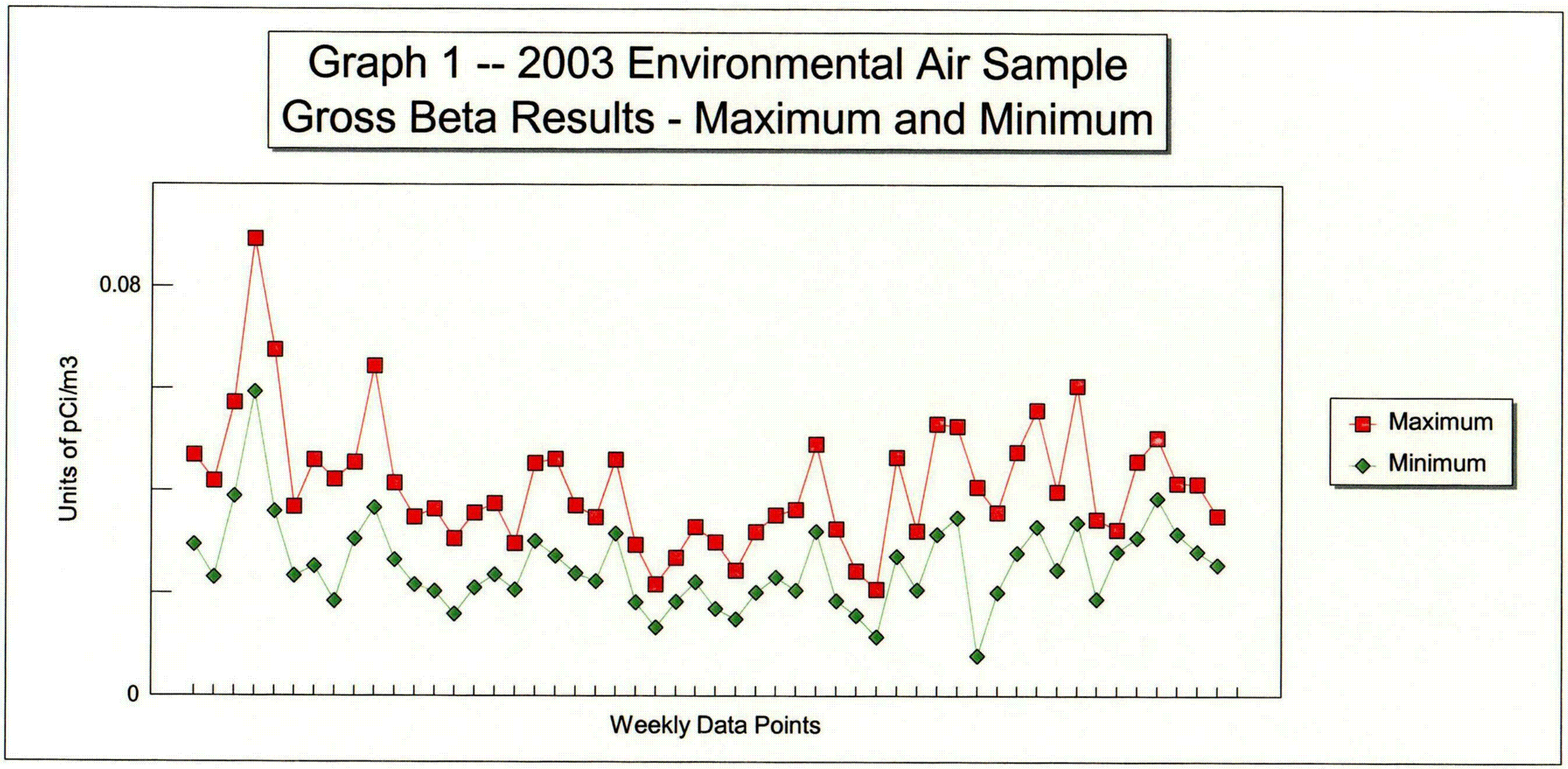
On September 1, 2003, the contract laboratory did not meet the required LLD for station SSE-4.5. The analysis was determined to be valid due to results being consistent with normal gross beta results.

A review of all the State of Texas air sample data indicated no anomalies.

Table 4 -- 2003 Environmental Airborne Particulate Gross Beta Results
(Units of pCi/m3)

Date	Location N-1.4	N-9.4 Control	E-3.5	SSE-4.5	S/SSW -1.2	SW-12.3 Control	SW/WSW -0.95	NW-1.0
1/7/2003	2.94E-02	3.60E-02	4.60E-02	4.69E-02	3.96E-02	3.88E-02	3.37E-02	3.55E-02
1/14/2003	2.30E-02	3.37E-02	4.19E-02	3.87E-02	3.64E-02	3.33E-02	3.24E-02	3.29E-02
1/21/2003	3.89E-02	4.48E-02	5.72E-02	5.10E-02	4.12E-02	4.23E-02	4.28E-02	5.20E-02
1/28/2003	5.93E-02	6.76E-02	8.93E-02	7.47E-02	5.98E-02	6.60E-02	5.98E-02	6.81E-02
2/4/2003	3.59E-02	4.90E-02	6.76E-02	6.72E-02	4.47E-02	4.98E-02	4.93E-02	5.78E-02
2/11/2003	2.33E-02	3.07E-02	3.68E-02	3.25E-02	2.92E-02	2.71E-02	2.59E-02	3.10E-02
2/18/2003	2.65E-02	3.16E-02	4.60E-02	*****	2.83E-02	3.23E-02	2.52E-02	3.07E-02
2/27/2003	2.72E-02	3.12E-02	4.22E-02	3.47E-02	2.70E-02	1.84E-02	3.01E-02	2.87E-02
3/4/2003	3.05E-02	3.98E-02	4.55E-02	4.09E-02	3.19E-02	4.09E-02	3.21E-02	4.25E-02
3/11/2003	3.66E-02	4.69E-02	6.44E-02	6.27E-02	4.25E-02	4.99E-02	4.58E-02	5.35E-02
3/18/2003	2.64E-02	2.84E-02	3.91E-02	4.15E-02	2.66E-02	3.11E-02	2.89E-02	2.88E-02
3/25/2003	2.59E-02	2.74E-02	3.48E-02	2.87E-02	2.16E-03	2.71E-02	2.48E-02	2.37E-02
4/1/2003	2.03E-02	2.90E-02	3.64E-02	3.28E-02	2.09E-02	2.90E-02	2.38E-02	2.36E-02
4/8/2003	1.59E-02	1.88E-02	3.06E-02	2.59E-02	1.73E-02	2.35E-02	1.86E-02	2.28E-02
4/15/2003	2.44E-02	2.61E-02	3.51E-02	3.56E-02	2.10E-02	2.54E-02	2.60E-02	2.75E-02
4/22/2003	2.35E-02	2.52E-02	3.75E-02	3.61E-02	2.45E-02	2.80E-02	2.49E-02	2.66E-02
4/29/2003	2.06E-02	2.72E-02	2.97E-02	2.94E-02	2.06E-02	2.44E-02	2.10E-02	2.34E-02
5/6/2003	3.01E-02	3.42E-02	4.54E-02	3.91E-02	3.06E-02	3.43E-02	3.14E-02	3.19E-02
5/13/2002	2.72E-02	3.20E-02	4.62E-02	4.29E-02	2.82E-02	3.20E-02	3.17E-02	2.83E-02
5/20/2003	2.38E-02	2.61E-02	3.71E-02	3.60E-02	2.66E-02	2.84E-02	2.63E-02	2.87E-02
5/27/2003	2.31E-02	2.78E-02	3.48E-02	3.14E-02	2.23E-02	2.53E-02	2.82E-02	2.41E-02
6/3/2003	3.42E-02	3.65E-02	4.61E-02	4.33E-02	3.22E-02	3.55E-02	3.16E-02	3.62E-02
6/10/2003	1.94E-02	2.08E-02	2.94E-02	2.54E-02	2.09E-02	2.16E-02	1.82E-02	2.17E-02
6/16/2003	1.33E-02	1.68E-02	2.14E-02	2.17E-02	1.14E-02	1.51E-02	1.56E-02	1.58E-02
6/24/2003	1.83E-02	2.04E-02	2.63E-02	2.69E-02	2.10E-02	2.12E-02	1.98E-02	2.33E-02
7/1/2003	2.45E-02	2.59E-02	3.29E-02	3.02E-02	2.21E-02	2.39E-02	2.49E-02	2.32E-02
7/8/2003	2.02E-02	1.69E-02	2.99E-02	2.56E-02	1.88E-02	2.58E-02	2.24E-02	2.02E-02
7/15/2003	1.49E-02	1.85E-02	2.44E-02	2.36E-02	1.84E-02	1.83E-02	2.00E-02	1.84E-02
7/22/2003	2.23E-02	2.10E-02	3.19E-02	2.84E-02	2.01E-02	2.19E-02	2.22E-02	1.99E-02
7/29/2003	2.30E-02	2.49E-02	3.52E-02	3.36E-02	2.60E-02	2.78E-02	3.16E-02	2.82E-02
8/5/2003	2.11E-02	2.61E-02	3.63E-02	3.13E-02	2.05E-02	2.52E-02	2.66E-02	2.62E-02
8/12/2003	3.75E-02	3.36E-02	4.91E-02	3.71E-02	3.24E-02	3.47E-02	4.44E-02	3.20E-02
8/19/2003	3.51E-02	1.88E-02	3.25E-02	2.27E-02	1.85E-02	2.28E-02	2.28E-02	2.09E-02
8/26/2003	1.56E-02	1.57E-02	2.37E-02	2.32E-02	2.02E-02	2.43E-02	2.13E-02	1.84E-02
9/1/2003	1.49E-02	1.77E-02	1.81E-02	1.82E-02	2.07E-02	1.48E-02	1.18E-02	1.15E-02
9/9/2003	2.71E-02	2.89E-02	4.65E-02	4.02E-02	2.93E-02	3.42E-02	3.12E-02	2.81E-02
9/16/2003	2.06E-02	2.14E-02	3.00E-02	3.21E-02	2.50E-02	3.04E-02	2.79E-02	2.22E-02
9/23/2003	3.55E-02	3.82E-02	5.31E-02	4.73E-02	3.84E-02	4.04E-02	4.09E-02	3.14E-02
9/30/2003	3.65E-02	3.47E-02	5.26E-02	4.47E-02	4.01E-02	4.31E-02	3.90E-02	3.49E-02
10/7/2003	7.80E-03	2.71E-02	4.70E-02	3.57E-02	2.99E-02	3.38E-02	3.29E-02	2.80E-02
10/14/2003	2.15E-02	2.01E-02	3.57E-02	2.63E-02	2.01E-02	2.41E-02	2.39E-02	2.41E-02
10/21/2003	3.25E-02	2.89E-02	4.76E-02	4.51E-02	3.26E-02	3.45E-02	3.41E-02	2.78E-02
10/28/2003	3.53E-02	3.29E-02	5.58E-02	4.67E-02	3.69E-02	4.25E-02	3.91E-02	3.34E-02
11/4/2003	2.45E-02	2.90E-02	3.98E-02	3.85E-02	3.03E-02	3.01E-02	3.30E-02	2.83E-02
11/11/2003	3.89E-02	3.37E-02	6.06E-02	4.90E-02	3.93E-02	4.52E-02	3.68E-02	3.79E-02
11/18/2003	1.88E-02	2.05E-02	3.443-02	2.89E-02	2.36E-02	2.85E-02	2.40E-02	2.12E-02
11/25/2003	2.86E-02	2.84E-02	2.92E-02	4.46E-02	3.08E-02	3.24E-02	3.06E-02	2.81E-02
12/2/2003	3.44E-02	3.88E-02	4.18E-02	3.94E-02	3.45E-02	4.58E-02	4.21E-02	3.08E-02
12/9/2003	4.41E-02	4.75E-02	5.04E-02	4.90E-02	5.23E-02	4.92E-02	4.34E-02	3.85E-02
12/16/2003	3.76E-02	3.69E-02	3.78E-02	3.88E-02	4.15E-02	3.55E-02	3.97E-02	3.15E-02
12/23/2003	3.28E-02	3.25E-02	3.73E-02	3.51E-02	4.14E-02	3.34E-02	3.00E-02	2.81E-02
12/30/2003	3.18E-02	2.73E-02	3.41E-02	2.99E-02	3.51E-02	3.24E-02	3.49E-02	2.55E-02

Required LLD's 1.00E-02


Graph 1 -- 2003 Environmental Air Sample
Gross Beta Results - Maximum and Minimum
0.08
0
Units of pCi/m3
Weekly Data Points
Maximum
Minimum

C01

Table 5 -- 2003 Environmental Air Sample Iodine-131 Results
(Units of pCi/m3)

