Duke Power Company
Electric System Support
13339 Hagers Ferry Road
Huntersville, NC 28078-7929

DUKE POWER

December 7, 1995

Mr. Van Keisler
SC Department of Health and Environmental Control
Bureau of Solid and Hazardous Waste Management
Division of Hydrogeology - Solid Waste Section
2600 Bull Street
Columbia, South Carolina 29201

Subject: Catawba Nuclear Station - York County, S. C.
Industrial Landfill Permit # 463303-1601
File Code: CN-705.05
Certified Mail: Z 403 319 228

Dear Mr. Van Keisler:

Please find attached the semi-annual ground water monitoring report for Catawba Nuclear Station's Landfill #463303-1601. All monitoring results met the South Carolina State groundwater standards. The next scheduled groundwater sampling event for this landfill is April 1996.

Should you have questions or comments regarding this report please feel free to contact me at (704) 875-5965.

Sincerely,

John Estridge, Engineer
Environmental Division/Water Protection

jte/487

Attachments

xc: Catawba District Hydrologist
CNS NRC Document Distribution List

110127

C001

bc: J. E. Reece CN01EM
R. A. Santini MG03A
G. A. Vander Velde MG03A5
M.A. Lascara MG03A5

DUKE POWER COMPANY
GROUND-WATER MONITORING REPORT

November 7, 1995
Table 1

Facility: Catawba Nuclear Station Industrial Waste Landfill - Permit No. IWP-192
Sample Date: October 9, 1995 (GEOCHEMISTRY DATA)

Parameter	Units	Storet Number	Monitoring Well Identification				FIELD BLANK	SC R.61-58 MCL
			LMW-1A	LMW-2	LMW-3	LMW-4		
Lab Certificate No.		00008	99005	99005	99005	99005	99005	
Top of Well Casing	msl-feet		628.33	625.35	630.34	630.36		
Depth to Water	feet		29.75	24.04	30.12	24.62		
Water Elevation (0.01')	msl-feet	82545	598.58	601.31	600.22	605.74		
Well Depth	feet		37.00	33.70	35.00	37.10		
Field Spec. Conductance	umho/cm	00095	96	115	93	109		
Field pH	Std. Units	00400	6.2	6.4	6.3	6.2		6.5-8.5*
Lab pH	Std. Units	00403	5.7	6.4	6.3	6.1	5.8	6.5-8.5*
Chloride	mg/l	00940	4.4	9.9	14	6.8	<1.0	250*
NO3 + NO2	mg/l	00630	<0.050	0.41	<0.050	<0.050	<0.050	10.0
Sulfate	mg/l	00945	4.2	2.5	3.2	3.0	2.2	250*
TOC	mg/l	00680	0.30	0.48	0.36	0.4	0.22	

* SC R.61-58.5(O) Secondary Maximum Contaminant Level (MCL) for drinking water as reference only.

Nuclide	Radiological Analysis (Before Purge)**				
	Units	LMW-1A	LMW-2	LMW-3	LMW-4
Tritium	pCi/Liter	793	821	303	863
Alpha	pCi/Liter	<0.16	<-0.18	<0.036	<-0.0019
Beta	pCi/Liter	2.9	3.7	1.5	1.2
Sample Number		822	821	820	823
Sample Test Date		95-10-10	95-10-10	95-10-10	95-10-10

**See attached individual analysis reports for more information on radiological parameters.

Authorized Release By: Ronald A Santini Date: 11.14.95

DUKE POWER COMPANY
GSD - ENVIRONMENTAL CENTER
RADIOLOGICAL & ENVIRONMENTAL SERVICES

VAX/VMS Sample Analysis Report generated : 24-OCT-1995 11:26:31

Plant Name : CNS
Sample Number : 822
Type/Location : GROUND WATER / LMW-1A
Sample Date : 9-OCT-1995 09:30:00
Acq. Start Time : 10-OCT-1995 07:44:33
Sample Quantity : 3.50000 LITERS
Sample ID : CNS LANDFILL
Measurement Type : SPECIAL
Elapsed Live Time: 0 02:29:12.99

