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REF. NO. 8450

Michael D. Tuebner
Senior Geohydrologist
Science Applications International Corp.
Valley Bank Center
101 Convention Center Drive, Suite 407
Las Vegas, NV 89109

In response to your letter dated 5/5/86, the attached water supply
information for the Nevada Test Site is provided.

Vern F. Witherill

Vern F. Witherill, Director
Nevada Test Site Office

QNB:150

Encls:
As stated

CC:
A. R. Nease, DOE/NTS



Science Applications International Corporation

L86-GEO-MEG-051

May 5, 1986

Vern Witherill
Waste Management Project Office
U. S. Department of Energy
Nevada Operations Office
P. O. Box 14100
Las Vegas, NV 89114

Subject:

Dear Vern:

As per your telephone conversation of May 1, 1986 with David Goings (SAIC-Las Vegas), the enclosed list summarizes the information that is needed for Chapter 3, Hydrology, of the Yucca Mountain Site Characterization Plan (SCP). If at all possible, I would prefer to have actual copies of the information (i.e., pumping records, well completion reports, etc.) for inclusion in SAIC's library, as all information in the SCP must be referenced. However, if this causes too great an inconvenience, a formal letter with your signature, which summarizes the data would be sufficient.

A timely response to this request would be greatly appreciated. Thank you for your time and attention to this matter.

Sincerely,

SCIENCE APPLICATIONS
INTERNATIONAL CORPORATION


Michael D. Teubner
Senior Geohydrologist

MDT:MEG:lab

Enclosure:
As stated

cc w/encl:
M. Giampaoli
D. Goings
J. Crabtree
Project File 5.2.2.4.7

cc w/o encl:
M. Spaeth/W. Macnabb/W. Devlin
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Technical & Management Support Services Contractor Nevada Nuclear Waste Storage Investigations
Other SAIC Offices: Albuquerque, Chicago, Dayton, Denver, Huntsville, Los Angeles, Oak Ridge, Orlando, San Diego, San Francisco, Tucson and Washington, D. C.

WATER SUPPLY INFORMATION FOR THE NEVADA TEST SITE

1. Provide the locations (map or list) of all water-supply wells.
2. For each well, please indicate:
 - o source aquifer(s) or completion depth,
 - o average daily pumping rate and average annual withdrawals,
 - o where and for what purpose the water is used,
 - o the results of any water quality or chemistry analysis,
 - o extent of drawdown from pumping.
3. Please provide an estimate of the total water withdrawn at the NTS for the years 1983, 1984 and 1985.
4. Indicate any treatment processes applied to water used for human consumption.

C. Water System

NTS is served by a water system comprised of ¹⁸27 wells, 31 reservoirs, ¹⁶20 sumps, and 6 water transmission systems. A variety of domestic, construction, and fire protection water uses are served by this system.

This evaluation focuses on major, operating water systems at NTS; descriptions of abandoned water wells have been excluded. Temporary above-ground pipelines serving drilling locations in Areas 19 and 20 have also been excluded because their configurations change frequently.

For purposes of this evaluation, the NTS water system has been divided into four water service areas (A, B, C, and D), according to the location of the water system and support facilities. Figure 3-34, page 74, shows the boundaries of the water service areas and the locations of existing water wells. Figure 3-35a and 3-35b (pages 75 and 76) are well description charts for active NTS water wells. Figure 3-36, page 77, is a water-quality analysis chart for these wells.

1. WATER SERVICE AREA A (NTS Areas 19 and 20)

Existing facilities in Water Service Area A are shown in Figure 3-37 (page 78) and described in Table 3-3 (page 82).

System capabilities within Water Service Area A are limited. This water system can only transfer water from Area 19 to Area 20. Water cannot be transferred between construction sumps. To prevent freezing, a continuous flow of water must be maintained within the above-ground, 6-inch victaulic pipeline that parallels Pahute Mesa Road, or the line must be drained. Draining or filling the water line is done only during the day shift during severe winter weather.