Date	N-1.45	N-9.4 Control	E-3.5	SSE-4.5	S/SSW-1.2	SW-12.3 Control	SW/WSW-0.95	NW-1.0
1/7/2003	<4.7e-2	<4.8e-2	<4.5e-2	<4.8e-2	<4.3e-2	<5.2e-2	<5.1e-2	<5.2e-2
1/14/2003	<3.4e-2	<3.7e-2	<3.3e-2	<3.1e-2	<4.1e-2	<4.8e-2	<3.9e-2	<4.5e-2
1/21/2003	<4.6e-2	<3.2e-2	<3.4e-2	<3.6e-2	<4.2e-2	<4.6e-2	<5.4e-2	<4.6e-2
1/28/2003	<5.0e-2	<5.7e-2	<5.2e-2	<5.0e-2	<4.4e-2	<4.1e-2	<6.0e-2	<6.5e-2
2/4/2003	<4.3e-2	<3.4e-2	<3.6e-2	<3.7e-2	<4.7e-2	<3.9e-2	<4.2e-2	<4.9e-2
2/11/2003	<5.7e-2	<5.4e-2	<5.2e-2	<2.6e-2	<5.5e-2	<5.1e-2	<4.6e-2	<5.1e-2
2/18/2003	<3.2e-2	<2.8e-2	<2.7e-2	<3.1e-2	<3.0e-2	<2.6e-2	<2.7e-2	<2.7e-2
2/27/2003	<4.0e-2	<3.8e-2	<3.7e-2	<3.5e-2	<3.9e-2	<6.5e-2	<4.3e-2	<3.8e-2
3/4/2003	<4.7e-2	<4.0e-2	<4.0e-2	<4.6e-2	<4.3e-2	<5.5e-2	<4.9e-2	<3.7e-2
3/11/2003	<3.2e-2	<3.0e-2	<3.1e-2	<3.0e-2	<3.0e-2	<2.9e-2	<2.2e-2	<2.7e-2
3/18/2003	<2.5e-2	<3.2e-2	<3.4e-2	<2.8e-2	<3.0e-2	<2.6e-2	<3.0e-2	<1.9e-2
3/25/2003	<4.4e-2	<4.1e-2	<4.7e-2	<4.0e-2	<5.0e-2	<4.2e-2	<4.7e-2	<4.6e-2
4/1/2003	<3.6e-2	<2.7e-2	<2.9e-2	<3.1e-2	<2.9e-2	<3.2e-2	<2.5e-2	<3.5e-2
4/8/2003	<3.5e-2	<3.1e-2	<3.5e-2	<3.2e-2	<3.3e-2	<2.8e-2	<2.8e-2	<2.7e-2
4/15/2003	<2.6e-2	<3.1e-2	<3.6e-2	<3.1e-2	<3.2e-2	<3.1e-2	<3.0e-2	<2.6e-2
4/22/2003	<2.9e-2	<2.9e-2	<2.7e-2	<2.9e-2	<3.5e-2	<3.4e-2	<3.5e-2	<3.1e-2
4/29/2003	<3.2e-2	<2.9e-2	<3.1e-2	<2.8e-2	<3.3e-2	<2.8e-2	<3.1e-2	<3.2e-2
5/6/2003	<3.2e-2	<2.7e-2	<2.9e-2	<3.1e-2	<2.7e-2	<3.2e-2	<3.2e-2	<2.9e-2
5/13/2003	<3.5e-2	<3.2e-2	<4.4e-2	<3.5e-2	<3.8e-2	<4.4e-2	<4.1e-2	<5.0e-2
5/20/2003	<2.9e-2	<1.4e-2	<3.1e-2	<2.1e-2	<2.0e-2	<3.1e-2	<2.0e-2	<3.7e-2
5/27/2003	<4.4e-2	<4.4e-2	<4.3e-2	<3.7e-2	<4.4e-2	<4.1e-2	<4.3e-2	<4.4e-2
6/3/2003	<2.8e-2	<2.4e-2	<2.7e-2	<3.5e-2	<2.7e-2	<2.8e-2	<2.6e-2	<2.6e-2
6/10/2003	<2.8e-2	<2.6e-2	<4.5e-2	<4.3e-2	<2.8e-2	<3.3e-2	<2.8e-2	<3.0e-2
6/16/2003	<3.1e-2	<3.4e-2	<2.7e-2	<3.1e-2	<3.9e-2	<3.7e-2	<3.4e-2	<3.7e-2
6/24/2003	<4.0e-2	<4.6e-2	<3.9e-2	<4.4e-2	<3.9e-2	<3.7e-2	<4.4e-2	<4.5e-2
7/1/2003	<2.8e-2	<2.5e-2	<2.8e-2	<2.7e-2	<2.4e-2	<3.1e-2	<3.1e-2	<2.7e-2
7/8/2003	<2.2e-2	<3.0e-2	<3.2e-2	<3.0e-2	<2.2e-2	<3.5e-2	<2.7e-2	<3.0e-2
7/15/2003	<2.5e-2	<2.8e-2	<3.4e-2	<2.9e-2	<3.0e-2	<4.0e-2	<3.9e-2	<3.3e-2
7/22/2003	<3.0e-2	<3.0e-2	<3.4e-2	<3.5e-2	<2.8e-2	<2.6e-2	<2.5e-2	<3.5e-2
7/29/2003	<3.2e-2	<3.0e-2	<2.8e-2	<3.3e-2	<3.3e-2	<2.9e-2	<3.3e-2	<3.1e-2
8/5/2003	<3.6e-2	<3.1e-2	<4.5e-2	<3.8e-2	<5.0e-2	<4.6e-2	<4.8e-2	<4.1e-2
8/12/2003	<3.2e-2	<2.9e-2	<2.5e-2	<2.7e-2	<2.6e-2	<2.7e-2	<2.4e-2	<2.8e-2
8/19/2003	<2.8e-2	<3.0e-2	<3.4e-2	<3.2e-2	<3.3e-2	<3.4e-2	<3.3e-2	<3.5e-2
8/26/2003	<3.1e-2	<3.7e-2	<3.6e-2	<3.3e-2	<3.1e-2	<3.0e-2	<3.1e-2	<3.0e-2
9/1/2003	<3.5e-2	<4.0e-2	<4.1e-2	<3.8e-2	<4.1e-2	<3.6e-2	<4.0e-2	<3.6e-2
9/9/2003	<4.5e-2	<5.3e-2	<3.2e-2	<4.1e-2	<4.1e-2	<4.6e-2	<4.5e-2	<4.1e-2
9/16/2003	<3.9e-2	<4.2e-2	<4.4e-2	<3.3e-2	<4.3e-2	<5.0e-2	<5.2e-2	<4.1e-2
9/23/2003	<2.7e-2	<3.9e-2	<3.5e-2	<3.1e-2	<3.8e-2	<3.4e-2	<4.5e-2	<3.9e-2
9/30/2003	<5.2e-2	<6.0e-2	<6.6e-2	<6.2e-2	<4.8e-2	<5.6e-2	<5.2e-2	<4.5e-2
10/7/2003	<3.9e-2	<4.1e-2	<3.2e-2	<4.6e-2	<4.1e-2	<3.6e-2	<3.6e-2	<3.8e-2
10/14/2003	<2.9e-2	<3.2e-2	<3.6e-2	<3.4e-2	<3.9e-2	<3.4e-2	<3.4e-2	<3.8e-2
10/21/2003	<3.0e-2	<4.8e-2	<3.5e-2	<2.7e-2	<4.0e-2	<4.5e-2	<3.2e-2	<3.6e-2
10/28/2003	<2.1e-2	<3.5e-2	<3.5e-2	<3.2e-2	<3.4e-2	<3.5e-2	<2.5e-2	<3.1e-2
11/4/2003	<4.1e-2	<2.9e-2	<3.6e-2	<3.1e-2	<3.2e-2	<4.0e-2	<4.2e-2	<3.4e-2
11/11/2003	<4.8e-2	<2.7e-2	<4.6e-2	<4.0e-2	<4.8e-2	<2.8e-2	<4.5e-2	<4.9e-2
11/18/2003	<5.2e-2	<4.8e-2	<5.4e-2	<4.8e-2	<3.6e-2	<4.7e-2	<3.6e-2	<4.3e-2
11/25/2003	<4.7e-2	<5.2e-2	<5.0e-2	<4.3e-2	<5.1e-2	<4.4e-2	<4.5e-2	<4.7e-2
12/2/2003	<4.1e-2	<4.1e-2	<4.4e-2	<4.1e-2	<4.7e-2	<4.6e-2	<3.2e-2	<4.8e-2
12/9/2003	<5.3e-2	<3.8e-2	<4.9e-2	<4.5e-2	<3.5e-2	<4.2e-2	<4.5e-2	<4.4e-2
12/16/2003	<4.8e-2	<5.0e-2	<3.3e-2	<4.4e-2	<4.5e-2	<4.2e-2	<4.7e-2	<4.1e-2
12/23/2003	<4.6e-2	<4.9e-2	<4.2e-2	<5.7e-2	<5.0e-2	<5.3e-2	<5.4e-2	<6.1e-2
12/30/2003	<4.0e-2	<4.6e-2	<4.3e-2	<5.0e-2	<4.7e-2	<3.8e-2	<3.7e-2	<3.8e-2

Required LLD 7.00E-02

Table 6 -- 2003 Environmental Air Particulate Composite Gamma Isotopic Results

(Units of pCi/m3)

		Location								
		N-1.4	N-9.4	E-3.5	SSE-4.5	SSW-1.2	SW-12.3	SW/WSW-0.9	NW-1.0	
	Nuclides		Control				Control			
	Be-7	9.00E-02	9.40E-02	1.31E-01	1.37E-01	4.70E-02	1.03E-01	6.80E-02	7.70E-02	
	K-40	<2.7e-02	<4.0e-02	<2.9e-02	<1.3e-02	<2.7e-02	<5.8e-02	<5.8e-02	<6.7e-02	
	Mn-54	<3.0e-03	<3.4e-03	<3.4e-03	<1.1e-03	<3.2e-03	<4.3e-03	<3.7e-03	<3.9e-03	
	Co-57	<1.4e-03	<1.4e-03	<1.7e-03	<3.4e-04	<1.5e-03	<1.8e-03	<1.9e-03	<1.9e-03	
Composite Dates	Co-58	<4.0e-03	<4.0e-03	<6.1e-03	<1.7e-03	<4.8e-03	<6.3e-03	<6.9e-03	<6.3e-03	
1ST QTR	Fe-59	<2.5e-02	<3.0e-02	<3.2e-02	<6.9e-03	<2.5e-02	<1.9e-02	<2.5e-02	<1.9e-02	
01/07/03- 03/25/03	Co-60	<3.1e-03	<3.1e-03	<2.2e-03	<1.2e-03	<7.3e-04	<5.6e-03	<3.0e-03	<5.3e-03	
	Zn-65	<8.0e-03	<6.1e-03	<5.6e-03	<2.5e-03	<8.6e-03	<1.0e-02	<8.5e-03	<8.5e-03	
	Zr-95	<9.6e-03	<8.9e-03	<1.1e-02	<4.1e-03	<1.3e-02	<1.4e-02	<1.0e-02	<1.2e-02	
	Nb-95	<1.0e-02	<6.6e-03	<1.3e-02	<5.6e-03	<1.3e-02	<1.9e-02	<1.4e-02	<1.3e-02	
	Cs-134	<2.3e-03	<3.3e-03	<2.3e-03	<1.1e-03	<3.4e-03	<4.0e-03	<5.1e-03	<4.2e-03	Required LLD 5.0e-2
	Cs-137	<2.3e-03	<2.3e-03	<2.4e-03	<1.1e-03	<2.7e-03	<5.8e-03	<5.5e-03	<6.6e-03	Required LLD 6.0e-2
	Ba-140	<1.8e-01	<1.7e-01	<1.4e-01	<8.7e-02	<1.3e-01	<2.4e-01	<2.0e-01	<1.3e-01	
	La-140	<2.1e-01	<1.9e-01	<1.6e-01	<1.0e-01	<1.5e-01	<2.7e-01	<2.2e-01	<1.5e-01	
	Be-7	7.90E-02	1.51E-01	1.85E-01	1.47E-01	1.23E-01	1.22E-01	9.10E-02	1.02E-01	
	K-40	<3.3e-02	<4.3e-02	<3.0e-02	<3.5e-02	<4.0e-02	<3.5e-02	<3.3e-02	<3.3e-02	
	Mn-54	<3.1e-03	<3.3e-03	<3.1e-03	<2.6e-03	<2.6e-03	<4.1e-03	<3.5e-03	<2.4e-03	
	Co-57	<1.6e-03	<1.5e-03	<1.4e-03	<1.5e-03	<1.7e-03	<1.4e-03	<1.5e-03	<1.6e-03	
	Co-58	<4.3e-03	<5.2e-03	<6.2e-03	<5.2e-03	<5.2e-03	<3.7e-03	<3.0e-03	<5.9e-03	
2ND QTR	Fe-59	<1.7e-02	<1.7e-02	<1.7e-02	<1.7e-02	<1.9e-02	<1.7e-02	<1.7e-02	<1.5e-02	
03/25/03- 06/24/03	Co-60	<2.7e-03	<7.4e-04	<2.7e-03	<3.1e-03	<2.7e-03	<2.1e-03	<2.7e-03	<2.7e-03	
	Zn-65	<8.7e-03	<7.6e-03	<8.7e-03	<8.2e-03	<5.4e-03	<7.7e-03	<7.0e-03	<8.2e-03	
	Zr-95	<9.6e-03	<1.0e-02	<1.3e-02	<9.6e-03	<1.1e-02	<1.0e-02	<9.6e-03	<1.0e-02	
	Nb-95	<1.2e-02	<1.1e-02	<1.2e-02	<1.4e-02	<1.3e-02	<9.1e-03	<1.1e-02	<1.4e-02	
	Cs-134	<3.2e-03	<2.2e-03	<2.6e-03	<2.8e-03	<2.2e-03	<3.3e-03	<2.4e-03	<2.6e-03	Required LLD 5.0e-2
	Cs-137	<1.7e-03	<2.3e-03	<2.3e-03	<2.3e-03	<2.3e-03	<2.3e-03	<2.5e-03	<2.8e-03	Required LLD 6.0e-2
	Ba-140	<1.9e-01	<2.5e-01	<1.5e-01	<2.3e-01	<2.8e-01	<1.5e-01	<2.3e-01	<1.6e-01	
	La-140	<2.2e-01	<2.9e-01	<1.8e-01	<2.6e-01	<3.2e-01	<1.8e-01	<2.6e-01	<1.8e-01	
	Be-7	1.23E-01	1.16E-01	8.80E-02	1.33E-01	1.66E-01	1.23E-01	1.22E-01	1.16E-01	
	K-40	<4.3e-02	<5.2e-02	<5.3e-02	<4.9e-02	<5.2e-02	<2.9e-02	<4.3e-02	<2.5e-02	
	Mn-54	<3.9e-03	<3.9e-03	<4.0e-03	<4.5e-03	<3.3e-03	<2.6e-03	<3.3e-03	<2.7e-03	
	Co-57	<1.5e-03	<1.9e-03	<1.9e-03	<1.6e-03	<1.9e-03	<1.1e-03	<1.6e-03	<1.2e-03	
	Co-58	<5.1e-03	<6.8e-03	<6.9e-03	<8.2e-03	<7.5e-03	<3.5e-03	<7.2e-03	<3.2e-03	
3RD QTR	Fe-59	<1.9e-02	<2.1e-02	<2.2e-02	<1.5e-02	<1.2e-02	<9.9e-03	<1.6e-02	<1.1e-02	
06/24/03-09/30/03	Co-60	<4.9e-03	<4.9e-03	<3.9e-03	<5.2e-03	<5.3e-03	<2.5e-03	<4.5e-03	<2.1e-03	
	Zn-65	<1.2e-02	<9.4e-03	<1.2e-02	<1.1e-02	<1.1e-02	<4.3e-03	<1.0e-02	<4.7e-03	
	Zr-95	<1.2e-02	<8.2e-03	<8.9e-03	<1.3e-02	<1.0e-02	<6.3e-03	<9.2e-03	<6.6e-03	
	Nb-95	<1.1e-02	<1.1e-02	<9.3e-03	<1.2e-02	<8.6e-03	<7.5e-03	<1.3e-02	<7.1e-03	
	Cs-134	<3.6e-03	<3.9e-03	<5.0e-03	<4.1e-03	<3.3e-03	<2.2e-03	<3.3e-03	<1.7e-03	Required LLD 5.0e-2
	Cs-137	<6.0e-03	<4.0e-03	<6.0e-03	<6.2e-03	<5.7e-03	<2.1e-03	<5.7e-03	<2.4e-03	Required LLD 6.0e-2
	Ba-140	<7.0e-02	<6.3e-02	<4.7e-02	<7.4e-02	<9.8e-02	<3.0e-02	<5.5e-02	<4.6e-02	
	La-140	<8.1e-02	<7.2e-02	<5.4e-02	<8.5e-02	<1.1e-01	<3.5e-02	<6.3e-02	<5.3e-02	
	Be-7	1.10E-01	5.20E-02	1.08E-01	6.90E-02	1.39E-01	1.28E-01	1.71E-01	5.30E-02	
	K-40	<2.8e-02	<3.1e-02	<4.0e-02	<3.6e-02	<2.8e-02	<3.8e-02	<3.9e-02	<3.8e-02	
	Mn-54	<2.8e-03	<3.0e-03	<2.8e-03	<2.8e-03	<2.0e-03	<2.8e-03	<2.8e-03	<4.1e-03	
	Co-57	<1.3e-03	<1.4e-03	<1.4e-03	<1.4e-03	<1.5e-03	<1.2e-03	<1.4e-03	<1.6e-03	
	Co-58	<4.2e-03	<2.6e-03	<3.3e-03	<4.2e-03	<4.6e-03	<5.5e-03	<4.7e-03	<9.1e-03	
4TH QTR	Fe-59	<1.2e-02	<2.1e-02	<3.6e-03	<1.7e-02	<1.6e-02	<2.1e-02	<1.3e-02	<1.2e-02	
10/28/03- 12/30/03	Co-60	<2.7e-03	<2.7e-03	<7.3e-04	<3.1e-03	<2.7e-03	<2.7e-03	<2.8e-03	<4.8e-03	
	Zn-65	<6.0e-03	<6.0e-03	<8.4e-03	<8.0e-03	<6.0e-03	<1.1e-02	<6.2e-03	<1.2e-02	
	Zr-95	<9.6e-03	<8.4e-03	<8.4e-03	<7.7e-03	<8.4e-03	<8.4e-03	<8.6e-03	<9.8e-03	
	Nb-95	<7.7e-03	<1.3e-02	<9.3e-03	<1.2e-02	<1.2e-02	<9.9e-03	<1.1e-02	<1.1e-02	
	Cs-134	<2.6e-03	<2.1e-03	<2.1e-03	<2.8e-03	<3.3e-03	<1.9e-03	<3.0e-03	<4.7e-03	Required LLD 5.0e-2
	Cs-137	<2.2e-03	<2.6e-03	<2.0e-03	<2.0e-03	<2.6e-03	<2.8e-03	<3.1e-03	<5.4e-03	Required LLD 6.0e-2
	Ba-140	<2.9e-02	<9.8e-02	<9.8e-02	<9.9e-02	<2.9e-02	<9.9e-02	<1.3e-01	<2.2e-01	
	La-140	<3.3e-02	<1.1e-01	<1.1e-01	<1.1e-01	<3.3e-02	<1.1e-01	<1.5e-01	<2.5e-01	