***** Alternate Analysis *****

Nuclide	Energy		Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
H-3	18.00		793.	34.9		3.967E-02
ALPHA	0.00	<	0.162	0.227		
BETA	0.00		2.87	0.456		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy		Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	<	5.38	0.000E+00		
CO-58	810.76	<	5.64	0.000E+00		
FE-59	1099.22	<	10.0	0.000E+00		
CO-60	1332.49	<	7.01	0.000E+00		
ZN-65	1115.52	<	14.8	0.000E+00		
NB-95	765.79	<	6.07	0.000E+00		
ZR-95	756.72	<	9.51	0.000E+00		
I-131	364.48	<	5.85	0.000E+00		
CS-134	604.70	<	5.34	0.000E+00		
CS-137	661.65	<	5.31	0.000E+00		
BALA-140	1596.49	<	5.90	0.000E+00		
K-40	1460.81		155.	34.7		

			Total Fraction of Reporting Level			3.967E-02

Gamma results are listed as Less Than Levels using Tech Spec/SLC LLD equation. LLD = 4.66 SQRT B/t. Presence of less than sign for gamma results means no peak was found and the zero error is not applicable.

Tritium, Alpha and Beta results are the best estimate of the activity and the less than sign indicates that the net activity is less than the critical level, CL. CL = 0.5 LLD

Reviewed by: _____ Date: 10/24/95

DUKE POWER COMPANY
GSD - ENVIRONMENTAL CENTER
RADIOLOGICAL & ENVIRONMENTAL SERVICES

VAX/VMS Sample Analysis Report generated : 24-OCT-1995 11:23:59

Plant Name : CNS
Sample Number : 821
Type/Location : GROUND WATER / LMW-2
Sample Date : 9-OCT-1995 10:45:00
Acq. Start Time : 10-OCT-1995 07:48:00
Sample Quantity : 3.50000 LITERS
Sample ID : CNS LANDFILL
Measurement Type : SPECIAL
Elapsed Live Time: 0 01:09:20.99

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
H-3	18.00	821.	35.4		4.106E-02
ALPHA	0.00	<-0.179	0.203		
BETA	0.00	3.65	0.483		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy		Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	<	4.13	0.000E+00		
CO-58	810.76	<	5.70	0.000E+00		
FE-59	1099.22	<	15.5	0.000E+00		
CO-60	1332.49	<	7.03	0.000E+00		
ZN-65	1115.52	<	12.2	0.000E+00		
NB-95	765.79	<	7.04	0.000E+00		
ZR-95	756.72	<	10.7	0.000E+00		
I-131	364.48	<	6.65	0.000E+00		
CS-134	604.70	<	6.31	0.000E+00		
CS-137	661.65	<	6.84	0.000E+00		
BALA-140	1596.49	<	8.53	0.000E+00		
K-40	1460.81		55.9	34.8		

Total Fraction of Reporting Level 4.106E-02

Gamma results are listed as Less Than Levels using Tech Spec/SLC LLD equation. LLD = 4.66 SQRT B/t. Presence of less than sign for gamma results means no peak was found and the zero error is not applicable.

Tritium, Alpha and Beta results are the best estimate of the activity and the less than sign indicates that the net activity is less than the critical level, CL. CL = 0.5 LLD

Reviewed by: Mich J Tyn Date: 10/24/95

DUKE POWER COMPANY
GSD - ENVIRONMENTAL CENTER
RADIOLOGICAL & ENVIRONMENTAL SERVICES

VAX/VMS Sample Analysis Report generated : 24-OCT-1995 11:25:14

Plant Name : CNS
Sample Number : 820
Type/Location : GROUND WATER / LMW-3
Sample Date : 9-OCT-1995 11:50:00
Acq. Start Time : 10-OCT-1995 07:49:35
Sample Quantity : 3.50000 LITERS
Sample ID : CNS LANDFILL
Measurement Type : SPECIAL
Elapsed Live Time: 0 01:00:00.00

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
H-3	18.00	303.	31.9		1.513E-02
ALPHA	0.00	< 3.588E-02	0.198		
BETA	0.00	1.54	0.406		0.000E+00

***** Gamma-Spectroscopy Analysis *****

Nuclide	Energy		Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	<	6.12	0.000E+00		
CO-58	810.76	<	5.28	0.000E+00		
FE-59	1099.22	<	8.15	0.000E+00		
CO-60	1332.49	<	8.02	0.000E+00		
ZN-65	1115.52	<	12.8	0.000E+00		
NB-95	765.79	<	7.43	0.000E+00		
ZR-95	756.72	<	9.43	0.000E+00		
I-131	364.48	<	6.32	0.000E+00		
CS-134	604.70	<	5.31	0.000E+00		
CS-137	661.65	<	6.33	0.000E+00		
BALA-140	1596.49	<	6.82	0.000E+00		
K-40	1460.81		87.8	27.6		
					Total Fraction of Reporting Level	1.513E-02

Gamma results are listed as Less Than Levels using Tech Spec/SLC LLD equation. LLD = 4.66 SQRT B/t. Presence of less than sign for gamma results means no peak was found and the zero error is not applicable.

