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**DESERT RESEARCH INSTITUTE
UNIVERSITY OF NEVADA SYSTEM**

HYDROLOGIC DATA BANK CONTENTS, 1978

by

Herbert N. Friesen and John C. Brekke

USER INFORMATION BULLETIN 5

Prepared for the U.S. Department of Energy, Nevada
Operations Office, under Contract No. AT(29-2)-1253.

WATER RESOURCES CENTER

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FOREWORD

The Hydrologic Data System is administered by the Desert Research Institute for the U. S. Department of Energy, Nevada Operations Office. The system is designed for storing, retrieving, and analyzing numeric data and is available to all DOE/NV Contractors.

This document presents general information on the content and status of data files available for retrievals. Specific questions in regard to the Nevada Hydrologic Storage and Retrieval System should be channeled through the Physical and Life Sciences Division, U.S. Department of Energy, Nevada Operations Office, Las Vegas, Nevada.

Peter A. Krenkel
Executive Director

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ABSTRACT

The USDOE/NV Hydrologic Data Storage and Retrieval System is composed of data files and computer programs for the manipulation of these files. This publication presents the names assigned to the data files and details the file contents.

INTRODUCTION

This bulletin documents the content and current status of data files in the USDOE/NV Hydrologic Data Bank. A status report of this type becomes obsolete in a short time because of the addition of data to existing files and creation of new files to reflect ongoing projects. Nevertheless, existing data files will be maintained, so the contents of this bulletin remain valid as a reference to historical data and as a guide to file names. Reference to this bulletin in making a request for data will expedite retrieval.

GENERAL INFORMATION

Data stored in the USDOE/NV Hydrologic Data Storage and Retrieval System is primarily in OMNIANA format. OMNIANA is a general purpose program package created by the USGS Albuquerque, New Mexico, for storing and retrieving water related data. The OMNIANA program package contains editing, sorting, tabulating, listing, and other routines that are easy to set up and run on OMNIANA formatted data files.

Every data requestor has a wide variety of ways to have retrieved data output. There are tabulations, numbered lists, contour plots, trend-surface analysis plots, statistical manipulation of data, *ROPES diagrams and statistics, STORET and WATSTORE data formats, tape copies in some instances, and other special requested and programmed outputs. Examples of any of the more popular retrieval formats are available upon request.

Table 1 is a summary of locations, data types, and quantity of data in the Hydrologic Data Bank (HDB). The sites for which we have data are listed within the respective states where they are located. Other information contained in the table is primary data type at each site, period of time when data were collected, frequency of sampling, status codes for data files, and number of locations points or sample points in each file. Status codes and data type codes are defined at the bottom of the table.

Table 2 contains all the parameter codes that appear in the tables and their definitions. Also included are the NTS Nuclear Event Data parameter codes and definitions.

* Program ROPES tabulates, lists, and does some statistics on water analysis data.

ALASKA

Amchitka. The United States Geological Survey (USGS) conducted an extensive water sampling and analysis program for water on and around Amchitka Island starting in 1964. After sufficient well and surface water background sampling had been done, a limited number of points were selected for long-term monitoring. Sampling was done periodically from 1967 through 1971 by Teledyne Isotopes and USGS. The monitoring network of about 55 points was sampled by the USGS three times in the fall of 1971: in January, April and October 1972; August 1973; and in May and August, 1974. No sampling was done in 1975 or 1976. Data in the Amchitka file is complete through 1974. The United States Environmental Protection Agency conducted sampling on Amchitka in 1977 and 1978; these results will be added to the file as they become available. Gross chemical and radiochemical analyses were performed on the early samples; more recent samples underwent primarily radiochemical analyses.

Cannikin. The Cannikin file is a small special purpose file that resulted from study of the relationship between the water level in Cannikin lake and ocean tide stage. The question of interest dealt with the type of water that would most likely fill the Cannikin Event rubble chimney.

Geothermal. Since the energy shortage which began in the early 1970's, an interest has blossomed in the potentials of geothermal energy. At that time the United States Bureau of Mines funded a small project by DRI to collect and computerize all available water analyses results from known geothermal resources in the western states, including Alaska. (The Bureau of Mines was interested in recovery of minerals from geothermal brine.) Several documents were obtained containing data from 31 points of geothermal interest in Alaska. These points had only been sampled a few times during the interval 1917 through 1972.

ARIZONA

Geothermal. Available documents contained data from two geothermal points in Arizona. A total of three samples were collected and analyzed in 1973.

CALIFORNIA

EPA Monitoring. The USEPA conducts a Long-Term Hydrologic Monitoring Program in and around sites where nuclear devices have been detonated. As part of the NTS monitoring network Shoshone Spring in California had been included for semi-annual sampling from 1973 to 1977. Early analyses included a broad suite of constituents, but new emphasis is on gross alpha, gross beta and tritium.