D. Surface Water Program

Surface water monitoring stations are found at four locations as detailed in Table 1 – Comanche Peak Steam Electric Station Radiological Environmental Monitoring Program. Location N-1.5 provides samples representative of Squaw Creek reservoir surface water at a location beyond significant influence of the plant discharge. Location ESE-1.4 provides samples representative of discharges from Squaw Creek reservoir downstream to Squaw Creek and to Lake Granbury via an installed return line. [*NOTE: The installed return line to Lake Granbury has never been used to send water back to Lake Granbury.*] Location NE-7.4 provides samples of Lake Granbury surface water downstream of the discharge from the return line from Squaw Creek reservoir. A control sample is obtained from the Brazos River, upstream of Lake Granbury at location N-19.3. Surface water samples from Squaw Creek reservoir locations were collected weekly and composited for monthly gamma isotopic analysis. Samples from Lake Granbury locations were collected monthly and analyzed by gamma spectrometry. All surface water samples were also composited quarterly by location for tritium analysis.

For the year 2003, all surface water samples were collected as required. Table 7 -- 2003 Environmental Surface Water Tritium and Gamma Isotopic Results contains the reported values. Forty-eight samples were analyzed by gamma spectrometry. All results for the required radionuclides were reported as less than the required LLDs. Sixteen quarterly composited samples were analyzed for tritium. The results of the reported tritium values for Squaw Creek reservoir were in line with expected concentrations. The tritium values ranged from a high of **1.33e+04** pCi/l to a low of 1.01e+04 pCi/l. The results from Lake Granbury were all less than the required LLDs as expected. The tritium concentration reported in Squaw Creek is well below the action level of **3.0e+4** pCi/l and is following the expected concentration variations based on fuel cycles, power histories and reservoir makeup due to rain and pump transfers from Lake Granbury. Graph 2 – 2003 Environmental Surface Water Tritium Results indicates the current results and the short-term trend of the tritium concentration in Squaw Creek reservoir. The tritium value varies only slightly and is leveling off which possibly indicates that equilibrium may have been reached or soon will be reached. Graph 3 – Squaw Creek Maximum Tritium Values trends the reservoir tritium concentration since it was first detected in 1990 after Unit 1 startup. This long-term graph also indicates that equilibrium concentrations may have been obtained. **Squaw Creek reservoir tritium is a direct product of the operation of CPSES and is the only consistent indicator detectable in the environment surrounding Comanche Peak.** There should not be any significant changes in the tritium concentrations in the near future and no action levels are anticipated. A review of pre-operational and operational data indicated the 2003 results were both expected and consistent with previous data and that no anomalies had occurred.

For the year 2003, there were no exceptions to the Surface Water Program.

Table 7 -- 2003 Environmental Surface Water Tritium and Gamma Isotopic Results

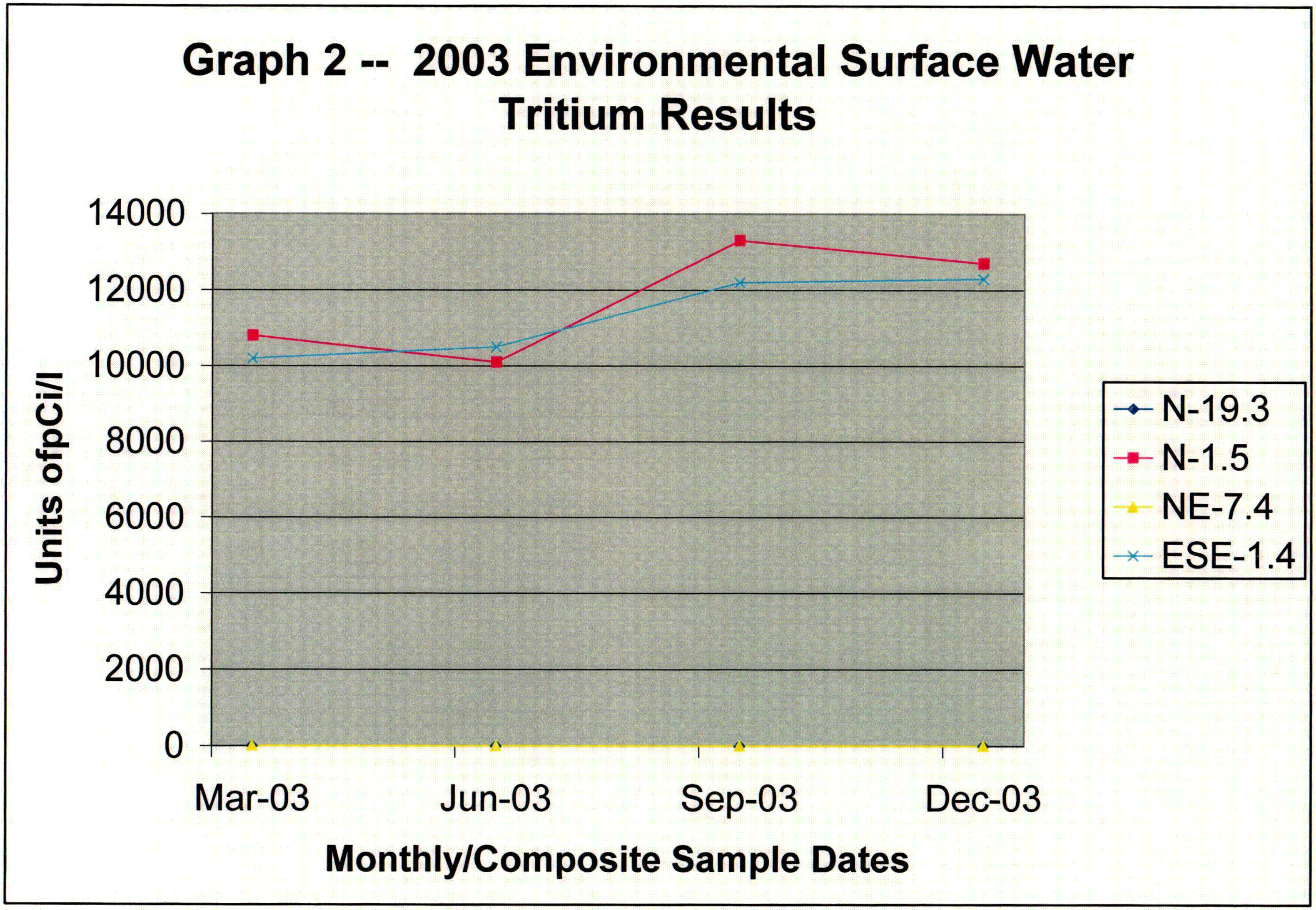
(Units of pCi/l)

		H-3	Nuclides													
Date	Location		Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	I-131	Cs-134	Cs-137	Ba-140	La-140
1/28/2003	N-1.5		<1.3e+01	<2.1e+01	<1.2e+00	<1.4e+00	<3.2e+00	<1.4e+00	<2.7e+00	<2.8e+00	<1.9e+00	<9.7e+00	<1.4e+00	<1.3e+00	<4.9e+00	<5.6e+00
2/27/2003	N-1.5		<1.0e+01	1.08E+01	<1.2e+00	<1.3e+00	<2.9e+00	<1.2e+00	<3.5e+00	<2.3e+00	<1.7e+00	<5.2e+00	<1.3e+00	<1.2e+00	<3.4e+00	<3.9e+00
3/25/2003	N-1.5	1.08E+04	<2.4e+01	<3.5+01	<2.4e+00	<2.6e+00	<5.9e+00	<2.5e+00	<6.3e+00	<4.3e+00	<3.2e+00	<1.1e+01	<2.5e+00	<2.2e+00	<7.8e+00	<8.9e+00
4/29/2003	N-1.5		<1.5e+01	<2.5e+01	<1.6e+00	<1.7+00	<3.9+00	<1.7e+00	<3.8e+00	<2.9e+00	<1.9e+00	<8.2e+00	<1.8e+00	<1.6e+00	<4.8e+00	<5.5e+00
5/27/2003	N-1.5		<2.2e+01	<3.9e+01	<2.3e+00	<2.2e+00	<5.1e+00	<2.1e+00	<5.0e+00	<3.9e+00	<3.5e+00	<7.6e+00	<2.6e+00	<2.4e+00	<5.4e+00	<6.2e+00
6/24/2003	N-1.5	1.01E+04	<3.5e+01	<5.4e+01	<3.2e+00	<4.1e+00	<9.1e+00	<4.7e+00	<7.8e+00	<7.1e+00	<4.5e+00	<1.4e+01	<3.8e+00	<3.3e+00	<1.0e+01	<1.2e+01
7/29/2003	N-1.5		<1.5e+01	1.36E+01	<1.5e+00	<1.7e+00	<4.1e+00	<1.8e+00	<3.5e+00	<3.0e+00	<2.1e+00	<9.3e+00	<1.7e+00	<1.8e+00	<5.7e+00	<6.5e+00
8/26/2003	N-1.5		<1.1e+01	9.80E+00	<1.2e+00	<1.2e+00	<3.3e+00	<1.2e+00	<2.7e+00	<2.3e+00	<1.7e+00	<5.7e+00	<1.3e+00	<1.1e+00	<3.3e+00	<3.8e+00
9/30/2003	N-1.5	1.33E+04	<2.9e+01	2.40E+01	<3.0e+00	<3.3e+00	<9.8e+00	<3.6e+00	<8.0e+00	<5.6e+00	<4.0e+00	<9.6e+00	<3.7e+00	<3.0e+00	<9.7e+00	<1.1e+01
10/28/2003	N-1.5		<3.1e+01	2.50E+01	<3.1e+00	<3.1e+00	<1.1e+01	<3.5e+00	<7.9e+00	<5.9e+00	<4.1e+00	<1.1e+01	<3.1e+00	<3.3e+00	<6.8e+00	<7.8e+00
11/25/2003	N-1.5		<1.3e+01	<2.2e+01	<9.7e-01	<1.6e+00	<3.9e+00	<1.2e+00	<2.5e+00	<2.3e+00	<1.7e+00	<1.2e+01	<1.2e+00	<1.2e+00	<5.2e+00	<6.0e+00
12/30/2003	N-1.5	1.27E+04	<1.2e+01	<2.0e+01	<1.1e+00	<1.5e+00	<4.1e+00	<1.2e+00	<4.1e+00	<2.5e+00	<1.4e+00	<1.2e+01	<1.2e+00	<1.1e+00	<5.3e+00	<6.1e+00
1/28/2003	N-19.3		<2.0e+01	<3.3e+01	<2.0e+00	<2.3e+00	<4.1e+00	<1.6e+00	<4.4e+00	<4.2e+00	<2.2e+00	<7.1e+00	<2.2e+00	<2.7e+00	<4.8e+00	<5.5e+00
2/27/2003	N-19.3		<4.0e+01	<7.4e+01	<4.4e+00	<4.1e+00	<1.2e+01	<5.5e+00	<9.5e+00	<8.7e+00	<5.5e+00	<8.4e+00	<4.7e+00	<5.2e+00	<7.8e+00	<9.0e+00
3/25/2003	N-19.3	<1.2e+03	<4.3e+01	<6.8e+01	<3.9e+00	<4.4e+00	<1.1e+01	<4.2e+00	<1.1e+01	<8.0e+00	<5.6e+00	<7.5e+00	<4.9e+00	<4.7e+00	<1.1e+01	<1.2e+01
4/29/2003	N-19.3		<3.9e+01	3.40E+01	<4.4e+00	<6.8e+00	<1.1e+01	<5.9e+00	<1.8e+01	<9.2e+00	<6.2e+00	<1.0e+01	<6.1e+00	<4.6e+00	<1.3e+01	<1.4e+01
5/27/2003	N-19.3		<2.4e+01	<3.6e+01	<2.7e+00	<2.5e+00	<5.9e+00	<3.0e+00	<7.0e+00	<5.4e+00	<3.5e+00	<5.6e+00	<3.3e+00	<3.0e+00	<4.8e+00	<5.5e+00
6/24/2003	N-19.3	<1.3e+03	<3.9e+01	<5.2e+01	<5.0e+00	<4.8e+00	<7.6e+00	<4.0e+00	<1.0e+01	<5.9e+00	<3.7e+00	<8.0e+00	<4.9e+00	<4.1e+00	<7.4e+00	<8.5e+00
7/29/2003	N-19.3		<3.7e+01	4.90E+01	<4.5e+00	<5.1e+00	<8.7e+00	<4.1e+00	<9.6e+00	<9.8e+00	<5.3e+00	<6.5e+00	<5.0e+00	<4.0e+00	<6.8e+00	<7.8e+00
8/26/2003	N-19.3		<5.4e+01	<9.5e+01	<7.9e+00	<6.0e+00	<2.2e+01	<4.4e+00	<1.7e+01	<1.4e+01	<7.9e+00	<9.4e+00	<7.3e+00	<7.1e+00	<1.3e+01	<1.5e+01
9/30/2003	N-19.3	<1.2e+03	<3.7e+01	<4.4e+01	<4.6e+00	<4.4e+00	<1.5e+01	<4.3e+00	<9.5e+00	<6.4e+00	<4.5e+00	<7.9e+00	<3.7e+00	<4.4e+00	<6.2e+00	<7.1e+00
10/28/2003	N-19.3		<3.3e+01	<4.3e+01	<2.6e+00	<3.2e+00	<8.0e+00	<3.3e+00	<7.8e+00	<5.8e+00	<4.1e+00	<6.7e+00	<3.8e+00	<3.1e+00	<5.3e+00	<6.1e+00
11/25/2003	N-19.3		<2.8e+01	<6.6e+01	<3.7e+00	<3.8e+00	<1.1e+01	<4.3e+00	<8.3e+00	<6.6e+00	<4.3e+00	<8.4e+00	<3.9e+00	<3.2e+00	<7.9e+00	<9.1e+00
12/30/2003	N-19.3	<9.5e+02	<3.4e+01	<6.9e+01	<4.2e+00	<5.0e+00	<1.1e+01	<3.4e+00	<1.0e+01	<8.6e+00	<5.5e+00	<1.2e+01	<4.1e+00	<3.5e+00	<1.0e+01	<1.2e+01
Required LLD's		3.00E+03			1.50E+01	1.50E+01	3.00E+01	1.50E+01	3.00E+01	1.50E+01	1.50E+01	1.50E+01	1.50E+01	1.80E+01	1.50E+01	1.50E+01
Reportable Level		3.00E+04			1.00E+03	1.00E+03	4.00E+02	3.00E+02	3.00E+02	4.00E+02	4.00E+02	2.00E+01	3.00E+01	5.00E+01	2.00E+02	2.00E+02

