COMPLETE

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 626677

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [] Direct Revision [] Change ECN [] Temporary [] Standby [] Supersedure [X] Cancel/Void []	V. G. Johnson, 8A220, H6-06, 376-0916	[] Yes [X] No	11/13/95
	5. Project Title/No./Work Order No. Groundwater Monitoring Results for the 100 K Area Fuel Storage Basins, March to December 1994 RCIEA	6. Bldg./Sys./Fac. No. N/A	7. Approval Designator N/A
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[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

1. This report updates 100 K Basins groundwater monitoring results. 2. Conclusions in this revision concerning the impact of the nuclear fuel storage basins and related operations on groundwater quality supersede those stated in Rev. 0 of this document.

13a. Justification (mark one)

Criteria Change	[]	Design Improvement	[]	Environmental	[X]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

13b. Justification Details

As indicated in Block 12 and supports Tri-Party Agreement Milestone M-34-00-T-03.

14. Distribution (include name, MSIN, and no. of copies)

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15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	N/A	Additional	N/A	Improvement	N/A
[X] No	Savings	N/A	Savings	N/A	Delay	N/A

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	None	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
	None	

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Eng. V. G. Johnson V. G. Johnson	11-13-95	PE	
Cog. Mgr. D. G. Horton D. G. Horton	11/16/95	QA	
QA		Safety	
Safety		Design	
Environ.		Environ.	
Other		Other	
		DEPARTMENT OF ENERGY	
		Signature or a Control Number that tracks the Approval Signature	
		M. J. Furman M. J. Furman / via / Telecon	11-16-95
		ADDITIONAL	

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Release Date:	11/20/95

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Chris Willingham 11/20/95

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SUPPORTING DOCUMENT

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Signature

Organization/Charge Code 8A220, R31EA

7. Abstract

This report summarizes and interprets groundwater monitoring results for the nuclear fuel storage basins in the 100 K Area of the Hanford Site. It is based on data collected from March through December 1994. It includes interpretive graphics and numerical tabulations of the monitoring results.

Comparing reported results with drinking water standards indicated that tritium, strontium-90, chromate, and nitrate exceeded the standards. Of these exceedences, only the tritium concentrations from the KE Basin can be attributed to recent leakage from the basin.

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March to December 1994

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ACRONYMS

CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
Corps	U.S. Army Corps of Engineers
CRQL	Contract Required Qualification Limit
CY	calendar year
DQO	Data Quality Objectives
DWS	drinking water standards
ER	Environmental Restoration (program)
FY	fiscal year
GeoDAT	Geosciences Data Analysis Toolkit
HEIS	Hanford Environmental Information System
LOD	limit of detection
LOQ	limit of quantitation
MDL	method detection limit
OEM	Operational Environmental Monitoring
QC	quality control
RCRA	*Resource Conservation and Recovery Act of 1976*
TOC	total organic carbon
TOX	total organic halogens

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GROUNDWATER MONITORING RESULTS FOR THE 100 K AREA FUEL STORAGE BASINS: MARCH TO DECEMBER 1994

1.0 INTRODUCTION

This report includes data collected for the 100 K Basins groundwater monitoring project during the second, third, and fourth quarters of calendar year (CY) 1994. The report is a continuation of the data report for the first quarter of 1994 (Peterson 1994).

2.0 SAMPLING AND ANALYSIS

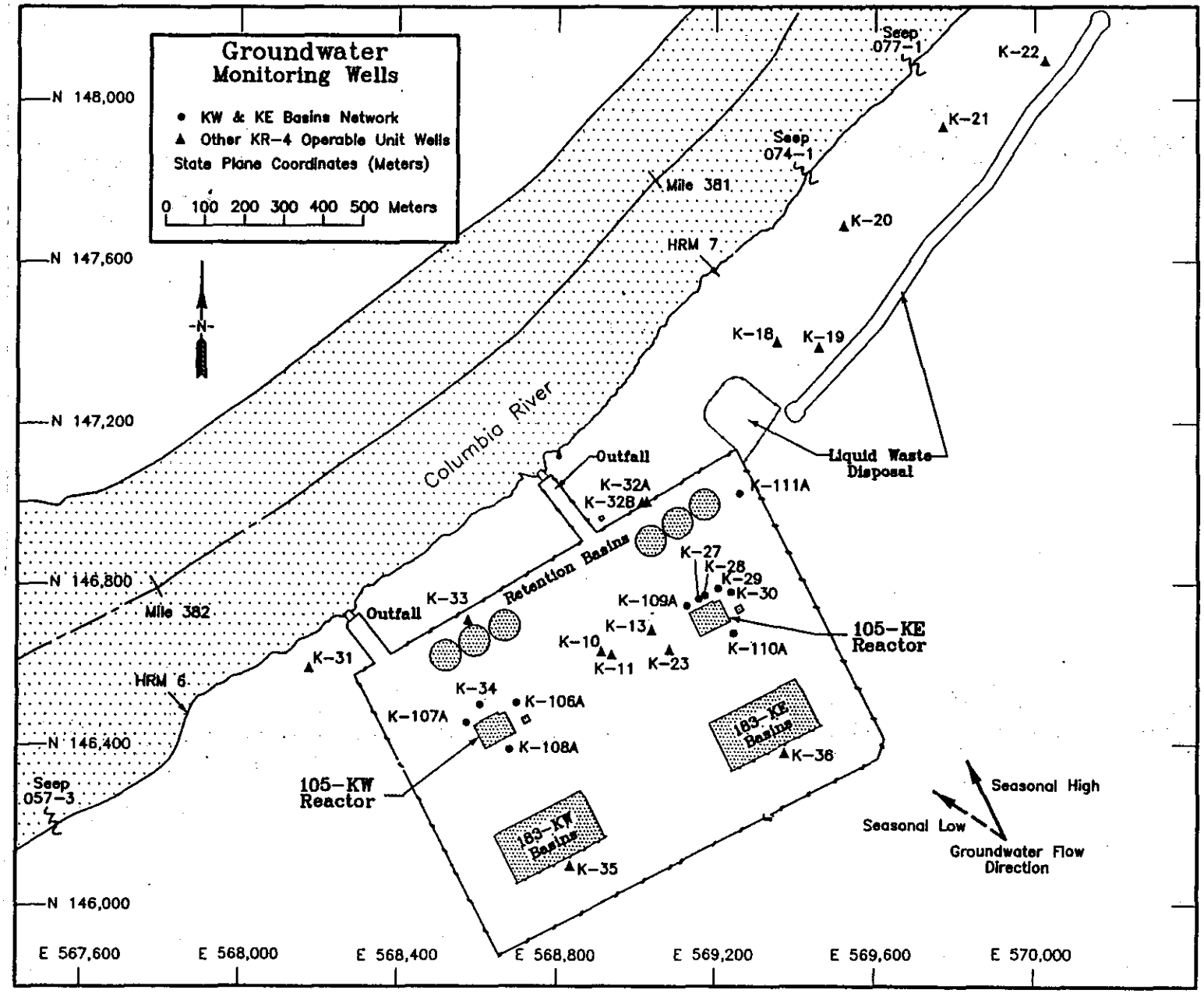
Sampling and analysis of groundwater from the 100 K Basins monitoring network (Figure 1) is currently coordinated by Westinghouse Hanford Company as part of the Operational Environmental Monitoring (OEM) program as described in Section II.B of the *Hanford Site Environmental Monitoring Plan* (DOE 1994a). Groundwater monitoring around the basins was substantially enhanced during 1993 in response to indications of increased water loss from the 105-KE Basin. The following sections describe the well network and the sampling schedule used during CY 1994, which also included constituents of interest for the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA)-related KR-4 operable unit monitoring activity. The CY 1995 sampling schedule for the 100 K Basins portion of the OEM program will be substantially reduced from the 1994 schedule because of program changes and budgetary factors. Future monitoring will rely primarily on indicator parameters (tritium, specific conductance, gross alpha, gross beta, pH, nitrate, and chloride) and the measurement of as many parameters in the field as feasible. The reduced analyte list and detection limit requirements are supported by the Data Quality Objectives (DQO) process that was applied to the 100 K Basins groundwater monitoring project (Johnson et al. 1995).

2.1 GROUNDWATER MONITORING WELL NETWORK

All existing groundwater monitoring wells in the 100 K Area and those used for the K Basins network are shown in Figure 1. The installation plan and data package for six new monitoring wells constructed during fiscal year (FY) 1994 includes a summary of the characteristics of existing wells and a description of the hydrogeologic units in the 100 K Area (Williams and Peterson 1994, Williams 1995). A more complete description of the stratigraphy of the 100 K Area, based on all existing well logs, is contained in Lindberg (1993) and Lindberg (1995). The six new groundwater monitoring wells (Figure 1, K-106A through K-111A) were completed between late 1993 and August 1994 to enhance leak detection monitoring capability around the basins.

2.2 SOURCE TERM CHARACTERISTICS

The two principal or primary sources of tritium and other radionuclides in the 100 K Area include the nuclear fuel storage basin water and past



ITH:JJA:PC411-A1

Figure 1. Location of Monitoring Wells in the 100 K Area.

practice disposal of condensate to a French drain associated with the removal of moisture from the inert gas loop in the "gas wing" or 115-KE building. The characteristics of these two sources are briefly discussed here to help interpret the groundwater data.

KE Basin Water. The radiological constituents in KE Basin water are listed in Table 1. Of these, tritium is the most mobile in an aqueous environment. It is essentially unaffected by chemical and physical processes that might retard its migration with groundwater and, thus, is a good indicator of basin water leakage. Americium, cesium, cobalt, plutonium, and strontium are all adsorbed by sediments, thus retarding their movement or migration rate unless a preferential pathway from the basin to groundwater exists. Antimony and ruthenium have highly variable chemical states so their potential for reaching groundwater is less predictable.

Table 1. Radiological Constituents in KE Basin.

Constituent	Isotope	Half-life (years)
Americium	^{241}Am	458
Antimony	^{125}Sb	2.8
Carbon	$^{14}C^{*}$	5,730
Cesium	^{137}Cs	30.2
Cobalt	^{60}Co	5.3
Plutonium	^{238}Pu	88
	^{239}Pu	24,100
	^{240}Pu	6,560
Ruthenium	^{106}Ru	1.0
Strontium	^{90}Sr	29.1
Tritium	^{3}H	12.3

*Not known to be present in basin water.

French Drain/Gas Wing Source. Carbon-14 was discharged to the soil column, along with tritiated condensate from the inert gas system via French drains during the reactors' operating period (1955 to 1971). These French drains are located near the fuel storage basins along the east side of each reactor building. The effluent discharged to the drains reportedly contained approximately 100 curies each of tritium and carbon-14. Based on process knowledge and carbonate chemistry, the carbon-14 is expected to be present in groundwater as the relatively mobile bicarbonate ion (HCO_3^-). The carbon-14 was probably initially present in the condensate as carbonic acid that reacted with silicate and carbonate minerals in the soil column.

KW Basin Water. The KW Basin water does not contain the same inventory of radionuclides as the KE Basin because the fuel stored at KW Basin is fully encapsulated and undamaged. KW Basin water does contain significant concentrations of tritium, however, which is a good indicator of basin leakage. The water in both the KW and KE basins is nearly free of dissolved salts and thus exhibits low electrical conductivity (about 10 umhos/cm). This is in contrast to natural groundwater, which does contain dissolved salts and shows higher electrical conductivity (300-400 umhos/cm). Thus, if basin water does not leach or dissolve material from the soil column beneath the basins, tritium concentrations in groundwater that are within a factor of 2 or 3 of

basin water tritium concentrations should also exhibit proportionally lower electrical conductivity than ambient groundwater (if the basin is the source of the tritiated water).

2.3 MONITORING WELL SAMPLING AND ANALYSIS SCHEDULE

The CY 1994 sampling schedule for the Fuel Storage Basins well network is shown in Table 2, along with the list of analyses performed. Actual sample dates may vary as the result of scheduling logistics for well trips. Water table elevations are measured each time a well is sampled, and at monthly intervals in selected wells. Hourly measurements of water level, temperature, and electrical conductivity are obtained from Well 199-K-30 near the KE Basin.

Table 2. 100-K Area Operational Monitoring Program Sampling and Analysis Schedule for Fiscal Year 1994.

Well	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
K-11	X			X			X			X			X
K-13	A			A			A			A			X
K-18	A			A			A			A			X
K-19	X			X			X			X			X
K-23	A						X			X			X
K-27	X	A	A	X	A	A	X	A	A	X	A	A	X
K-28	X	A	A	X	A	A	X	A	A	X	A	A	X
K-29	X	A	A	X	A	A	X	A	A	X	A	A	X
K-30	X	A	A	X	A	A	X	A	A	X	A	A	X
K-32A		A	A	X	A	A	X	A	A	X	A	A	X
K-33				X			X			X			X
K-34		A	A	X	A	A	X	A	A	X	A	A	X
K-106A							X			X			X
K-107A							X			X			X
K-108A							X			X			X
K-109A													X
K-110A													X
K-111A													X

"A" list	"X" list	
Tritium screening	Gross alpha and beta	Gamma scan
	Anions (IC)	ICP metals (filt)
	Carbon-14	pH (field)
	Conduct (field)	Tritium
	Conduct (lab)	Turbidity (lab)

3.0 ANALYTICAL RESULTS

Groundwater samples in the 100 K Area were collected monthly, quarterly, and semiannually during CY 1994 to meet the needs of several programs, including the Spent Fuel Storage Basins program. The results are available from the Hanford Environmental Information System (HEIS) and the Geosciences Data Analysis Toolkit (GeoDAT).

3.1 SAMPLING

Sampling for the first quarter 1994 was completed during January for most of the 100 K Basins network wells. The three new wells near KW Basin (199-K-106A, -107A, and -108a) were sampled during drilling in February and March; the first regular sampling of these wells occurred in early May 1994. The last of the three new wells at KE Basin (199-K-109A, -110A, and -111A) was completed in August. Groundwater samples were also collected from the six new wells at several depth intervals during drilling. The first regular sampling for the three new KE Basin wells occurred during the third and fourth quarters. All analytical results for the fourth quarter will not be available until the first quarter of 1995. After the third quarter of 1995, one full year or four quarters of indicator data will be available for all wells in the network. A statistical evaluation can then be made following the protocol used in the *Resource Conservation and Recovery Act of 1976* (RCRA) annual reports. In addition to this regular sampling, monthly tritium sampling was completed in a subgroup of wells to provide enhanced monitoring for leak detection and tritium plume tracking.

3.2 SUMMARY OF ANALYTICAL RESULTS AND EXCEEDANCES

Analytical results are presented in Appendix A. Blank entries in these tables indicate either the constituent was not included in the analysis list or the results are not yet available. A complete guide to the format and conventions used is included with Appendix A [reproduced from the RCRA quarterly reports (DOE-RL 1994, Section 1.4)].

A tabulation of constituents analyzed and standards exceeded is included in Appendix Table A-1. This tabulation indicates that drinking water standards for tritium, strontium-90, nitrate, and chromium were clearly exceeded. Other reported exceedances are regarded as sampling artifacts (e.g., inclusion of samples collected during drilling that were highly turbid and could not be filtered and thus the analytical results showed elevated concentrations of metals, gross alpha, etc.). Of the constituents that exceeded drinking water standards, only tritium immediately downgradient from the storage basins is attributed to current or recent leakage of storage basin water. The other exceedances identified are considered to be related to past-practice sources associated with the KR 4 operable unit. Investigation and reporting for the latter are covered under the Environmental Restoration (ER) program.

3.3 CONTAMINANT INDICATOR DISTRIBUTION MAPS

Maps showing the areal distribution of tritium, gross alpha, gross beta, and specific conductivity in the upgradient and downgradient monitoring network for the K Basins are presented in Figures 2 and 3.

Gross beta and strontium-90. The gross beta concentrations are significantly greater than local area background (i.e., exceed the upper 95% tolerance limit of 11.6 pCi/L; Appendix Table A-4b) in two downgradient wells at the KW Basin (K-107A and K-34) and in two wells at the KE Basin (K-109A and K-27). The high gross beta (1140 pCi/L) observed in the new monitoring well (K-109A) at KE Basin was shown to be caused by strontium-90 (see Appendix A results for K-109A sampled in duplicate on September 20, 1994). Because the gross beta measurement includes both strontium-90 and its daughter yttrium-90, the concentration of strontium-90 should theoretically be one half of the gross beta concentration or 1/2X1100 = 550 pCi/L; the corresponding strontium-90 concentration for this sample was reported as 614 pCi/L. The elevated gross beta in two wells at KW Basin (K-107A and K-34) is very likely caused by strontium-90 because strontium-90 measurements from January 1994 in Well K-34 accounted for all of the excess gross beta. Strontium-90 is suspected in Well K-107A because of the well location in relation to past-practice disposal sites (e.g., subbasin drainage and or basin overflow disposal, D-sump and related drain field, and the wastewater collection box and underground piping that may have leaked in the past). Other possible pathways include leaking water supply lines (e.g., fire hydrant water) that cross over past-practice disposal sites. The estimated strontium-90 concentration for Well K-107A, assuming all of the gross beta in excess of the upgradient or background concentration (7 pCi/L) is caused by strontium-90, should be:

$$(98 \text{ pCi/L} - 7 \text{ pCi/L}) \times 1/2 = 46 \text{ pCi/L}$$

While this concentration is above the drinking water standard of 8 pCi/L, it does not by itself imply a major groundwater contamination problem. However, especially for the occurrence of strontium-90 at the KE Basin, the issue is whether or not the strontium-90 is related to current operations (i.e., basin leakage) or is caused by past-practice sources. The CY 1995 groundwater monitoring and assessment plan and sampling schedule includes additional sampling and proposed characterization boreholes to address this issue (Johnson 1995, Williams 1994, Phase III 1995).

The slightly elevated gross beta in Well K-27 (Figure 3-1) can be accounted for by the reported concentration of antimony-125 present (Appendix A), which is also a potentially mobile K Basin constituent. The only other occurrence of antimony-125 is in the new K-109A well.

Gross alpha. While none of the gross alpha concentrations in the monitoring network exceed the 95% upper tolerance limit of 9.0 pCi/L for local background (Appendix Table A-4a), the result for the new Well K-109A may be slightly elevated. If this proves to be statistically significant, subsamples will be submitted for plutonium analysis.

Figure 2. Gross Alpha and Gross Beta in K Basins Groundwater Monitoring Well Network (Fourth Quarter 1994).