Geothermal. Interest in geothermal resources was at a high level in California when DRI compiled the geothermal data file; however, most of the data being collected at that time was either proprietary or close-held until published. Available documents contained data from 130 samples collected at 82 wells and springs in the interval 1948 through 1974. Most of the collection points were in the Imperial Valley and the east side of the Sierras. Very detailed analyses were performed on some of the samples with as many as 98 common chemical, heavy metal and trace elements under examination.

Well and Spring Inventory. During the mid-sixties the USGS compiled an inventory of wells and springs within a 100-mile radius of a point on Pahute Mesa at the Nevada Test Site. The purpose was to assemble information that might be useful in evaluating suspected or real claims of damage to water wells and springs in the vicinity of underground nuclear detonations. There were 116 wells and 126 springs located in California within the distance criteria. Data were recorded on the USGS card system in use at that time.

COLORADO

EPA Monitoring. The Rulison site in Colorado is included in the USEPA's Long Term Hydrologic Monitoring Program. Wells and springs comprise the 11 sample points that have been sampled annually since 1972. The EPA performs chemical, radiochemical, and tritium analyses on the water samples collected.

Geothermal. Five hot springs spread throughout Colorado were sampled by the USGS. All the water samples taken were collected in 1968 and had chemical analyses performed on them.

Rio Blanco. The Rio Blanco data file contains water analysis data collected from the area around the Rio Blanco event. The Rio Blanco event was detonated on May 17, 1973 to test the commercial feasibility of using nuclear explosives to recover commercial quantities of tightly held natural gas in the Piceance basin. The data bank contains water analyses collected before the event, as early as 1964, and water analyses collected after the event. Collection of water analyses is continuing on a regular basis from many of the 100 sampling points, with data in the bank current through 1974. Wells, postshot test holes, and springs are sampled with chemical, radiochemical, and tritium analyses performed on the water samples. The USGS, the Colorado Geological Survey, and CER Geonuclear Corporation all played a part in collecting and analyzing the data that went into the data bank. The EPA is now responsible for the sampling done around the Rio Blanco site.

Rulison. The Rulison data file contains water analysis data from central and western Colorado in the area of the Rulison event. The Rulison event was detonated on September 10, 1969 to test nuclear explosives as a means of recovering large quantities of tightly held natural gas. Water sampling was done by the USGS prior to, during, and following the Rulison event. Data currently stored in the data bank

on the sampling done around the Rulison event range from October of 1967 to May of 1971. Wells, streams, precipitation, and test holes were regularly sampled and analyzed for tirtium. Radiochemical and chemical analyses were also performed on may of the samples. The USGS sampled a total of 152 points in the sampling network around the Rulison site. The EPA is now responsible for the sampling done around the Rulison site.

IDAHO

Geothermal. Geothermal wells and springs were sampled throughout the state. Over 300 points were sampled, usually once only, from 1913 to 1972. The chemical analysis data for Idaho came mainly from "IDAHO PAMPHLET 150" written by S. H. Ross and published in 1971. The remainder of the data was copied from documents published by the Idaho Department of Water Administration.

MISSISSIPPI

EPA Monitoring. Samples are collected from 24 locations around the Dribble site in Mississippi. Wells and various surface water sources have been sampled quarterly since 1972. The USEPA is collecting and performing chemical, radiochemical, and tritium analyses on the water samples as part of their Long-Term Hydrologic Monitoring Program.

NEVADA

Clayton Valley. In 1968 the Foote Mineral Co. claimed damage to some of the wells used in their lithium mining operation in Clayton Valley, Esmeralda County, Nevada. The USGS was assigned the task of evaluating the possibility that the well damage resulted from nuclear detonation on NTS. As part of their study the USGS collected 394 samples from 55 wells within the Foote Mineral Co. mining claim. Samples were taken and analyzed between October, 1969 and May, 1971. Most of the analyses included examination of only temperature, specific conductance, turbidity and volume of water pumped.

Central Nevada Test Area (CNTA). During the 1960's the Atomic Energy Commission (AEC) detonated the Faultless nuclear device in Central Nevada off the Nevada Test Site. An inventory of wells and springs located within a rectangle surrounding the test area was compiled by the Desert Research Institute prior to the detonation. A total of 720 wells and 1260 springs were located and their characteristics entered in the inventory system, as explained in the California section above. No water samples were taken during the inventory effort. The EPA now conducts long-term monitoring on this site.