Table 7 -- 2003 Environmental Surface Water Tritium and Gamma Isotopic Results

(Units of pCi/l)

Date	Location	H-3	Nuclides Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	I-131	Cs-134	Cs-137	Ba-140	La-140
1/28/2003	NE-7.4		<2.0e+01	<3.1e+01.	<2.3e+00	<2.5e+00	<4.9e+00	<2.9e+00	<5.6e+00	<4.1e+00	<2.4e+00	<7.7e+00	<2.2e+00	<2.5e+00	<5.2e+00	<6.0e+00
2/27/2003	NE-7.4		<3.4e+01	<7.1e+01	<4.5e+00	<5.7e+00	<1.2e+01	<6.8e+00	<1.3e+01	<7.7e+00	<5.1e+00	<1.0e+01	<5.3+00	<6.1e+00	<8.8e+00	<1.0e+01
3/25/2003	NE-7.4	<1.2e+03	<3.1e+01	<4.3e+01	<3.1e+00	<3.1e+00	<6.5e+00	<2.8e+00	<7.6e+00	<5.0e+00	<3.7e+00	<6.6e+00	<3.9e+00	<3.1e+00	<5.0e+00	<5.8e+00
4/29/2003	NE-7.4		<3.8e+01	<5.9e+01	<4.4e+00	<4.3e+00	<7.8e+00	<6.7e+00	<1.3e+01	<8.0e+00	<5.4e+00	<9.0e+00	<4.3e+00	<4.2e+00	<8.0e+00	<9.2e+00
5/27/2003	NE-7.4		<4.2e+01	<6.4e+01	<4.7e+00	<4.1e+00	<1.0e+01	<5.1e+00	<1.1e+01	<9.8e+00	<5.0e+00	<8.0e+00	<5.7e+00	<3.8e+00	<9.5e+00	<1.1e+01
6/24/2003	NE-7.4	<1.3e+03	<3.2e+01	<5.5e+01	<3.7e+00	<4.1e+00	<7.7e+00	<5.3e+00	<8.1e+00	<6.4e+00	<4.5e+00	<7.4e+00	<4.7e+00	<3.8e+00	<5.7e+00	<6.6e+00
7/29/2003	NE-7.4		<5.2e+01	<6.8e+01	<6.3e+00	<5.7e+00	<1.1e+01	<6.1e+00	<3.0e+01	<9.1e+00	<8.6e+00	<8.5e+00	<5.9e+00	<5.7e+00	<1.2e+01	<1.3e+01
8/26/2003	NE-7.4		<4.3e+01	<1.0e+02	<8.2e+00	<7.1e+00	<2.4e+01	<8.4e+00	<1.9e+01	<1.4e+01	<7.4e+00	<1.0e+01	<7.6e+00	<6.2e+00	<1.3e+01	<1.4e+01
9/30/2003	NE-7.4	<1.2e+03	<2.8e+01	<4.6e+01	<3.1e+00	<3.8e+00	<9.4e+00	<2.9e+00	<9.6e+00	<5.4e+00	<4.0e+00	<6.0e+00	<3.7e+00	<3.0e+00	<5.3e+00	<6.1e+00
10/28/2003	NE-7.4		<3.0e+01	<4.8e+01	<3.8e+00	<3.5e+00	<1.1e+01	<3.6e+00	<8.2e+00	<6.0e+00	<4.6e+00	<6.9e+00	<3.7e+00	<3.1e+00	<4.7e+00	<5.3e+00
11/25/2003	NE-7.4		<2.5e+01	<6.8e+01	<3.1e+00	<3.3e+00	<1.0e+01	<3.2e+00	<9.6e+00	<6.3e+00	<3.9e+00	<9.5e+00	<3.1e+00	<2.9e+00	<8.6e+00	<9.9e+00
12/30/2003	NE-7.4	<1.0e+03	<3.7e+01	<5.6e+01	<4.3e+00	<4.6e+00	<1.5e+01	<4.2e+00	<1.1e+01	<8.4e+00	<4.9e+00	<1.3e+01	<4.9e+00	<4.0e+00	<8.2e+00	<9.4e+00
1/28/2003	ESE-1.4		<1.5e+01	1.61E+01	<1.5e+00	<1.5e+00	<3.6e+00	<1.4e+00	<5.2e+00	<2.8e+00	<2.0e+00	<1.1e+01	<1.3e+00	<1.5e+00	<5.3e+00	<6.1e+00
2/27/2003	ESE-1.4		<1.2e+01	3.03E+01	<1.2e+00	<1.3e+00	<3.0e+00	<1.2e+00	<4.2e+00	<2.4e+00	<1.6e+00	<5.3e+00	<1.4e+00	<1.1e+00	<3.3e+00	<3.8e+00
3/25/2003	ESE-1.4	1.02E+04	<2.6e+01	3.70E+01	<2.3e+00	<2.6e+00	<5.8e+00	<2.4e+00	<4.9e+00	<5.0e+00	<3.1e+00	<1.0e+01	<2.3e+00	<2.4e+00	<5.8e+00	<6.6e+00
4/29/2003	ESE-1.4		<1.8e+01	<3.4e+01	<1.9e+00	<2.1e+00	<5.4e+00	<2.5e+00	<5.0e+00	<3.8e+00	<2.6e+00	<8.3e+00	<2.0e+00	<2.2e+00	<5.4e+00	<6.2e+00
5/27/2003	ESE-1.4		<1.8e+01	<3.1e+01	<2.1e+00	<2.1e+00	<4.9e+00	<2.3e+00	<5.0e+00	<3.5e+00	<2.6e+00	<7.7e+00	<2.1e+00	<2.1e+00	<5.2e+00	<6.0e+00
6/24/2003	ESE-1.4	1.05E+04	<3.1e+01	2.20E+01	<3.0e+00	<3.7e+00	<7.7e+00	<2.8e+00	<6.9e+00	<6.5e+00	<3.9e+00	<1.4e+01	<3.6e+00	<3.7e+00	<7.5e+00	<8.7e+00
7/29/2003	ESE-1.4		<1.7e+01	2.85E+01	<1.8e+00	<2.0e+00	<4.2e+00	<1.9e+00	<4.0e+00	<3.4e+00	<2.7e+00	<8.4e+00	<1.8e+00	<1.6e+00	<5.2e+00	<6.0e+00
8/26/2003	ESE-1.4		<1.2e+01	1.76E+01	<1.2e+00	<1.3e+00	<3.4e+00	<1.1e+00	<2.9e+00	<2.2e+00	<1.5e+00	<5.5e+00	<1.3e+00	<1.1e+00	<3.2e+00	<3.6e+00
9/30/2003	ESE-1.4	1.22E+04	<2.2e+01	<3.6e+01	<2.3e+00	<2.8e+00	<7.0e+00	<2.2e+00	<9.4e+00	<4.7e+00	<3.3e+00	<1.1e+01	<2.5e+00	<2.3e+00	<6.7e+00	<7.7e+00
10/28/2003	ESE-1.4		<2.6e+01	<5.1e+01	<4.2e+00	<4.0e+00	<8.0e+00	<3.8e+00	<6.8e+00	<6.7e+00	<4.5e+00	<9.1e+00	<4.4e+00	<2.9e+00	<8.0e+00	<9.3e+00
11/25/2003	ESE-1.4		<1.2e+01	<2.0e+01	<1.2e+00	<1.5e+00	<4.4e+00	<1.3e+00	<3.9e+00	<2.5e+00	<2.1e+00	<1.2e+01	<1.3e+00	<1.1e+00	<4.9e+00	<5.7e+00
12/30/2003	ESE-1.4	1.23E+04	<1.4e+01	<1.8e+01	<1.3e+00	<1.4e+00	<3.9e+00	<1.2e+00	<4.7e+00	<2.6e+00	<2.8e+00	<1.2e+01	<1.3e+00	<1.2e+00	<5.2e+00	<6.0e+00
Required LLD's		3.00E+03			1.50E+01	1.50E+01	3.00E+01	1.50E+01	3.00E+01	1.50E+01	1.50E+01	1.50E+01	1.50E+01	1.80E+01	1.50E+01	1.50E+01
Reportable Level		3.00E+04			1.00E+03	1.00E+03	4.00E+02	3.00E+02	3.00E+02	4.00E+02	4.00E+02	2.00E+01	3.00E+01	5.00E+01	2.00E+02	2.00E+02



Graph 2 -- 2003 Environmental Surface Water Tritium Results
14000
12000
10000
8000
6000
4000
2000
0
Units ofpCi/l
Mar-03
Jun-03
Sep-03
Dec-03
Monthly/Composite Sample Dates
N-19.3
N-1.5
NE-7.4
ESE-1.4

C02

E. Surface Drinking Water Program

Surface drinking water was collected at two monitoring locations. Table 1 -- Comanche Peak Steam Electric Station Radiological Environmental Monitoring Program for 2003 details the location and types of analysis required. Samples of water from Squaw Creek reservoir were collected at the monitoring location NNW-0.1 and analyzed at detection levels required for drinking water standards even though the water is not allowed to be used as potable water. Monitoring location N-9.9 was used as a surface drinking water location based on the proximity of the City of Granbury intake to the Granbury potable water system. All surface drinking water samples were collected weekly and then composited for Iodine-131 analysis, gamma isotopic analysis, and gross beta analysis on a monthly basis. Tritium analysis was performed on a quarterly basis.

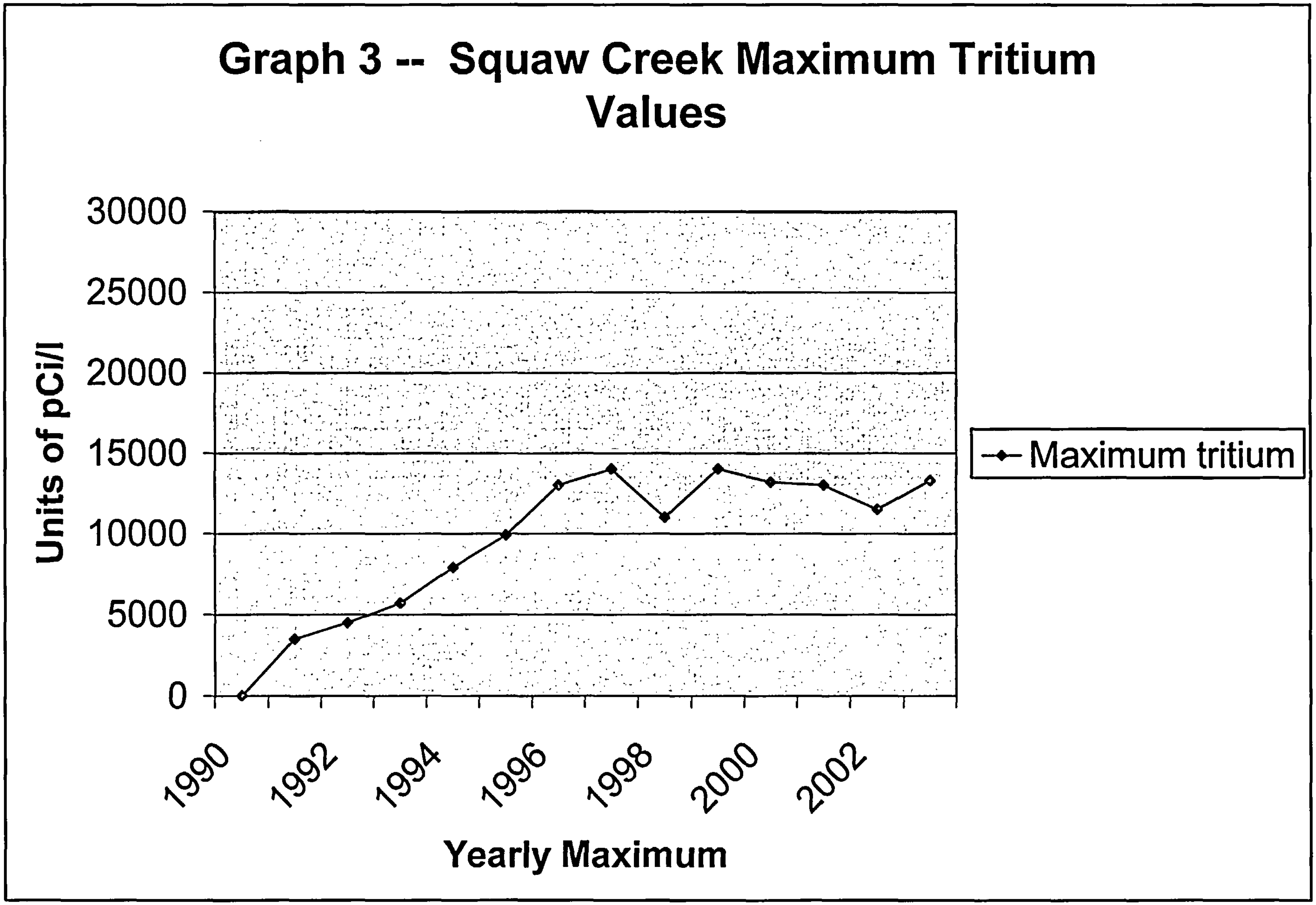
For the year 2003, all samples were analyzed for gamma emitting radionuclides. The results are reported in Table 8 – Environmental Surface Drinking Water Tritium, Gross Beta and Gamma Isotopic Results. There were no gamma emitting radionuclides identified in any of the twenty-four composite samples. Tritium reported in Squaw Creek reservoir ranged from **1.01e+04 pCi/l to 1.28e+04 pCi/l** and **averaged 1.14e+04 pCi/l.** Tritium reported from all Lake Granbury water samples indicated less than the required LLD as expected. Graph 4 – 2003 Environmental Surface Drinking Water Tritium Results trends the results reported for the year 2003. Gross Beta results at the indicator location NNW-0.1 ranged from **2.08e+01 pCi/l to 3.30e+01 pCi/l** with an average of **2.57e+01 pCi/l.** Gross Beta results at the control location N-9.9 ranged from **1.08e+01 pCi/l to 1.87e+01 pCi/l** with an average of **1.40e+01 pCi/l.** Graph 5 – 2003 Environmental Surface Drinking Water Gross Beta Results trends the gross beta results for the two monitor locations and indicates a potential influence from Comanche Peak in the levels detected in the two different bodies of water. Past gross beta results for Lake Granbury have been as high as **83 pCi/l** and therefore this yearly trend does not positively indicate a clear influence from the operation of Comanche Peak. This will be watched for the next few sample periods till a positive inference can be made. The gross beta results received are within values previously reported and there is no reportable level for gross beta so no action is required at this time.

For the year 2003 there were no exceptions to the Surface Drinking Water Program.