Water Well 19c and Well 20 supply construction water in Water Service Area A. Well 19c pumps to some drilling locations in Area 20. Although relatively high flouride concentrations have been detected at Well 19c, water from this well is soft and of good quality. Well 19c can pump to the Area 20 sump to augment the Well 20 supply. Presently Well 20 can only supply the Area 20 camp sump and cannot supplement the Well 19c supply.

Three sumps provide construction water storage within Areas 19 and 20. Water is delivered to these sumps from Well 19c by a 6-inch, above-ground pipeline which parallels Pahute Mesa Road. Booster pumps at the 19c road sump and the Area 20 camp sump deliver water to remote drilling locations through temporary, above-ground pipelines. Truck-fill stands at these sumps provide water for other construction applications. Potable water is trucked to the Area 20 support facilities.

Water Well 20 in Area 20 became operational July 23, 1985. Well 20 is now pumping at 360 gallons per minute (gpm).

All water wells in Water Service Area A, except Well 19c and Well U20a-2, have been abandoned due to casing damage.

Because nuclear-test drill-hole locations take precedence over water-well locations, water wells must be replaced when event damages occur.

2. WATER SERVICE AREA B (NTS Areas 2, 4, 7, 8, 9, 10, 12, 15, 17, and 18)

Existing facilities in Water Service Area B are shown in Figure 3-38 (page 79) and described in Table 3-4, pages 83-85. Three wells (8, UE15d, UE16d, and 2) provide water in the area.

Well 8 serves construction, fire protection, and potable water uses at Area 2 support facilities and at Area 12 camp and provides construction water for Area 2. Well 8 produces the highest quality water at NTS.

Water from Well 8 is pumped to three reservoirs in Area 12 from the Pahute pumping station through a pipeline that parallels Stockade Wash Road. This pipeline ranges in diameter from six inches at the Pahute pumping station to four inches in Area 12. System head losses limit the flow rate through this pipeline.

A 10-inch waterline is in service between the Area 12 reservoir and the Area 2-annex support facilities.

Water is delivered to the Area 2 support facilities by a 10-inch ~~steel~~ ^{Fiberglass} pipeline from the Area 12 reservoirs.

Two reservoirs ~~and a construction sump~~ provide on-site water storage near Well 8. ~~Another~~ construction sump is located at the Pahute Control Point (CP). The Area 2 sump provides construction water storage at the Area 2 support facilities.

Well UE16d serves construction ^{and potable} water requirements at Area 1 support facilities. ~~The concentration of total dissolved solids in water from Well UE16d exceeds the Maximum Contaminant Level (MCL) specified by the Safe Drinking Water Act.~~

Water from Well UE16d is delivered to Area 1 support facilities by a 12-inch PVC waterline that parallels Pahute Mesa Road. Construction water storage is provided at the forebay tank in Area 16.

Well 2 serves construction water and drilling needs in Areas 2, 4, 7, 9, and 10. The Well 2 sump and reservoir provide construction water storage.

Well UE15d served construction and potable water needs at the EPA Complex in Area 15 prior to abandonment of the complex. A reservoir and construction water sump still provide water storage capabilities near Well UE15d. Concentrations of iron and of total dissolved solids in water from this well exceed MCL standards.

3. WATER SERVICE AREA C (NTS Areas 1, 3, 5, 6, 11, 22, 23, 26, and 27)

Existing facilities in Water Service Area C are shown in Figure 3-39 (page 80) and described in Table 3-5 (pages 86-91).

Nine

Eight wells serve water uses within Water Service Area C. Four of these wells (A, C, C-1, and 4) serve construction, fire protection, and potable water uses at Area 3 support facilities. Wells C, C-1, and 4 also provide construction, fire protection, and potable water for the Well 3 area, the Yucca Lake area, and the Area 6 CP. Nitrate concentrations in water from Well A periodically exceed MCL. Iron, total dissolved solids, and hardness concentrations in water from Well C significantly exceed MCL. Water from Well C-1 is high in color. Well UE1N provides construction water by fill stand for Area 1.