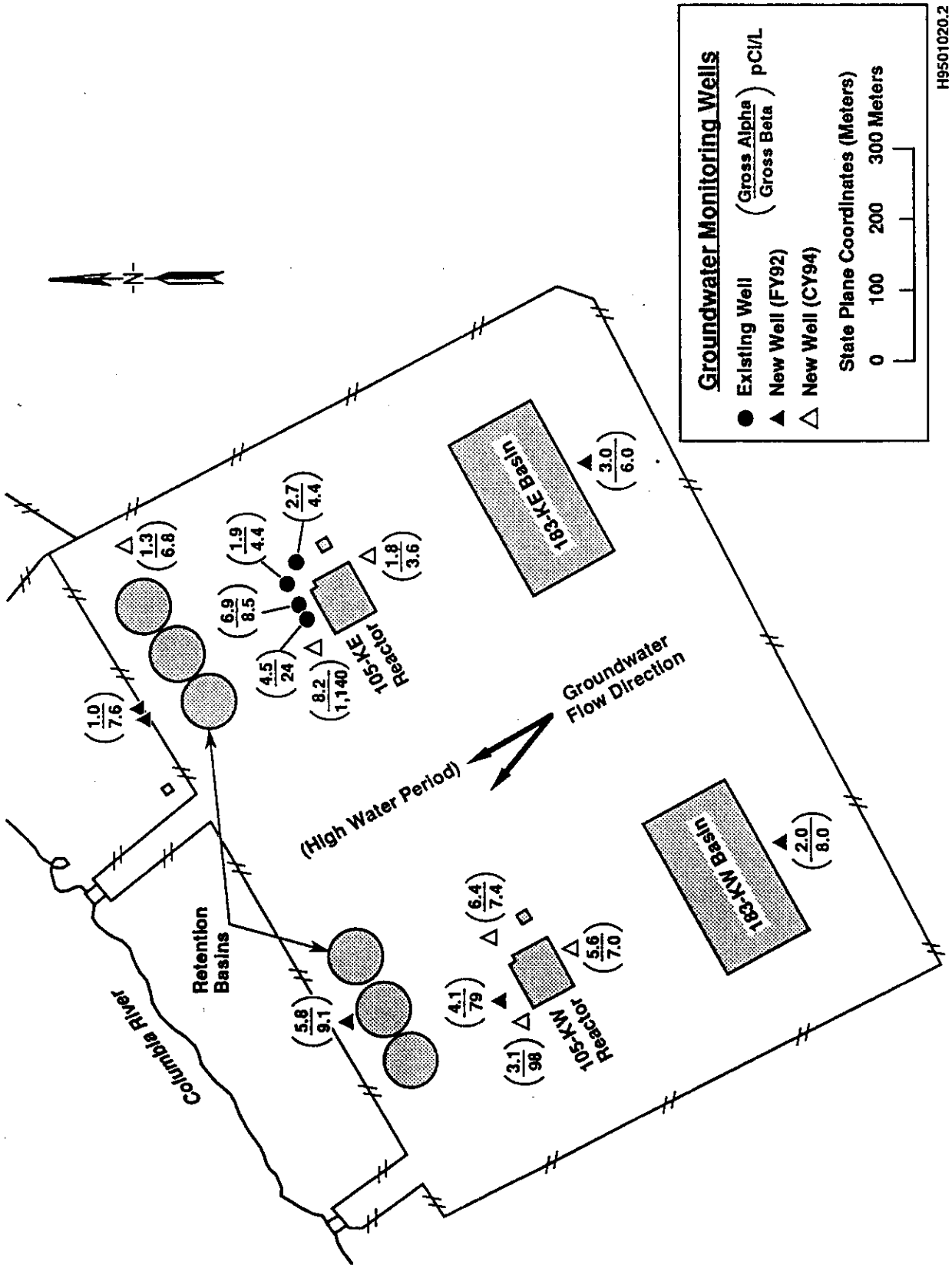
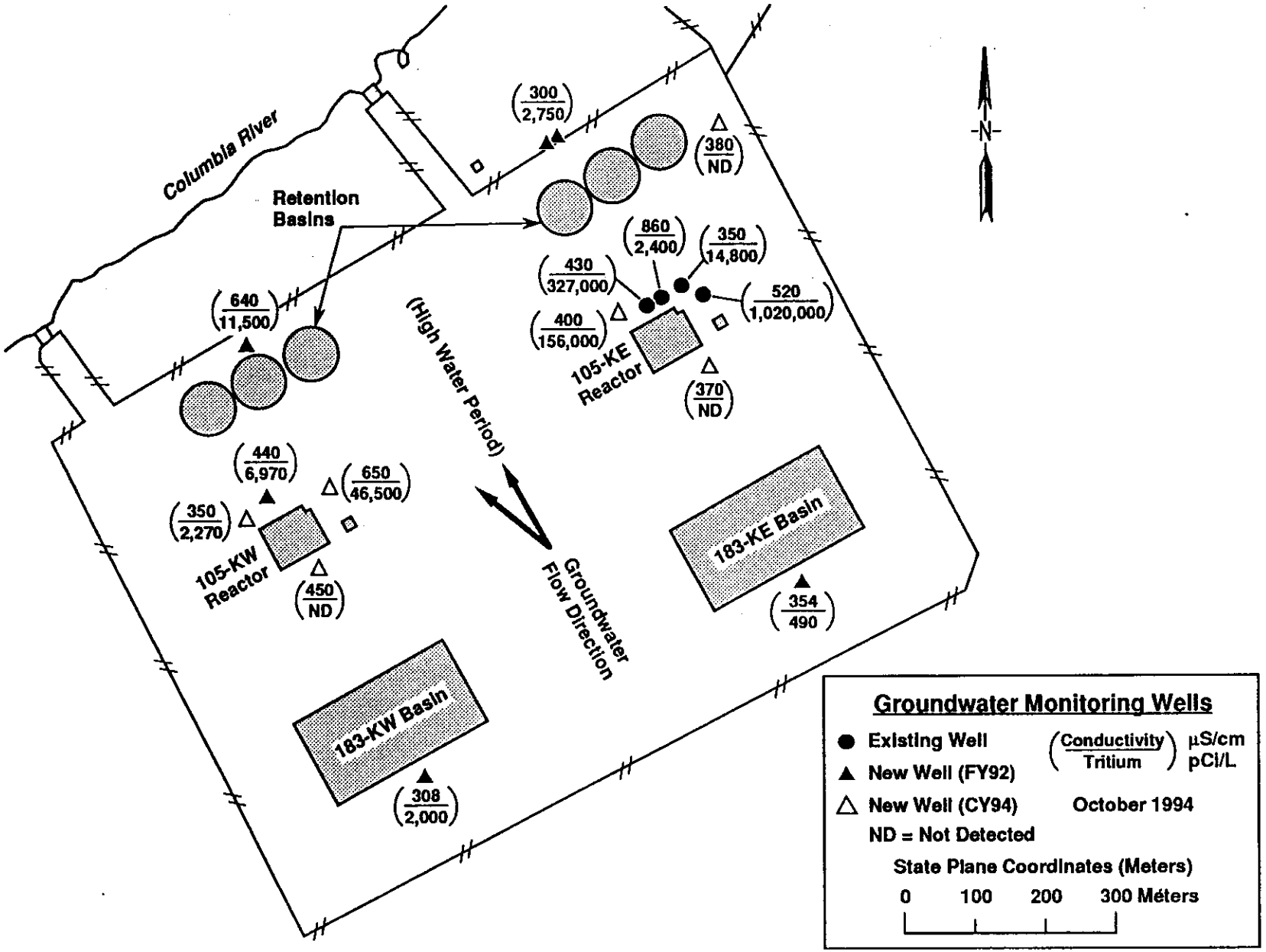


Figure 3. Tritium and Specific Conductivity in 100 K Basins Groundwater Monitoring Well Network (Fourth Quarter 1994).



Tritium. Tritium concentrations (Figure 3) for the fourth quarter 1994 suggest that sources similar to those at KE Basin exist at KW Basin. The highest concentrations occur in the two wells (K-106A at KW and K-30 at KE) located immediately downgradient from the inert gas condensate disposal site that received tritium and carbon-14 until 1971 (This disposal site is one of the past-practice sites identified as part of the KR 4 operable unit). The wells with the next highest tritium concentrations (K-34 at KW and K-27 at KE) are both located directly down gradient from the central area of the reactor buildings. The 52-ft-long construction joint between the basin proper and the discharge chute is approximately centered between the west and east sides of the reactor building. The tritium concentration pattern for the near-field or leak-detection wells seems to coincide with expected downgradient dispersal patterns from the the suspected construction joint source at the KE Basin and possibly the KW Basin.

Specific conductivity. This parameter suggests a source of dissolved solids in the vicinity of the reactor buildings. The specific conductivity anomaly is most prominent immediately downgradient from the 105-KE reactor building, especially in Well K-28. The major dissolved chemical constituents identified in samples from Well K-28 include, in order of relative abundance, chloride, calcium, and nitrate (see Appendix A and Figure 4). The source of these dissolved chemical constituents is currently unknown; however, because the four upgradient wells (Figure 3) are near natural background levels, a localized source in the vicinity of the reactor building is implied.

3.4 TRENDS IN CONTAMINATION INDICATORS

Figure 5 is a trend or time-series plot for tritium in groundwater for the two wells with the highest concentrations at the KE Basin. The 1993 pulse in tritium concentrations that occurred in Well 199-K-30 adjacent to the KE Basin is readily apparent. Concentrations in that well showed a significant decrease and then a moderate increase during the third quarter of 1994. (The increase to 1,020,000 pCi/L reported on October 26, 1994, has persisted and remained at around 1,000,000 pCi/L based on special weekly field screening measurements and analysis of splits from the monthly samples using the 100 K Health Physics Laboratory.) A gradual rise in tritium concentrations in adjacent Well 199-K-27, the well most likely to intercept any leakage plume from the basin/construction joint, persisted until Spring 1994. Concentrations then declined from a maximum of 600,000 pCi/L to about 200,000 pCi/L by the end of the fourth quarter. Concentrations at wells further down gradient appear to be at steady-state and are well below the drinking water standard of 20,000 pCi/L (see Figure 3). It should also be noted that the peak concentration on March 30, 1994, in Well K-27 occurred approximately 1 year after the 50-gph leak reported at the KE Basin. The travel time through the aquifer from the suspected source (construction joint) to Well K-27 was estimated to be on the order of 5 to 6 months (Johnson 1995). The time for migration through the soil column beneath the basin to groundwater would add another 2 to 3 months. Thus, allowing for uncertainties in estimating migration rates through the soil column andaquifer, the arrival of the peak tritium concentration in Well K-27 is roughly correlated with the 1993 leakage event. Assuming that this reasoning is correct, the peak that occurred in Well K-30 appeared far too early to be associated with the leakage event from early 1993. In addition, the basin water tritium concentrations

Figure 4. Nitrate and Chloride in 100 K Basins Groundwater Monitoring Well Network (Fourth Quarter 1994).

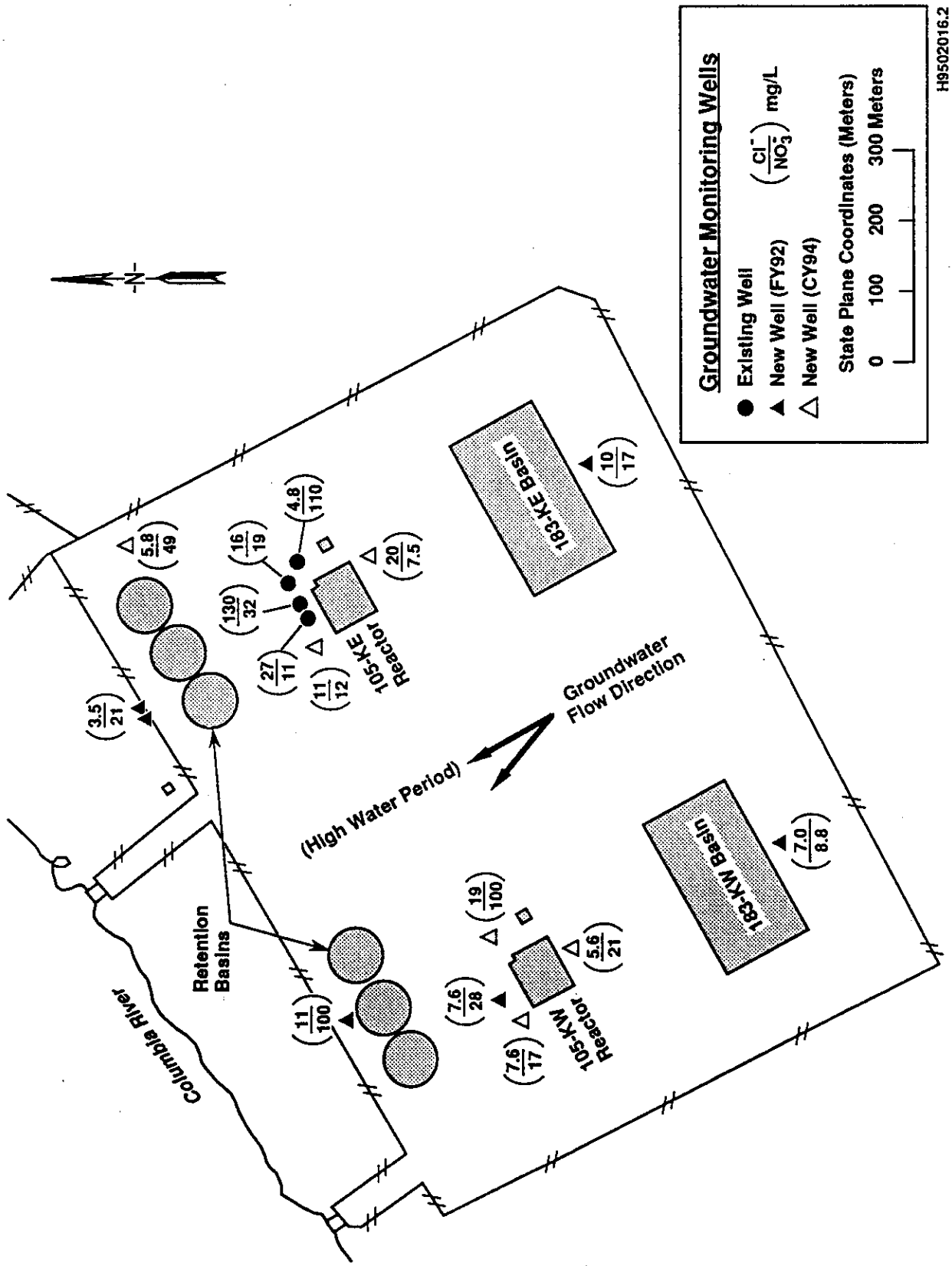
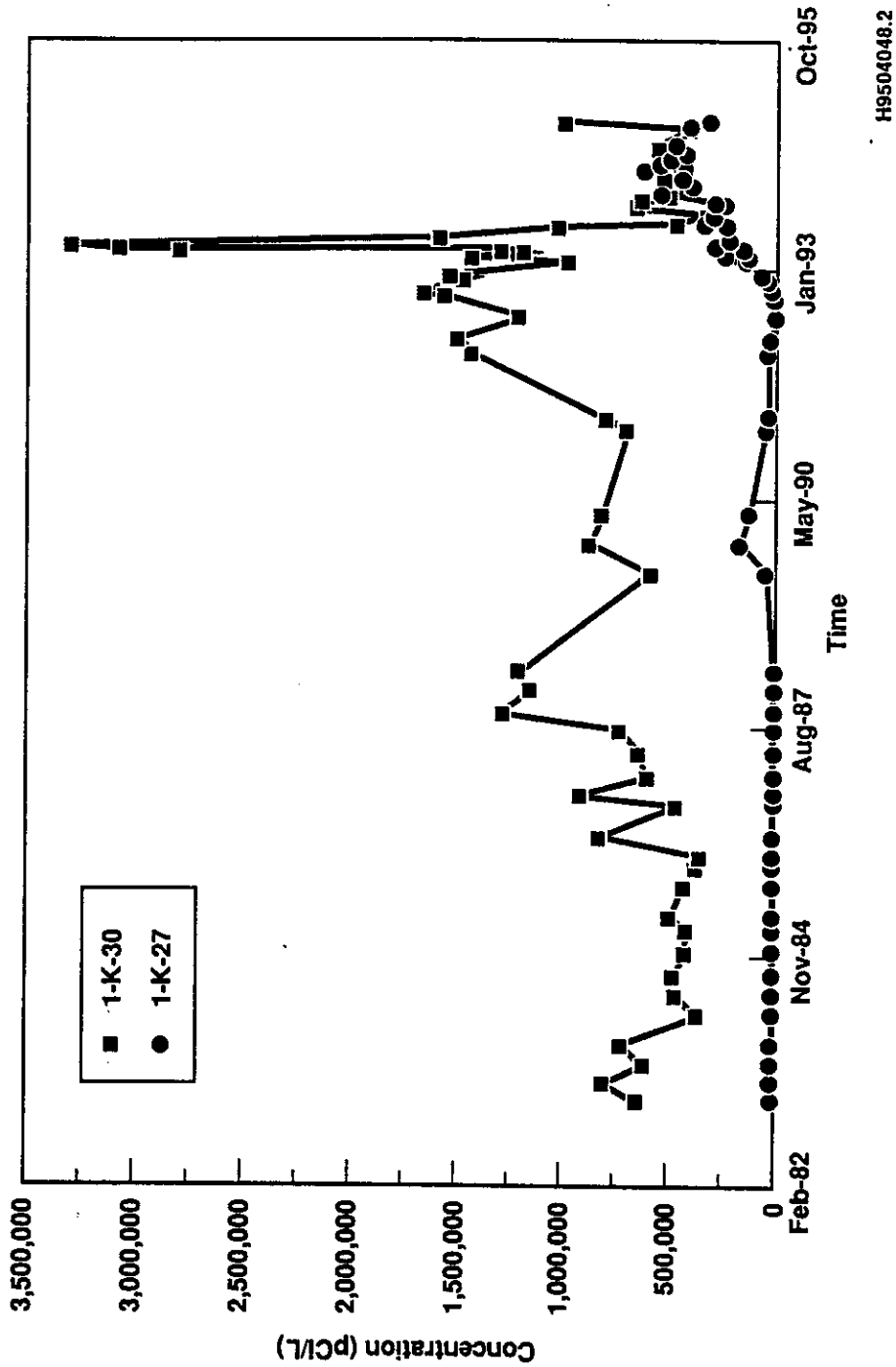


Figure 5. Tritium Concentration Versus Time in Wells K-27 and K-30 at the KE Basin.



during this period were about the same as the peak concentrations observed in Well K-30. Because borehole dilution occurs in a well during sampling, the actual tritium concentration of the contaminated upper layer of the aquifer is likely to be at an even higher level than indicated by the water samples collected from the well. This, in turn, implies tritium concentrations that are greater than the basin water. Thus it seems unlikely that the high tritium concentrations at Well K-30 can be related to leakage from the basin. This conclusion is also consistent with the occurrence of relatively high carbon-14 concentrations in Well K-30 but not in the other monitoring wells at the KE Basin. A similar but less definitive pattern exists at KW Basin. In addition, if the French drains are the source of all tritium and carbon-14 in groundwater near the 100 K basins, the tritium/carbon-14 ratio should be similar even though the concentrations may vary depending on location within the contaminant plume. Figure 6 summarizes the carbon-14 and tritium data for October 1994. The very high tritium/carbon-14 ratios (~1,000) for K-109A and K-27, the two wells most likely to intercept leakage from the KE Basin and or construction joint, suggests the source of tritium in these wells is distinctly different from the source(s) for the other wells at either the KW or KE Basin. Excluding Wells K-27 and K-30, the mean tritium/carbon-14 ratio in the network wells shown in Figure 6 is only 12 (N=9); excluding the one value of 80 for Well K-30, the mean is 3.5 (N=8). The low tritium/carbon-14 ratios are consistent with the French drain/inert gas condensate source previously discussed. However, a ratio of 80 for Well K-30 is an exception that may imply a mixture of a low-ratio source (French drain, ~3.5) and a high-ratio source (basin water-related, ~1,000). Assuming an average ratio of 3.5 for the French drain source and a ratio of 1,000 for the assumed basin source, the implied percentage contribution from the KE Basin is:

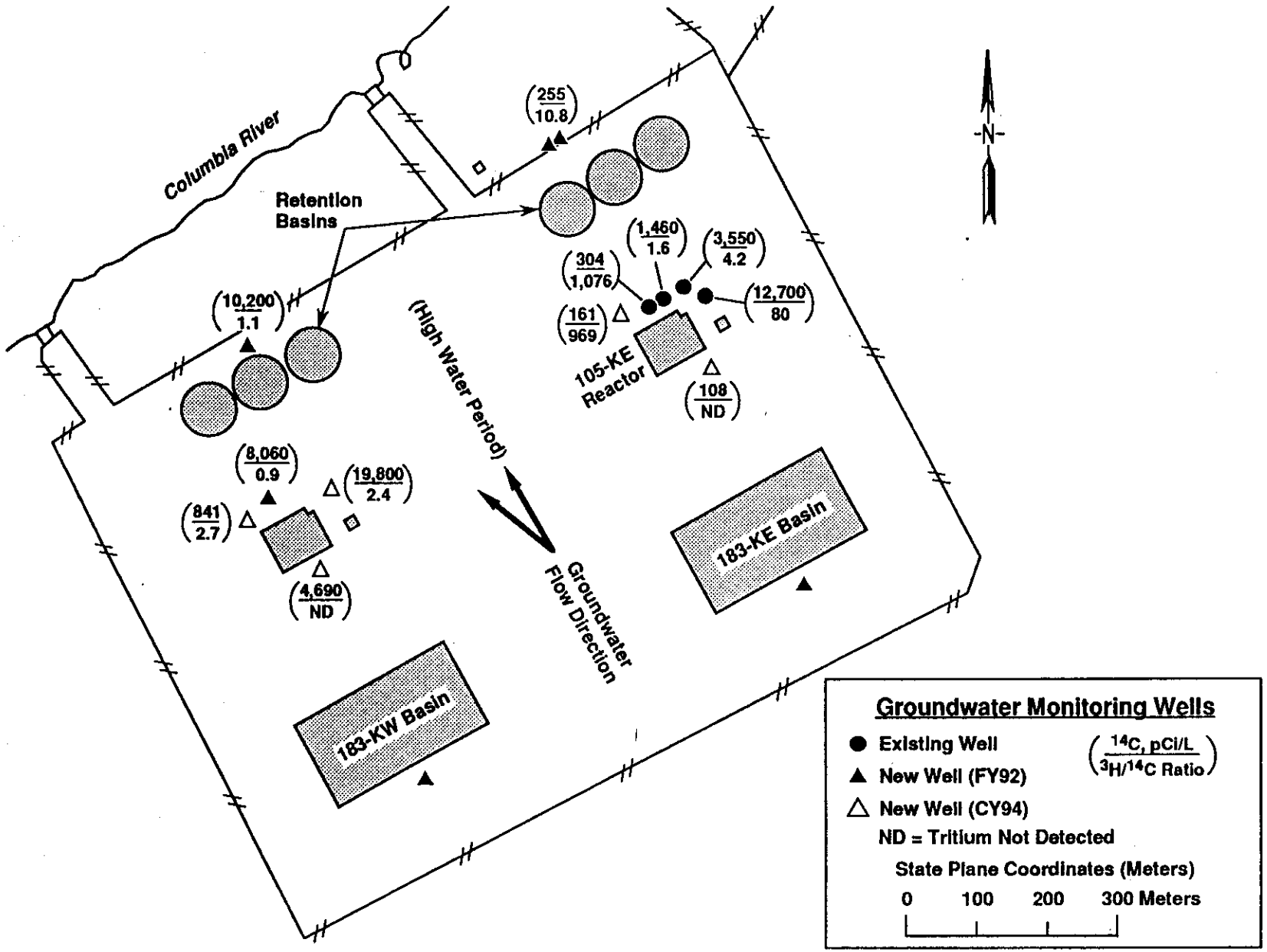
$$1{,}000(X) + 3.5(1-X) = 80$$

$$X = 0.077 \text{ or } 7.7\%$$

If some of the tritium in K-30 is from the KE Basin, as suggested by this mixture analysis, a preferential pathway would be needed to transport basin water to the northeast (toward Well K-30) which is 90° east of the predominant groundwater flow direction.