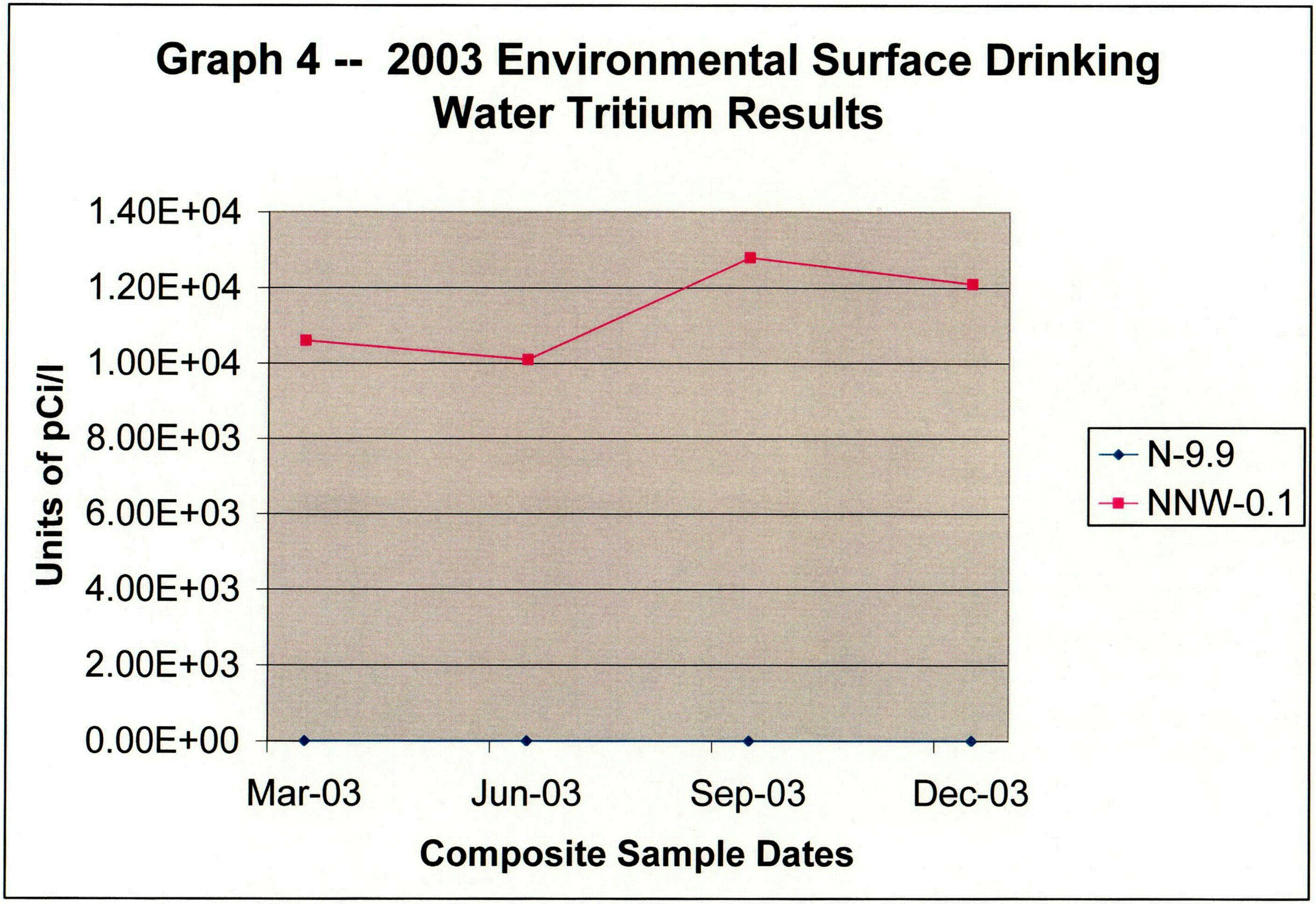
Table 8 -- 2003 Environmental Surface Drinking Water Tritium, Gross Beta and Gamma Isotopic Results

(Units of pCi/l)

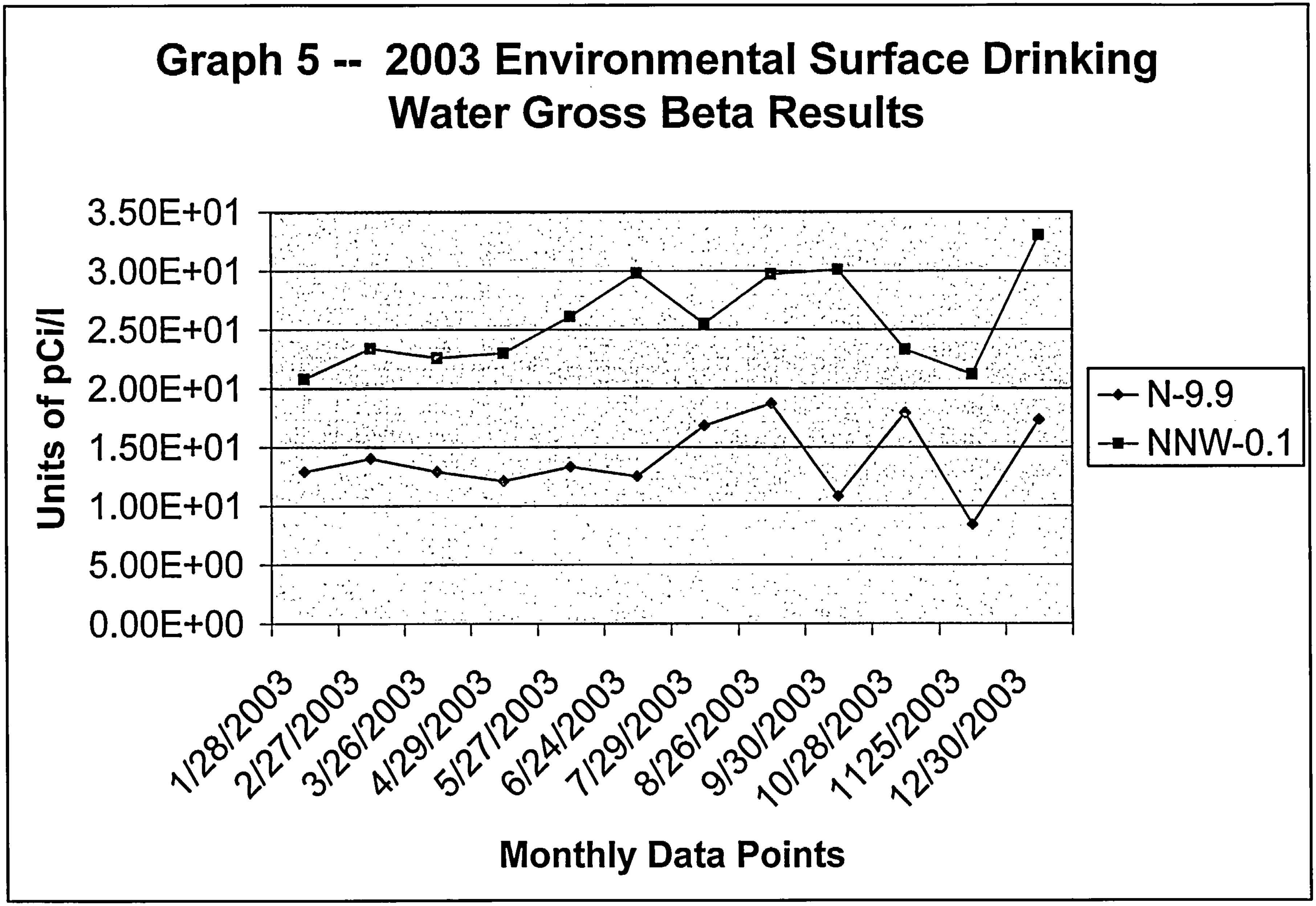
Date	Location	H-3	Gross Beta	Nuclides Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	I-131	Cs-134	Cs-137	Ba-140	La-140
1/28/2003	N-9.9		1.29E+01	<1.7e+00	<1.8e+00	<4.5e+00	<1.6e+00	<3.9e+00	<3.2e+00	<2.4e+00	<9.2e-01	<2.0e+00	<1.7e+00	<7.1e+00	<8.1e+00
2/27/2003	N-9.9		1.40E+01	<1.6e+00	<2.0e+00	<4.3e+00	<2.0e+00	<3.7e+00	<3.4e+00	<2.3e+00	<5.7e-01	<1.7e+00	<1.5e+00	<4.8e+00	<5.5e+00
3/26/2003	N-9.9	<1.2e+03	1.29E+01	<4.1e+00	<3.9e+00	<8.6e+00	<4.6e+00	<8.0e+00	<6.5e+00	<4.6e+00	<3.3e-01	<3.7e+00	<4.1e+00	<1.1e+01	<1.3e+01
4/29/2003	N-9.9		1.21E+01	<3.7e+00	<4.3e+00	<8.6e+00	<5.5e+00	<7.2e+00	<7.1e+00	<4.9e+00	<4.6e-01	<3.2e+00	<3.9e+00	<1.1e+01	<1.3e+01
5/27/2003	N-9.9		1.33E+01	<4.4e+00	<4.8e+00	<8.5e+00	<4.3e+00	<1.2e+01	<6.7e+00	<5.7e+00	<5.0e-01	<4.9e+00	<4.5e+00	<1.1e+01	<1.2e+01
6/24/2003	N-9.9	<1.3e+03	1.25E+01	<4.2e+00	<4.6e+00	<1.0e+01	<3.8e+00	<1.1e+01	<6.7e+00	<5.6e+00	<4.1e-01	<5.1e+00	<4.7e+00	<1.2e+01	<1.4e+01
7/29/2003	N-9.9		1.68E+01	<4.3e+00	<4.2e+00	<9.4e+00	<4.2e+00	<9.1e+00	<7.6e+00	<6.1e+00	<5.7e-01	<4.1e+00	<3.7e+00	<1.3e+01	<1.5e+01
8/26/2003	N-9.9		1.87E+01	<3.7e+00	<4.0e+00	<1.6e+01	<3.5e+00	<1.3e+01	<8.2e+00	<6.2e+00	<8.2e-01	<4.1e+00	<3.5e+00	<1.1e+01	<1.3e+01
9/30/2003	N-9.9	<1.3e+03	1.08E+01	<3.0e+00	<3.8e+00	<9.3e+00	<2.9e+00	<6.0e+00	<5.4e+00	<3.5e+00	<8.5e-01	<3.0e+00	<2.4e+00	<9.5e+00	<1.1e+01
10/28/2003	N-9.9		1.79E+01	<3.7e+00	<4.4e+00	<1.2e+01	<4.7e+00	<1.1e+01	<8.7e+00	<6.2e+00	<7.6e-01	<4.7e+00	<5.6e+00	<1.3e+01	<1.5e+01
11/25/2003	N-9.9		8.40E+00	<1.3e+00	<1.8e+00	<4.7e+00	<1.3e+00	<3.9e+00	<3.0e+00	<2.7e+00	<9.1e-01	<1.4e+00	<1.3e+00	<7.9e+00	<9.1e+00
12/30/2003	N-9.9	<1.0e+03	1.73E+01	<2.9e+00	<3.5e+00	<1.0e+01	<2.9e+00	<1.3e+01	<6.8e+00	<6.8e+00	<8.8e-01	<3.4e+00	<2.8e+00	<1.3e+01	<1.5e+01
1/28/2003	NNW-0.1		2.08E+01	<1.9e+00	<2.0e+00	<5.4e+00	<2.0e+00	<4.3e+00	<3.4e+00	<2.6e+00	<7.6e-01	<1.8e+00	<1.8e+00	<7.5e+00	<8.6e+00
2/27/2003	NNW-0.1		2.34E+01	<1.5e+00	<1.7e+00	<4.0e+00	<2.1e+00	<4.2e+00	<3.3e+00	<2.0e+00	<5.3e-01	<1.7e+00	<1.7e+00	<4.8e+00	<5.6e+00
3/26/2003	NNW-0.1	1.06E+04	2.26E+01	<2.8e+00	<3.8e+00	<9.3e+00	<3.0e+00	<8.6e+00	<7.0e+00	<5.1e+00	<3.2e-01	<4.0e+00	<3.4e+00	<1.2e+01	<1.3e+01
4/29/2003	NNW-0.1		2.30E+01	<2.3e+00	<2.6e+00	<6.1e+00	<1.9e+00	<9.0e+00	<4.3e+00	<4.8e+00	<5.1e-01	<2.2e+00	<2.2e+00	<6.5e+00	<7.5e+00
5/27/2003	NNW-0.1		2.61E+01	<3.8e+00	<4.3e+00	<8.8e+00	<3.2e+00	<1.6e+01	<8.6e+00	<5.0e+00	<4.7e-01	<3.8e+00	<3.2e+00	<1.0e+01	<1.2e+01
6/24/2003	NNW-0.1	1.01E+04	2.98E+01	<3.6e+00	<4.0e+00	<8.4e+00	<3.7e+00	<9.1e+00	<8.2e+00	<5.4e+00	<3.9e-01	<3.3e+00	<4.0e+00	<1.0e+01	<1.2e+01
7/29/2003	NNW-0.1		2.55E+01	<4.2e+00	<3.9e+00	<1.0e+01	<4.3e+00	<9.1e+00	<8.0e+00	<6.9e+00	<6.8e-01	<4.6e+00	<4.1e+00	<1.1e+01	<1.3e+01
8/26/2003	NNW-0.1		2.97E+01	<4.5e+00	<6.2e+00	<1.4e+01	<4.2e+00	<1.4e+01	<9.9e+00	<6.2e+00	<8.6e-01	<5.2e+00	<5.0e+00	<1.3e+01	<1.4e+01
9/30/2003	NNW-0.1	1.28E+04	3.01E+01	<3.0e+00	<3.7e+00	<1.2e+01	<4.2e+00	<7.5e+00	<6.8e+00	<4.6e+00	<8.4e-01	<3.5e+00	<3.5e+00	<1.1e+01	<1.2e+01
10/28/2003	NNW-0.1		2.33E+01	<3.2e+00	<3.6e+00	<1.0e+01	<3.0e+00	<7.7e+00	<6.5e+00	<3.8e+00	<7.0e-01	<4.0e+00	<3.2e+00	<6.2e+00	<7.1e+00
11/25/2003	NNW-0.1		2.12E+01	<1.3e+00	<1.6e+00	<4.9e+00	<1.3e+00	<3.1e+00	<2.8e+00	<2.3e+00	<8.6e-01	<1.3e+00	<1.4e+00	<8.3e+00	<9.6+00
12/30/2003	NNW-0.1	1.21E+04	3.30E+01	<2.5e+00	<3.0e+00	<8.6e+00	<2.7e+00	<8.4e+00	<5.1e+00	<4.1e+00	<9.2e-01	<2.4e+00	<2.4e+00	<1.2e+01	<1.4e+01
Required LLD's		2.00E+03	4.00E+00	1.50E+01	1.50E+01	3.00E+01	1.50E+01	3.00E+01	1.50E+01	1.50E+01	1.00E+00	1.50E+01	1.80E+01	1.50E+01	1.50E+01
Reportable Level		2.00E+04	None	1.00E+03	1.00E+03	4.00E+02	3.00E+02	3.00E+02	4.00E+02	4.00E+02	2.00E+00	3.00E+01	5.00E+01	2.00E+02	2.00E+02



Graph 3 -- Squaw Creek Maximum Tritium Values
30000
25000
20000
15000
10000
5000
0
Units of pCi/l
1990
1992
1994
1996
1998
2000
2002
Yearly Maximum
Maximum tritium


Graph 4 -- 2003 Environmental Surface Drinking Water Tritium Results
1.40E+04
1.20E+04
1.00E+04
8.00E+03
6.00E+03
4.00E+03
2.00E+03
0.00E+00
Units of pCi/l
Mar-03
Jun-03
Sep-03
Dec-03
Composite Sample Dates
N-9.9
NNW-0.1

C03


Graph 5 -- 2003 Environmental Surface Drinking Water Gross Beta Results
3.50E+01
3.00E+01
2.50E+01
2.00E+01
1.50E+01
1.00E+01
5.00E+00
0.00E+00
Units of pCi/l
1/28/2003
2/27/2003
3/26/2003
4/29/2003
5/27/2003
6/24/2003
7/29/2003
8/26/2003
9/30/2003
10/28/2003
1125/2003
12/30/2003
Monthly Data Points
N-9.9
NNW-0.1

F. Ground Water Program

Table 1 – Comanche Peak Steam Electric Station Radiological Environmental Monitoring Program for 2003 specifies the five groundwater monitoring locations. Groundwater supplies in the site area are not affected by plant effluents and are sampled only to provide confirmation that groundwater is not affected by plant discharges. Groundwater samples were collected quarterly and analyzed for gamma isotopes and tritium at each location.