Geothermal. The Nevada Bureau of Mines and Geology, University of Nevada System, had compiled an extensive file on geothermal activity in Nevada prior to the DRI effort of placing this data into a computerized system. Bureau records were made available for coding to keypunch forms. A total of 142 partial or complete water analyses from 83 wells and springs of geothermal interest were entered in the data file. Sample dates covered the interval from 1885 to 1974. The mineral recovery study by DRI included 22 geothermal sites with above average levels of dissolved solids. Spectrographic analysis included such elements as cadmium, copper, mercury, lithium, nickel, lead and antimony, in addition to gold and silver. The same suite of trace minerals and heavy metals was checked on all 65 samples taken by DRI in the 1974 study.

Las Vegas Valley. The EPA sponsored a 42-month water quality study by DRI in the Las Vegas Valley ending in February, 1974. The main objectives were to determine the sources and extent of groundwater contamination and to develop management alternatives to minimize adverse effects. When data collection was completed, about 6700 water analyses and about 5600 water well logs and inventories had been entered in a data storage and retrieval system operated by DRI. These basic cross-referenced data were manipulated and reduced, using a variety of graphical and statistical techniques applicable to analysis of spatial and temporal changes in groundwater quality. The large mass of data was utilized in studying stratigraphic relations, permeability, transmissivity variations, water budgets, and ambient groundwater quality relative to drinking water standards as part of the overall EPA study.

Most of the computer processing was done at the DOE (then ERDA) central computer facility with EPA funds. All tape files and processing programs remain available at DOE/NV. In FY1978 DOE funded an effort by DRI to bring the water analysis data system up to current status as a preliminary part of the Great Basin Energy project; approximately 6000 new water analyses will soon be added to the master tapes as a result.

Nevada Test Site. Special projects conducted at different times during the past 15 years have led to creation of six unique special purpose data files for the NTS. Following is a brief statement of each project and a description of the data resulting therefrom.

- a) Bilby. From 1964 through 1968, the USGS conducted radionuclide migration studies at the site of the Bilby event. A total of 1158 samples were collected from seven wells in the immediate vicinity of the area of interest. Initial samples were analyzed for a broad suite of constituents to aid in

characterizing the groundwater regime. Later sampling was done in conjunction with pumping of a well to establish the rate of movement. Approximately 600 tritium analyses were performed and the results plotted against time or volume of water pumped. The EPA now conducts long-term monitoring at this site.

- b) EPA Monitoring. Samples have been analyzed from 31 wells and springs throughout the NTS, 5 wells from around the CNTA, and 5 wells from the area of the Shoal event. The EPA's Long-Term Hydrological Monitoring Program was started in December 1972 and has continued through 1978. Selected wells are sampled monthly and radiochemical analysis performed. Other sites are sampled annually or semi-annually. To date, 689 water samples have been collected and analyzed, primarily for gross alpha, gross beta and tritium.
- c) Lithology. The USGS has been charged with the responsibility of collecting drill hole core samples, storing collected samples in a core library, and performing detailed analyses on core samples. Published results of 160 lithologic logs and stratigraphic units have been coded and entered in a computerized file. Computer generated stratigraphic cross sections at any orientation within the data area will be feasible when all available data have been coded. Other anticipated uses of this data file include mapping of stratigraphic unit surfaces, transmissivity/conductivity calculations, grain density, porosity, and moisture content analysis as these factors influence effects of nuclear detonations.
- d) Yucca Flat. Soil moisture, grain density, percent CO₂, and sampling method data from 33 drill holes in Yucca Flat were evaluated to determine inter-relationships. Correlation between factors was not adequate for the construction of predictive equations.

-
- e) 100-Mile-Radius. The origin of this data file is explained in the Well and Spring Inventory section under the California heading. The USGS compilation included 5916 wells and 628 springs in the relevant portion of Nevada as of December 31, 1967. DRI has added 912 well inventories since 1967. Parameters usually present for wells, in addition to location, include well depth and diameter, length of casing, major aquifer description, water level and yield of well. A major effort by DRI, with funding by EPA, resulted in matching water analyses to well inventories and lithologies for about 4000 points in the Las Vegas Valley. (See more about this under Las Vegas Valley, above.)
- f) Nuclear Event. This is a classified file of nuclear event data. Unclassified retrievals can be obtained from this file if the proper conditions are met regarding classified parameters.

NEW MEXICO

Geothermal. Samples were taken from eight points in New Mexico. There were 26 samples from springs and wells that were collected on an infrequent basis between 1924 to 1973. The chemical analyses data were obtained from the New Mexico Bureau of Mines and Mineral Resources and published USGS documents.

EPA Monitoring. In the USEPA's Long-Term Hydrologic Monitoring Program wells, rivers, lakes, and other surface waters around the Gnome and Gasbuggy Event sites were sampled. Chemical analyses, radiochemical analyses, and tritium analyses were performed on the water samples from 23 points. Samples have been collected annually from the sample points starting in 1972.