The tritium/carbon-14 data, as discussed here, suggest that the French drains that received the inert gas condensate are the primary source of carbon-14 and tritium in many of the 100 K Basins monitoring wells. The KE Basin appears to be the principal source of tritium in Wells K-109A and K-27 and also appears to contribute to the tritium observed in Well K-30. The driving force that controls the continuous release of tritium and carbon-14 from the suspected French drain source must involve either slow natural drainage of moisture and residual contamination, water supply line leakage through the contaminant zone, or infiltration of surface runoff through the contaminant zone.

Figure 6. Carbon-14 and Tritium/Carbon-14 Ratio, October 1994.



4.0 GROUNDWATER ELEVATION MEASUREMENT RESULTS

Water level data in the 100 K Area are obtained from a monthly measurement program, whenever a well is sampled for water analyses, and from a network of automated water level recorders in selected wells. The manual measurement results are stored in GeoDAT and HEIS; the automated recorder results are currently maintained by Bechtel Hanford, Inc. The automated recorder at Well K-30, and possibly one or two other locations may be continued for the K Basins project if resources are available for maintenance and repair.

100 K Area water table maps based on results of water level measurements completed during the second and third quarters of 1994 are shown in Figures 7 and 8. Depth-to-water measurements recorded in the field are converted to elevations above mean sea level using various top-of-casing survey data available for the wells. There is very little difference between data obtained during U.S. Army Corps of Engineers (Corps) surveys in 1993 and recent surveys by ICF Kaiser Engineers Hanford (Kaiser) However, significant differences occasionally occur when undocumented top-of-casing elevations, such as those found in *Hanford Wells* (Chamness and Merz 1993), HEIS, and GeoDAT, are used. The water table maps (Figures 7 and 8) and hydrographs all were prepared using the measured depth-to-water, and top-of-casing elevations from either the Corps or Kaiser surveys.

Flow Directions. Flow directions are inferred from the water table maps using imaginary flow lines running perpendicular to the water table elevation contours. The most dominant flow direction based on the maps is to the northwest. However, there is an easterly shift in inferred flow direction that appears to occur during the high river stage period of the year, which typically occurs in the late spring and early summer (Figure 7). The significance of this shift is that contaminant plumes may undergo more lateral spreading as a result. In addition, wells located along edges of a contaminant plume may exhibit seasonally variable concentrations caused by the shift in flow direction. Such factors are important in placement of new monitoring wells and in the interpretation of data from existing wells.

Hydrographs. Figure 9 is a hydrograph for Well K-30. This plot shows that the water level varies by as much as 1.5 ft at this location in response to seasonal river level changes. The fluctuations are larger near the river (Peterson 1994). Such variations can add to sampling variability because the pump intake remains at a fixed position, while the contaminant layer moves up and down with the changing water table elevation. This action also enhances the dispersion of the contaminant plume as it moves toward the river and may result in a downstream drift of the groundwater plume between the shoreline and the old liquid waste disposal trench. This may explain the presence of tritium in the Wells K-18 and K-19 (see Figure 1 for locations).

Figure 7. Water Table Map for 100 K Area, June 1994.

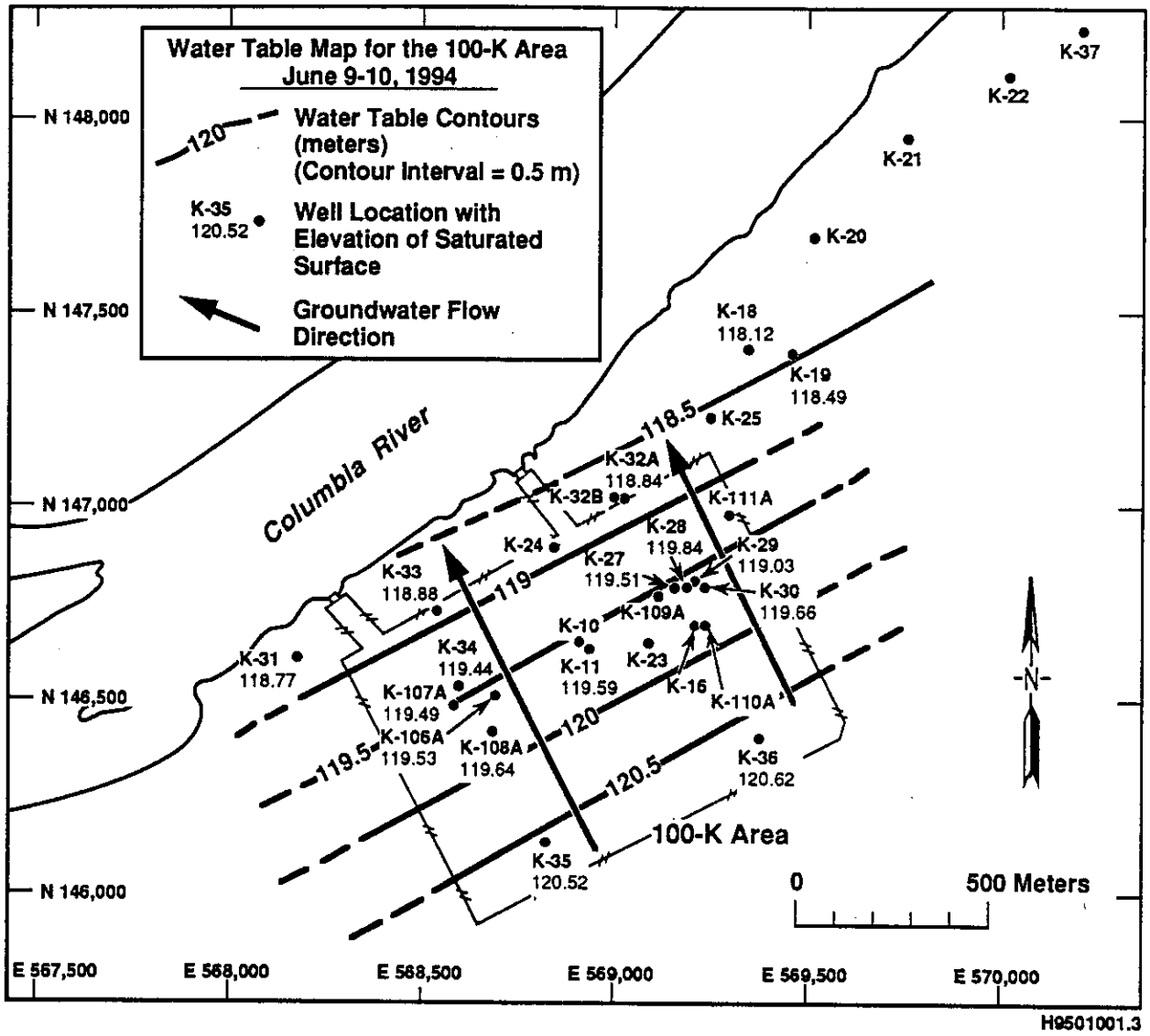


Figure 8. Water Table Map for 100 K Area, September 1994.

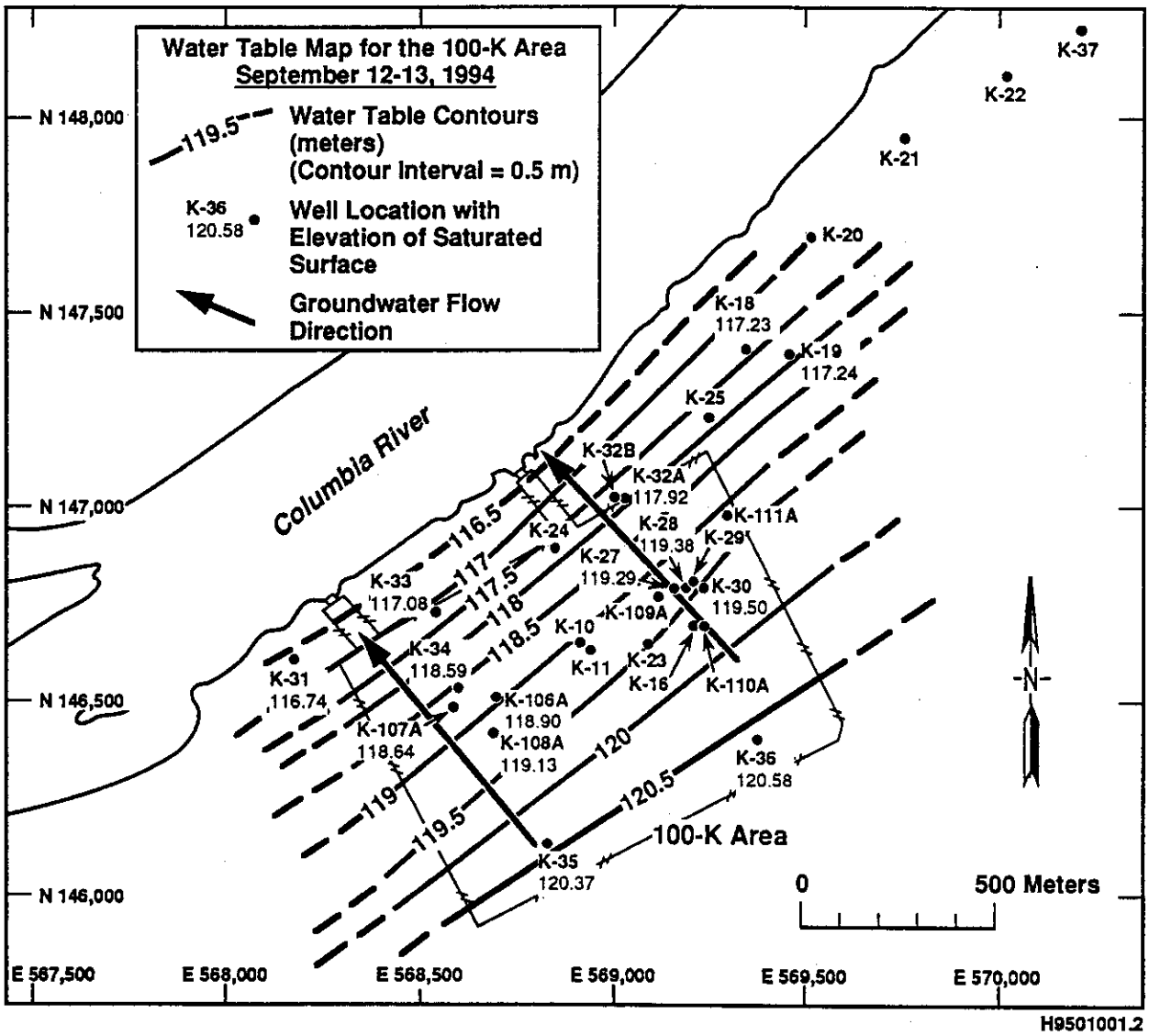
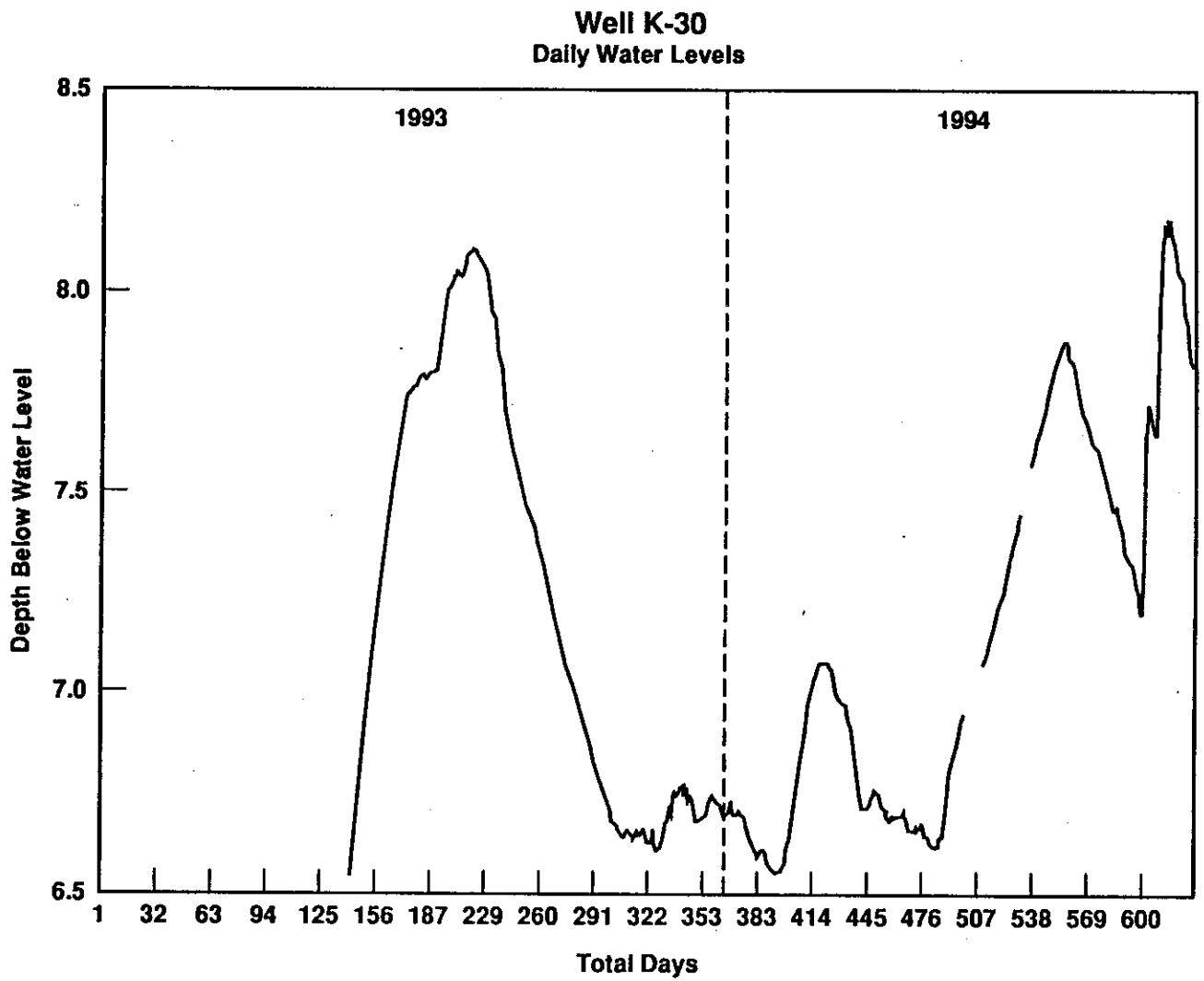


Figure 9. Hydrograph for Well K-30, 1993-1994.



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APPENDIX A

DATA TABLES

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DATA TABLES

A-1 Constituent List and Summary of Results for the 100-K Fuel Storage Basins Data

A-2 Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins Data

A-3 Contamination Indicator Parameters for the 100-K Fuel Storage Basins Data

A-4 Gross Alpha and Gross Beta Background Data for the 100-K Fuel Storage Basins

A-5 Radionuclide Detection Limits (includes Tables A-5.1 through A-5.13)

EXPLANATORY NOTES TO ACCOMPANY DATA TABLES

This section describes the meaning of each table column heading, defines the abbreviations used, explains the data qualifiers and flags, and lists analysis method codes and relevant regulatory standards. The information has been extracted from the *Resource Conservation and Recovery Act of 1976* (RCRA) quarterly reporting system (DOE-RL 1994).

Constituent List and Summary of Results

The constituent list (Appendix A-1) summarizes the complete data set for the reporting period. The data set consists of all analytical results that are associated with samples collected before the end of the current reporting quarter. Data collected during previous quarters that have not been reported as a result of the cutoff date may appear in the table. The fields in the Summary table are:

Constituent name. Name of the analyzed constituent being summarized; the Short name is an abbreviation used in the Constituents with at Least One Detected Value table (Section 1.4.3); the (Method), when present, is a code (Section 1.4.5) used to distinguish between different analytical methods for the same constituent.

Units. Units in which the method detection limit (MDL) and drinking water standards (DWS) are reported in this table.

Laboratory MDL. The MDL computed by the laboratory for a constituent. This field is blank for radionuclides where the MDL is defined as the value of the total error reported by the laboratory for each result.

DWS limit/agency. The DWS used for comparison to the reported results; see Section 1.4.5 for Agency definitions and a complete listing of standards used.

Number of samples. Total is the number of sample results from all wells in the project contained in the complete data set for that constituent; >MDL is the number of results that exceed the MDL; >DWS is the number of results that exceed the listed DWS.

Constituents are grouped as Contamination Indicator Parameters, Drinking Water Parameters, Groundwater Quality Parameters, and Site-Specific and Other Constituents, to correspond to language used in 40 CFR 265 regulations. Within groups, rows are ordered alphabetically by the full constituent name.

If a constituent has an MDL that exceeds the DWS, exceedance of the DWS cannot be determined, so an asterisk (*) is placed in the >DWS field.

Constituents with at Least One Detected Value Table

The Constituents with at Least One Detected Value table (Appendix A-2) is a subset of the complete data set. Only constituents that were detected

above the MDL in at least one sample collected during the current reporting period are reported in this table. The first three column headings are:

Well name. Well from which sample was collected.
Collection date. Date sample was collected.
Sample number. Unique number assigned to a sample.

The remaining columns contain analytical results and qualifiers for the constituent. The structure of the column header is:

Constituent short name
Method code/reporting units
MDL/DWS (suffix).

The Summary table (Appendix A-1) can be used to relate the full constituent name to the short name used in this table. The analytical method code is defined below, as are abbreviations used for reporting units. On the third line, a period appears in place of the MDL or DWS if a value does not exist. The one-letter suffix that may be added to the DWS identifies the regulation associated with the standard and is described below.

Analytical results are displayed with two digits to the right of the decimal point. This is a consequence of the table-generating software and does not reflect the accuracy of the results. Laboratories normally report results with three significant digits. Radionuclide values may be negative because the laboratory subtracts a background reading from the measured result. The letter, or group of letters, that may follow the result are data qualifiers and flags. A complete explanation of what each flag means is provided below.

Contamination Indicator Parameters Table

The Contamination Indicator Parameters table (Appendix A-3) has a format similar to Table A-2 but includes only data for pH, specific conductance, total organic carbon (TOC), and total organic halogens (TOX). All results for these parameters, whether detected or not, are listed in the table. The analysis method code is not part of the column header in this report.

Abbreviations, Agency Codes, and Methods Codes

Common abbreviations used in the data tables are:

COL	coliform colonies per 100 milliliters
DWS	drinking water standard
ft	feet
MDL	method detection limit
msl	mean sea level
NTU	nephelometric turbidity unit
pCi/L	picocuries per liter
ppb	parts per billion
ppm	parts per million
µmho	micromhos per centimeter

Agencies and suffixes. Agency codes and DWS suffixes identify the regulatory origin of the standard of the DWS. Agency codes are used in the Summary table; DWS suffixes are used in the Detected and Contamination indicator parameter tables. The codes are defined as follows:

Agency	Suffix	Regulatory basis
EPA	None	Maximum contaminant levels in 40 CFR 141, "National Primary Drinking Water Regulations."
EPAS	s	Secondary maximum contaminant levels in 40 CFR 143, "National Secondary Drinking Water Regulations."
EPAI	i	EPA interim primary drinking water standards in 40 CFR 265, Appendix III.

DWSs. DWSs are used in all the chemistry tables to provide a standard with which to compare sample results. The DWSs are based on standards found in 40 CFR 265, 40 CFR 141, and 40 CFR 143. Where constituents addressed by these regulations overlap, 40 CFR 265 takes precedence over 40 CFR 141, which, in turn, takes precedence over 40 CFR 143.

Data qualifiers and flags. Data qualifiers and flags used in the Detected and Contamination indicator parameter tables are assigned by the laboratory and by the WHC quality control team, respectively. Qualifiers reflect conditions occurring in the laboratory relating to the analytical procedure. Flags serve a wider function of alerting the data user to the limitations of the reported value. Qualifiers and flags can be appended to each other to form a string of letters when several factors apply to a result. The qualifiers and flags used are as follows:

Laboratory qualifiers:

B - Blank associated with analyte is contaminated

D - Analyzed sample is diluted

E - Concentration is out of instrument calibration range

J - Concentration is estimated

L - Concentration is below the Contract Required Qualification Limit (CRQL) but above the MDL

U - Concentration is below the indicated value.

Data flags:

D - Result associated with a documented laboratory nonconformance
F - Suspect data currently under review
H - Laboratory holding time exceeded
G - Reviewed data that are considered valid
P - Potential problem; see text associated with table
Q - Result associated with suspect quality control (QC) data

R - Reviewed data that have been rejected
Y - Reviewed data that continues to be suspect
+ - Suspect water level data
* - CRQL is greater than DWS, so exceedance of DWS is undetermined.

Analysis method codes. Analysis method codes are used as an abbreviation for the laboratory method used to perform an analysis:

Analysis Method Code Definitions.

Method code	Method name
16	SW-846 8240[a]
17	SW-846 8080[a]
19	SW-846 8270[a]
25	SW-846 8010/8020[a]
29	SW-846 8140[a]
30	SW-846 8040[a]
34	SW-846 6010[a]
36	ASTM D-1385[b]
40	SW-846 7421[a]
41	SW-846 7470[a]
42	SW-846 7841[a]
43	SW-846 7060[a]
48	SW-846 7740[a]
49	SW-846 8150[a]
51	SW-846 8280[a]
52	ASTM D-1067-A
54	ASTM D-1426-D
56	SW-846 9010[a]
62	In-house ion chromatography
63	SW-846 9030[a]
65	Standard Methods #209B[c]
67	SW-846 9020[a]
69	SW-846 9131[a]
73	ASTM D-1125-A
93	Field probe, pH
94	Field probe, conductivity
122	SW-846 9060[a]
124	ASTM D-4327-88
125	ASTM D-1293
126	Standard Methods #214A[c]
127	ASTM D-2579-A
129	ASTM D-1426-C
130	EPA Method 300.0[d]
135	SW-846 9310, Alpha[a]
136	SW-846 9310, Beta[a]
137	SW-846 9315, Radium[a]

Analysis Method Code Definitions.