Tritium, Alpha and Beta results are the best estimate of the activity and the less than sign indicates that the net activity is less than the critical level, CL. CL = 0.5 LLD

Reviewed by: Michael Jones Date: 10/24/95

DUKE POWER COMPANY
GSD - ENVIRONMENTAL CENTER
RADIOLOGICAL & ENVIRONMENTAL SERVICES

VAX/VMS Sample Analysis Report generated : 24-OCT-1995 11:24:04

Plant Name : CNS
Sample Number : 823
Type/Location : GROUND WATER / LMW-4
Sample Date : 9-OCT-1995 13:20:00
Acq. Start Time : 10-OCT-1995 07:51:05
Sample Quantity : 3.50000 LITERS
Sample ID : CNS LANDFILL
Measurement Type : SPECIAL
Elapsed Live Time: 0 04:18:08.99

***** Alternate Analysis *****

Nuclide	Energy	Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
H-3	18.00	863.	35.9		4.313E-02
ALPHA	0.00	<-1.934E-03	0.212		
BETA	0.00	1.24	0.415		0.000E+00

***** Gamma-Spectroscopy Analysis *****

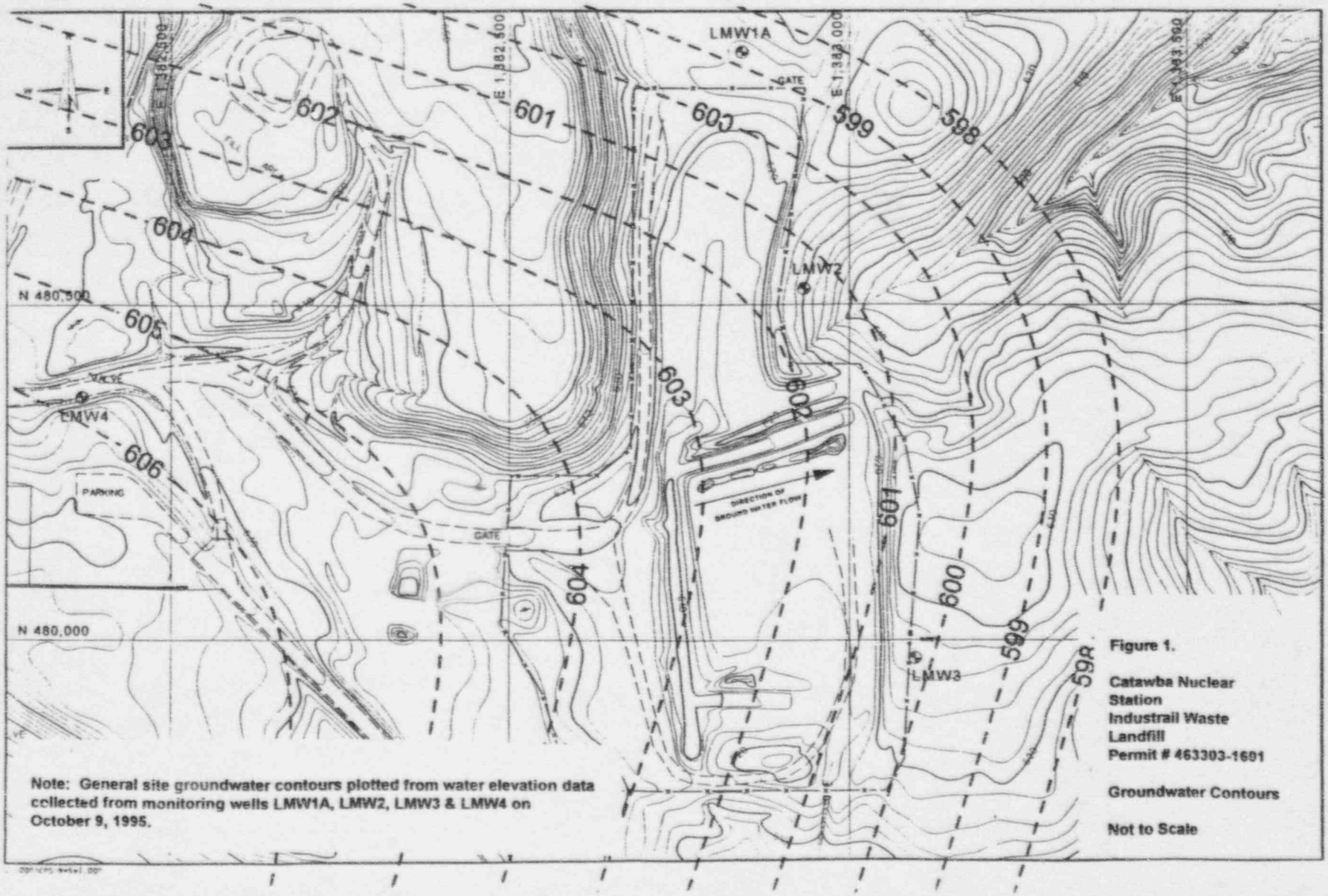
Nuclide	Energy		Activity (pCi/LITER)	1-Sigma Error	MDA> req LLD	Frac. of Rpt. Level
MN-54	834.83	<	5.87	0.000E+00		
CO-58	810.76	<	6.10	0.000E+00		
FE-59	1099.22	<	12.1	0.000E+00		
CO-60	1332.49	<	6.33	0.000E+00		
ZN-65	1115.52	<	14.1	0.000E+00		
NB-95	765.79	<	7.46	0.000E+00		
ZR-95	756.72	<	10.8	0.000E+00		
I-131	364.48	<	7.71	0.000E+00		
CS-134	604.70	<	6.70	0.000E+00		
CS-137	661.65	<	5.78	0.000E+00		
BALA-140	1596.49	<	8.16	0.000E+00		