OREGON

Geothermal. Samples from springs, wells and lakes were taken throughout the state. The data bank contains 20 sample points from which 31 samples were collected between 1955 and 1973. The chemical analyses data from the water samples were obtained from documents published by several Oregon state agencies and the USGS. Also, the Desert Research Institute collected and did chemical analyses to obtain the 1973 data.

UTAH

Geothermal. Samples were taken from hot springs spread throughout the state of Utah. Chemical analyses were performed on the 165 samples taken from 46 sample locations. Samples were collected infrequently from as long ago as 1881 to as late as 1974. Most of the data on the water samples came from documents supplied by the Utah Department of Geology and Mines. The 1974 data were collected and analyzed by the Desert Research Institute.

WASHINGTON

Geothermal. Samples were taken from springs and geysers along the Cascade Mountain range in Washington and chemical analyses were performed on the samples. The data bank contains 42 sample analyses from 31 points. Many of the water samples had no dates, but those that did span from 1961 to 1973. Many of the samples were in historical documents obtained from the state of Washington and the U.S. Bureau of Mines. The latest data were collected by the Desert Research Institute in September and October of 1973.

WYOMING

Geothermal. Hot springs and geysers in the Yellowstone National Park area of Wyoming were sampled. There were 90 sampling points where over 250 samples were taken on an infrequent basis from 1884 to 1965. The information in the data bank was copied from various USGS documents containing results of chemical analyses performed on the samples.

TABLE 1.
SUMMARY OF THE STATUS AND CONTENT OF DOE/NV
HYDROLOGIC DATA BANK FILES

State	Status	Data Type	Number of Sample or Data Points	Sample Frequency	First Sample Date	Last Sample Date
Alaska-Amchitka	A	WQ	300	Ann.	10-21-64	8-30-74
- Cannikin	C	H	1			
-Geothermal	I	WQ	31		1917	1972
Arizona-Geothermal	I	WQ	2		1973	1973
California-EPA Monitor	A	WQ	1	S-Ann.	1-26-73	7-19-76
-Geothermal	I	WQ	82		1948	1974
-Well & Spg. Inv.	C	I	242			
Colorado-EPA Monitor	A	WQ	11	Ann.	9-17-72	5-20-76
-Geothermal	I	WQ	5		1968	1968
-Rio Blanco	A	WQ	100		9-23-64	8-23-74
-Rulison	A	WQ	152			
Idaho-Geothermal	I	WQ	309		1913	1972
Mississippi-EPA Monitor	A	WQ	24	Quar.	4-24-72	7-12-76
Nevada-Clayton Valley	C	WQ	56			
-CNTA	I	I				
-Geothermal	I	WQ	83		1885	1974
-Las Vegas Valley						
-Water Analyses	A	WQ	3846			
-Well Inventory	A	I	5518			
-Well Lithology	A	L	5617			
-Nev. Test Site						
-Bilby	C	WQ	7			
-EPA Monitor	A	WQ	48	Month	12-04-72	3-02-77
-Lithology	A	L	160			
-Yucca Flat	I	SM	33			
-100 mile radius	I	I	6544			
-Nuclear event	A	NE	Classified			
New Mexico-EPA Monitor	A	WQ	23	Ann.	9-10-72	5-23-76
-Geothermal	I	WQ	8		1924	1973
Oregon						
-Geothermal	I	WQ	20		1955	1973
Utah						
-Geothermal	I	WQ	46		1911	1974
Washington						
-Geothermal	I	WQ	21		1961	1973
Wyoming						
-Geothermal	I	WQ	90		1884	1965

Status Codes: A = Active file; data added periodically.
I = Inactive or incomplete; subject to periodic funding.
C = Completed task; new data uncertain.

Data Type Codes

WQ=Water quality
H =Hydraulics
I =Inventory
L =Lithology
SM=Soil Moisture
NE=Nuclear Event

Sample Frequency

Ann =Annual
S-Ann=Semi-annual
Quar =Quarterly
Month=Monthly

TABLE 2.
PARAMETERS AND THEIR DEFINITIONS

	Radio	= radiochemical analysis
	Ø	= assume general chemical analysis
	Spec	= spectroscopic analysis
AL		aluminum
AS		arsenic
AG		silver
AU		gold
ALKH		alkalinity, total as HCO ₃
ALSU		aluminum, suspended, spec
ALPHDU		gross alpha as U dissolved, radio
ALTU		aluminum, total, spec
AGU		silver, spec
ALPHSU		gross alpha as U, suspended
ALS		aluminum, suspended
ASU		arsenic, spec
ALT		aluminum, total
ALPHD		alpha dissolved, pc/l, radio
ALPHDE		alpha dissolved, counting error, pc/l, radio
A/C		anions/cations
B		boron
BR		bromide
BA		barium
BE		beryllium
BI		bismuth
BETADS		gross beata as SR90-Y90, radio
BETADC		gross beta as CS-137, radio
BU		boron, spec
BAU		barium, spec
BEU		beryllium, spec