Method code	Method name
139	ITAS I-129 Low level
140	ITAS Gamma scan
141	ITAS Sr-90
142	ITAS H-3
143	ITAS Tc-99
144	SW-846 9132[a]
145	ITAS Gross U
146	ITAS Isotopic Pu
147	ITAS Am-241
148	ITAS Isotopic U
168	USEPA HACH COD[d]
357	EPA 600, 310.2
358	SW-846 9012[a]

[a](EPA 1986b).
[b](ASTM 1991).
[c](EPA 1979).
[d](APHA 1989).

Notes on Well Sampling Conditions During Report Period

Results for water samples taken during drilling of the six new monitoring wells were included in the Hanford Environmental Information System (HEIS) and Geosciences Data Analysis Toolkit (GEODAT) data bases from which the following data summary tables were prepared. The water samples collected during drilling reflect the variation with depth in the aquifer and may also be influenced by drilling conditions (dilution by makeup water, alteration of pH, etc.). They provide a general indication of radionuclide concentration versus depth in approximately 5-ft depth increments from the top the aquifer to approximately 20 to 25 ft below the water table. Details regarding exact depths, sample dates, and associated geophysical data can be found in the borehole completion data package (Williams 1994).

Entries for the above wells before the following dates should not be regarded as representative water samples as defined by the standard sampling protocol:

199-K-106A	March 1, 1994
199-K-107A	April 15, 1994
199-K-108A	August 14, 1994
199-K-109A	September 19, 1994
199-K-110A	June 17, 1994
199-K-111A	July 26, 1994

Data entries before the above dates are included in the tabulation of exceedances (Appendix A-1) and may be biased because of the nonstandard sampling conditions. For example, the excessively high turbidities in some samples, elevated pH and high unfiltered metals concentrations are drilling-related artifacts.

APPENDIX A-2

CONSTITUENTS WITH AT LEAST ONE DETECTED VALUE FOR THE 100-K FUEL STORAGE BASINS DATA FOR REPORTING PERIOD MARCH 1 THROUGH DECEMBER 28, 1994

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Table A-1

Constituent List and Summary of Results for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 1 of 3)

CONTAMINATION INDICATOR PARAMETERS

Constituent Name Short	(Method)	Full	Units	Lab MDL	DWS Limit	Agency	Number of Samples Total	>MDL	>DWS
CONDUCT	94	Conductivity, field	umhos	1			63	63	
CONDUCT	73	Conductivity, lab	umhos				36	36	
TOC		Total Organic Carbon	ppb	320			2	2	
TOX		Total Organic Halogen	ppb	5			2	2	
PH	93	pH, field	pH	.01	6.5-8.5	EPAS	57	57	4
PH	125	pH, lab	pH		6.5-8.5	EPAS	2	2	1

DRINKING WATER PARAMETERS

Constituent Name Short	(Method)	Full	Units	Lab MDL	DWS Limit	Agency	Number of Samples Total	>MDL	>DWS
BARIUM		Barium	ppb	1.3	1000	EPAI	2	2	2
FBARIUM		Barium, filtered	ppb	1.3	1000	EPAI	36	36	0
CADMIUM		Cadmium	ppb	3	10	EPAI	2	2	2
FCADMIU		Cadmium, filtered	ppb	3	10	EPAI	36	0	0
CHROMUM		Chromium	ppb	11	50	EPAI	2	2	2
FCHROMI		Chromium, filtered	ppb	11	50	EPAI	36	19	5
FLUORID		Fluoride	ppb	51	1400	EPAI	37	37	0
ALPHA		Gross alpha	pCi/L		15	EPA	49	45	7
NITRATE		Nitrate	ppb	96	45000	EPA	37	36	10

GROUNDWATER QUALITY PARAMETERS

Constituent Name Short	(Method)	Full	Units	Lab MDL	DWS Limit	Agency	Number of Samples Total	>MDL	>DWS
CHLORID		Chloride	ppb	71	250000	EPAS	37	37	0
IRON		Iron	ppb	18	300	EPAS	2	2	2
FIRON		Iron, filtered	ppb	18	300	EPAS	36	18	1
MANGESE		Manganese	ppb	1	50	EPAS	2	2	2
FMANGAN		Manganese, filtered	ppb	1	50	EPAS	36	23	4
SODIUM		Sodium	ppb	150			2	2	
FSODIUM		Sodium, filtered	ppb	150			36	36	
SULFATE		Sulfate	ppb	89	250000	EPAS	37	37	0

Constituent List and Summary of Results for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 2 of 3)

SITE SPECIFIC AND OTHER CONSTITUENTS

Constituent Name Short	(Method)	Full	Units	Lab MDL	DWS Limit	Agency	Number of Samples Total	>MDL	>DWS
ALKALIN		Alkalinity	ppm	1.96			2	2	
ALUMNUM		Aluminum	ppb	19			2	2	
FALUMIN		Aluminum, filtered	ppb	19			36	13	
ANTIONY		Antimony	ppb	26			2	2	
FANTIMO		Antimony, filtered	ppb	26			36	2	
SB-125		Antimony-125	pCi/L				50	8	
BERYLUM		Beryllium	ppb	1.5			2	2	
FBERYLL		Beryllium, filtered	ppb	1.5			36	0	
BROMIDE		Bromide	ppb	110			36	8	
CALCIUM		Calcium	ppb	47			2	2	
FCALCIU		Calcium, filtered	ppb	47			36	36	
C 14		Carbon-14	pCi/L				48	46	
CS-137		Cesium-137	pCi/L		200	EPA	50	1	0
COBALT		Cobalt	ppb	6.5			2	2	
FCOBALT		Cobalt, filtered	ppb	6.5			36	0	
CO-60		Cobalt-60	pCi/L		100	EPA	50	8	0
COPPER		Copper	ppb	2.6	1000	EPAS	2	2	1
FCOPPER		Copper, filtered	ppb	2.6	1000	EPAS	36	13	0
BETA		Gross beta	pCi/L				49	49	
I-129		Iodine-129	pCi/L		1	EPA	1	1	0
MAGNES		Magnesium	ppb	25			2	2	
FMAGNES		Magnesium, filtered	ppb	25			36	36	
NICKEL		Nickel	ppb	16			2	2	
FNICKEL		Nickel, filtered	ppb	16			36	3	
NITRITE		Nitrite	ppb	110	1000	EPA	36	3	0
PHOSPHA		Phosphate	ppb	470			36	0	
POTASUM		Potassium	ppb	890			2	2	
FPOTASS		Potassium, filtered	ppb	890			36	36	
RU-106		Ruthenium-106	pCi/L		30	EPA	50	6	12*
SILVER		Silver	ppb	3.4	50	EPAI	2	0	0
FSILVER		Silver, filtered	ppb	3.4	50	EPAI	36	0	0
SR-90		Strontium-90	pCi/L		8	EPA	5	5	2
TC-99		Technetium-99	pCi/L		900	EPA	2	2	0
TMP_C		Temperature, field	DegC	.1			60	60	
TIN		Tin	ppb	24			2	2	
FTIN		Tin, filtered	ppb	24			36	12	
TDS		Total Dissolved Solids	ppm	10	500	EPAS	2	2	0
TRITIUM		Tritium	pCi/L		20000	EPA	100	86	32
TURBID		Turbidity	NTU	.016			46	46	
URANIUM		Uranium	ppb				1	1	
VANADUM		Vanadium	ppb	6.4			2	2	
FVANADI		Vanadium, filtered	ppb	6.4			36	11	

Constituent List and Summary of Results for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 3 of 3)

Constituent Name Short	(Method)	Full	Units	Lab MDL	DWS Limit	Agency	Number of Samples Total	>MDL	>DWS
ZINC		Zinc	ppb	4.4	5000	EPAS	2	2	0
FZINC		Zinc, filtered	ppb	4.4	5000	EPAS	36	22	0

For explanation of this table, see Section 1.4 of report.

APPENDIX A-2

CONSTITUENTS WITH AT LEAST ONE DETECTED VALUE FOR THE 100-K FUEL STORAGE BASINS DATA FOR REPORTING PERIOD MARCH 1 THROUGH DECEMBER 28, 1994

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Table A-2

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 1 of 31)

Well Name	Collection Date	Sample Number	ALKALIN 357/ppm 1.96/.	ALUMINUM 34/ppb 19/.	FALUMIN 34/ppb 19/.	ANTIONY 34/ppb 26/.
199-K-106A	5/03/94	B0BRN8			30.00 L	
199-K-106A	7/13/94	B0C7K6			19.00 U	
199-K-106A	10/24/94	B0D5K4			26.00 U	
199-K-107A	5/03/94	B0BRP0			19.00 U	
199-K-107A	7/13/94	B0C7K8			35.00 L	
199-K-107A	10/22/94	B0D5K6			26.00 U	
199-K-108A	5/03/94	B0BRP2			19.00 U	
199-K-108A	7/13/94	B0C7L2			39.00 L	
199-K-108A	10/24/94	B0D5K8			26.00 U	
199-K-109A	8/29/94	B0BWD9	50.00	1000000.00		140.00 LB
199-K-109A	8/29/94	B0BWF0			200.00	
199-K-109A	11/03/94	B0D5L0			89.00 L	
199-K-110A	7/15/94	B0C7L8			42.00 BLQ	
199-K-110A	10/24/94	B0D5L2			26.00 U	
199-K-111A	6/28/94	B0C233	70.00 Q	210000.00		45.00 L
199-K-111A	6/28/94	B0C234			78.00 L	
199-K-111A	7/28/94	B0C7N2			19.00 U	
199-K-111A	10/28/94	B0D5L4			26.00 U	
199-K-27	5/03/94	B0BRQ0			19.00 U	
199-K-27	7/11/94	B0C7L0			36.00 L	
199-K-27	10/26/94	B0D5M4			26.00 U	
199-K-28	5/02/94	B0BRQ2			19.00 U	
199-K-28	7/12/94	B0C7N9			37.00 BLQ	
199-K-28	10/28/94	B0D5L6			26.00 U	
199-K-29	5/02/94	B0BRQ4			19.00 U	
199-K-29	7/12/94	B0C7N1			140.00 BLQ	
199-K-29	10/28/94	B0D5L8			26.00 U	
199-K-30	5/04/94	B0BRQ6			21.00 L	
199-K-30	7/11/94	B0C7L4			19.00 U	
199-K-30	10/26/94	B0D5M6			26.00 U	
199-K-32A	5/04/94	B0BRQ8			19.00 U	
199-K-32A	7/14/94	B0C7N3			38.00 BLQ	
199-K-32A	10/28/94	B0D5M0			26.00 U	
199-K-33	5/04/94	B0BRR0			19.00 U	
199-K-33	7/11/94	B0C7N5			19.00 U	
199-K-34	5/02/94	B0BRR2			19.00 U	
199-K-34	7/12/94	B0C7N7			30.00 LB	
199-K-34	10/22/94	B0D5M2			26.00 U	

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 2 of 31)

Well Name	Collection Date	Sample Number	FANTIMO 34/ppb 26/.	SB-125 140/pCi/L ./.	BARIUM 34/ppb 1.3/1000i	FBARIUM 34/ppb 1.3/1000i
199-K-106A	5/03/94	B0BRN7		-5.54 U		
199-K-106A	5/03/94	B0BRN8	26.00 U			55.00
199-K-106A	7/13/94	B0C7K5		-7.22 U		
199-K-106A	7/13/94	B0C7K6	26.00 U			53.00
199-K-106A	10/24/94	B0D5K3		6.47 U		
199-K-106A	10/24/94	B0D5K4	62.00 U			46.00
199-K-107A	3/11/94	B0BKX3		8.37 U		
199-K-107A	5/03/94	B0BRN9		7.22 U		
199-K-107A	5/03/94	B0BRP0	26.00 U			40.00
199-K-107A	7/13/94	B0C7K7		-9.62 U		
199-K-107A	7/13/94	B0C7K8	26.00 U			35.00
199-K-107A	10/22/94	B0D5K5		-1.49 U		
199-K-107A	10/22/94	B0D5K6	62.00 U			30.00
199-K-108A	3/28/94	B0BKX4		-5.62 U		
199-K-108A	5/03/94	B0BRP1		5.74 U		
199-K-108A	5/03/94	B0BRP2	45.00 L			45.00
199-K-108A	7/13/94	B0C7L1		5.27 U		
199-K-108A	7/13/94	B0C7L2	26.00 U			44.00
199-K-108A	10/24/94	B0D5K7		-2.12 U		
199-K-108A	10/24/94	B0D5K8	62.00 U			33.00
199-K-109A	7/29/94	B09H58		39.80		
199-K-109A	8/02/94	B09H60		-3.69 U		
199-K-109A	8/15/94	B09H57		5.24 U		
199-K-109A	8/18/94	B09H61		1.73 U		
199-K-109A	8/24/94	B09H59		2.49 U		
199-K-109A	8/29/94	B0BWD9		.50 U	10000.00	
199-K-109A	8/29/94	B0BWF0	34.00 LB			44.00
199-K-109A	9/20/94	B0D0H9		39.60		
199-K-109A	11/03/94	B0D5K9		31.60		
199-K-109A	11/03/94	B0D5L0	62.00 U			41.00
199-K-110A	5/13/94	B0BWF3		10.20 U		
199-K-110A	7/15/94	B0C7L7		-3.34 U		
199-K-110A	7/15/94	B0C7L8	26.00 U			55.00
199-K-110A	10/24/94	B0D5L1		1.00 U		
199-K-110A	10/24/94	B0D5L2	62.00 U			27.00
199-K-111A	5/13/94	B0BWF4		-2.58 U		
199-K-111A	6/08/94	B09H62		10.10 U		
199-K-111A	6/14/94	B09H63		10.40 U		
199-K-111A	6/20/94	B09H65		-1.29 U		
199-K-111A	6/23/94	B09H64		-17.30 UG		
199-K-111A	6/28/94	B0C233			4700.00	
199-K-111A	6/28/94	B0C234	26.00 U			30.00
199-K-111A	7/28/94	B0C7M1		9.00 UG		
199-K-111A	7/28/94	B0C7M2	26.00 U			45.00

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 3 of 31)

Well Name	Collection Date	Sample Number	FANTIMO 34/ppb 26/.	SB-125 140/pCi/L ./.	BARIUM 34/ppb 1.3/1000i	FBARIUM 34/ppb 1.3/1000i
199-K-111A	10/28/94	B0D5L3		-6.15 U		
199-K-111A	10/28/94	B0D5L4	62.00 U			43.00
199-K-27	5/03/94	B0BRP9		55.60		
199-K-27	5/03/94	B0BRQ0	26.00 U			25.00
199-K-27	5/18/94	B0BWG4		32.60		
199-K-27	7/11/94	B0C7K9		25.60		
199-K-27	7/11/94	B0C7L0	26.00 U			25.00
199-K-27	10/26/94	B0D5K3		36.50		
199-K-27	10/26/94	B0D5M4	62.00 U			32.00
199-K-28	5/02/94	B0BRQ1		7.45 U		
199-K-28	5/02/94	B0BRQ2	26.00 U			60.00
199-K-28	7/12/94	B0C7M8		11.50 U		
199-K-28	7/12/94	B0C7M9	26.00 U			65.00
199-K-28	10/28/94	B0D5L5		1.06 U		
199-K-28	10/28/94	B0D5L6	62.00 U			62.00
199-K-29	5/02/94	B0BRQ3		-.76 U		
199-K-29	5/02/94	B0BRQ4	26.00 U			23.00
199-K-29	7/12/94	B0C7N0		8.51 U		
199-K-29	7/12/94	B0C7N1	26.00 U			23.00
199-K-29	10/28/94	B0D5L7		-22.70 U		
199-K-29	10/28/94	B0D5L8	62.00 U			22.00
199-K-30	5/04/94	B0BRQ5		5.92 U		
199-K-30	5/04/94	B0BRQ6	26.00 U			29.00
199-K-30	7/11/94	B0C7L3		-4.14 U		
199-K-30	7/11/94	B0C7L4	26.00 U			27.00
199-K-30	10/26/94	B0D5M5		.79 U		
199-K-30	10/26/94	B0D5M6	62.00 U			35.00
199-K-32A	5/04/94	B0BRQ7		-7.17 U		
199-K-32A	5/04/94	B0BRQ8	26.00 U			22.00
199-K-32A	7/14/94	B0C7N2		2.11 U		
199-K-32A	7/14/94	B0C7N3	26.00 U			28.00
199-K-32A	10/28/94	B0D5L9		-3.49 U		
199-K-32A	10/28/94	B0D5M0	62.00 U			22.00
199-K-33	5/04/94	B0BRQ9		19.40		
199-K-33	5/04/94	B0BRR0	26.00 U			38.00
199-K-33	7/11/94	B0C7N4		-8.15 U		
199-K-33	7/11/94	B0C7N5	26.00 U			38.00
199-K-34	5/02/94	B0BRR1		7.44 U		
199-K-34	5/02/94	B0BRR2	26.00 U			33.00
199-K-34	7/12/94	B0C7N6		-1.54 U		
199-K-34	7/12/94	B0C7N7	26.00 U			34.00 B
199-K-34	10/22/94	B0D5M1		-6.34 U		
199-K-34	10/22/94	B0D5M2	62.00 U			30.00

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 4 of 31)

Well Name	Collection Date	Sample Number	FANTIMO 34/ppb 26/.	SB-125 140/pCi/L ./.	BARIUM 34/ppb 1.3/1000i	FBARIUM 34/ppb 1.3/1000i

Well Name	Collection Date	Sample Number	BERYLUM 34/ppb 1.5/.	FBERYLL 34/ppb 1.5/.	BROMIDE 124/ppb 110/.	CADMIUM 34/ppb 3/10i
199-K-106A	5/03/94	B0BRN7			110.00 U	
199-K-106A	5/03/94	B0BRN8		1.50 U		
199-K-106A	7/13/94	B0C7K5			110.00 U	
199-K-106A	7/13/94	B0C7K6		1.50 U		
199-K-106A	10/24/94	B0D5K3			100.00 DU	
199-K-106A	10/24/94	B0D5K4		.17 U		
199-K-107A	5/03/94	B0BRN9			110.00 U	
199-K-107A	5/03/94	B0BRP0		1.50 U		
199-K-107A	7/13/94	B0C7K7			110.00 U	
199-K-107A	7/13/94	B0C7K8		1.50 U		
199-K-107A	10/22/94	B0D5K5			100.00 U	
199-K-107A	10/22/94	B0D5K6		.19 LB		
199-K-108A	5/03/94	B0BRP1			110.00 U	
199-K-108A	5/03/94	B0BRP2		1.50 U		
199-K-108A	7/13/94	B0C7L1			110.00 U	
199-K-108A	7/13/94	B0C7L2		1.50 U		
199-K-108A	10/24/94	B0D5K7			100.00 U	
199-K-108A	10/24/94	B0D5K8		.34 LB		
199-K-109A	8/29/94	B0BWD9	35.00		110.00 U	54.00
199-K-109A	8/29/94	B0BWF0		1.50 U		
199-K-109A	11/03/94	B0D5K9			100.00 U	
199-K-109A	11/03/94	B0D5L0		.20 LB		
199-K-110A	7/15/94	B0C7L7			110.00 U	
199-K-110A	7/15/94	B0C7L8		1.50 U		
199-K-110A	10/24/94	B0D5L1			100.00 U	
199-K-110A	10/24/94	B0D5L2		.34 LB		
199-K-111A	6/28/94	B0C233	10.00		200.00 L	36.00
199-K-111A	6/28/94	B0C234		1.50 U		
199-K-111A	7/28/94	B0C7M1			110.00 U	
199-K-111A	7/28/94	B0C7M2		1.50 U		
199-K-111A	10/28/94	B0D5L3			200.00 L	
199-K-111A	10/28/94	B0D5L4		.18 LB		
199-K-27	5/03/94	B0BRP9			110.00 U	
199-K-27	5/03/94	B0BRQ0		1.50 U		
199-K-27	5/18/94	B0BWG4			U	
199-K-27	7/11/94	B0C7K9			110.00 U	
199-K-27	7/11/94	B0C7L0		1.50 U		