For the year 2003, a total of twenty groundwater samples were collected from the five different monitoring locations. There were no radionuclides identified in any of the samples. All required LLDs were met for each required gamma emitting radionuclide. Tritium analysis was performed on twenty samples, all indicated less than the required LLD. Results for all the groundwater analyses are reported in Table 9 -- 2003 Environmental Groundwater Tritium and Gamma Isotopic Results. These results confirm that plant discharges are having no effect on groundwater in the area surrounding Comanche Peak.

For the year 2003, there were no exceptions to the Ground Water Program.

Table 9 -- 2003 Environmental Groundwater Tritium and Gamma Isotopic Results
(Units of pCi/l)

		Nuclides												
Date	Location	H-3	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	I-131	Cs-134	Cs-137	Ba-140	La-140
3/25/2003	W-1.2	<1.3e+03	<5.4e+00	<5.9e+00	<1.0e+01	<6.2e+00	<1.1e+01	<9.4e+00	<5.8e+00	<1.0e+01	<5.3e+00	<4.6e+00	<8.7e+00	<1.0e+01
6/24/2003	W-1.2	<1.2e+03	<7.5e+00	<7.6e+00	<1.6e+01	<7.4e+00	<2.2e+01	<1.3e+01	<8.8e+00	<9.3e+00	<7.8e+00	<8.8e+00	<1.0e+01	<1.2e+01
9/30/2003	W-1.2	<1.3e+03	<3.74e+00	<4.5e+00	<1.4e+01	<5.3e+00	<1.2e+01	<6.3e+00	<4.6e+00	<5.7e+00	<4.3e+00	<5.0e+00	<8.5e+00	<9.8e+00
12/30/2003	W-1.2	<1.0e+03	<3.7e+00	<4.2e+00	<1.3e+01	<5.1e+00	<8.3e+00	<8.1e+00	<5.7e+00	<9.3e+00	<4.4e+00	<3.9e+00	<9.6e+00	<1.1e+01
3/25/2003	WSW-0.1	<1.4e+03	<3.0e+00	<3.8e+00	<7.6e+00	<3.7e+00	<8.7e+00	<6.8e+00	<4.4e+00	<7.0e+00	<3.1e+00	<3.2e+00	<5.7e+00	<6.6e+00
6/24/2003	WSW-0.1	<1.2e+03	<4.7e+00	<6.0e+00	<1.5e+01	<7.7e+00	<1.2e+01	<7.9e+00	<5.1e+00	<8.5e+00	<7.2e+00	<5.4e+00	<1.2e+01	<1.4e+01
9/30/2003	WSW-0.1	<1.3e+03	<5.3e+00	<6.4e+00	<1.4e+01	<5.9e+00	<1.4e+01	<7.9e+00	<6.6e+00	<8.1e+00	<6.1e+00	<4.0e+00	<1.0e+01	<1.1e+01
12/30/2003	WSW-0.1	<1.3e+03	<3.4e+00	<4.5e+00	<1.4e+01	<4.3e+00	<1.1e+01	<5.7e+00	<5.1e+00	<1.3e+01	<3.8e+00	<3.7e+00	<1.0e+01	<1.2e+01
3/25/2003	SSE-4.6	<1.4e+03	<3.3e+00	<2.9e+00	<6.5e+00	<3.9e+00	<7.0e+00	<6.6e+00	<3.7e+00	<6.3e+00	<3.6e+00	<3.2e+00	<6.9e+00	<7.9e+00
6/24/2003	SSE-4.6	<1.2e+03	<5.3e+00	<6.6e+00	<1.2e+01	<6.8e+00	<1.6e+01	<8.7e+00	<7.5e+00	<9.4e+00	<7.8e+00	<5.3e+00	<1.2e+01	<1.3e+01
9/30/2003	SSE-4.6	<1.3e+03	<4.1e+00	<3.8e+00	<1.2e+01	<4.3e+00	<1.3e+01	<7.8e+00	<5.4e+00	<7.7e+00	<4.5e+00	<3.7e+00	<7.6e+00	<8.7e+00
12/30/2003	SSE-4.6	<1.3e+03	<3.7e+00	<4.8e+00	<8.1e+00	<5.3e+00	<1.7e+01	<7.7e+00	<5.5e+00	<1.4e+01	<4.1e+00	<5.1e+00	<9.5e+00	<1.1e+01
3/25/2003	N-9.8	<1.3e+03	<4.2e+00	<4.5e+00	<8.8e+00	<4.8e+00	<1.0e+01	<7.1e+00	<4.8e+00	<9.3e+00	<3.6e+00	<4.4e+00	<8.3e+00	<9.5e+00
6/24/2003	N-9.8	<1.2e+03	<5.9e+00	<5.2e+00	<1.2e+01	<5.0e+00	<1.0e+01	<8.7e+00	<5.0e+00	<9.5e+00	<5.3e+00	<5.3e+00	<1.0e+01	<1.2e+01
9/30/2003	N-9.8	<1.3e+03	<5.1e+00	<4.7e+00	<1.5e+01	<6.5e+00	<1.5e+01	<8.2e+00	<4.8e+00	<9.2e+00	<6.0e+00	<4.8e+00	<1.0e+01	<1.2e+01
12/30/2003	N-9.8	<1.3e+03	<3.8e+00	<5.0e+00	<9.4e+00	<4.5e+00	<1.6e+01	<7.7e+00	<8.1e+00	<1.4e+01	<4.4e+00	<3.9e+00	<7.1e+00	<8.1e+00
3/25/2003	N-1.45	<1.3e+03	<3.6e+00	<3.4e+00	<7.3e+00	<3.5e+00	<9.4e+00	<6.2e+00	<4.2e+00	<6.6e+00	<3.7e+00	<3.5e+00	<5.8e+00	<6.6e+00
6/25/2003	N-1.45	<1.2e+03	<5.5e+00	<6.5e+00	<1.6e+01	<7.5e+00	<2.1e+01	<1.3e+01	<7.7e+00	<1.2e+01	<8.3e+00	<6.7e+00	<1.1e+01	<1.3e+01
9/30/2003	N-1.45	<1.3e+03	<3.8e+00	<3.5e+00	<8.3e+00	<3.2e+00	<7.4e+00	<6.3e+00	<3.5e+00	<6.7e+00	<3.0e+00	<3.5e+00	<5.5e+00	<6.4e+00
12/30/2003	N-1.45	<1.3e+03	<4.2e+00	<4.0e+00	<1.3e+01	<3.4e+00	<1.0e+01	<7.0e+00	<5.3e+00	<1.4e+01	<4.3e+00	<4.8e+00	<1.2e+01	<1.4e+01
Required LLD's		3.00E+03	1.50E+01	1.50E+01	3.00E+01	1.50E+01	3.00E+01	1.50E+01	1.50E+01	1.50E+01	1.50E+01	1.80E+01	1.50E+01	1.50E+01
Reportable Levels		2.00E+04	1.00E+03	1.00E+03	4.00E+02	3.00E+02	3.00E+02	4.00E+02	4.00E+02	2.00E+01	3.00E+01	5.00E+01	2.00E+02	2.00E+02

G. Sediment Program

Shoreline sediments were collected at four different monitoring locations. Two sample locations are along the shore of Squaw Creek reservoir and two locations are along Lake Granbury's shores. Each sample is collected on a six-month frequency and sent to the contract laboratory for analysis by gamma spectrometry.

The process of shoreline sedimentation is a complex evolution whereby potential radionuclides and stable elements may concentrate in the bottom sediment of particular bodies of water. The concentrations are effected by such things as colloidal particles combining with chelating agents and biological action of bacteria and other benthic organisms. Monitoring of the area shorelines provides one of the first and best indicators of radionuclide deposition.

For the year 2003, results from the gamma isotopic analysis of shoreline sediments is reported in Table 10 -- 2003 Environmental Sediment Gamma Isotopic Results. As expected and in agreement with previous results from both the pre-operational and operational programs, naturally occurring Potassium-40 was detected in all eight samples. Radioactive nuclides required to be analyzed for were performed and all samples indicated less than the required LLDs. During previous years, both pre-operational and operational, positive indications occasionally had been noted for Cesium-137 and during 2003 there were two positive Cesium-137 results reported. Location N-1.0 indicated a positive value of 9.90e+00 pCi/kg which is below the required LLD and location SE-5.3 indicated a positive value of 2.04e+02 pCi/kg which is slightly above the required LLD of 1.80e+02 pCi/kg. These positive values are consistent with previous pre-operation and operational indications.. The only other positive value reported for 2003 was for naturally occurring Beryllium-7. As expected, there were no results in any sediment sample that indicated any direct influence from CPSES discharges to the local environment.

For the year 2003, there were no exceptions to the Sediment Program.

Table 10 -- 2003 Environmental Sediment Gamma Isotopic Results

(Units of pCi/kg)

Date	Location	Nuclides Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	I-131	Cs-134	Cs-137	Ba-140	La-140
1/21/2003	N-1.0	<1.2e+02	1.44E+03	<1.7e+01	<2.1e+01	<3.8e+01	<2.4e+01	<1.0e+02	<4.6e+01	<2.3e+01	<3.1e+01	<2.1e+01	9.90E+00	<9.7e+01	<5.3e+01
1/14/2003	N-9.9	<6.0e+01	2.28E+03	<7.3e+00	<7.3e+00	<1.5e+01	<7.8e+00	<1.5e+01	<2.3e+01	<1.4e+01	<1.2e+01	<6.8e+00	<7.5e+00	<4.0e+01	<1.9e+01
1/14/2003	NE-7.4	<6.7e+01	1.69E+03	<9.0e+00	<9.2e+00	<1.7e+01	<7.4e+00	<3.5e+01	<2.6e+01	<1.5e+01	<1.4e+01	<1.9e+01	<9.1e+00	<4.2e+01	<2.1e+01
1/21/2003	SE-5.3	<4.0e+02	1.08E+04	<4.2e+01	<4.8e+01	<9.8e+01	<5.7e+01	<1.8e+02	<8.0e+01	<5.1e+01	<7.2e+01	<4.7e+01	2.04E+02	<4.8e+01	<5.5e+01
7/8/2003	N-1.0	8.30E+01	1.99E+03	<8.4e+00	<9.4e+00	<2.0e+01	<9.3e+00	<4.4e+01	<3.7e+01	<1.8e+01	<1.5e+01	<8.4e+00	<8.6e+00	<4.4e+01	<2.3e+01
7/8/2003	N-9.9	<7.8e+01	3.42E+03	<9.3e+00	<9.6e+00	<2.4e+01	<1.0e+01	<2.4e+01	<3.5e+02	<1.8e+01	<1.7e+01	<8.9e+00	<1.0e+01	<4.7e+01	<2.6e+01
7/8/2003	NE-7.4	<1.4e+02	3.39E+03	<2.0e+01	<2.2e+01	<4.8e+01	<1.7e+01	<9.4e+01	<7.1e+01	<3.0e+01	<3.0e+01	<1.5e+01	<1.9e+01	<1.1e+02	<5.0e+01
7/8/2003	SE-5.3	5.23E+02	2.45E+03	<2.1e+01	<1.9e+01	<4.9e+01	<2.0e+01	<1.1e+02	<6.1e+01	<3.9e+01	<4.6e+01	<2.2e+01	<2.4e+01	<1.1e+02	<5.8e+01
Required	LLD's											1.50E+02	1.80E+02		
Reportable Levels												None	None		

H. Fish Program

Fish samples were collected at two locations during the year 2003. One monitoring location is an area approximately two miles east-northeast of the site on Squaw Creek Reservoir. The second location is on Lake Granbury approximately eight miles north-northeast of the site. Fish sampling is scheduled for the months of April and October. CPSES personnel along with local State Game Wardens collect the fish from these areas. The fish are now caught using rod and reels to eliminate the killing of rough fish and extra game fish that is associated with the past method of using gill nets to obtain the required fish. The collected fish are frozen and shipped to the independent laboratory where the edible portions are analyzed for gamma emitting radionuclides.

For the year 2003, the results of the analysis performed on the collected fish samples is reported in Table 11 -- 2003 Environmental Fish Gamma Isotopic Results. Catfish and bass samples were analyzed as indicated in the table. There were no positive results reported except for the expected Potassium-40, which is naturally occurring in all living organisms. All required radionuclide results were reported as less than the required LLDs. As a result of the fish-sampling program, there were no anomalies noted and no indication of any influence on the surrounding environment from Comanche Peak plant discharges.

For the year 2003, there were no exceptions to the Fish Program.
No abnormal results were reported by CPSES or by the State of Texas and as expected, Potassium-40 was the only positive isotope found. No exceptions to the Fish Program were noted.

Table 11 -- 2003 Environmental Fish Gamma Isotopic Results

(Units of pCi/kg wet)

Date	Location	Nuclides K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	I-131	Cs-134	Cs-137	Ba-140	La-140	Fish Type
4/30/2003	Squaw Creek	2.76E+03	<6.9e+01	<1.0e+02	<2.4e+02	<6.0e+01	<1.5e+02	<1.6e+02	<1.4e+02	<2.0e+03	<6.2e+01	<6.3e+01	<5.6e+02	<6.4e+02	*Catfish*
4/30/2003	Squaw Creek	3.03E+03	<6.0e+01	<8.1e+01	<1.8e+02	<1.4e+01	<1.8e+02	<1.2e+02	<9.4e+01	<1.6e+03	<7.3e+01	<4.3e+01	<4.9e+02	<5.7e+02	*Bass*
10/5/2003	Squaw Creek	2.73E+03	<2.9e+01	<4.3e+01	<2.2e+02	<2.5e+01	<8.6e+01	<1.0e+02	<1.4e+02	<3.9e+04	<2.3e+01	<2.8e+01	<2.6e+03	<3.0e+03	*Catfish*
10/5/2003	Squaw Creek	2.92E+03	<3.4e+01	<5.5e+01	<2.3e+02	<3.1e+01	<9.6e+01	<1.0e+02	<1.4e+02	<3.7e+04	<3.5e+01	<2.4e+01	<3.0e+03	<3.4e+03	*Bass*
5/4/2003	Lake Granbury	4.38E+03	<7.3e+01	<8.4e+01	<2.6e+02	<8.9e+01	<1.9e+02	<1.6e+02	<1.4e+02	<1.6e+03	<7.7e+01	<6.8e+01	<5.3e+02	<6.1e+02	*Bass*
10/4/2003	Lake Granbury	2.34E+03	<2.7e+01	<7.1e+01	<2.5e+02	<3.6e+01	<8.5e+01	<1.3e+02	<1.9e+02	<4.8e+04	<3.6e+01	<2.8e+01	<2.7e+03	<3.1e+03	*Catfish*
10/12/2003	Lake Granbury	3.46E+03	<3.4e+01	<6.1e+01	<2.5e+02	<3.1e+01	<9.5e+01	<1.2e+02	<1.5e+02	<2.3e+04	<3.0e+01	<2.6e+01	<1.7e+03	<2.0e+03	*Bass*
Required LLD's			1.30E+02	1.30E+02	2.60E+02	1.30E+02	2.60E+02				1.30E+02	1.50E+02			
Reportable Levels			3.00E+04	3.00E+04	1.00E+04	1.00E+04	2.00E+04				1.00E+03	2.00E+03			

I. Food Products Program

Food products (pecan) were collected at the time of harvest. The samples are obtained at monitoring location ENE-9.0 and are shipped to the contract laboratory for gamma isotopic analysis.