BIU	bismuth, spec
BETASC	gross beta as CS-137, suspended, radio
BETSSR	gross beta as SR90-Y90, suspended, radio
BETAD	beta dissolved, pc/l, radio
BETADE	beta dissolved, counting error, pc/l, radio
BM	boron dissolved, ug/l, radio
CO3	carbonate
CA	calcium, ca^{++}
CL	chloride(s), cl^{-}
CD	cadmium
CU	copper
CR	chromium
CS	cesium
CO2	carbon dioxide
CACO3	total acidity, mg/l as $caco_3$
CO	cobalt
CLR	color
CH4	methane (gas)
CH	carbonate alkalinity (hardness) as $caco_3$
CRTU	chromium, spec
CUU	copper, spec
CDU	cadmium, spec
COU	cobalt, spec
CASED	indicated a hole has been cased
C2H6	ethane
CO3FP	carbonate, field, pc/l
CE144C	cerium 144 (concentrated?)
CS137D	cesium 137, dissolved
CO60D	cobalt 60, dissolved
CLAY	clay
DSC	total dissolved solids (by summation residue at 105° celsius ppm)
DEN	density gm/ml at $20^{\circ}C$ (specific gravity)
DS180	Dissolved solids (R.O.E., residue on evaporation at $180^{\circ}C$).
DEPTH	depth of hole, total
DSAHCL	dissolved solids (R.O.E.)
DIAM	diameter of hole

DRLLD	drilled depth of hole
DRWDN	drawdown
DISCH	discharge
DO	dissolved oxygen
DEPBLs	depth below land surface
EH	(redox orp) oxidation-reduction potential, millivolts
F	fluoride f^{-}
FE	iron
FLOGPM	yield of well
FES	iron, dissolved
FETU	iron, total, spec
FESU	iron, dissolved, spec
FLUORS	fluorescein, ug/l
FET	iron, total
GA	gallium
GE	germanium
GAU	gallium, spec
GEU	germanium, spec
GRDEN	grain density
HCO3	bicarbonate
HG	mercury
H2S	hydrogen sulfide, mg/l (gas)
H3	tritium, total (tritium units)
HCO3FP	bicarbonate, field, pc/l
H3U	tritium, uci/l
H3TE	tritium total, counting error, (tritium units)
H3T	tritium, total
H2O	water
H	Hydrogen, H^{+}
HCO3FP	bicarbonate, field, pc/l
H3P	tritium, pci/l

I	iodide
INTAK	pump intake
K	potassium, k^+
K4OD	potassium 40, dissolved
LI	lithium
LA	lanthenum
LAU	lanthenum, spec
LIU	lithium, spec
MG	magnesium
MN	manganese
MO	molybdenum
MNS	manganese, dissolved
MNTU	manganese, spec
MOU	molybdenum, spec
MNSU	manganese, dissolved, spec
MNT	manganese total
NA	sodium
NH3	nitrogen, ammonia
NAK	sodium plus potassium (na+k)
NO3	nitrate (nitrogen, nitrate)
NI	nickel
NH4	ammonium as nitrogen, mg/l as NH4
NB	niobium
NCH	noncarbonate hardness as caco3
NO2	nitrite
NO2+3	nitrite plus nitrate
NIU	nickel, spec
NH3N	nitrogen, ammonia, mg/l as N
NO2+3T	nitrite and nitrate total, mg/l
NA + K	see NAK above

OGT	oil-grease, total
OH	hydroxide, oh^-
PO4OSP	phosphate ortho, suspended
PH	ph, standard units
PB	lead
PO4T	phosphate total
PNA	percent sodium
PO4O	phosphates (soluble ortho)
PBU	lead, spec
PHF	ph, field
PPERD	pumping period
PU238D	plutonium ²³⁸ , dissolved, pc/l, radio
PU239D	plutonium ²³⁹ , dissolved, radio
PU239E	plutonium ²³⁹ , dissolved, counting error
PU238E	plutonium ²³⁸ , dissolved, counting error
PO4	phosphate, po4
QMGPM	quantity measure, gallons per minute
RB	rubidium
RSC	residual sodium carbonate
RA226	radium
RA26P	radium 226, radio
RBU	rubidium, spec
RA226E	radium 226, dissolved, counting error, pc/l
RA226D	radium 226, dissolved, pc/l
RU106C	ruthenium 106, concentrated
SiO2	silica or silicon
SO4	sulphate
SE	selenium
SPC	specific conductance ($\text{micromohs}/\text{cm}^3$ at 25°C)
SR	strontium