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
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Well Name	Collection Date	Sample Number	BERYLUM 34/ppb 1.5/.	FBERYLL 34/ppb 1.5/.	BROMIDE 124/ppb 110/.	CADMIUM 34/ppb 3/10i
199-K-27	10/26/94	B0D5M3			100.00 U	
199-K-27	10/26/94	B0D5M4		.64 BL		
199-K-28	5/02/94	B0BRQ1			130.00 L	
199-K-28	5/02/94	B0BRQ2		1.50 U		
199-K-28	7/12/94	B0C7N8			130.00 L	
199-K-28	7/12/94	B0C7N9		1.50 U		
199-K-28	10/28/94	B0D5L5			100.00 L	
199-K-28	10/28/94	B0D5L6		.19 LB		
199-K-29	5/02/94	B0BRQ3			110.00 U	
199-K-29	5/02/94	B0BRQ4		1.50 U		
199-K-29	7/12/94	B0C7N0			110.00 U	
199-K-29	7/12/94	B0C7N1		1.50 U		
199-K-29	10/28/94	B0D5L7			100.00 U	
199-K-29	10/28/94	B0D5L8		.25 LB		
199-K-30	5/04/94	B0BRQ5			130.00 LY	
199-K-30	5/04/94	B0BRQ6		1.50 U		
199-K-30	7/11/94	B0C7L3			200.00 L	
199-K-30	7/11/94	B0C7L4		1.50 U		
199-K-30	10/26/94	B0D5M5			200.00 L	
199-K-30	10/26/94	B0D5M6		.64 BL		
199-K-32A	5/04/94	B0BRQ7			110.00 U	
199-K-32A	5/04/94	B0BRQ8		1.50 U		
199-K-32A	7/14/94	B0C7N2			110.00 U	
199-K-32A	7/14/94	B0C7N3		1.50 U		
199-K-32A	10/28/94	B0D5L9			100.00 U	
199-K-32A	10/28/94	B0D5M0		.27 LB		
199-K-33	5/04/94	B0BRQ9			200.00 L	
199-K-33	5/04/94	B0BRR0		1.50 U		
199-K-33	7/11/94	B0C7N4			110.00 U	
199-K-33	7/11/94	B0C7N5		1.50 U		
199-K-34	5/02/94	B0BRR1			110.00 U	
199-K-34	5/02/94	B0BRR2		1.50 U		
199-K-34	7/12/94	B0C7N6			110.00 U	
199-K-34	7/12/94	B0C7N7		1.50 U		
199-K-34	10/22/94	B0D5M1			100.00 U	
199-K-34	10/22/94	B0D5M2		.28 LB		

Well Name	Collection Date	Sample Number	FCADMIU 34/ppb 3/10i	CALCIUM 34/ppb 47/.	FCALCIU 34/ppb 47/.	C-14 2007/pCi/L
199-K-106A	5/03/94	B0BRN7				20600.00

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
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Well Name	Collection Date	Sample Number	FCADMIU 34/ppb 3/10i	CALCIUM 34/ppb 47/.	FCALCIU 34/ppb 47/.	C-14 2007/pCi/L
199-K-106A	5/03/94	B0BRN8	3.00 U		75000.00 B	
199-K-106A	7/13/94	B0C7K5				14400.00
199-K-106A	7/13/94	B0C7K6	3.00 U		72000.00 Q	
199-K-106A	10/24/94	B0D5K3				19800.00
199-K-106A	10/24/94	B0D5K4	3.30 U		70000.00	
199-K-107A	3/11/94	B0BKK3				414.00
199-K-107A	5/03/94	B0BRN9				559.00
199-K-107A	5/03/94	B0BRP0	3.00 U		40000.00 B	
199-K-107A	7/13/94	B0C7K7				511.00
199-K-107A	7/13/94	B0C7K8	3.00 U		40000.00 Q	
199-K-107A	10/22/94	B0D5K5				841.00
199-K-107A	10/22/94	B0D5K6	3.30 U		39000.00	
199-K-108A	3/28/94	B0BKK4				497.00
199-K-108A	5/03/94	B0BRP1				2790.00
199-K-108A	5/03/94	B0BRP2	3.00 U		49000.00 B	
199-K-108A	7/13/94	B0C7L1				3720.00
199-K-108A	7/13/94	B0C7L2	3.00 U		55000.00 Q	
199-K-108A	10/24/94	B0D5K7				4690.00
199-K-108A	10/24/94	B0D5K8	3.30 U		51000.00	
199-K-109A	7/29/94	B09H58				72.70
199-K-109A	8/02/94	B09H60				150.00
199-K-109A	8/15/94	B09H57				16.60
199-K-109A	8/18/94	B09H61				20.10
199-K-109A	8/24/94	B09H59				2.25 U
199-K-109A	8/29/94	B0BWD9		540000.00		13.10
199-K-109A	8/29/94	B0BWF0	3.00 U		13000.00	
199-K-109A	11/03/94	B0D5K9				161.00
199-K-109A	11/03/94	B0D5L0	3.30 U		54000.00	
199-K-110A	5/13/94	B0BWF3				126.00
199-K-110A	7/15/94	B0C7L7				87.80
199-K-110A	7/15/94	B0C7L8	3.00 U		79000.00	
199-K-110A	10/24/94	B0D5L1				108.00
199-K-110A	10/24/94	B0D5L2	3.30 U		51000.00	
199-K-111A	6/06/94	B0BWF4				64.10
199-K-111A	6/08/94	B09H62				18.70
199-K-111A	6/14/94	B09H63				62.80
199-K-111A	6/20/94	B09H65				4.77
199-K-111A	6/23/94	B09H64				2.77 U
199-K-111A	6/28/94	B0C233		320000.00		
199-K-111A	6/28/94	B0C234	3.00 U		17000.00	
199-K-111A	7/28/94	B0C7M1				67.00
199-K-111A	7/28/94	B0C7M2	3.00 U		42000.00 Q	
199-K-111A	10/28/94	B0D5L3				75.60
199-K-111A	10/28/94	B0D5L4	3.30 U		42000.00	

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
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Well Name	Collection Date	Sample Number	FCADMIU 34/ppb 3/10i	CALCIUM 34/ppb 47/.	FCALCIU 34/ppb 47/.	C-14 2007/pCi/L
199-K-27	5/03/94	B0BRP9				695.00
199-K-27	5/03/94	B0BRQ0	3.00 U		51000.00	
199-K-27	7/11/94	B0C7K9				248.00
199-K-27	7/11/94	B0C7L0	3.00 U		52000.00	
199-K-27	10/26/94	B0D5M3				304.00
199-K-27	10/26/94	B0D5M4	3.30 U		61000.00	
199-K-28	5/02/94	B0BRQ1				1310.00
199-K-28	5/02/94	B0BRQ2	3.00 U		110000.00 B	
199-K-28	7/12/94	B0C7M8				1310.00
199-K-28	7/12/94	B0C7M9	3.00 U		110000.00	
199-K-28	10/28/94	B0D5L5				1460.00
199-K-28	10/28/94	B0D5L6	3.30 U		110000.00	
199-K-29	5/02/94	B0BRQ3				3160.00
199-K-29	5/02/94	B0BRQ4	3.00 U		43000.00 B	
199-K-29	7/12/94	B0C7N0				3060.00
199-K-29	7/12/94	B0C7N1	3.00 U		41000.00	
199-K-29	10/28/94	B0D5L7				3550.00
199-K-29	10/28/94	B0D5L8	3.30 U		41000.00	
199-K-30	5/04/94	B0BRQ5				7970.00
199-K-30	5/04/94	B0BRQ6	3.00 U		56000.00	
199-K-30	7/11/94	B0C7L3				8840.00
199-K-30	7/11/94	B0C7L4	3.00 U		55000.00	
199-K-30	10/26/94	B0D5M5				12700.00
199-K-30	10/26/94	B0D5M6	3.30 U		68000.00	
199-K-32A	5/04/94	B0BRQ7				337.00
199-K-32A	5/04/94	B0BRQ8	3.00 U		44000.00 B	
199-K-32A	7/14/94	B0C7N2				255.00
199-K-32A	7/14/94	B0C7N3	3.00 U		44000.00	
199-K-32A	10/28/94	B0D5L9				255.00
199-K-32A	10/28/94	B0D5M0	3.30 U		44000.00	
199-K-33	5/04/94	B0BRQ9				9630.00
199-K-33	5/04/94	B0BRR0	3.00 U		89000.00 B	
199-K-33	7/11/94	B0C7N4				10200.00
199-K-33	7/11/94	B0C7N5	3.00 U		92000.00	
199-K-34	5/02/94	B0BRR1				5280.00
199-K-34	5/02/94	B0BRR2	3.00 U		58000.00 B	
199-K-34	7/12/94	B0C7N6				5110.00
199-K-34	7/12/94	B0C7N7	3.00 U		57000.00 Q	
199-K-34	10/22/94	B0D5M1				8060.00
199-K-34	10/22/94	B0D5M2	3.30 U		57000.00	

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	CS-137 140/pCi/L ./200	CHLORID 124/ppb 71/250000s	CHROMUM 34/ppb 11/50i	FCHROMI 34/ppb 11/50i
199-K-106A	5/03/94	B0BRN7	.47 U	22000.00 D		
199-K-106A	5/03/94	B0BRN8				14.00 L
199-K-106A	7/13/94	B0C7K5	-1.37 U	19000.00 D		
199-K-106A	7/13/94	B0C7K6				23.00 B
199-K-106A	10/24/94	B0D5K3	-.17 U	19000.00 DB		
199-K-106A	10/24/94	B0D5K4				9.00 L
199-K-107A	3/11/94	B0BKK3	3.03 U			
199-K-107A	5/03/94	B0BRN9	-1.01 U	8500.00		
199-K-107A	5/03/94	B0BRP0				150.00
199-K-107A	7/13/94	B0C7K7	1.32 U	7200.00		
199-K-107A	7/13/94	B0C7K8				160.00 B
199-K-107A	10/22/94	B0D5K5	-5.49 U	7600.00 B		
199-K-107A	10/22/94	B0D5K6				190.00
199-K-108A	3/28/94	B0BKK4	-.96 U			
199-K-108A	5/03/94	B0BRP1	5.12 U	4900.00		
199-K-108A	5/03/94	B0BRP2				41.00
199-K-108A	7/13/94	B0C7L1	-3.90 U	5700.00		
199-K-108A	7/13/94	B0C7L2				160.00 B
199-K-108A	10/24/94	B0D5K7	-1.39 U	5600.00 B		
199-K-108A	10/24/94	B0D5K8				210.00
199-K-109A	7/29/94	B09H58	1.89 U			
199-K-109A	8/02/94	B09H60	1.39 U			
199-K-109A	8/15/94	B09H57	-.54 U			
199-K-109A	8/18/94	B09H61	-.28 U			
199-K-109A	8/24/94	B09H59	-3.36 U			
199-K-109A	8/29/94	B0BWD9	-3.54 U	1400.00	1900.00 Q	
199-K-109A	8/29/94	B0BWF0				11.00 UQ
199-K-109A	9/20/94	B0D0H9	-4.80 U			
199-K-109A	11/03/94	B0D5K9	-3.73 U	11000.00 D		
199-K-109A	11/03/94	B0D5L0				4.50 U
199-K-110A	5/13/94	B0BWF3	-2.52 U			
199-K-110A	7/15/94	B0C7L7	-.18 U	40000.00 D		
199-K-110A	7/15/94	B0C7L8				11.00 U
199-K-110A	10/24/94	B0D5L1	-.17 U	20000.00 DB		
199-K-110A	10/24/94	B0D5L2				8.00 L
199-K-111A	5/13/94	B0BWF4	-.82 U			
199-K-111A	6/08/94	B09H62	4.11 U			
199-K-111A	6/14/94	B09H63	4.76 U			
199-K-111A	6/20/94	B09H65	.27 U			
199-K-111A	6/23/94	B09H64	1.19 UG			
199-K-111A	6/28/94	B0C233		3000.00	410.00	
199-K-111A	6/28/94	B0C234				11.00 U
199-K-111A	7/28/94	B0C7M1	.28 UG	5500.00		
199-K-111A	7/28/94	B0C7M2				11.00 U

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	CS-137 140/pCi/L ./200	CHLORID 124/ppb 71/250000s	CHROMUM 34/ppb 11/50i	FCHROMI 34/ppb 11/50i
199-K-111A	10/28/94	B0D5L3	1.68 U	5800.00		
199-K-111A	10/28/94	B0D5L4				4.50 U
199-K-27	5/03/94	B0BRP9	1.31 U	15000.00 D		
199-K-27	5/03/94	B0BRQ0				11.00 U
199-K-27	5/18/94	B0BWG4	-1.97	15000.00 D		
199-K-27	7/11/94	B0C7K9	3.86 U	17000.00 D		
199-K-27	7/11/94	B0C7L0				38.00 B
199-K-27	10/26/94	B0D5M3	-.09 U	27000.00 D		
199-K-27	10/26/94	B0D5M4				4.50 U
199-K-28	5/02/94	B0BRQ1	-4.20 U	120000.00 D		
199-K-28	5/02/94	B0BRQ2				11.00 U
199-K-28	7/12/94	B0C7M8	4.46 U	140000.00 D		
199-K-28	7/12/94	B0C7M9				11.00 U
199-K-28	10/28/94	B0D5L5	3.47 U	130000.00 D		
199-K-28	10/28/94	B0D5L6				4.50 U
199-K-29	5/02/94	B0BRQ3	2.33 U	18000.00 D		
199-K-29	5/02/94	B0BRQ4				11.00 U
199-K-29	7/12/94	B0C7N0	-4.25 U	16000.00 D		
199-K-29	7/12/94	B0C7N1				11.00 U
199-K-29	10/28/94	B0D5L7	-5.50 U	16000.00 D		
199-K-29	10/28/94	B0D5L8				4.50 U
199-K-30	5/04/94	B0BRQ5	2.38 U	4300.00 Y		
199-K-30	5/04/94	B0BRQ6				12.00 L
199-K-30	7/11/94	B0C7L3	-1.11 U	3900.00		
199-K-30	7/11/94	B0C7L4				27.00 B
199-K-30	10/26/94	B0D5M5	-3.02 U	4800.00		
199-K-30	10/26/94	B0D5M6				9.30 L
199-K-32A	5/04/94	B0BRQ7	.55 U	3400.00		
199-K-32A	5/04/94	B0BRQ8				24.00
199-K-32A	7/14/94	B0C7N2	-.09 U	3400.00		
199-K-32A	7/14/94	B0C7N3				30.00
199-K-32A	10/28/94	B0D5L9	1.03 U	3500.00		
199-K-32A	10/28/94	B0D5N0				23.00
199-K-33	5/04/94	B0BRQ9	1.01 U	11000.00 D		
199-K-33	5/04/94	B0BRR0				20.00 L
199-K-33	7/11/94	B0C7N4	1.28 U	11000.00 D		
199-K-33	7/11/94	B0C7N5				30.00 B
199-K-34	5/02/94	B0BRR1	2.43 U	11000.00 D		
199-K-34	5/02/94	B0BRR2				24.00
199-K-34	7/12/94	B0C7N6	-1.03 U	11000.00 D		
199-K-34	7/12/94	B0C7N7				38.00
199-K-34	10/22/94	B0D5M1	3.41 U	7600.00 B		
199-K-34	10/22/94	B0D5M2				11.00 L

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Well Name	Collection Date	Sample Number	CS-137 140/pCi/L ./200	CHLORID 124/ppb 71/250000s	CHROMUM 34/ppb 11/50i	FCHROMI 34/ppb 11/50i

Well Name	Collection Date	Sample Number	COBALT 34/ppb 6.5/.	FCOBALT 34/ppb 6.5/.	CO-60 140/pCi/L ./100	COPPER 34/ppb 2.6/1000s
199-K-106A	5/03/94	B0BRN7			9.27	
199-K-106A	5/03/94	B0BRN8		6.50 U		
199-K-106A	7/13/94	B0C7K5			3.72 U	
199-K-106A	7/13/94	B0C7K6		6.50 U		
199-K-106A	10/24/94	B0D5K3			4.68 U	
199-K-106A	10/24/94	B0D5K4		6.20 L		
199-K-107A	3/11/94	B0BKK3			.29 U	
199-K-107A	5/03/94	B0BRN9			.93 U	
199-K-107A	5/03/94	B0BRP0		6.50 U		
199-K-107A	7/13/94	B0C7K7			-2.58 U	
199-K-107A	7/13/94	B0C7K8		6.50 U		
199-K-107A	10/22/94	B0D5K5			-1.70 U	
199-K-107A	10/22/94	B0D5K6		5.90 U		
199-K-108A	3/28/94	B0BKK4			-9.83 U	
199-K-108A	5/03/94	B0BRP1			.47 U	
199-K-108A	5/03/94	B0BRP2		6.50 U		
199-K-108A	7/13/94	B0C7L1			1.02 U	
199-K-108A	7/13/94	B0C7L2		6.50 U		
199-K-108A	10/24/94	B0D5K7			-.88 U	
199-K-108A	10/24/94	B0D5K8		6.20 L		
199-K-109A	7/29/94	B09H58			3.82 U	
199-K-109A	8/02/94	B09H60			2.63 U	
199-K-109A	8/15/94	B09H57			-10.10 U	
199-K-109A	8/18/94	B09H61			7.44	
199-K-109A	8/24/94	B09H59			-6.96 U	
199-K-109A	8/29/94	B0BWD9	730.00		8.05	1800.00 Q
199-K-109A	8/29/94	B0BWF0		6.50 U		
199-K-109A	9/20/94	B0D0H9			.39 U	
199-K-109A	11/03/94	B0D5K9			-3.07 U	
199-K-109A	11/03/94	B0D5L0		5.90 U		
199-K-110A	5/13/94	B0BWF3			9.23	
199-K-110A	7/15/94	B0C7L7			0.00 U	
199-K-110A	7/15/94	B0C7L8		6.50 U		
199-K-110A	10/24/94	B0D5L1			1.27 U	
199-K-110A	10/24/94	B0D5L2		5.90 U		
199-K-111A	5/13/94	B0BWF4			-5.09 U	
199-K-111A	6/08/94	B09H62			-3.25 U	

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	COBALT 34/ppb 6.5/.	FCOBALT 34/ppb 6.5/.	CO-60 140/pCi/L ./100	COPPER 34/ppb 2.6/1000s
199-K-111A	6/14/94	B09H63			.15 U	
199-K-111A	6/20/94	B09H65			-1.85 U	
199-K-111A	6/23/94	B09H64			-8.33 UG	
199-K-111A	6/28/94	B0C233	350.00			460.00
199-K-111A	6/28/94	B0C234		6.50 U		
199-K-111A	7/28/94	B0C7N1			0.00 UG	
199-K-111A	7/28/94	B0C7N2		6.50 U		
199-K-111A	10/28/94	B0D5L3			-6.04 U	
199-K-111A	10/28/94	B0D5L4		5.90 U		
199-K-27	5/03/94	B0BRP9			-1.39 U	
199-K-27	5/03/94	B0BRQ0		6.50 U		
199-K-27	5/18/94	B0BWG4			-5.52	
199-K-27	7/11/94	B0C7K9			-3.82 U	
199-K-27	7/11/94	B0C7L0		6.50 U		
199-K-27	10/26/94	B0D5M3			2.94 U	
199-K-27	10/26/94	B0D5M4		5.90 U		
199-K-28	5/02/94	B0BRQ1			4.79 U	
199-K-28	5/02/94	B0BRQ2		6.50 U		
199-K-28	7/12/94	B0C7M8			-5.96 U	
199-K-28	7/12/94	B0C7M9		6.50 U		
199-K-28	10/28/94	B0D5L5			-3.81 U	
199-K-28	10/28/94	B0D5L6		5.90 U		
199-K-29	5/02/94	B0BRQ3			-1.39 U	
199-K-29	5/02/94	B0BRQ4		6.50 U		
199-K-29	7/12/94	B0C7N0			.88 U	
199-K-29	7/12/94	B0C7N1		6.50 U		
199-K-29	10/28/94	B0D5L7			6.87	
199-K-29	10/28/94	B0D5L8		5.90 U		
199-K-30	5/04/94	B0BRQ5			5.11 U	
199-K-30	5/04/94	B0BRQ6		6.50 U		
199-K-30	7/11/94	B0C7L3			-4.67 U	
199-K-30	7/11/94	B0C7L4		6.50 U		
199-K-30	10/26/94	B0D5M5			.39 U	
199-K-30	10/26/94	B0D5M6		5.90 U		
199-K-32A	5/04/94	B0BRQ7			-1.39 U	
199-K-32A	5/04/94	B0BRQ8		6.50 U		
199-K-32A	7/14/94	B0C7N2			5.26	
199-K-32A	7/14/94	B0C7N3		6.50 U		
199-K-32A	10/28/94	B0D5L9			-3.83 U	
199-K-32A	10/28/94	B0D5M0		5.90 U		
199-K-33	5/04/94	B0BRQ9			0.00 U	
199-K-33	5/04/94	B0BRR0		6.50 U		
199-K-33	7/11/94	B0C7N4			8.83	
199-K-33	7/11/94	B0C7N5		6.50 U		

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	COBALT 34/ppb 6.5/.	FCOBALT 34/ppb 6.5/.	CO-60 140/pCi/L ./100	COPPER 34/ppb 2.6/1000s
199-K-34	5/02/94	B0BRR1			-4.17 U	
199-K-34	5/02/94	B0BRR2		6.50 U		
199-K-34	7/12/94	B0C7N6			3.88 U	
199-K-34	7/12/94	B0C7N7		6.50 U		
199-K-34	10/22/94	B0D5M1			2.98 U	
199-K-34	10/22/94	B0D5M2		5.90 U		