For the year 2003, results of the gamma isotopic analysis are reported in Table 12 -- 2003 Environmental Food Products Gamma Isotopic Results. There were no gamma emitting radionuclides identified.

For the year 2003, there were exceptions to the Food Products program.

The required LLD for I-131 is 6.00e+01pCi/kg. The contract laboratory failed to achieve the required LLD. The contract laboratory was only able to achieve an LLD of 8.2e+01 pCi/kg. There was no detectable iodine reported at this higher detection level.

Table 12 -- 2003 Environmental Food Products Gamma Isotopic Results

(Units of pCi/kg wet)

Date	Food Type	Location	Nuclides I-131	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	Cs-134	Cs-137	Ba-140	La-140
11/11/2003	Pecans	ENE-9.0	***********	<6.1e+01	3.35E+03	<6.2e+00	<6.5e+00	<2.4e+01	<6.5e+00	<1.9e+01	<1.3e+01	<9.8e+00	<6.0e+00	<6.2e+00	<3.2e+01	<3.6e+0
Required LLD's			6.00E+01										6.00E+01	8.00E+01		
Reportable Levels			1.00E+02										1.00E+03	2.00E+03		

J. Broadleaf Program

Broadleaf sample collection is conducted in accordance with the requirements of the Radiological Environmental Monitoring Program. The program specifies the sampling based on the absence of milk monitoring locations. One broadleaf control location is located at SW-13.5 in the vicinity of the previous control milk location. The two indicator locations, N-1.45 and SW-1.0, are located near the site boundaries. The broadleaf samples consist of mainly native grasses and are analyzed for Iodine-131 and gamma emitting isotopes.

For the year 2003, all radionuclide analyses met their required LLDs and there was no indication of any gamma emitting radionuclides being identified that were directly attributable to the operation of Comanche Peak. There were no indications of Iodine-131 being detected. The naturally occurring radionuclide of Potassium-40 was found in all 36 samples taken. The radionuclide Beryllium-7 was present in 34 of 36 samples.

For the year 2003, there were no exceptions to the Broadleaf Program.

Table 13 -- 2003 Environmental Broadleaf Iodine-131 and Gamma Isotopic Results
(Units of pCi/kg wet)

Date	Location	Nuclides I-131	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	Cs-134	Cs-137	Ba-140	La-140
1/28/03	N-1.45	<2.1e+01	3.07E+02	4.72E+03	<1.2e+01	<1.2e+01	<3.0e+01	<1.6e+01	<5.1e+01	<2.0e+01	<1.6e+01	<1.2e+01	<1.1e+01	<2.4e+01	<2.7e+01
2/27/03	N-1.45	<1.2e+01	1.22E+03	2.77E+03	<2.5e+01	<2.4e+01	<5.4e+01	<3.0e+01	<1.0e+02	<4.7e+01	<3.1e+01	<3.0e+01	<2.4e+01	<4.4e+01	<5.0e+01
3/25/03	N-1.45	<1.8e+01	1.52E+03	8.73E+03	<4.0e+01	<3.6e+01	<1.0e+02	<4.0e+01	<8.9e+01	<7.0e+01	<4.5e+01	<5.0e+01	<3.5e+01	<1.0e+02	<1.2e+02
4/29/03	N-1.45	<4.7e+01	9.70E+02	2.14E+03	<2.8e+01	<2.7e+01	<6.9e+01	<3.6e+01	<7.1e+01	<4.4e+01	<3.5e+01	<2.3e+01	<2.1e+01	<7.2e+01	<8.3e+01
5/27/03	N-1.45	<5.1e+01	1.64E+03	3.54E+03	<4.6e+01	<5.3e+01	<9.6e+01	<6.6e+01	<1.1e+02	<8.4e+01	<6.9e+01	<5.6e+01	<3.7e+01	<1.2e+02	<1.3e+02
6/24/03	N-1.45	<5.6e+01	5.50E+03	2.45E+03	<3.9e+01	<4.1e+01	<8.7e+01	<4.9e+01	<1.1e+02	<6.9e+01	<4.5e+01	<4.6e+01	<3.8e+01	<6.7e+01	<7.8e+01
7/29/03	N-1.45	<3.3e+01	1.27E+03	2.19E+03	<2.9e+01	<2.7e+01	<6.5e+01	<3.6e+01	<7.7e+01	<6.3e+01	<3.6e+01	<3.1e+01	<2.6e+01	<7.4e+01	<8.5e+01
8/26/03	N-1.45	<4.3e+01	1.04E+03	2.41E+03	<5.8e+01	<5.2e+01	<1.6e+02	<5.7e+01	<1.1e+02	<1.1e+02	<5.9e+01	<3.8e+01	<4.4e+01	<2.6e+01	<3.0e+01
9/30/03	N-1.45	<4.1e+01	2.83E+03	3.35E+03	<1.8e+01	<2.0e+01	<5.6e+01	<1.9e+01	<6.7e+01	<3.5e+01	<2.7e+01	<1.8e+01	<1.6e+01	<5.2e+01	<6.0e+01
10/28/03	N-1.45	<4.9e+01	4.67E+03	1.54E+03	<3.9e+01	<5.1e+01	<1.3e+02	<4.4e+01	<1.1e+02	<9.7e+01	<7.2e+01	<4.1e+01	<4.0e+01	<1.9e+02	<2.1e+02
11/25/03	N-1.45	<4.8e+01	9.00E+02	3.19E+03	<3.2e+01	<2.9e+01	<1.2e+02	<4.9e+01	<9.4e+01	<5.8e+01	<5.0e+01	<4.4e+01	<3.1e+01	<4.9e+01	<5.7e+01
12/30/03	N-1.45	<4.0e+01	6.90E+02	2.69E+03	<7.3e+01	<5.2e+01	<1.8e+02	<7.2e+01	<1.7e+02	<8.8e+01	<7.4e+01	<5.3e+01	<6.0e+01	<8.9e+01	<1.0e+02
1/28/03	SW-1.0	<2.2e+01	5.79E+02	1.48E+03	<2.2e+01	<2.3e+01	<5.9e+01	<2.8e+01	<9.3e+01	<4.1e+01	<2.9e+01	<2.2e+01	<2.3e+01	<4.1e+01	<4.7e+01
2/27/03	SW-1.0	<1.5e+01	1.91E+03	2.76E+03	<3.2e+01	<2.9e+01	<5.4e+01	<3.2e+01	<7.2e+01	<5.3e+01	<3.2e+01	<2.7e+01	<2.8e+01	<5.5e+01	<6.3e+01
3/25/03	SW-1.0	<2.2e+01	2.74E+03	2.52E+03	<4.1e+01	<3.1e+01	<9.8e+01	<4.1e+01	<1.3e+02	<6.0e+01	<4.2e+01	<4.8e+01	<4.1e+01	<7.1e+01	<8.2e+01
4/29/03	SW-1.0	<2.6e+01	1.72E+03	4.25E+03	<3.9e+01	<4.0e+01	<7.1e+01	<4.3e+01	<9.4e+01	<6.6e+01	<4.4e+01	<3.6e+01	<3.0e+01	<7.6e+01	<8.7e+01
5/27/03	SW-1.0	<5.8e+01	8.90E+02	2.47E+03	<4.8e+01	<5.6e+01	<1.4e+02	<6.1e+01	<1.2e+02	<8.5e+01	<6.8e+01	<5.6e+01	<4.4e+01	<1.1e+02	<1.3e+02
6/24/03	SW-1.0	<5.4e+01	9.40E+02	3.94E+03	<5.8e+01	<6.3e+01	<1.1e+02	<6.7e+01	<1.6e+02	<1.0e+02	<7.1e+01	<5.5e+01	<6.2e+01	<9.3e+01	<1.1e+02
7/29/03	SW-1.0	<4.2e+01	1.36E+03	2.03E+03	<4.9e+01	<4.7e+01	<1.1e+02	<4.7e+01	<1.3e+02	<8.3e+01	<5.7e+01	<5.2e+01	<4.0e+01	<1.1e+02	<1.3e+02
8/26/03	SW-1.0	<4.9e+01	8.90E+02	3.20E+03	<2.7e+01	<2.7e+01	<7.3e+01	<2.9e+01	<5.7e+01	<4.6e+01	<3.2e+01	<2.9e+01	<2.0e+01	<5.6e+01	<6.4e+01
9/30/03	SW-1.0	<5.4e+01	1.39E+03	2.52E+03	<6.0e+01	<5.8e+01	<1.7e+02	<4.3e+01	<1.3e+02	<9.1e+01	<5.8e+01	<5.5e+01	<5.1e+01	<1.5e+02	<1.8e+02
10/28/03	SW-1.0	<6.0e+01	3.60E+02	2.83E+03	<5.4e+01	<8.2e+01	<2.2e+02	<5.5e+01	<2.4e+02	<1.5e+02	<1.2e+02	<5.3e+01	<5.1e+01	<3.6e+02	<4.1e+02
11/25/03	SW-1.0	<4.9e+01	6.30E+02	2.57E+03	<3.8e+01	<3.2e+01	<1.0e+02	<4.9e+01	<1.0e+02	<8.0e+01	<4.1e+01	<3.7e+01	<3.4e+01	<4.9e+01	<5.6e+01
12/30/03	SW-1.0	<4.5e+01	1.43E+03	3.39E+03	<6.1e+01	<6.6e+01	<2.2e+02	<6.5e+01	<1.5e+02	<1.1e+02	<7.5e+01	<5.3e+01	<7.0e+01	<1.5e+02	<1.7e+02
	Control														
1/28/03	SW-13.5	<3.3e+01	4.82E+02	6.33E+03	<1.3e+01	<1.4e+01	<3.3e+01	<1.8e+01	<6.0e+01	<2.1e+01	<2.3e+01	<1.4e+01	<1.5e+01	<2.3e+01	<2.7e+01
2/27/03	SW-13.5	<7.4e+00	1.00E+03	4.45E+03	<4.0e+01	<3.9e+01	<9.8e+01	<3.2e+01	<1.6e+02	<6.6e+01	<5.3e+01	<3.5e+01	<3.1e+01	<6.4e+01	<7.4e+01
3/25/03	SW-13.5	<1.6e+01	6.21E+02	6.11E+03	<3.0e+01	<3.8e+01	<9.8e+01	<3.8e+01	<8.6e+01	<7.5e+01	<3.6e+01	<3.6e+01	<2.7e+01	<5.3e+01	<6.1e+01
4/29/03	SW-13.5	<2.9e+01	2.40E+02	3.72E+03	<4.0e+01	<3.5e+01	<8.5e+01	<5.4e+01	<1.0e+02	<7.0e+01	<5.0e+01	<3.5e+01	<3.6e+01	<7.2e+01	<8.3e+01
5/27/03	SW-13.5	<5.5e+01	2.01E+03	3.58E+03	<3.4e+01	<3.9e+01	<1.1e+02	<4.3e+01	<9.2e+01	<6.1e+01	<5.4e+01	<4.0e+01	<3.6e+01	<9.3e+01	<1.1e+02
6/24/03	SW-13.5	<5.8e+01	1.32E+03	2.49E+03	<2.0e+01	<2.3e+01	<4.2e+01	<2.6e+01	<5.4e+01	<3.6e+01	<2.5e+01	<2.0e+01	<1.7e+01	<3.6e+01	<4.1e+01
7/29/03	SW-13.5	<4.7e+01	<3.4e+02	5.00E+03	<4.7e+01	<4.7e+01	<1.3e+02	<5.0e+01	<1.1e+02	<8.8e+01	<6.5e+01	<5.1e+01	<4.5e+01	<1.4e+02	<1.6e+02
8/26/03	SW-13.5	<3.7e+01	9.10E+02	2.59E+03	<2.9e+01	<3.0e+01	<9.2e+01	<3.2e+01	<1.1e+02	<6.0e+01	<3.8e+01	<3.7e+01	<3.2e+01	<5.2e+01	<5.9e+01
9/30/03	SW-13.5	<3.8e+01	6.70E+02	4.56E+03	<4.1e+01	<6.2e+01	<1.4e+02	<6.6e+01	<6.0e+01	<1.5e+02	<6.9e+01	<5.9e+01	<5.6e+01	<1.9e+02	<2.2e+02
10/28/03	SW-13.5	<4.8e+01	<4.9e+02	4.69E+03	<4.7e+01	<6.4e+01	<1.6e+02	<4.8e+01	<1.5e+02	<1.1e+02	<9.2e+01	<5.1e+01	<3.9e+01	<1.7e+02	<2.0e+02
11/25/03	SW-13.5	<4.2e+01	1.03E+03	8.80E+03	<5.3e+01	<5.5e+01	<1.3e+02	<5.3e+01	<2.1e+02	<9.3e+01	<6.0e+01	<5.6e+01	<5.1e+01	<8.2e+01	<9.4e+01
12/30/03	SW-13.5	<3.9e+01	1.03E+03	7.12E+03	<6.5e+01	<6.7e+01	<2.2e+02	<5.7e+01	<2.1e+02	<1.4e+02	<8.4e+01	<4.7e+01	<5.2e+01	<1.7e+02	<2.0e+02
Required LLD's		6.00E+01										6.00E+01	8.00E+01		
Reportable Levels		1.00E+02										1.00E+03	2.00E+03		

K. Conclusions

For the year 2003, based on the results presented in this report and from comparisons with the pre-operational and operational program results from previous years, it can be concluded that the impact of Comanche Peak on the environment is very small. **The only indication directly attributable to Comanche Peak is the tritium detected in Squaw Creek reservoir.**

Gross beta trend indications concerning Squaw Creek Reservoir is consistent with 2002 values and do not indicated any increase due to influence from Comanche Peak. The current levels have been seen in pre-operational data but are now very consistent and may be at an equilibrium value that will continue in water samples from this location. Future data will be evaluated as it is received and changes will be addressed as necessary.

The atmospheric environment was sampled for airborne particulate matter, radioiodine and direct radiation. The terrestrial environment was sampled using groundwater, surface drinking water, food products and broadleaf vegetation. The aquatic environment was sampled using surface water, fish and shoreline sediments. The analyses of all these samples provided results that were below the measurement detection limits, or were indicative of natural terrestrial and cosmic ray radiation levels, except for the tritium in the water samples of Squaw Creek reservoir. **The tritium in Squaw Creek reservoir is reaching equilibrium and is expected to remain well below the reportable level.**

There were no values reported during the year 2003 that exceeded any NRC reportable limit.