SB	antimony
SN	tin
SAR	sodium adsorption ratio
SOLVOL	solids volatile-DRI code
SRU	strontium, spec
SNU	tin, spec
SSCRA	suspended solids 0.45U filter, radio
SBU	antimony, spec
SPCF	specific conductance; field
SR89D	strontium 89 dissolved pc/l
SR90D	strontium 90 dissolved
SR90DE	strontium 90, dissolved, counting error
SMPLDP	sample depth
SAND	sand
SILT	silt
SAMPLE DEPTH	see SMPLDP
S	sulfide
SB125D	antimony 125, dissolved
TA	tantalum
TRBJ	turbidity (Jackson units)
TE	tds by evaporation, 105°C
TI	titanium
TONSD	tons per day
TC	temperature celsius
TONSAF	tons per acre foot
TIU	titanium, spec
TCA	temperature, air; celsius
TFA	temperature, air; fahrenheit
TEMPF	same as TF
T-ALK	alkalinity, total
TDS	total dissolved solids (per USGS suspended sediment)
TF	temperature, fahrenheit
TDS EVAP	total dissolved solids by evaporation
TC EVAP	temperature celsius by evaporation
TDS COMPUTED	total dissolved solids by computation
TH	total hardness as caco3 (ca, mg)

TDS SUM	total dissolved solids by summation				
TOT ANIONS	self explanatory				
TOT CATIONS	self explanatory				
UNAT	uranium natural dissolved				
UDDFP	uranium direct fluorometric, radio				
UDEFU	uranium dissolved; by extracton fluorometric method				
UDDFU	uranium dissolved, direct fluorometric method, ug/l				
U234D	uranium 234 dissolved				pc/l
U234DE	"	"	"	counting error	"
U235D	"	235	"		"
U235DE	"	"	"	counting error	"
U238D	"	238	"		"
U238DE	"	"	"	counting error	"
WD	well or sample depth				
V	vanadium				
VU	vanadium, spec				
YB	ytterbium				
Y	yttrium				
Yu	yttrium, spec				
YBU	ytterbium, spec				
YIELD	self-explanatory				
YLDCFS	Yield, cubic feet per second				
ZN	zinc				
ZR	zirconium, dissolved				
ZRU	zirconium, spec				
ZNU	zinc, spec

TABLE 3.
ALASKA
Amchika File

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
ALPHDU	524	ALTU	40	AGU	64
ALPHSU	21	ALS	73	ASU	3
BETADS		BETADC		BU	40
BAI	64	BEU	64	BIU	64
BETASC	21	BETSSR	21	CO3	199
CL	273	CLR	123	CA	267
CU	117	CRTU	63	CUU	64
CDU	64	COU	64	DSC	180
DS180	196	DSAHCL	175	DEN	7
F	205	FES	189	FETU	40
GAU	53	GEU	64	H3	1103
HCO3	225	K	250	LI	168
LAU	27	LIU	15	MG	259
MNS	184	MNTU	64	MOU	64
NCH	201	NO3	209	NA	258
NIU	63	OH	13	PO4T	184
PH	270	PNA	231	PBU	63
RA26P	7	RBU	6	SPC	266
SO4	222	SAR	232	SIO2	209
SR	174	SRU	31	SNU	64
SSCRA	21	SBU	3	TH	219
TIU	63	UDDFP	8	VU	63
YU	28	YBU	27	ZN	117
ZRU	62	ZNU	62		

Data Source: USGS

TABLE 4.
Cannikin File

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
TIME	401	H2OLVL	401	TIDE	401

Data Source: USGS

TABLE 5.
PARAMETER CODES AND NUMBER OF VALUES, WESTERN STATES, GEOTHERMAL FILE

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
AL	301	AS	188	AG	88
AU	1	ALKH	56	ALKC	16
B	466	BR	101	BA	122
BE	119	BI	109	CO3	409
CA	781	CL	851	CD	122
CU	151	CR	123	CS	85
CO2	79	CACO3	28	CO	48
CLR	14	CH4	2	C3H6	2
DSC	300	DEN	36	DS180	67
DEPTH	110	EH	10	F	558
CH	2	FE	383	FLOGPM	261
FES	7	GA	46	GE	44
HCO3	663	HG	90	H2S	37
I	115	K	744	LI	442
LA	5	MG	727	MN	198
MO	48	MNS	4	NA	757
NH3	9	NAK	82	NO3	343
NI	123	NH4	153	NB	13
NCH	73	NO2	23	NO2+3	54
OH	8				
PH	727	PB	150	PO4T	102
PNA	59	PO4O	64	RB	88
RSC	10	RA226	1	SIO2	764
SO4	773	SE	79	SPC	515
SR	137	SB	79	SN	74
S	6	SAR	69	SOLVOL	9
TC	1015	TH	133	TA	13
TRBJ	10	TE	1	TI	49
TONSD	10	TONSAF	53	UNAT	1
V	48	YB	5	Y	5
ZN	144	ZR	5		