Well Name	Collection Date	Sample Number	FCOPPER 34/ppb 2.6/1000s	FLUORID 124/ppb 51/1400i	ALPHA 135/pCi/L ./15	BETA 136/pCi/L ./.
199-K-106A	5/03/94	B0BRN7		700.00	7.22	9.66
199-K-106A	5/03/94	B0BRN8	3.20 L			
199-K-106A	7/13/94	B0C7K5		800.00	5.57	8.79
199-K-106A	7/13/94	B0C7K6	2.60 UQ			
199-K-106A	10/24/94	B0D5K3		800.00	6.40	7.35
199-K-106A	10/24/94	B0D5K4	4.10 U			
199-K-107A	3/11/94	B0BKK3			8.72	96.60
199-K-107A	5/03/94	B0BRN9		700.00	3.80	88.50
199-K-107A	5/03/94	B0BRP0	5.10 L			
199-K-107A	7/13/94	B0C7K7		400.00	3.07	98.00
199-K-107A	7/13/94	B0C7K8	2.60 UQ			
199-K-107A	10/22/94	B0D5K5		700.00	3.06	97.80
199-K-107A	10/22/94	B0D5K6	6.70 L			
199-K-108A	3/28/94	B0BKK4			96.60	73.60
199-K-108A	5/03/94	B0BRP1		700.00	5.29	9.73
199-K-108A	5/03/94	B0BRP2	4.40 L			
199-K-108A	7/13/94	B0C7L1		800.00	6.82	8.05
199-K-108A	7/13/94	B0C7L2	2.60 UQ			
199-K-108A	10/24/94	B0D5K7		700.00	5.63	7.04
199-K-108A	10/24/94	B0D5K8	4.10 L			
199-K-109A	7/29/94	B09H58			3.42 Y	9200.00
199-K-109A	8/02/94	B09H60			23.80	851.00
199-K-109A	8/15/94	B09H57			12.10	57.70
199-K-109A	8/18/94	B09H61			13.70	33.20
199-K-109A	8/24/94	B09H59			21.60	19.40
199-K-109A	8/29/94	B0BWD9		500.00	1.92 U	17.40
199-K-109A	8/29/94	B0BWF0	4.40 LQ			
199-K-109A	9/20/94	B0D0J5			8.24 Q	1140.00
199-K-109A	11/03/94	B0D5K9		600.00		
199-K-109A	11/03/94	B0D5L0	4.10 U			
199-K-110A	5/13/94	B0BWF3			3.27	24.70

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	FCOPPER 34/ppb 2.6/1000s	FLUORID 124/ppb 51/14001	ALPHA 135/pCi/L ./15	BETA 136/pCi/L ./.
199-K-110A	7/15/94	B0C7L7		600.00	.72 U	6.47
199-K-110A	7/15/94	B0C7L8	2.60 U			
199-K-110A	10/24/94	B0D5L1		500.00	1.82	3.59
199-K-110A	10/24/94	B0D5L2	4.10 L			
199-K-111A	5/13/94	B0BWF4			4.45	15.70
199-K-111A	6/08/94	B09H62			29.90	33.20
199-K-111A	6/14/94	B09H63			24.80	20.90
199-K-111A	6/20/94	B09H65			1.77 U	24.50
199-K-111A	6/23/94	B09H64			46.40 G	32.70 G
199-K-111A	6/28/94	B0C233		700.00		
199-K-111A	6/28/94	B0C234	5.10 L			
199-K-111A	7/28/94	B0C7M1		700.00	4.08	8.47
199-K-111A	7/28/94	B0C7M2	2.60 UQ			
199-K-111A	10/28/94	B0D5L3		400.00	1.29	6.83
199-K-111A	10/28/94	B0D5L4	4.10 L			
199-K-27	5/03/94	B0BRP9		900.00	7.20	28.50
199-K-27	5/03/94	B0BRQ0	3.80 L			
199-K-27	5/18/94	B0BWG4		500.00	5.41	5.39
199-K-27	7/11/94	B0C7K9		500.00	2.78	31.20
199-K-27	7/11/94	B0C7L0	2.60 U			
199-K-27	10/26/94	B0D5M3		600.00	4.47	24.00
199-K-27	10/26/94	B0D5M4	4.10 U			
199-K-28	5/02/94	B0BRQ1		800.00	3.18	8.80
199-K-28	5/02/94	B0BRQ2	2.60 U			
199-K-28	7/12/94	B0C7M8		800.00	2.69	9.91
199-K-28	7/12/94	B0C7M9	2.60 U			
199-K-28	10/28/94	B0D5L5		800.00	6.92	8.47
199-K-28	10/28/94	B0D5L6	4.10 U			
199-K-29	5/02/94	B0BRQ3		500.00	2.59	3.86
199-K-29	5/02/94	B0BRQ4	13.00 L			
199-K-29	7/12/94	B0C7N0		500.00	1.17	4.26
199-K-29	7/12/94	B0C7N1	2.60 U			
199-K-29	10/28/94	B0D5L7		300.00	1.86	4.41
199-K-29	10/28/94	B0D5L8	4.10 U			
199-K-30	5/04/94	B0BRQ5		800.00 Y	1.27 U	4.82
199-K-30	5/04/94	B0BRQ6	2.60 U			
199-K-30	7/11/94	B0C7L3		600.00	2.62	3.91
199-K-30	7/11/94	B0C7L4	2.60 U			
199-K-30	10/26/94	B0D5M5		800.00	2.71	4.44
199-K-30	10/26/94	B0D5M6	4.10 U			
199-K-32A	5/04/94	B0BRQ7		300.00	1.55	6.00
199-K-32A	5/04/94	B0BRQ8	2.60 U			
199-K-32A	7/14/94	B0C7N2		300.00	1.31	10.80
199-K-32A	7/14/94	B0C7N3	2.60 U			

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Well Name	Collection Date	Sample Number	FCOPPER 34/ppb 2.6/1000s	FLUORID 124/ppb 51/1400i	ALPHA 135/pCi/L ./15	BETA 136/pCi/L ./.
199-K-32A	10/28/94	B0D5L9		200.00	.97	7.65
199-K-32A	10/28/94	B0D5M0	4.10 U			
199-K-33	5/04/94	B0BRQ9		500.00	2.92	5.99
199-K-33	5/04/94	B0BRR0	4.40 L			
199-K-33	7/11/94	B0C7N4		600.00	5.84	9.07
199-K-33	7/11/94	B0C7N5	2.60 U			
199-K-34	5/02/94	B0BRR1		600.00	5.50	71.40
199-K-34	5/02/94	B0BRR2	2.60 U			
199-K-34	7/12/94	B0C7N6		600.00	2.58	62.70
199-K-34	7/12/94	B0C7N7	2.60 UQ			
199-K-34	10/22/94	B0D5M1		600.00	4.14	78.80
199-K-34	10/22/94	B0D5M2	4.10 L			

Well Name	Collection Date	Sample Number	I-129 139/pCi/L ./1	IRON 34/ppb 18/300s	FIRON 34/ppb 18/300s	MAGNES 34/ppb 25/.
199-K-106A	5/03/94	B0BRN8			41.00	
199-K-106A	7/13/94	B0C7K6			18.00 U	
199-K-106A	10/24/94	B0D5K4			40.00 B	
199-K-107A	5/03/94	B0BRP0			21.00	
199-K-107A	7/13/94	B0C7K8			18.00 U	
199-K-107A	10/22/94	B0D5K6			14.00 LB	
199-K-108A	5/03/94	B0BRP2			22.00	
199-K-108A	7/13/94	B0C7L2			18.00 U	
199-K-108A	10/24/94	B0D5K8			27.00 B	
199-K-109A	8/29/94	B0BWD9		1600000.00 Q		500000.00
199-K-109A	8/29/94	B0BWF0			250.00 Q	
199-K-109A	11/03/94	B0D5L0			400.00	
199-K-110A	7/15/94	B0C7L8			42.00	
199-K-110A	10/24/94	B0D5L2			30.00 B	
199-K-111A	6/28/94	B0C233		350000.00		120000.00
199-K-111A	6/28/94	B0C234			150.00	
199-K-111A	7/28/94	B0C7N2			21.00	
199-K-111A	10/28/94	B0D5L4			11.00 L	
199-K-27	5/03/94	B0BRQ0			18.00 U	
199-K-27	7/11/94	B0C7L0			18.00 U	
199-K-27	10/26/94	B0D5M4			24.00 B	
199-K-28	3/10/94	B0BGN7	.30			
199-K-28	5/02/94	B0BRQ2			18.00 U	
199-K-28	7/12/94	B0C7N9			27.00	
199-K-28	10/28/94	B0D5L6			13.00 L	

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Well Name	Collection Date	Sample Number	I-129 139/pCi/L ./1	IRON 34/ppb 18/300s	FIRON 34/ppb 18/300s	MAGNES 34/ppb 25/.
199-K-29	5/02/94	B0BRQ4			19.00 L	
199-K-29	7/12/94	B0C7N1			24.00	
199-K-29	10/28/94	B0D5L8			15.00 L	
199-K-30	5/04/94	B0BRQ6			18.00 U	
199-K-30	7/11/94	B0C7L4			18.00 U	
199-K-30	10/26/94	B0D5M6			18.00 BL	
199-K-32A	5/04/94	B0BRQ8			18.00 U	
199-K-32A	7/14/94	B0C7N3			18.00 U	
199-K-32A	10/28/94	B0D5N0			12.00 L	
199-K-33	5/04/94	B0BRR0			38.00	
199-K-33	7/11/94	B0C7N5			18.00 U	
199-K-34	5/02/94	B0BRR2			18.00 U	
199-K-34	7/12/94	B0C7N7			25.00	
199-K-34	10/22/94	B0D5M2			12.00 LB	

Well Name	Collection Date	Sample Number	FMAGNES 34/ppb 25/.	MANGESE 34/ppb 1/50s	FMANGAN 34/ppb 1/50s	NICKEL 34/ppb 16/.
199-K-106A	5/03/94	B0BRN8	18000.00		3.70 L	
199-K-106A	7/13/94	B0C7K6	18000.00		1.00 U	
199-K-106A	10/24/94	B0D5K4	17000.00		1.10 LB	
199-K-107A	5/03/94	B0BRP0	8100.00		91.00	
199-K-107A	7/13/94	B0C7K8	8200.00		11.00	
199-K-107A	10/22/94	B0D5K6	7900.00		1.00 LB	
199-K-108A	5/03/94	B0BRP2	9800.00		86.00	
199-K-108A	7/13/94	B0C7L2	12000.00		6.30 L	
199-K-108A	10/24/94	B0D5K8	9900.00		2.80 LB	
199-K-109A	8/29/94	B0BWD9		31000.00 Q		2100.00 Q
199-K-109A	8/29/94	B0BWF0	4000.00		45.00 Q	
199-K-109A	11/03/94	B0D5L0	12000.00		33.00 B	
199-K-110A	7/15/94	B0C7L8	13000.00		150.00	
199-K-110A	10/24/94	B0D5L2	7800.00		23.00 B	
199-K-111A	6/28/94	B0C233		20000.00 B		700.00
199-K-111A	6/28/94	B0C234	4700.00		51.00 B	
199-K-111A	7/28/94	B0C7M2	9300.00		41.00	
199-K-111A	10/28/94	B0D5L4	9600.00		1.10 L	
199-K-27	5/03/94	B0BRQ0	11000.00		1.80 L	
199-K-27	7/11/94	B0C7L0	11000.00		1.00 U	
199-K-27	10/26/94	B0D5M4	13000.00		1.30 L	
199-K-28	5/02/94	B0BRQ2	22000.00		1.00 U	
199-K-28	7/12/94	B0C7M9	24000.00		1.00 U	

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Well Name	Collection Date	Sample Number	FMAGNES 34/ppb 25/.	MANGESE 34/ppb 1/50s	FMANGAN 34/ppb 1/50s	NICKEL 34/ppb 16/.
199-K-28	10/28/94	B0D5L6	23000.00		.76 L	
199-K-29	5/02/94	B0BRQ4	10000.00		1.90 L	
199-K-29	7/12/94	B0C7N1	10000.00		1.00 U	
199-K-29	10/28/94	B0D5L8	10000.00		2.90 L	
199-K-30	5/04/94	B0BRQ6	12000.00		1.00 U	
199-K-30	7/11/94	B0C7L4	12000.00		1.00 L	
199-K-30	10/26/94	B0D5M6	15000.00		.72 U	
199-K-32A	5/04/94	B0BRQ8	4800.00		1.00 U	
199-K-32A	7/14/94	B0C7N3	5000.00		1.00 U	
199-K-32A	10/28/94	B0D5M0	5200.00		2.70 L	
199-K-33	5/04/94	B0BRR0	10000.00		1.50 L	
199-K-33	7/11/94	B0C7N5	11000.00		1.00 U	
199-K-34	5/02/94	B0BRR2	11000.00		1.00 U	
199-K-34	7/12/94	B0C7N7	11000.00		1.00 U	
199-K-34	10/22/94	B0D5M2	11000.00		1.00 LB	

Well Name	Collection Date	Sample Number	FNICKEL 34/ppb 16/.	NITRATE 124/ppb 96/45000	NITRITE 124/ppb 110/1000	POTASUM 34/ppb 890/.
199-K-106A	5/03/94	B0BRN7		110000.00 DH	110.00 UH	
199-K-106A	5/03/94	B0BRN8	19.00 L			
199-K-106A	7/13/94	B0C7K5		100000.00 D	110.00 U	
199-K-106A	7/13/94	B0C7K6	16.00 U			
199-K-106A	10/24/94	B0D5K3		100000.00 D	18.00 U	
199-K-106A	10/24/94	B0D5K4	13.00 U			
199-K-107A	5/03/94	B0BRN9		16000.00 D	110.00 U	
199-K-107A	5/03/94	B0BRP0	16.00 U			
199-K-107A	7/13/94	B0C7K7		16000.00 D	110.00 U	
199-K-107A	7/13/94	B0C7K8	16.00 U			
199-K-107A	10/22/94	B0D5K5		17000.00 DH	18.00 UH	
199-K-107A	10/22/94	B0D5K6	13.00 U			
199-K-108A	5/03/94	B0BRP1		14000.00 D	200.00 L	
199-K-108A	5/03/94	B0BRP2	16.00 U			
199-K-108A	7/13/94	B0C7L1		23000.00 D	110.00 U	
199-K-108A	7/13/94	B0C7L2	16.00 U			
199-K-108A	10/24/94	B0D5K7		21000.00 D	18.00 U	
199-K-108A	10/24/94	B0D5K8	13.00 U			
199-K-109A	8/29/94	B0BWD9		96.00 UH	110.00 UH	98000.00
199-K-109A	8/29/94	B0BWF0	16.00 UQ			
199-K-109A	11/03/94	B0D5K9		12000.00 D	300.00	
199-K-109A	11/03/94	B0D5L0	13.00 U			

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Well Name	Collection Date	Sample Number	FNICKEL 34/ppb 16/.	NITRATE 124/ppb 96/45000	NITRITE 124/ppb 110/1000	POTASUM 34/ppb 890/.
199-K-110A	7/15/94	B0C7L7		18000.00 DH	110.00 UH	
199-K-110A	7/15/94	B0C7L8	30.00 L			
199-K-110A	10/24/94	B0D5L1		7500.00	18.00 U	
199-K-110A	10/24/94	B0D5L2	43.00			
199-K-111A	6/28/94	B0C233		1700.00	110.00 U	36000.00
199-K-111A	6/28/94	B0C234	16.00 U			
199-K-111A	7/28/94	B0C7N1		49000.00 D	300.00	
199-K-111A	7/28/94	B0C7N2	16.00 U			
199-K-111A	10/28/94	B0D5L3		49000.00 DH	90.00 LH	
199-K-111A	10/28/94	B0D5L4	13.00 U			
199-K-27	5/03/94	B0BRP9		10000.00 DH	110.00 UH	
199-K-27	5/03/94	B0BRQ0	16.00 U			
199-K-27	5/18/94	B0BWG4		10000.00 D	U	
199-K-27	7/11/94	B0C7K9		12000.00 DH	110.00 UH	
199-K-27	7/11/94	B0C7L0	16.00 U			
199-K-27	10/26/94	B0D5M3		11000.00 BD	18.00 U	
199-K-27	10/26/94	B0D5M4	13.00 U			
199-K-28	5/02/94	B0BRQ1		29000.00 D	110.00 U	
199-K-28	5/02/94	B0BRQ2	16.00 U			
199-K-28	7/12/94	B0C7N8		31000.00 DH	110.00 UH	
199-K-28	7/12/94	B0C7N9	16.00 U			
199-K-28	10/28/94	B0D5L5		32000.00 DH	18.00 UH	
199-K-28	10/28/94	B0D5L6	13.00 U			
199-K-29	5/02/94	B0BRQ3		20000.00 D	110.00 U	
199-K-29	5/02/94	B0BRQ4	16.00 U			
199-K-29	7/12/94	B0C7N0		18000.00 DH	110.00 UH	
199-K-29	7/12/94	B0C7N1	16.00 U			
199-K-29	10/28/94	B0D5L7		19000.00 DH	18.00 UH	
199-K-29	10/28/94	B0D5L8	13.00 U			
199-K-30	5/04/94	B0BRQ5		77000.00 DHY	110.00 UHY	
199-K-30	5/04/94	B0BRQ6	16.00 U			
199-K-30	7/11/94	B0C7L3		77000.00 DH	110.00 UH	
199-K-30	7/11/94	B0C7L4	16.00 U			
199-K-30	10/26/94	B0D5M5		110000.00 BD	18.00 U	
199-K-30	10/26/94	B0D5M6	13.00 U			
199-K-32A	5/04/94	B0BRQ7		14000.00 D	110.00 U	
199-K-32A	5/04/94	B0BRQ8	16.00 U			
199-K-32A	7/14/94	B0C7N2		18000.00 DH	110.00 UH	
199-K-32A	7/14/94	B0C7N3	16.00 U			
199-K-32A	10/28/94	B0D5L9		21000.00 DH	18.00 UH	
199-K-32A	10/28/94	B0D5M0	13.00 U			
199-K-33	5/04/94	B0BRQ9		93000.00 D	110.00 U	
199-K-33	5/04/94	B0BRR0	16.00 U			
199-K-33	7/11/94	B0C7N4		100000.00 DH	110.00 UH	

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Well Name	Collection Date	Sample Number	FNICKEL 34/ppb 16/.	NITRATE 124/ppb 96/45000	NITRITE 124/ppb 110/1000	POTASUM 34/ppb 890/.
199-K-33	7/11/94	B0C7N5	16.00 U			
199-K-34	5/02/94	B0BRR1		32000.00 D	110.00 U	
199-K-34	5/02/94	B0BRR2	16.00 U			
199-K-34	7/12/94	B0C7N6		31000.00 DH	110.00 UH	
199-K-34	7/12/94	B0C7N7	16.00 U			
199-K-34	10/22/94	B0D5M1		28000.00 DH	18.00 UH	
199-K-34	10/22/94	B0D5M2	13.00 U			

Well Name	Collection Date	Sample Number	FPOTASS 34/ppb 890/.	RU-106 140/pCi/L ./30	SODIUM 34/ppb 150/.	FSODIUM 34/ppb 150/.
199-K-106A	5/03/94	B0BRN7		7.95 U		
199-K-106A	5/03/94	B0BRN8	8700.00			29000.00
199-K-106A	7/13/94	B0C7K5		14.70 U		
199-K-106A	7/13/94	B0C7K6	7700.00			27000.00 Q
199-K-106A	10/24/94	B0D5K3		16.00 U		
199-K-106A	10/24/94	B0D5K4	7200.00			26000.00
199-K-107A	3/11/94	B0BKX3		-63.40 U		
199-K-107A	5/03/94	B0BRN9		-15.50 U		
199-K-107A	5/03/94	B0BRP0	4500.00			17000.00
199-K-107A	7/13/94	B0C7K7		32.20 U		
199-K-107A	7/13/94	B0C7K8	3900.00			16000.00 Q
199-K-107A	10/22/94	B0D5K5		93.70		
199-K-107A	10/22/94	B0D5K6	3600.00			16000.00
199-K-108A	3/28/94	B0BKX4		-18.70 U		
199-K-108A	5/03/94	B0BRP1		25.60 U		
199-K-108A	5/03/94	B0BRP2	7200.00			17000.00
199-K-108A	7/13/94	B0C7L1		44.20 U		
199-K-108A	7/13/94	B0C7L2	6800.00			17000.00 Q
199-K-108A	10/24/94	B0D5K7		4.47 U		
199-K-108A	10/24/94	B0D5K8	5300.00			18000.00
199-K-109A	7/29/94	B09H58		-26.20 U		
199-K-109A	8/02/94	B09H60		8.08 U		
199-K-109A	8/15/94	B09H57		-26.10 U		
199-K-109A	8/18/94	B09H61		27.50 U		
199-K-109A	8/24/94	B09H59		-32.10 U		
199-K-109A	8/29/94	B0BWD9		-55.30 U	81000.00 Q	
199-K-109A	8/29/94	B0BWF0	4800.00			7900.00 Q
199-K-109A	9/20/94	B0D0H9		34.50 U		
199-K-109A	11/03/94	B0D5K9		22.00 U		
199-K-109A	11/03/94	B0D5L0	4400.00			5700.00