Wells 5b, 5c, and Army Well 1 serve construction, fire protection, and potable water uses for Area 5 and Mercury. Well UE5c served water uses at Area 5 support facilities before the facilities were abandoned. This well currently satisfies occasional construction water demands within the immediate vicinity. Well F, originally developed as an exploratory well, is temporarily out of service due to difficulties encountered in completing electrical wiring configurations. Total dissolved solids and hardness concentrations in water from Well F exceed MCL.

a. Northern Half

At Area 3 support facilities, a major portion of the water supply serving construction and fire protection purposes is delivered by the deteriorated 8-inch waterline which originates at the Well C sump. This sump is currently supplied by Wells C and C-1. A large sump provides nonpotable water storage at the Area 3 support facilities, while a small reservoir provides potable water storage for these facilities.

At Well 3, water serving construction and fire protection purposes is delivered by a 6-inch branch of the 8-inch waterline which originates at Well C. A large sump provides nonpotable water storage at Well 3. This well originally satisfied nonpotable water requirements here; however, it was abandoned due to low yield. A 4-inch waterline, originating at the Area 6 CP reservoir, serves potable water requirements at Well 3. This waterline is also a back-up source for construction and fire-protection applications. However, its limited capacity makes extensive use for nonpotable purposes impractical. A small reservoir at Well 3 provides potable water storage. Separate potable and nonpotable water systems preclude provision of a water system loop within the Well 3 area.

The Area 6 CP and the Yucca Flat area receive fire-protection and potable-water service from the CP reservoir. This reservoir is supplied by an 8-inch waterline originating at the Well C/C-1 forebay tank. Pressure-reducing stations at points on the water distribution system serving CP, Yucca Flat, and the Well 3 area maintain acceptable system operating pressures. A large sump located at Well C serves construction water demands within the area.

Well 4 and a water transmission line extension to the Well C/C-1 forebay tank were recently completed to provide a better source of potable water at Area 6 CP, Yucca Flat, and the Well 3 Yard. The water-quality analyses for Well 4 indicate that this attempt has been reasonably successful; however, the relatively low-quality water from Wells C and C-1 is still the source of potable water

since it is the only water that can be softened to the desired 0 to 15 parts per million (PPM) quality needed.

Truck-fill stands at the Area 3 support facilities, and Wells 3 and C serve event-related construction activity in the northern half of Water Service Area C.

A new truck fill stand in Area 6 provides potable water.

b. Southern Half

Construction, fire protection, and potable water demands in the southern half of Water Service Area C are served by Wells 5b, 5c, and Army Well 1. Construction water in Area 5 is provided by the Well 5b sump. The Well 5a forebay tank provides a portion of the potable water for Mercury. Water from this forebay tank is delivered to a large storage reservoir near Mercury by an 8-inch waterline. Booster Station 1 and a portion of the waterline that previously served Mercury provide construction water to the aggregate pit. The potable water reservoir at Mercury is also fed by Army Well 1 through an existing 8-inch waterline. Some potable water storage is provided at Army Well 1 by a small forebay tank.

The water-distribution system at Mercury serves both potable and fire-protection water requirements. Truck-fill stands at Well 5b and Army Well 1 currently serve construction water needs within the area. *A potable water truck fill stand provides for trucking of potable water from the Mercury system.* Water is currently hauled into Areas 26 and 27 by truck. Four reservoirs in Area 26 store construction water and potable water. One reservoir in Area 27 stores construction water and potable water.

4. WATER SERVICE AREA D (NTS Areas 14, 16, 25, 29, and 30)

Existing facilities in Water Service Area D are shown in Figure 3-40 (page 81) and described in Table 3-6 (pages 92-94).

The Water Service Area D system is a network of waterlines interconnected with 11 water storage reservoirs. This system serves construction, fire protection, and potable water needs in Area 25 and is serviced by Wells J-12 and J-13. A third well, J-11, was abandoned due to low yield, poor water quality, and a collapsed casing. Changes in Area 25 test program objectives within the past decade have reduced water demands in Water Service Area D.

The northern loop of the Area 25 water system is fed by Well J-13. Fluoride, nitrate, and iron concentrations in water from Well J-13 exceed MCL. Facilities served by the north loop include the Engine Test Stand (ETS-1) and the Engine Maintenance Assembly and Disassembly Building (E-MAD).