Total Fraction of Reporting Level 4.313E-02

Gamma results are listed as Less Than Levels using Tech Spec/SLC LLD equation. LLD = 4.66 SQRT B/t. Presence of less than sign for gamma results means no peak was found and the zero error is not applicable.

Tritium, Alpha and Beta results are the best estimate of the activity and the less than sign indicates that the net activity is less than the critical level, CL. CL = 0.5 LLD

Reviewed by: Michael Yoe Date: 10/24/95



Note: General site groundwater contours plotted from water elevation data collected from monitoring wells LMW1A, LMW2, LMW3 & LMW4 on October 9, 1995.

Figure 1.

Catawba Nuclear Station
Industrail Waste Landfill
Permit # 463303-1691

Groundwater Contours

Not to Scale

DUKE POWER COMPANY
Laboratory Services
MNS Bldg. # 7405 (MG03A1)
13339 Hagers Ferry Road
Huntersville, NC 28078

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM *

Form 35226 (R10-93)

LS CLIENT CONTACT/PHONE[1]:
CLIENT[2]: 7330 LANDFILL
Project Name[3]: CNS LANDFILL
Results to/Phone[4]: RAS/5229
Address and/or PROFS[5]:
Matrix (type of samples)/QC Level[6]:
SAM No.[7]: 9509412

ANALYSES REQUESTED by bottle type—MUST NOTE PRESERVATIVE[12] (may note special DL or Method)[13]

FRAC[8]	CHEMPLOT Number[9]	Sample Description or ID[10]	Date	Time	Name	NO_2+NO_3, Cl, Alk	Ca, Mg, K, Na	Alk	SO4, pH	TOC	Gross A&B/GeLi	Tritium					
		LMW-1A	10-9-95	0930	GLF	1	1	1	1	1	1	1					
		LMW-2	↓	1045	↓	1	1	1	1	1	1	1					
		LMW-3		1150		1	1	1	1	1	1	1					
		LMW-4		1320		1	1	1	1	1	1	1					
		FIELD BLANK		1245		1	1	1	1	1							
Total # of samples[15]:						5	5	5	5	5	4	4					

(Column headers "Date", "Time", "Name" are under "Collected using sampling instructions[11]".)

Sample Preserved ☑ Yes ☐ No[14]
Name: [signature]

Delivered by[16]: [signature]	Delivered by:	Delivered by:	Turnaround Requested[18]:
Date/Time: 10-9-95/ 1550	Date/Time:	Date/Time:	☐ Routine (3 weeks) ☐ Rush (2 weeks)
Received by: VM Dames / 1600	Received by: Troy Whisenant 10-9-95 1550	Received by:	☐ Emergency Rush ☐ Date Results Requested

Comments[17]:

* See instructions on back of form.
[18] White, canary — LS Files Pink — Client Copy