Data Sources: Nevada Bureau of Mines, Desert Research Institute, Published Reports

Note: Tabulated values include data from Alaska, Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

TABLE 6.
PARAMETER CODES AND NUMBER OF VALUES, EPA MONITORING FILE

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
AL	360	ALPHD	957	ALPHDE	376
BETAD	956	BETADE	514	BM	6
CL	372	CA	359	CS137	4
DEPBLS	112	FE	361	F	379
H3T	1025	H3TE	400	K	358
LI	360	MN	358	MG	359
NH3N	362	NA	362	NO2 + 3T	375
PU238D	290	PU239D	303	PO4OSP	370
PH	930	PU239E	10	PU238E	3
RA226E	413	RA226D	425	SR89D	425
SR90D	426	SO4	361	SIO2	357
TDS	224	U234D	311	U234DE	295
U235D	307	U235DE	200	U238D	308
U238DE	283				

Data Source: EPA

Note: Table includes all data collected as part of the EPA Long-Term Hydrological Monitoring Program. States included are California, Colorado, Mississippi, New Mexico and Test Site portion of Nevada.

TABLE 7.
DATA FILE DESCRIPTION, CALIFORNIA, INVENTORY FILE

DATA SOURCES:	USGS
TYPES OF DATA:	Well and spring inventories from ABC,DE cards. Included as part of the 100-mile radius file.
NUMBER OF POINTS:	116 wells 126 springs
NO. OF SAMPLES:	N.A.
NO. OF RECORDS:	600
CURRENT STATUS OF DATA FILE:	Inventory was current as of Dec. 31, 1967

TABLE 8.
COLORADO
Rio Blanco File

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
AL	3	B	30	CL	480
CA	473	CO3	17	CACO3	298
FE	405	F	32	HCO3	117
H3	250	K	399	LI	2
MG	482	MN	2	NA	459
NO3	33	NCH	36	PH	481
PNA	31	PO4	2	SO4	457
SAR	31	SPC	477	SIO2	34
SR	3	TH	59	TF	51
TDS	456	T-ALK	66	WD	36
ULDCFS	42				

TABLE 9.
COLORADO
Rulison File

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
ALPHSU	59	ALPHDU	179	ALS	87
ALSU	13	AGU	22	ASU	8
ALTU	2	BETADC	149	BETADS	179
BETASC	59	BETSSR	58	B	61
BAU	23	BU	13	BEU	24
BIU	25	CASED	34	CO3	186
CA	131	CU	74	CL	90
CO3FP	5	CLR	4	CUU	23
CDU	23	CRTU	23	COU	23
DSAHCL	149	DEPTH	87	DIAM	67
DRLLD	80	DRWDN	6	DS180	124
DSC	86	KISCH	9	FES	147
F	87	FESU	17	GEU	23
GAU	15	H3	515	HCO3	185
HCO3FP	32	HCO3F	3	INTAK	6
K	90	LI	88	LAU	18
MG	132	MNS	89	MNSU	16
MOU	24	NA	91	NO3	89
NCH	127	NIU	21	OGT	3
OH	2	PHF	211	PPERD	3
PH	186	PNA	86	PO4T	91
PBU	23	SSCRA	59	SPCF	221
SIO2	89	SPC	186	SR	86
SE	45	SO4	90	SAR	83
SNU	23	SBU	8	SRU	8
TCA	27	TC	249	TFA	3
TH	128	TRBJ	59	TEMPF	4
TIU	22	UDEFU	7	VU	23
YIELD	68	YBU	18	YU	18
ZN	74	ZNU	14	ZRU	23

Data Source: EPA

TABLE 10.
NEVADA
Clayton File

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
ALT	10	B	10	CA	10
CU	11	CO3	10	CL	10
DS180	10	DSC	10	FET	10
F	10	HCO3	10	K	10
LI	288	MNT	9	MG	10
NA	10	NCH	10	NO3	10
PO4	10	PH	10	PNA	10
QMGPM	330	SPC	394	SR	10
SO4	10	SAR	10	SIO2	59
SE	9	TRBJ	378	TC	293
TH	10	ZN	10		

Data Source: USGS

TABLE 11.
DATA FILE DESCRIPTION, NEVADA, CENTRAL NEVADA TEST AREA FILE

DATA SOURCES:	USGS and EPA reports.
TYPES OF DATA:	Well inventories.
NUMBER OF SAMPLE POINTS:	1980
TOTAL CARD IMAGE RECORDS:	5940
CURRENT STATUS OF DATA FILE:	Active file.