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Well Name	Collection Date	Sample Number	FPOTASS 34/ppb 890/.	RU-106 140/pCi/L ./30	SODIUM 34/ppb 150/.	FSODIUM 34/ppb 150/.
199-K-110A	5/13/94	B0BWF3		-4.68 U		
199-K-110A	7/15/94	B0C7L7		60.00		
199-K-110A	7/15/94	B0C7L8	5600.00			10000.00
199-K-110A	10/24/94	B0D5L1		-45.90 U		
199-K-110A	10/24/94	B0D5L2	3800.00			5900.00
199-K-111A	5/13/94	B0BWF4		-32.00 U		
199-K-111A	6/08/94	B09H62		-3.20 U		
199-K-111A	6/14/94	B09H63		39.70 U		
199-K-111A	6/20/94	B09H65		-13.80 U		
199-K-111A	6/23/94	B09H64		12.20 UG		
199-K-111A	6/28/94	B0C233			32000.00	
199-K-111A	6/28/94	B0C234	5600.00			12000.00
199-K-111A	7/28/94	B0C7N1		-64.10 UG		
199-K-111A	7/28/94	B0C7N2	6200.00			15000.00 Q
199-K-111A	10/28/94	B0D5L3		4.84 U		
199-K-111A	10/28/94	B0D5L4	5500.00			14000.00
199-K-27	5/03/94	B0BRP9		59.60		
199-K-27	5/03/94	B0BRQ0	4800.00			6800.00
199-K-27	5/18/94	B0BWG4		24.70		
199-K-27	7/11/94	B0C7K9		29.70 U		
199-K-27	7/11/94	B0C7L0	4900.00			7000.00
199-K-27	10/26/94	B0D5M3		80.40		
199-K-27	10/26/94	B0D5M4	5700.00			7700.00
199-K-28	5/02/94	B0BRQ1		41.40 U		
199-K-28	5/02/94	B0BRQ2	7500.00			15000.00
199-K-28	7/12/94	B0C7N8		-36.70 U		
199-K-28	7/12/94	B0C7N9	7400.00			15000.00
199-K-28	10/28/94	B0D5L5		21.70 U		
199-K-28	10/28/94	B0D5L6	7200.00			15000.00
199-K-29	5/02/94	B0BRQ3		94.40		
199-K-29	5/02/94	B0BRQ4	5500.00			8000.00
199-K-29	7/12/94	B0C7N0		8.28 U		
199-K-29	7/12/94	B0C7N1	4600.00			7900.00
199-K-29	10/28/94	B0D5L7		32.10 U		
199-K-29	10/28/94	B0D5L8	4400.00			8500.00
199-K-30	5/04/94	B0BRQ5		-24.00 U		
199-K-30	5/04/94	B0BRQ6	5200.00			11000.00
199-K-30	7/11/94	B0C7L3		-7.96 U		
199-K-30	7/11/94	B0C7L4	4900.00			10000.00
199-K-30	10/26/94	B0D5M5		-20.00 U		
199-K-30	10/26/94	B0D5M6	6200.00			12000.00
199-K-32A	5/04/94	B0BRQ7		12.20 U		
199-K-32A	5/04/94	B0BRQ8	2300.00			6200.00
199-K-32A	7/14/94	B0C7N2		-13.30 U		

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Well Name	Collection Date	Sample Number	FPOTASS 34/ppb 890/.	RU-106 140/pCi/L ./30	SODIUM 34/ppb 150/.	FSODIUM 34/ppb 150/.
199-K-32A	7/14/94	B0C7N3	2200.00			6300.00
199-K-32A	10/28/94	B0D5L9		12.50 U		
199-K-32A	10/28/94	B0D5M0	2100.00			6500.00
199-K-33	5/04/94	B0BRQ9		-86.70 U		
199-K-33	5/04/94	B0BRR0	4300.00			14000.00
199-K-33	7/11/94	B0C7N4		-29.50 U		
199-K-33	7/11/94	B0C7N5	3700.00			14000.00
199-K-34	5/02/94	B0BRR1		26.20 U		
199-K-34	5/02/94	B0BRR2	3800.00			17000.00
199-K-34	7/12/94	B0C7N6		49.00 U		
199-K-34	7/12/94	B0C7N7	3200.00			16000.00 Q
199-K-34	10/22/94	B0D5M1		3.33 U		
199-K-34	10/22/94	B0D5M2	3100.00			16000.00

Well Name	Collection Date	Sample Number	SR-90 141/pCi/L ./8	SULFATE 124/ppb 89/250000s	TC-99 143/pCi/L ./900	TMP_C 170/DegC .1/.
199-K-106A	5/03/94	B0BRN7		67000.00 D		16.80
199-K-106A	7/13/94	B0C7K5		69000.00 D		17.00
199-K-106A	10/24/94	B0D5K3		63000.00 D		16.50
199-K-107A	5/03/94	B0BRN9		33000.00 D		16.70
199-K-107A	7/13/94	B0C7K7		30000.00 D		17.00
199-K-107A	10/22/94	B0D5K5		33000.00 D		15.10
199-K-108A	5/03/94	B0BRP1		32000.00 D		16.20
199-K-108A	7/13/94	B0C7L1		38000.00 D		16.40
199-K-108A	10/24/94	B0D5K7		38000.00 D		15.60
199-K-109A	7/29/94	B09H58				30.30
199-K-109A	8/02/94	B09H60				22.00
199-K-109A	8/15/94	B09H57				26.00
199-K-109A	8/18/94	B09H61				27.50
199-K-109A	8/24/94	B09H59				20.80
199-K-109A	8/29/94	B0BWD9		13000.00 D		27.70
199-K-109A	9/20/94	B0D0H9	803.00			
199-K-109A	9/20/94	B0D0J5	614.00			
199-K-109A	11/03/94	B0D5K9		16000.00 D		14.50
199-K-109A	11/21/94	B0D8W2				14.50
199-K-109A	12/28/94	B0DD38				14.40
199-K-110A	7/15/94	B0C7L7		24000.00 D		15.30
199-K-110A	9/28/94	B0CYD6				14.70
199-K-110A	10/24/94	B0D5L1		18000.00 D		14.20
199-K-110A	11/30/94	B0D8W3				14.40

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	SR-90 141/pCi/L ./8	SULFATE 124/ppb 89/250000s	TC-99 143/pCi/L ./900	TMP_C 170/DegC .1/.
199-K-110A	12/20/94	B0DD39				14.30
199-K-111A	6/06/94	B0BWF4				21.60
199-K-111A	6/28/94	B0C233		20000.00 D		
199-K-111A	7/28/94	B0C7M1		30000.00 D		
199-K-111A	10/28/94	B0D5L3		29000.00 D		18.60
199-K-27	5/03/94	B0BRP9		18000.00 D		16.60
199-K-27	5/18/94	B0BWG4	-.16	18000.00 D		
199-K-27	7/11/94	B0C7K9		18000.00 D		16.60
199-K-27	9/09/94	B0CBQ2				16.20
199-K-27	9/28/94	B0CYF2				16.20
199-K-27	10/26/94	B0D5M3		20000.00 D		15.60
199-K-27	12/28/94	B0DD41				15.10
199-K-28	3/10/94	B0BGN7	.01		-.10	16.00
199-K-28	3/10/94	B0BHW4				16.00
199-K-28	5/02/94	B0BRQ1		27000.00 D		16.20
199-K-28	7/12/94	B0C7M8		27000.00 D		16.80
199-K-28	9/28/94	B0CYF3				16.20
199-K-28	10/28/94	B0D5L5		29000.00 D		15.70
199-K-28	11/22/94	B0D8W6				15.20
199-K-28	12/19/94	B0DD42				15.70
199-K-29	5/02/94	B0BRQ3		23000.00 D		16.60
199-K-29	7/12/94	B0C7N0		23000.00 D		16.80
199-K-29	9/28/94	B0CYF6				16.30
199-K-29	10/28/94	B0D5L7		23000.00 D		15.90
199-K-29	11/22/94	B0D8W7				15.00
199-K-30	5/04/94	B0BRQ5		30000.00 DY		
199-K-30	7/11/94	B0C7L3		30000.00 D		16.50
199-K-30	10/26/94	B0D5M5		39000.00 D		15.40
199-K-30	11/21/94	B0D8W8				15.10
199-K-30	12/28/94	B0DD44				15.10
199-K-32A	5/04/94	B0BNS0	1.46		9.16	
199-K-32A	5/04/94	B0BRQ7		32000.00 D		21.20
199-K-32A	7/14/94	B0C7N2		35000.00 D		22.20
199-K-32A	9/22/94	B0CYFB				21.50
199-K-32A	10/28/94	B0D5L9		34000.00 D		20.00
199-K-32A	11/30/94	B0D8W9				20.70
199-K-32A	12/20/94	B0DD45				20.60
199-K-33	5/04/94	B0BRQ9		79000.00 D		
199-K-33	7/11/94	B0C7N4		88000.00 D		17.70
199-K-34	5/02/94	B0BRR1		35000.00 D		17.00
199-K-34	7/12/94	B0C7N6		37000.00 D		17.30
199-K-34	10/22/94	B0D5M1		29000.00 D		14.50
199-K-34	11/22/94	B0D8X0				15.20
199-K-34	12/19/94	B0DD46				15.20

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
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Well Name	Collection Date	Sample Number	SR-90 141/pCi/L ./8	SULFATE 124/ppb 89/250000s	TC-99 143/pCi/L ./900	TMP_C 170/DegC .1/.

Well Name	Collection Date	Sample Number	TIN 34/ppb 24/.	FTIN 34/ppb 24/.	TDS 65/ppm 10/500s	TRITIUM 142/pCi/L ./20000
199-K-106A	5/03/94	B0BRN7				249000.00
199-K-106A	5/03/94	B0BRN8		140.00 BQ		
199-K-106A	7/13/94	B0C7K5				43000.00
199-K-106A	7/13/94	B0C7K6		24.00 U		
199-K-106A	10/24/94	B0D5K3				46500.00
199-K-106A	10/24/94	B0D5K4		69.00 U		
199-K-107A	3/11/94	B0BKK3				2160.00
199-K-107A	5/03/94	B0BRN9				1870.00
199-K-107A	5/03/94	B0BRP0		95.00 BLQ		
199-K-107A	7/13/94	B0C7K7				1760.00
199-K-107A	7/13/94	B0C7K8		24.00 U		
199-K-107A	10/22/94	B0D5K5				2270.00
199-K-107A	10/22/94	B0D5K6		69.00 U		
199-K-108A	3/28/94	B0BKK4				108.00 U
199-K-108A	5/03/94	B0BRP1				425.00
199-K-108A	5/03/94	B0BRP2		110.00 BQ		
199-K-108A	7/13/94	B0C7L1				632.00
199-K-108A	7/13/94	B0C7L2		24.00 U		
199-K-108A	10/24/94	B0D5K7				17.50 U
199-K-108A	10/24/94	B0D5K8		69.00 U		
199-K-109A	7/29/94	B09H58				172000.00
199-K-109A	8/02/94	B09H60				137000.00
199-K-109A	8/15/94	B09H57				6310.00
199-K-109A	8/18/94	B09H61				763.00
199-K-109A	8/24/94	B09H59				604.00
199-K-109A	8/29/94	B0BWD9	340.00 B		80.00	561.00
199-K-109A	8/29/94	B0BWF0		56.00 LB		
199-K-109A	9/20/94	B0D0H9				158000.00
199-K-109A	9/20/94	B0D0J5				181000.00
199-K-109A	9/28/94	B0CBP8				61100.00
199-K-109A	11/03/94	B0D5K9				156000.00
199-K-109A	11/03/94	B0D5L0		69.00 U		
199-K-109A	11/21/94	B0D8W2				85000.00
199-K-109A	12/28/94	B0DD38				147000.00
199-K-110A	5/13/94	B0BWF3				256.00 U
199-K-110A	7/07/94	B0C0Q2				205.00 U
199-K-110A	7/15/94	B0C7L7				273.00 U

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
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Well Name	Collection Date	Sample Number	TIN 34/ppb 24/.	FTIN 34/ppb 24/.	TDS 65/ppm 10/500s	TRITIUM 142/pCi/L ./20000
199-K-110A	7/15/94	B0C7L8		24.00 U		
199-K-110A	8/31/94	B0CBP9				514.00
199-K-110A	9/28/94	B0CYD6				67.10 U
199-K-110A	10/24/94	B0D5L1				-134.00 U
199-K-110A	10/24/94	B0D5L2		69.00 U		
199-K-110A	11/30/94	B0D8W3				2960.00
199-K-110A	12/20/94	B0DD39				85.40 U
199-K-111A	5/13/94	B0BWF4				155.00 U
199-K-111A	6/08/94	B09H62				49.50 U
199-K-111A	6/14/94	B09H63				258.00 U
199-K-111A	6/20/94	B09H65				2480.00
199-K-111A	6/23/94	B09H64				-202.00 UG
199-K-111A	6/28/94	B0C233	110.00		130.00	
199-K-111A	6/28/94	B0C234		39.00 L		
199-K-111A	7/28/94	B0C7M1				-119.00 U
199-K-111A	7/28/94	B0C7M2		24.00 U		
199-K-111A	10/28/94	B0D5L3				160.00 U
199-K-111A	10/28/94	B0D5L4		69.00 U		
199-K-27	3/30/94	B0BHW3				628000.00
199-K-27	5/03/94	B0BRP9				556000.00
199-K-27	5/03/94	B0BRQ0		24.00 U		
199-K-27	5/18/94	B0BWG4				522000.00
199-K-27	6/14/94	B0C0Q5				445000.00
199-K-27	7/11/94	B0C7K9				487000.00
199-K-27	7/11/94	B0C7L0		24.00 U		
199-K-27	9/28/94	B0CYF2				410000.00 R
199-K-27	10/26/94	B0D5M3				327000.00
199-K-27	10/26/94	B0D5M4		69.00 U		
199-K-27	12/28/94	B0DD41				240000.00
199-K-28	3/01/94	B09Z28				4310.00
199-K-28	3/10/94	B0BHW4				2020.00
199-K-28	5/02/94	B0BRQ1				2650.00
199-K-28	5/02/94	B0BRQ2		50.00 BLQ		
199-K-28	5/31/94	B0BWD6				1880.00
199-K-28	7/07/94	B0C0Q6				2330.00
199-K-28	7/12/94	B0C7N8				2320.00
199-K-28	7/12/94	B0C7N9		24.00 U		
199-K-28	8/25/94	B0CBQ3				1420.00
199-K-28	9/28/94	B0CYF3				2460.00
199-K-28	10/28/94	B0D5L5				2400.00
199-K-28	10/28/94	B0D5L6		69.00 U		
199-K-28	11/22/94	B0D8W6				2520.00
199-K-28	12/19/94	B0DD42				2500.00
199-K-29	3/01/94	B09Z29				25600.00

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	TIN 34/ppb 24/.	FTIN 34/ppb 24/.	TDS 65/ppm 10/500s	TRITIUM 142/pCi/L ./20000
199-K-29	5/02/94	B0BRQ3				23100.00
199-K-29	5/02/94	B0BRQ4		43.00 BLQ		
199-K-29	5/31/94	B0BWD7				24300.00
199-K-29	6/16/94	B0C0Q7				23300.00
199-K-29	7/12/94	B0C7N0				19200.00
199-K-29	7/12/94	B0C7N1		24.00 U		
199-K-29	8/25/94	B0CBQ4				19700.00
199-K-29	9/28/94	B0CYF6				14700.00
199-K-29	10/28/94	B0D5L7				14800.00
199-K-29	10/28/94	B0D5L8		69.00 U		
199-K-29	11/22/94	B0D8W7				13100.00
199-K-29	12/01/94	B0DD43				511.00
199-K-30	3/01/94	B0B000				544000.00
199-K-30	3/30/94	B0BHW6				448000.00
199-K-30	5/04/94	B0BRQ5				554000.00
199-K-30	5/04/94	B0BRQ6		30.00 L		
199-K-30	5/13/94	B0BWD8				533000.00
199-K-30	6/16/94	B0C0Q8				547000.00
199-K-30	7/11/94	B0C7L3				570000.00
199-K-30	7/11/94	B0C7L4		24.00 U		
199-K-30	8/25/94	B0CBQ5				430000.00
199-K-30	10/26/94	B0D5M5				1020000.00
199-K-30	10/26/94	B0D5M6		69.00 U		
199-K-30	11/21/94	B0D8W8				1040000.00
199-K-32A	3/02/94	B0B001				3210.00
199-K-32A	4/07/94	B0BHW7				3250.00
199-K-32A	5/04/94	B0BRQ7				2790.00
199-K-32A	5/04/94	B0BRQ8		72.00 BLQ		
199-K-32A	6/01/94	B0BWF1				2960.00
199-K-32A	7/07/94	B0C0Q9				3130.00
199-K-32A	7/14/94	B0C7N2				2700.00
199-K-32A	7/14/94	B0C7N3		24.00 U		
199-K-32A	8/31/94	B0CBQ6				2980.00
199-K-32A	9/22/94	B0CYF8				2070.00
199-K-32A	10/28/94	B0D5L9				2750.00
199-K-32A	10/28/94	B0D5M0		69.00 U		
199-K-32A	11/30/94	B0D8W9				652.00
199-K-32A	12/20/94	B0DD45				2920.00
199-K-33	5/04/94	B0BRQ9				8700.00
199-K-33	5/04/94	B0BRR0		110.00 BQ		
199-K-33	7/11/94	B0C7N4				11500.00
199-K-33	7/11/94	B0C7N5		24.00 U		
199-K-34	3/02/94	B0B002				4380.00
199-K-34	4/07/94	B0BHW8				4400.00

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	TIN 34/ppb 24/.	FTIN 34/ppb 24/.	TDS 65/ppm 10/500s	TRITIUM 142/pCi/L ./20000
199-K-34	5/02/94	B0BRR1				3740.00
199-K-34	5/02/94	B0BRR2		88.00 BLQ		
199-K-34	5/31/94	B0BWF2				4030.00
199-K-34	6/16/94	B0C0R0				2940.00
199-K-34	7/12/94	B0C7N6				2900.00
199-K-34	7/12/94	B0C7N7		30.00 L		
199-K-34	8/31/94	B0CBQ7				6810.00
199-K-34	9/26/94	B0CYF9				6670.00
199-K-34	10/22/94	B0D5M1				6970.00
199-K-34	10/22/94	B0D5M2		69.00 U		
199-K-34	11/22/94	B0D8X0				4910.00
199-K-34	12/19/94	B0DD46				3010.00

Well Name	Collection Date	Sample Number	TURBID 126/NTU .016/.	URANIUM 145/ppb ./.	VANADUM 34/ppb 6.4/.	FVANADI 34/ppb 6.4/.
199-K-106A	5/03/94	B0BRN7	6.60 H			
199-K-106A	5/03/94	B0BRN8				8.30 L
199-K-106A	7/13/94	B0C7K5	4.30 Q			
199-K-106A	7/13/94	B0C7K6				6.40 U
199-K-106A	10/24/94	B0D5K3	2.80			
199-K-106A	10/24/94	B0D5K4				6.60 U
199-K-107A	5/03/94	B0BRN9	32.00			
199-K-107A	5/03/94	B0BRP0				6.40 U
199-K-107A	7/13/94	B0C7K7	15.00 Q			
199-K-107A	7/13/94	B0C7K8				6.40 U
199-K-107A	10/22/94	B0D5K5	5.30 H			
199-K-107A	10/22/94	B0D5K6				6.60 U
199-K-108A	5/03/94	B0BRP1	11.00			
199-K-108A	5/03/94	B0BRP2				6.40 U
199-K-108A	7/13/94	B0C7L1	4.00 Q			
199-K-108A	7/13/94	B0C7L2				6.40 U
199-K-108A	10/24/94	B0D5K7	4.00			
199-K-108A	10/24/94	B0D5K8				6.60 U
199-K-109A	8/29/94	B0BWD9	66000.00 QH		3100.00	
199-K-109A	8/29/94	B0BWF0				6.40 U
199-K-109A	9/28/94	B0CBP8	48.00			
199-K-109A	11/03/94	B0D5K9	56.00			
199-K-109A	11/03/94	B0D5L0				6.60 U
199-K-110A	7/15/94	B0C7L7	3.10 H			
199-K-110A	7/15/94	B0C7L8				6.40 U

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
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Well Name	Collection Date	Sample Number	TURBID 126/NTU .016/.	URANIUM 145/ppb ./.	VANADUM 34/ppb 6.4/.	FVANADI 34/ppb 6.4/.
199-K-110A	8/31/94	B0CBP9	60.00 Q			
199-K-110A	10/24/94	B0D5L1	4.90			
199-K-110A	10/24/94	B0D5L2				6.60 U
199-K-111A	6/28/94	B0C233	590.00		690.00	
199-K-111A	6/28/94	B0C234				6.40 U
199-K-111A	7/28/94	B0C7N1	17.00 Q			
199-K-111A	7/28/94	B0C7N2				8.00 L
199-K-111A	10/28/94	B0D5L3	3.20 H			
199-K-111A	10/28/94	B0D5L4				8.20 L
199-K-27	5/03/94	B0BRQ0				6.40 U
199-K-27	5/18/94	B0BWG4		6.16		
199-K-27	7/11/94	B0C7L0				6.40 U
199-K-27	9/09/94	B0CBQ2	8.40 Q			
199-K-27	10/26/94	B0D5M4				7.80 L
199-K-28	3/01/94	B09ZZ8	19.00 H			
199-K-28	3/10/94	B0BHW4	1.50 Q			
199-K-28	5/02/94	B0BRQ1	.70			
199-K-28	5/02/94	B0BRQ2				11.00 L
199-K-28	7/12/94	B0C7N8	.26 H			
199-K-28	7/12/94	B0C7N9				6.40 U
199-K-28	8/25/94	B0CBQ3	65.00 Q			
199-K-28	10/28/94	B0D5L5	1.30 H			
199-K-28	10/28/94	B0D5L6				6.60 U
199-K-29	3/01/94	B09ZZ9	150.00 H			
199-K-29	5/02/94	B0BRQ3	4.80			
199-K-29	5/02/94	B0BRQ4				11.00 L
199-K-29	7/12/94	B0C7N0	1.80 H			
199-K-29	7/12/94	B0C7N1				8.90 L
199-K-29	8/25/94	B0CBQ4	45.00 Q			
199-K-29	10/28/94	B0D5L7	3.10 H			
199-K-29	10/28/94	B0D5L8				9.20 L
199-K-30	3/01/94	B0B000	16.00 H			
199-K-30	5/04/94	B0BRQ6				8.70 L
199-K-30	7/11/94	B0C7L4				6.80 L
199-K-30	8/25/94	B0CBQ5	1.10 Q			
199-K-30	10/26/94	B0D5M6				9.70 L
199-K-32A	3/02/94	B0B001	3.10			
199-K-32A	4/07/94	B0BHW7	1.60			
199-K-32A	5/04/94	B0BRQ7	1.30			
199-K-32A	5/04/94	B0BRQ8				6.40 U
199-K-32A	7/14/94	B0C7N2	2.40 H			
199-K-32A	7/14/94	B0C7N3				6.40 U
199-K-32A	8/31/94	B0CBQ6	6.20 Q			
199-K-32A	10/28/94	B0D5L9	9.40 H			