The southern loop of the Area 25 system is fed by Well J-12. Fluoride and nitrate concentrations in water from Well J-12 exceed MCL. Water from this well is also high in color. Facilities served by the south

loop include the Central Support Area, the Reactor CP, Test Cell A, Test Cell C, the Reactor Maintenance Assembly and Disassembly (R-MAD), and the security check point area.

All operable water-storage reservoirs in Area 25 have been converted for potable water storage. Five of the eleven Area 25 water storage reservoirs are elevated structures. The other six reservoirs are ground-level structures.

Construction water storage in Area 25 is provided by a construction sump located near Well J-11. Two additional construction sumps are located near the former Missile X (MX) facilities.

WATER SERVICE AREA A - EXISTING FACILITIES

| <u>AREA NO.</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|-----------------|--------------------------|---|
| 19 | Well 19c | ³⁶⁰ 395 gpm; N 915,600; E 602,435. |
| | Well 19c Sump | 1,800,000 gal. |
| | Well 19c Truck Fill | 800 gpm. |
| | 19c Road Sump | 1,100,000 gal. |
| | 19c Road Sump Truck Fill | 800 gpm. |
| | 19c Road Sump Booster | 250 gpm. |
| | Waterline | 6" Victaulic aboveground pipeline interconnects Areas 19 and 20. |
| 20 | Well U20a-2 | ^{340 gpm} Has been drilled but never operational. N 907,395; E 571,439. |
| | Area 20 Camp Sump | 780,000 gal. |
| | Area 20 Camp Truck Fill | 800 gpm. |
| | Waterline | 6" Victaulic aboveground pipeline interconnects Areas 19 and 20. |

Well Ue1t
Well Ue1t Sump
Well Ue1t Truck Fill Stand

270 gpm; N 829,852.76 E 677,279.68
700,000 gal
800 gpm

WATER SERVICE AREA B - EXISTING FACILITIES

| AREA NO. | ITEM | DESCRIPTION |
|----------|------------------------------|--|
| 1 | Waterline | 12" PVC to Area 1 Support Facilities from Well UE16d. |
| | Waterline | 6" PVC to Area 1 Support Facilities from 12" PVC waterline. |
| 2 | Waterline | 10" RTRP to Area 2 Facilities from Area 12. |
| | Waterline | 6" Steel, ACP to Area 2 Support Facilities from Area 12 Camp. |
| | Well 2 | 165 gpm; N 880,000; E 668,720. |
| | PRV | 350/100 psi. 190/50 psi |
| | PRV | 200/50 psi |
| | PRV | 150/50 psi. 150/100 psi |
| | Area 2 Sump | Unknown capacity. |
| | Mud Sump | 220,000 gal. |
| | Area 2 Sump Truck Fill Stand | |
| | Well 2 Sump | 650,000 gal. |
| | Well 2 Truck Fill | Potable. |
| 4 | Water Tank | 2,500 gal. |
| 12 | Area 12 Truck Fill | Reservoirs are filled via a pipeline from Well 8. |
| | Waterline | 8" ACP; internal pipeline within Area 12 Camp. |

TABLE 3-4

TABLE 3-4

WATER SERVICE AREA B - EXISTING FACILITIES (CONTINUED)

| <u>AREA NO.</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|-----------------|----------------------|--|
| 12 (cont.) | Waterline | 6" ACP; internal pipeline with Area 12 Camp. |
| | Waterline | 4" CI; internal pipeline with Area 12 Camp. |
| | Reservoir | 300,000 gal. |
| | Reservoir | 100,000 gal. |
| | Reservoir | 50,000 gal. |
| | PRV | 110-/35 psi. |
| | Truck Fill | |
| 15 | Well UE15d | 270 gpm; N 895,709; E 682,084. |
| | Well UE15d Reservoir | 15,000 gal. |
| | Well UE15d Sump | Unknown capacity. |
| | Waterline | 4" Steel to UE15d Sump from Well UE15d Sump. |
| | Filtration Unit | Mixed media pressure filter. |
| | Chlorinator | |
| | Storage Tank | 220 gal. |