TABLE 12.
PARAMETER CODES AND NUMBER OF VALUES, WATER ANALYSIS SECTION
NEVADA
Las Vegas Valley File

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
SMPLDP	1939	TC	1951	PH	5176
SPC	2479	HCO3	6677	CO3	2194
TDS EVAP	3588	TC OF EVAP	3547	TDS COMPUTED	L) L
TDS SUM	6	CACO3	3564	CL	6776
SO4	6768	CA	6702	MG	6679
MA	2930	K	2917	NA + K	3720
SIO2	288	FE	3245	PO4	2810
F ⁻	5395	NO3	6198	B	173
OH	89	H	17	MN	29
AS	1948	TOT ANIONS	1440	TOT CATIONS	1438
A/C	1427	Hardness as CA + MG	2968	Hardness as CARBONATE	2
Hardness as NON-CARBONATE	23				

Data Source: State of Nevada, Clark County, Desert Research Institute

TABLE 13.
DATA FILE DESCRIPTION, INVENTORY AND LITHOLOGY
SECTIONS, NEVADA, LAS VEGAS VALLEY FILE

DATA SOURCES:	Desert Research Institute
TYPES OF DATA:	Well inventories and lithologies.
NUMBER OF SAMPLE POINTS:	5518 well inventories 5617 well lithologies
TOTAL CARD IMAGE RECORDS:	117621
TIME RANGE OF DATA:	Most of the data is between 1950-1973.
CURRENT STATUS OF DATA FILE:	File is updated when new data is found, subject to availability of funds.

TABLE 14.
NEVADA - NTS
Bilby Data File

Parameter	Number of Values	Parameter	Number of Values	Parameter	Number of Values
ALS	88	ALNEUU	28	ALSU	33
AGU	34	ALPHDU	59	BETADS	82
BAU	33	BU	32	BEU	33
BIU	33	B	48	CA	89
CO3	88	CL	89	CUU	33
CRTU	33	COU	33	CDU	33
CACO3	1	CE144C	7	CS137D	7
CO60D	7	CU	31	DS180	87
DSC	89	DO	19	FES	89
F	89	FESU	33	FLUORS	63
GAU	33	GEU	33	HCO3	106
H3P	37	H3U	426	H3	146
K	88	K40D	6	LIU	32
LI	81	MNS	89	MG	89
MNSU	33	MOU	33	NIU	34
PH	212	NA	89	NO3	89
NCH	89	PNA	89	PO4T	89
PBU	33	RA26P	15	RBU	32
RU106C	7	SIO2	89	SO4	89
SPC	261	SAR	89	SR90D	10
SNU	34	SRU	20	SB125D	7
SR	81	SE	48	TH	88
TIU	34	TC	118	TF	1
UDDFU	46	VU	33	ZNU	33
ZRU	33	ZN	31		

Data Sources: USGS, LLL, LASL

TABLE 15.
NEVADA, NTS, LITHOLOGY FILE

DATA SOURCES:	USGS reports.
TYPES OF DATA:	Lithologic logs of selected drill holes on NTS.
NUMBER OF SAMPLE POINTS:	160
TOTAL CARD IMAGE RECORDS:	4346
CURRENT STATUS OF DATA FILE:	File is routinely updated when new data is available.

TABLE 16.
YUCCA FLAT FILE

Parameters	Number of Values	Parameters	Number of Values	Parameters	Number of Values
CLAY	1221	CO2	1221	DEPTH	1221
GRDEN	1221	GRVL	1221	H2O	1221
SAND	1221	SILT	1221		

Data Sources: USGS, EPA

TABLE 17.
DATA FILE DESCRIPTION, NEVADA, NTS, 100-MILE RADIUS FILE

DATA SOURCES:	USGS reports.
TYPES OF DATA:	Well inventories.
NUMBER OF SAMPLE POINTS:	6786
TOTAL CARD IMAGE RECORDS:	61,631
CURRENT STATUS OF DATA FILE:	Study completed; no new data.

TABLE 18.

DATA FILE DESCRIPTION, NEVADA, NTS, NUCLEAR EVENT DATA FILE

(File must be processed as a classified file; numbers not reportable here.)

Parameter	Definition
HOLDEP:	Drilled depth of hole.
EFTDEP:	The total depth after any backfilling.
EFTDIAM:	Diameter of hole at the effective depth.
WPDEP:	Emplacement depth of the experiment.
DOB/AY:	$(\text{Emplacement depth}) \div (\text{Actual yield})^{1/3}$
STH20	Depth to static water level.
CAVRAD:	Radius of cavity.
DIAMSC:	Diameter of surface collapse.
DEPSC:	Depth of surface collapse.
VOLSC:	Volume of surface collapse.
PZH20:	Depth to Paleozoic water.
A/TCON:	Depth to alluvium/tuff contact.
PZCON:	Depth to Paleozoic contact.
ALVTHK:	Thickness of alluvium.
YIELD:	Actual determined yield.
YSIG:	Yield sigma (i.e., $Y \pm n$).

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