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 27 of 31)

Well Name	Collection Date	Sample Number	TURBID 126/NTU .016/.	URANIUM 145/ppb ./.	VANADUM 34/ppb 6.4/.	FVANADI 34/ppb 6.4/.
199-K-32A	10/28/94	B0D5M0				6.60 U
199-K-33	5/04/94	B0BRQ9	.69			
199-K-33	5/04/94	B0BRR0				6.40 U
199-K-33	7/11/94	B0C7N4	1.20 HQ			
199-K-33	7/11/94	B0C7N5				6.40 U
199-K-34	3/02/94	B0B002	19.00			
199-K-34	4/07/94	B0BHW8	14.00			
199-K-34	5/02/94	B0BRR1	.86			
199-K-34	5/02/94	B0BRR2				6.40 U
199-K-34	7/12/94	B0C7N6	.46 H			
199-K-34	7/12/94	B0C7N7				6.40 U
199-K-34	8/31/94	B0CBQ7	1.10 Q			
199-K-34	10/22/94	B0D5M1	.41 H			
199-K-34	10/22/94	B0D5M2				6.60 U

Well Name	Collection Date	Sample Number	ZINC 34/ppb 4.4/5000s	FZINC 34/ppb 4.4/5000s
199-K-106A	5/03/94	B0BRN8		4.40 U
199-K-106A	7/13/94	B0C7K6		36.00
199-K-106A	10/24/94	B0D5K4		6.30 U
199-K-107A	5/03/94	B0BRP0		4.40 U
199-K-107A	7/13/94	B0C7K8		37.00
199-K-107A	10/22/94	B0D5K6		8.50 L
199-K-108A	5/03/94	B0BRP2		4.40 U
199-K-108A	7/13/94	B0C7L2		81.00
199-K-108A	10/24/94	B0D5K8		6.30 U
199-K-109A	8/29/94	B0BWD9	4100.00	
199-K-109A	8/29/94	B0BWF0		8.70 L
199-K-109A	11/03/94	B0D5L0		8.10 L
199-K-110A	7/15/94	B0C7L8		52.00 B
199-K-110A	10/24/94	B0D5L2		6.30 U
199-K-111A	6/28/94	B0C233	1100.00	
199-K-111A	6/28/94	B0C234		4.40 U
199-K-111A	7/28/94	B0C7M2		14.00 B
199-K-111A	10/28/94	B0D5L4		6.30 U
199-K-27	5/03/94	B0BRQ0		13.00 B
199-K-27	7/11/94	B0C7L0		67.00
199-K-27	10/26/94	B0D5M4		11.00
199-K-28	5/02/94	B0BRQ2		8.60 L
199-K-28	7/12/94	B0C7M9		20.00 B

Constituents with at Least One Detected Value for the 100-K Fuel Storage Basins
Data for Reporting Period March 1, through December 28, 1994.
(sheet 28 of 31)

Well Name	Collection Date	Sample Number	ZINC 34/ppb 4.4/5000s	FZINC 34/ppb 4.4/5000s
199-K-28	10/28/94	B0D5L6		6.30 U
199-K-29	5/02/94	B0BRQ4		12.00
199-K-29	7/12/94	B0C7N1		43.00 B
199-K-29	10/28/94	B0D5L8		6.30 U
199-K-30	5/04/94	B0BRQ6		13.00 B
199-K-30	7/11/94	B0C7L4		57.00
199-K-30	10/26/94	B0D5M6		7.70 L
199-K-32A	5/04/94	B0BRQ8		7.70 L
199-K-32A	7/14/94	B0C7N3		14.00 B
199-K-32A	10/28/94	B0D5M0		6.30 U
199-K-33	5/04/94	B0BRR0		4.40 U
199-K-33	7/11/94	B0C7N5		54.00
199-K-34	5/02/94	B0BRR2		4.40 U
199-K-34	7/12/94	B0C7N7		10.00 B
199-K-34	10/22/94	B0D5M2		6.30 U

For explanation of this table, see Section 1.4 of report.

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APPENDIX A-3

CONTAMINATION INDICATOR PARAMETERS FOR THE 100-K FUEL STORAGE BASINS DATA FOR REPORTING PERIOD MARCH 1 THROUGH DECEMBER 28, 1994

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Table A-3

Contamination Indicator Parameters for the 100-K Fuel Storage Basins
Data for Reporting Period March 1. through December 28. 1994.
(sheet 1 of 2)

Well Name	Collection Date	Sample Number	COND FIELD uMho 1/700w	COND LAB uMho 1/700w	pH FIELD .01/6.5-8.5s	pH LAB .01/6.5-8.5s	TOC ppb 320/.	TOX ppb 5/.
199-K-106A	5/03/94	B0BRN7	648	650	7.44			
	7/13/94	B0C7K5	653	660	7.42			
	10/24/94	B0D5K3	641	650	7.75			
199-K-107A	5/03/94	B0BRN9	347	340	7.78			
	7/13/94	B0C7K7	337	340	7.49			
	10/22/94	B0D5K5	353	350	7.76			
199-K-108A	5/03/94	B0BRP1	405	380	7.83			
	7/13/94	B0C7L1	425	440	7.57			
	10/24/94	B0D5K7	416	450	7.85			
199-K-109A	7/29/94	B09H58	462		7.94			
	8/02/94	B09H60	344		8.14			
	8/15/94	B09H57	148		9.05			
	8/18/94	B09H61	199		9.01			
	8/24/94	B09H59	140		9.10			
	8/29/94	B0BWD9	167	150	8.73	8.80 H	2000	6.7
	11/03/94	B0D5K9	394	400	7.72			
	11/21/94	B0D8W2	383		7.92			
	12/28/94	B0DD38	389		7.96			
199-K-110A	7/15/94	B0C7L7	521	570	7.21			
	9/28/94	B0CYD6	389					
	10/24/94	B0D5L1	359	370	7.52			
	11/30/94	B0D8W3	341		7.73			
	12/20/94	B0DD39	360		7.54			
199-K-111A	6/06/94	B0BWF4	3760		8.21			
	6/28/94	B0C233		210		8.20 H	7000	7.7
	7/28/94	B0C7M1		380				
	10/28/94	B0D5L3	392	380	8.01			
199-K-27	5/03/94	B0BRP9	356	390	7.81			
	7/11/94	B0C7K9	390	390	8.02			
	9/09/94	B0CBQ2	464		7.17			
	9/28/94	B0CYF2	443					
	10/26/94	B0D5M3	452	430	7.81			
	12/28/94	B0DD41	411		7.91			
199-K-28	3/10/94	B0BGN7	720		7.14			
		B0BHW4	720		7.14			
	5/02/94	B0BRQ1	839	810	7.33			
	7/12/94	B0C7M8	856	840	7.28			
	9/28/94	B0CYF3	920					
	10/28/94	B0D5L5	914	860	7.49			
	11/22/94	B0D8W6	843		7.54			
	12/19/94	B0DD42	809		7.66			
199-K-29	5/02/94	B0BRQ3	357	340	6.71			
	7/12/94	B0C7N0	335	320	7.68			
	9/28/94	B0CYF6	330					

Contamination Indicator Parameters for the 100-K Fuel Storage Basins
Data for Reporting Period March 1. through December 28. 1994.
(sheet 2 of 2)

Well Name	Collection Date	Sample Number	COND FIELD uMho 1/700w	COND LAB uMho 1/700w	pH FIELD .01/6.5-8.5s	pH LAB .01/6.5-8.5s	TOC ppb 320/.	TOX ppb 5/.
199-K-29	10/28/94	B0D5L7	370	340	7.89			
	11/22/94	B0D8W7	327		7.99			
199-K-30	5/04/94	B0BRQ5		450				
	7/11/94	B0C7L3	464	440	8.17			
	10/26/94	B0D5M5	546	520	8.03			
	11/21/94	B0D8W8	525		7.96			
	12/28/94	B0DD44	525		7.99			
199-K-32A	3/02/94	B0B001	505		8.38			
	5/04/94	B0BRQ7	277	260	7.62			
	7/14/94	B0C7N2	283	290	7.97			
	9/22/94	B0CYF8	292					
	10/28/94	B0D5L9	311	300	7.96			
	11/30/94	B0D8W9	292		8.09			
	12/20/94	B0DD45	300		7.98			
199-K-33	5/04/94	B0BRQ9		590				
	7/11/94	B0C7N4	642	640	7.79			
199-K-34	3/02/94	B0B002	424		7.49			
	5/02/94	B0BRR1	454	450	7.82			
	7/12/94	B0C7N6	447	450	7.76			
	9/26/94	B0CYF9	443					
	10/22/94	B0D5M1	444	440	7.83			
	11/22/94	B0D8X0	422		7.81			
	12/19/94	B0DD46	441		7.83			

For explanation of this table. see Section 1.4 of report.

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APPENDIX A-4

GROSS ALPHA AND GROSS BETA BACKGROUND DATA FOR THE 100-K FUEL STORAGE BASINS

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Table A-4.a. Background Alpha Data for the 100-K Area Fuel Storage Basins.

Well	Sample Number	Collect Date	Result (pCi/L)	Error (pCi/L)	Qualifier	Flag
199-K-108A	B0BKK4	03/28/94	96.60[F]	27.29		
199-K-108A	B0BRP1	05/03/94	5.29	2.36		
199-K-108A	B0C7L1	07/13/94	6.82	2.81		
199-K-108A	B0D5K7	10/24/94	5.63	2.48		
199-K-35	B079Y1	09/25/92	1.50		R	
199-K-35	B07QR9	12/09/92	-0.72		U	
199-K-35	B088H1	03/24/93	0.50		U	
199-K-35	B08L80	06/02/93	-0.23		U	
199-K-35	B09W72	01/14/94	2.40			
199-K-35	B09W88	01/14/94	1.60			
199-K-36	B072Q5	08/06/92	-0.47		R	
199-K-36	B079Y6	09/25/92	3.20		R	
199-K-36	B07QS4	12/09/92	3.40			
199-K-36	B088H6	03/19/93	1.80		U	
199-K-36	B08L85	06/02/93	0.78			
199-K-36	B09W74	01/14/94	2.60			

n = 12
mean = 2.489
Std.Dev. = 2.396
K = 2.736
UTL = 9.04

[F]suspect data currently under review.

n = sample size
UTL = upper tolerance limit with 95% coverage and 95% level of confidence

Table A-4.b. Background Beta Data for the 100-K Area Fuel Storage Basins.

Well	Sample Number	Collect Date	Result	Error	Qualifier	Flag
199-K-108A	B0BKK4	03/28/94	73.60[F]	18.28		
199-K-108A	B0BRP1	05/03/94	9.73	2.99		
199-K-108A	B0C7L1	07/13/94	8.05	2.92		
199-K-108A	B0D5K7	10/24/94	7.04	2.79		
199-K-35	B079Y1	09/25/92	6.30			
199-K-35	B07QR9	12/09/92	6.20			
199-K-35	B088H1	03/24/93	7.10			
199-K-35	B08L80	06/02/93	7.20			
199-K-35	B09W72	01/14/94	8.10			
199-K-35	B09W88	01/14/94	7.70			
199-K-36	B072Q5	08/06/92	0.98		U	
199-K-36	B079Y6	09/25/92	7.70			
199-K-36	B07QS4	12/09/92	7.10			
199-K-36	B088H6	03/19/93	5.70			
199-K-36	B08L85	06/02/93	5.90			
199-K-36	B09W74	01/14/94	6.40			

n = 15
mean = 6.747
Std.Dev. = 1.899
K = 2.566
UTL = 11.62

[F]suspect data currently under review.

n = sample size
UTL = upper tolerance limit with 95% coverage and 95% level of confidence

APPENDIX A-5

RADIONUCLIDE DETECTION LIMITS

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RADIONUCLIDE DETECTION LIMITS

This section documents the derivation of radionuclide detection limits that apply to constituents of concern in the 100 K Area. The analytical results used in the following discussion are a subset of the quality control data set from the 1994 annual RCRA groundwater monitoring report (DOE/RL-94-136). Radionuclide measurements associated with the Operational Environmental Monitoring (OEM) program at 100 K Basins are conducted under the RCRA sampling and analysis Quality Assurance Program Plan.

Definitions

The concentration at which an analyte can be detected depends on the variability of the blank response. For this discussion, the 'blank' is taken to be a method blank. The limit of detection (LOD) is defined as the lowest concentration that is statistically different from a blank (Currie 1988). In general, it is calculated as the mean concentration in the blank plus 3 standard deviations of that concentration (EPA 1987). For radionuclides, a blank corrected LOD is calculated as three times the blank standard deviation. At 3 standard deviations from the blank mean, the false positive error rate and the false negative error rate are each about 7 percent (Miller and Miller 1988, p. 116). A false positive error is an instance when an analyte is declared to be present but is, in fact, absent and a false negative error is an instance when an analyte is declared to be absent but is, in fact, present.

The limit of quantitation (LOQ) is defined as the level above which quantitative results may be obtained with a specified degree of confidence (Keith 1991). It is calculated as the blank mean plus 10 standard deviations of the blank (EPA 1987). For radionuclides, a blank corrected LOQ is calculated as 10 times the blank standard deviation. The LOQ is most useful for defining the lower limit of the useful range of the analytical instrumentation. When the analyte signal is 10 times larger than the standard deviation of the blank measurements, the probability is 95 percent that the true concentration of the analyte is ±25% of the measured concentration. The LOD and LOQ are shown graphically in Figure A-1. For illustration purposes, the numbers appearing in this figure are the respective blank mean, LOD, and LOQ for strontium-90 and gross beta (see Tables A.5-10 and A.5-5, respectively).

Calculated LOD and LOQ Values

For this report, radionuclide field blank data are used for LOD and LOQ determinations. The field blanks are quality control samples that are introduced into a process to monitor the performance of the system. The use of field blanks to calculate LOD and LOQ is preferred over the use of laboratory blanks because field blanks provide a measure of the errors in the entire sampling and analysis system. Methods to calculate LOD and LOQ are described in detail in DOE (1991, Appendix A). The results of the LOD and LOQ determinations of radionuclides of concern at the Hanford Site are shown in Tables A.5-1 through A.5-13.

Figure A.5-1. Relationship of LOD and LOQ to Analyte Concentration.

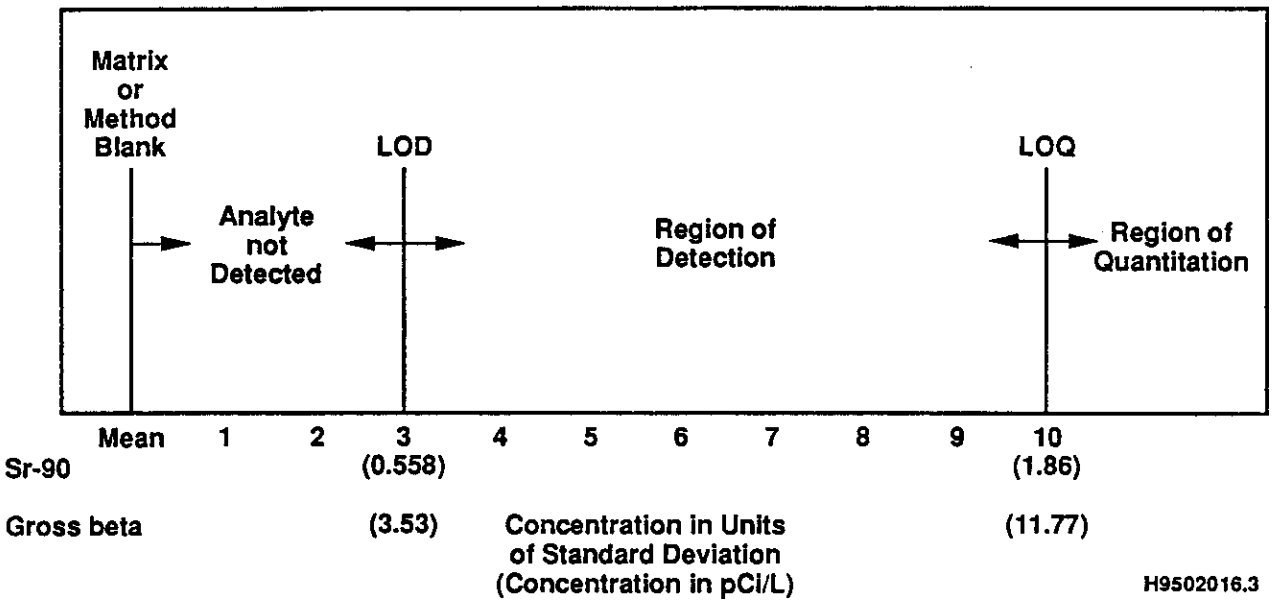

Table A.5-1. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Antimony-125.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/08/93	12/13/93	3	-0.280	2.167	6.50	21.67
05/24/94	06/15/94	3	-8.490	12.710	38.13	127.10
08/23/94	09/20/94	4	-3.153	7.563	22.69	75.63
Summary		10	-3.892	8.486	25.46	84.86

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-2. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Cesium-137.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/08/93	12/13/93	3	-1.627	2.465	7.40	24.65
05/24/94	06/15/94	3	0.673	1.553	4.66	15.53
08/23/94	09/20/94	4	-2.017	4.281	12.84	42.81
Summary		10	-1.093	3.206	9.62	32.06

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-3. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Cobalt-60.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/08/93	12/13/93	3	4.917	2.480	7.44	24.80
05/24/94	06/15/94	3	-1.687	0.551	1.65	5.51
08/23/94	09/20/94	4	-0.640	5.148	15.44	51.48
Summary		10	0.713	3.633	10.90	36.33

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-4. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Gross Alpha.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/06/93	12/17/93	13	0.005	0.182	0.54	1.82
01/03/94	03/22/94	14	0.056	0.212	0.64	2.12
04/01/94	06/08/94	8	-0.006	0.185	0.56	1.85
07/01/94	09/20/94	10[b]	-0.020	0.182	0.55	1.82
Summary		45	0.024	0.192	0.58	1.92

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.
[b]Excluding FTR #221 because it had blank contamination.

Table A.5-5. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Gross Beta.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/06/93	12/17/93	13	0.640	1.352	4.06	13.52
01/03/94	03/22/94	14	0.057	1.025	3.08	10.25
04/01/94	06/08/94	8	0.425	0.769	2.31	7.69
07/01/94	09/20/94	11	0.302	1.358	4.08	13.58
Summary		46	0.344	1.177	3.53	11.77

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-6. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Iodine-129.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
11/04/93	09/20/94	7	-0.045	0.257	0.77	2.57

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-7. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Plutonium-238.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
12/10/93	09/20/94	5	0.0010	0.0059	0.0176	0.0588

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-8. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Plutonium-239/240.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
12/10/93	09/20/94	5	0.0004	0.0037	0.0112	0.0373

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-9. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Radium.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/11/93	11/29/93	5	-0.018	0.0324	0.097	0.324
01/04/94	03/22/94	5	-0.006	0.0237	0.071	0.237
04/22/94	05/24/94	3	0.023	0.0295	0.089	0.295
07/21/94	08/23/94	2	-0.000	0.0586	0.176	0.586
Summary		15	-0.004	0.0325	0.098	0.325

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-10. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Strontium-90.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
11/11/93	12/10/93	2	0.328	0.443	1.330	4.434
03/14/94	03/17/94	2	-0.056	0.049	0.148	0.493
05/24/94	06/30/94	2	-0.063	0.034	0.102	0.341
09/07/94	09/20/94	4[b]	-0.119	0.052	0.156	0.521

Summary	10	-0.006	0.186	0.558	1.860

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.
[b]Excluding FTR #219 because of it had blank contamination.

Table A.5-11. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Technetium-99.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/06/93	12/17/93	4	0.563	0.701	2.104	7.013
01/03/94	03/17/94	3	-0.202	0.499	1.498	4.992
04/01/94	06/30/94	2	-0.180	0.810	2.431	8.103
07/13/94	09/20/94	2	0.606	0.770	2.309	7.700
Summary		11	0.227	0.679	2.037	6.790

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-12. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Tritium.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/08/93	12/17/93	13	90.29	83.649	250.95	836.49
01/04/94	03/22/94	14	84.54	96.769	290.31	967.68
04/18/94	06/15/94	9	91.92	102.900	308.70	1029.00
07/01/94	09/20/94	12	63.97	176.802	530.41	1768.02
Summary		48	82.34	120.06	360.2	1200.6

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

Table A.5-13. Groundwater Field Blanks Data From IT Analytical Services. Constituent: Uranium.

Period from	Period to	Number of Samples	Mean (pCi/L)	Standard Dev. (pCi/L)	LOD[a] (pCi/L)	LOQ[a] (pCi/L)
10/06/93	12/17/93	5	0.032	0.0274	0.082	0.274
01/03/94	03/22/94	7	0.056	0.0567	0.170	0.567
04/01/94	06/07/94	4	0.002	0.0204	0.061	0.204
07/01/94	09/20/94	6	-0.004	0.0200	0.060	0.200
Summary		22	0.024	0.0377	0.113	0.377

[a]LOD (blank corrected) equals 3 times the blank standard deviation and LOQ (blank corrected) equals 10 times the blank standard deviation.

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