WATER SERVICE AREA B - EXISTING FACILITIES (CONTINUED)

| AREA NO. | ITEM | DESCRIPTION |
|----------|---------------------------------|---|
| 16 | Well UE16d | 194 gpm; N 844,878; E 646,567. |
| | Waterline | 12" PVC to Area 1 Support Facilities from Well UE16d. |
| | Forebay Tank | 50,000 gal. |
| | Sump | Unknown capacity. <i>(side out - not usable)</i> |
| 17 | Waterline | 6" Steel to Area 12 Camp from Well 8. |
| | Waterline | 4" Steel to Area 12 Camp from Well 8. |
| | Waterline | 6" Steel to Area 12 Camp from Well 8. |
| 18 | Well 8 | 400 gpm; N 879,468, E 609,999. |
| | <i>Well 8 Forebay Tank</i> | <i>63,000 gal</i> |
| | Waterline | 12" ACP. |
| | <i>Water Reservoir</i> | <i>40,000 gal</i> |
| | Waterline | 6" ACP. |
| | Pahute CP Pump Station | 185 gpm. |
| | <i>Sump</i> | <i>490,000 gal</i> |
| | <i>Area 17 Truck Fill Stand</i> | <i>800 gpm</i> |

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TABLE 3-4

TABLE 3-4

WATER SERVICE AREA C - EXISTING FACILITIES

| <u>AREA #</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|---------------|---------------------|---|
| 3 | Well A | ¹⁶⁰ 135 gpm; N 833,000; E 684,000. |
| | Well A Reservoir | 13,000 gal. |
| | Well A Chlorinator | |
| | Well A Sump | 800,000 gal. |
| | Well C & C-1 Sump | 260,000 gal. |
| | Well A Truck Fill | Two truck-fill stands. <i>800 gpm each</i> |
| | Well A Fire Booster | |
| | Fire Line | 8" from Well A Fire Booster. |
| | Waterline | 8" Steel to Well A Sump from Well C & C1 Sump. |
| | Mud Sump | 470,000 gal. |
| 5 | Well 5a | Abandoned; N 738,361; E 707,514. |
| | Well 5b | 240 gpm; N 747,359; E 704,263. |
| | Well 5b Sump | 710,000 gal. |
| | Well 5b Truck Fill | <i>800 gpm</i> |
| | Well 5c | 325 gpm; N 741,644; E 706,305. |

WATER SERVICE AREA C - EXISTING FACILITIES (CONTINUED)

| <u>AREA NO.</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|-----------------|---------------------------------------|--|
| 5 (cont.) | New Booster Station | |
| | Well UE5c | 350 gpm; N 760,133; E 700,997. |
| | Well UE5c Sump | 700,000 gal. |
| | Well UE5c Truck Fill | |
| | Pump Station 1 w/reservoir | Abandoned (10,000 gal.). Manually valve controlled into system. |
| | Pump Station 2 w/reservoir | Abandoned (10,000 gal.). |
| | Pump Station 3 w/reservoir | Abandoned (10,000 gal.). |
| | Pump Station 4 w/reservoir | Abandoned (10,000 gal.) w/chlorinator. |
| | Well 5a Forebay Tank | 50,000 gal. |
| | Well 5a Booster | 3 pumps at 250 gpm. |
| | Booster #1 | Serves aggregate pit. |
| | Waterline | Abandoned 8" and 6" CI to Mercury except portion to aggregate pit. |
| | Waterline | 8" Steel & RTRP to 1.5 MG Reservoir @ Mercury from 5a Booster. |
| | PRV | 4" @ 1.5 MG Reservoir. |