L. Interlaboratory Comparison and Cross Check Program

Framatome ANP Environmental Laboratory is the independent contract laboratory that processes the radiological environmental monitoring samples collected by CPSES. The contract laboratory is required to participate in an Interlaboratory Comparison Program in accordance with the ODCM Control 3.12.3. Framatome participates in multiple programs to ensure all environmental media sent to them are analyzed to the proper standards.

Framatome recently published "Semi-Annual Quality Assurance Status Report January-June 2003"and "Semi-Annual Quality Assurance Status

Report July-December 2003"which included current interlaboratory comparison results and two year trends as appropriate. These reports explain the Quality Control Program used by Framatome during their respective time periods. Interlaboratory and third party quality control programs included the Environmental Crosscheck Program administered by Analytics, Inc., the National Institute of Standards and Technology (NIST) Measurement Assurance Program (MAP), the Environmental Resource Associates (ERA) Proficiency Test (PT), the Department of Energy (DOE) Quality Assessment Program (QAP) and the Mixed Analyte Performance Evaluation Program (MAPEP). Framatome also conducts an internal Quality Control Program that includes QC functions such as instrumentation checks, blank samples, instrumentation backgrounds, duplicates, staff qualification analysis and process controls.

There were no external surveillances or audits performed during the first semi-annual period. The triennial NUPIC audit led by PPL Susquehanna, LLC was conducted as well as an internal QA audit during the second semi-annual reporting period. Both audits were satisfactory.

Extensive details of the results of the various interlaboratory and cross check programs are contained in the reports mentioned above. A summary of each reporting period is reported below:

During the first semi-annual reporting period, there were 26 nuclides associated with various media types analyzed by means of the Laboratory's internal process control, DOE, NIST, ERA and Analytics quality control programs.

The Analytics Cross Check Program provided 167 individual environmental analyses for bias and 65 for precision. 97.6% fell within the Laboratory's acceptance criteria for bias and 100% were within tolerance limits for precision.

The ERA Program provided a total of 12 mean results evaluated by ERA with an 81.3% agreement.

Of the 216 internal process control analyses evaluated for bias, 96.8% met Laboratory acceptance criteria. Also, 98.6% of the 70 results for precision were found acceptable.

All 53 QC charcoals evaluated during this period reported positive activity as expected.

1 of the 143 environmental analytical blanks analyzed reported positive activity greater than 3 times the standard deviation.

None of backgrounds processed reported activity above the 3 times the standard deviation limit..

The cumulative bias for the three programs evaluated to the internal Laboratory's performance criteria shows 97.1% of the 383 individual results fell within acceptance criteria for bias while 99.6% of the 235analyses fell within the acceptance criteria for precision.

A review was performed of all Condition Reports (CR) listed in the report. 27 CRs were closed during this period and 18 CRs were issued. No adverse trend can be detected and the Laboratory is pursuing resolution of all open CRs.

During the second semi-annual reporting period, there were 27 nuclides associated with various media types analyzed by means of the Laboratory's internal process control, DOE, NIST, ERA and Analytics quality control programs.

The Analytics Cross Check Program provided 154 individual environmental analyses for bias and 152 for precision. 100% fell within the Laboratory's acceptance criteria for bias and 100% were within tolerance limits for precision.

The ERA Program provided a total of 12 mean results evaluated by ERA with an 85.7% agreement.

Of the 298 internal process control analyses evaluated for bias, 99.3% met Laboratory acceptance criteria. Also, 100% of the 123 results for precision were found acceptable.

All 72 QC charcoals evaluated during this period reported positive activity as expected.

None of the 191 environmental analytical blanks analyzed reported positive activity greater than 3 times the standard deviation.

None of the backgrounds processed reported any activity above the 3 times the standard deviation limit.

LQCAC blind duplicates resulted in greater than 99.6% of all paired measurements meeting the LQCAC acceptance criteria.

The cumulative bias for the three programs evaluated to the internal Laboratory's performance criteria shows 99.6% of the 458 individual results fell within acceptance criteria for bias while 100% of the 281analyses fell within the acceptance criteria for precision.

A review was performed of all Condition Reports (CR) listed in the report. 12 CRs were closed during this period and 11 CRs were issued. No adverse trend can be detected and the Laboratory is pursuing resolution of all open CRs.

The independent laboratory, Framatome, satisfies the requirements of the ODCM by their participation in the interlaboratory and cross check programs documented in their semi-annual reports.

Appendix A

Comanche Peak Steam Electric Station
Land Use Census
2003

COPY

June 24, 2003

COMANCHE PEAK STEAM ELECTRIC STATION
LAND USE CENSUS 2003

The Land Use Census identified receptors within a five (5) mile radius of the plant in each of the sixteen (16) meteorological sectors. The Land Use Census was conducted June 13,2003 and June 16, 2002 and includes the following items:

1. Evaluation of the 2003 Land Use Census
2. Nearest Resident by Sector, Distance, X/Q and D/Q
3. Nearest Garden by Sector, Distance and D/Q
4. Nearest Milk Animal by Sector, Distance and D/Q
5. Population by Sector and Distance
6. Environmental Sample Locations Table
7. Environmental Monitoring Locations Map- 2 Mile Radius
8. Environmental Monitoring Locations Map- 20 Mile Radius*
9. 5 Mile Sector and Road Map with Field Data*

*These maps are vaulted along with this census, copies of this census will not contain a copy of these maps unless specifically requested..

Evaluation of the 2003 Land Use Census

The results of the 2003 Land Use Census were reviewed for impact on the Radiological Environmental Monitoring Program (REMP). The specific areas reviewed, that could be affected by changes found in the land use census, were the sampling requirements for milk, broadleaf vegetation and food products.

Reviewing the milk sampling requirements from the ODCM Table 3.12-1 requires that samples are to be obtained from milking animals in three locations within a 5 km distance having the highest potential dose. If none are available, samples are acceptable from milking animals in locations 5 to 8 km distance where doses are calculated to be greater than 1 mrem per year. A sample is also required at a control location. There are currently no identified milking animals (cow or goat) within the specified distances therefore, there will be no milk sampled during the year 2003.

Since not all milk samples are available, the broadleaf vegetation sampling specified in ODCM Table 3.12-1 is being performed. Broadleaf sample requirements are such that samples of broadleaf vegetation are to be collected from each of two offsite locations of the highest predicted annual average D/Q if milk sampling is not performed at all the required locations. Currently, broadleaf vegetation samples are collected at two indicator locations (N - 1.45 and SW - 1.0) and one control location (SW - 13.5). These indicator locations are near the site boundary in sectors where broadleaf vegetation is available and D/Q is high. Therefore, no change to the broadleaf sampling program is required.

Food product sample requirements of ODCM Table 3.12-1 requires that one sample of each principal class of food product be collected from any area that is irrigated with water in which liquid plant waste has been discharged. Of the gardens identified in the land use census, no gardens are located in any area that irrigates with water in which liquid plant wastes are discharged. Currently, food products are sampled from one indicator location (ENE - 9.0) when in season. The indicator location for ENE-9.0 for pecans at time of harvest will be continued since it is a major source of food products sold to the public.

The 2003 Land Use Census did not identify any locations that are "available for sampling" and that would yield a calculated dose 20% greater than at the current sampling locations.

Calculated values for the associated X/Q and D/Q values for each controlling receptor location and pathway are included along with the receptor distances in the data tables of this land use census. The values used to determine potential dose due to radioactive effluent discharges are the highest calculated values based on annual average values. The annual average X/Q used for dose calculations is 3.30E-6, tritium X/Q is 4.36E-6, and the D/Q value is 3.34 E-8. All these values are conservative based on the 2003 Land Use Census data and therefore no changes are required in the dose calculation parameters as verified by the field data.

* X/Q units are Sec/cubic meter   * D/Q units are inverse square meters

Nearest Resident by Sector, Distance, X/Q and D/Q

Sector	Distance (Miles)	X/Q	D/Q
N	2.2	9.28E-07	5.32E-09
NNE	2.2	5.58E-07	2.90E-09
NE	2.2	3.92E-07	1.42E-09
ENE	2.4	2.58E-07	7.08E-10
E	2.4	3.02E-07	6.62E-10
ESE	2.0	4.70E-07	1.20E-09
SE	1.9	8.30E-07	3.40E-09
SSE	1.5	1.10E-06	6.60E-09
S	1.5	8.50E-07	5.20E-09
SSW	2.2	3.24E-07	1.41E-09
SW	1.1	1.40E-06	5.50E-09
WSW	1.0	1.80E-06	6.50E-09
W	1.6	7.64E-07	2.50E-09
WNW	3.0	3.76E-07	1.07E-09
NW	2.7	6.98E-07	2.24E-09
NNW	2.8	5.28E-07	2.10E-09

Note: The Annual Average X/Q used for dose calculations is 3.30E-06 sec/cubic meter.
The Tritium value X/Q used for dose calculations is 4.36E-06 sec/cubic meter.
The Annual Average D/Q used for dose calculations is 3.34E-08 inverse square meters.

Nearest Garden by Sector, Distance and D/Q

Sector	Distance (Miles)	D/Q
N	3.4	2.90E-09
NNE	2.5	2.30E-09
NE	2.4	1.14E-09
ENE	2.4	7.08E-10
E	2.4	6.62E-10
ESE	3.3	3.96E-10
SE	3.8	6.26E-10
SSE	1.9	3.88E-09
S	2.1	2.28E-09
SSW	4.5	2.60E-10
SW	1.5	2.50E-09
WSW	1.2	4.78E-09
W	3.3	4.42E-10
WNW	3.0	1.04E-09
NW	None	None
NNW	None	None

Nearest Milk Animal by Sector, Distance and D/Q

Sector	Distance (Miles)	D/Q
N	None	None
NNE	None	None
NE	None	None
ENE	None	None
E	None	None
ESE	None	None
SE	None	None
SSE	None	None
S	None	None
SSW	None	None
SW	None	None
WSW	None	None
W	None	None
WNW	None	None
NW	None	None
NNW	None	None

Population by Sector and Distance

Sector	0-1	1-2	2-3	3-4	4-5	Total
N	-	-	3	32	109	144
NNE	-	-	27	88	19	134
NE	-	-	70	136	261	467
ENE	-	-	56	6	27	89
E	-	-	96	174	24	294
ESE	-	-	48	78	157	283
SE	-	11	120	80	78	289
SSE	-	70	67	59	2127	2323
S	-	30	83	43	187	343
SSW	-	-	8	6	48	62
SW	-	99	6	57	51	213
WSW	-	232	3	19	-	254
W	-	11	14	24	19	68
WNW	-	-	-	43	64	107
NW	-	-	3	-	3	6
NNW	-	-	3	46	32	81
TOTAL	-	453	607	891	3206	5157

Based on an average of 2.66 residents per house. This average was obtained from North Central Texas Council of Governments for Hood and Somervell Counties and is derived from an average residents per house of 2.57 and 2.74, respectively.

Environmental Sample Locations Table

Sampling Point	Location	Sample Type*
A1	N-1.45 (Squaw Creek Park)	A
A2	N-9.4 (Granbury)	A
A3	E-3.5 (Children's Home)	A
A4	SSE-4.5 (Glen Rose)	A
A5	S/SSW-1.2	A
A6	SW-12.3 (CONTROL)	A
A7	SW/WSW-0.95	A
A8	NW-1.0	A
R1	N-1.45 (Squaw Creek Park)	R
R2	N-4.4	R
R3	N-6.5	R
R4	N-9.4 (Granbury)	R
R5	NNE-1.1	R
R6	NNE-5.65	R
R7	NE-1.7	R
R8	NE-4.8	R
R9	ENE-2.5	R
R10	ENE-5.0	R
R11	E-0.5	R
R12	E-1.9	R
R13	E-3.5 (Children's Home)	R
R14	E-4.2	R
R15	ESE-1.4	R
R16	ESE-4.7	R
R17	SE-1.3	R
R18	SE-3.85	R

Environmental Sample Locations Table (cont.)

Sampling Point	Location	Sample Type*
R19	SE-4.6	R
R20	SSE-1.3	R
R21	SSE-4.4 (Glen Rose)	R
R22	SSE-4.5 (Glen Rose)	R
R23	S-1.5	R
R24	S-4.2	R
R25	SSW-1.1	R
R26	SSW-4.4 (State Park)	R
R27	SW-0.9	R
R28	SW-4.8 (Girl Scout Camp)	R
R29	SW-12.3 (CONTROL)	R
R30	WSW-1.0	R
R31	WSW-5.35	R
R32	WSW-7.0 (CONTROL)	R
R33	W-1.0	R
R34	W-2.0	R
R35	W-5.5	R
R36	WNW-1.0	R
R37	WNW-5.0	R
R38	WNW-6.7	R
R39	NW-1.0	R
R40	NW-5.7	R
R41	NW-9.9 (Tolar)	R
R42	NNW-1.35	R
R43	NNW-4.6	R

Environmental Sample Locations Table (cont.)

Sampling Point	Location	Sample Type*
SW1	N-1.5 (Squaw Creek Reservoir Marina)	SW
SW2	N-9.9 (Lake Granbury)	SW/DW[1]
SW3	N-19.3 (CONTROL-Brazos River)	SW
SW4	NE-7.4 (Lake Granbury)	SW
SW5	ESE-1.4 (Squaw Creek Reservoir)	SW[2]
SW6	NNW-0.1 (Squaw Creek Reservoir)	SW/DW[3]
GW1	W-1.2 (NOSF Potable Water)	GW
GW2	WSW-0.1 (Plant Potable Water)	GW[3,4]
GW3	SSE-4.6 (Glen Rose)	GW[4]
GW4	N-9.8 (Granbury)	GW[1,4]
GW5	N-1.45 (Squaw Creek Park)	GW[4]
SS1	NNE-1.0 (Squaw Creek Reservoir)	SS
SS2	N-9.9 (Lake Granbury)	SS
SS3	NE-7.4 (Lake Granbury)	SS
SS4	SE-5.3 (Squaw Creek)	SS
F1	ENE-2.0 (Squaw Creek Reservoir)	F
F2	NNE-8.0 (Lake Granbury)	F
FP1	ENE-9.0 (Leonard Bros. Pecan Farm)	FP

Environmental Sample Locations Table (cont.)

Sampling Point	Location	Sample Type*
BL1	N-1.45	BL
BL2	SW-1.0	BL[5]
BL3	SW-13.5 (CONTROL)	BL[5]

*Sample Type : A - Air Sample; R - Direct Radiation; SW - Surface Water;
DW - Drinking Water GW - Ground Water; SS - Shoreline Sediments;
M - Milk; F - Fish; FP - Food Products; BL - Broadleaf Vegetation

NOTES:
1) The municipal water system for the City of Granbury is supplied by surface water from Lake Granbury (location SW2) and ground water (location GW4). Each of these supplies is sampled. These samples are not required for compliance with Radiological Effluent Control 3/4.12.1, Table 3.12-1, because they are not affected by plant discharges.
2) This sample (location SW6) is representative of discharges from Squaw Creek Reservoir both down Squaw Creek and to Lake Granbury via the return line to Lake Granbury if used.
3) Plant potable water could be supplied by surface water from Squaw Creek Reservoir (location SW6) but is normally supplied by ground water from onsite wells (location GW2). Each of these possible sources of water are sampled.
4) Ground water supplies in the plant site area are not affected by plant liquid effluents as discussed in CPSES FSAR Section 2.4.13 and are therefore not required to be monitored for radioactivity to meet the requirements of the Radiological Effluent Control 3/4.12.1, Table 3.12-1.
5) Broadleaf sampling will be performed at the specified locations if milk samples are unavailable from any location.