WATER SERVICE AREA C - EXISTING FACILITIES (CONTINUED)

| <u>AREA #</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|---------------|------------------------------|--|
| 5 (cont.) | Waterline | 6" CI to Well 5a Booster from Wells 5b & 5c. |
| | Waterline | 6" Steel to UE5c Sump from Well UE5c. |
| 6 | Well C | 270 gpm; N 790,083; E 692,061. |
| | Well C1 | 280 gpm; N 790,011; E 692,132. |
| | Well C/C-1 Sump | 980,000 gal. |
| | Well C/C-1 Forebay | 50,000 gal. |
| | Well C/C-1 Booster (Sump) | |
| | Well C/C-1 Booster (Forebay) | 400 gpm. |
| | Well C - C1 Truck Fill | |
| | Well C - C1 Chlorinator | |
| | Well C - C1 Filter | |
| | Well C - C1 Softener | |
| | Well 4 | 650 gpm; N 785,000; E 687,900. |
| | Well 4 Telemetry System | Radio controlled. |
| | Waterline | 8" RTRP to C - C1 Forebay from Well 4. |

WATER SERVICE AREA C - EXISTING FACILITIES (CONTINUED)

| <u>AREA #</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|---------------|-----------------------------|---|
| 6 (cont.) | Well 4 PRV | @ C - C1 Forebay Tank. |
| | Well 3b | Abandoned; 40 gpm;N 817,795;E 677,762. |
| | Well 3b Sump | 720,000 gal. |
| | Well 3 Yard Reservoir | 10,000 gal. |
| | Well 3 Yard PRV | |
| | Well 3 Yard Fire System PRV | |
| | Waterline | 4" ACP to Well 3 Yard from CP. |
| | Waterline | 8" Steel to Well A sump and 6" Steel to Well 3 yard from C-C1 Sump. |
| | Waterline | 8" ACP to CP Reservoir from C - C1 Forebay. |
| | Waterline | 10" & 8" to CP & Yucca Lake from CP Reservoir. |
| | PRV #1 | To CP from CP Reservoir #1. |
| | PRV #2 | On 10" waterline connecting to 4" Waterline. |
| | PRV #3 | On 8" waterline to Yucca Lake Facilities from CP. |
| | PRV #4 | On 4" waterline to Well 3 Yard from CP. |
| | CP Reservoir #1 | 300,000 gal. |

WATER SERVICE AREA C - EXISTING FACILITIES (CONTINUED)

| <u>AREA NO.</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|-----------------|-----------------|--|
| 6 (cont.) | CP Reservoir #2 | 5,000 gal. |
| | CP #8 Reservoir | Unknown capacity. |
| 11 | Reservoir #1 | 5,000 gal. @ Tweezer Facility. |
| | Reservoir #2 | 1,000 gal. @ Tweezer Facility. |
| | Reservoir #3 | 5,000 gal. @ LASL Technical Facilities. |
| 22 | Army Well #1 | 530 gpm; N 670,902; E 682,772. |
| | Forebay Tank | 58,700 gal. |
| | Booster Station | 2 pumps at 500 gpm each. |
| | Waterline | 8" Steel to Mercury from Army Well #1. |
| | Chlorinator | |
| | Softener | |
| | Waterline | 6" Steel to Weather Observation Station from 8" Steel waterline. |
| | PRV | On 6" Steel waterline to Weather Observation Station. |

WATER SERVICE AREA C - EXISTING FACILITIES (CONTINUED)

| <u>AREA NO.</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|-----------------|----------------------------|---|
| 23 | Reservoir | Abandoned 100,000 gal. Manually valve controlled into system. |
| | Reservoir | Abandoned 250,000 gal. (<i>Active Fire Reserve</i>) |
| | Reservoir | 1,500,000 gal. @ Mercury. |
| | Waterline | 8" Steel to Mercury from Army Well #1. |
| | Waterline | 6" CI to 1,500,000 gal. reservoir from Boosters 2, 3, & 4 is abandoned. |
| 26 | Building 2201 Reservoir | 30,000 gal. |
| | CP Reservoir #1 | 30,000 gal. |
| | CP Reservoir #2 | Unknown capacity. |
| | Compressor House Reservoir | Unknown capacity. |
| | Truck Fill | |
| 27 | Well F | Temporarily out of service; N 731,853; E 661,153. |
| | Reservoir | 75,000 gal. |

WATER SERVICE AREA D - EXISTING FACILITIES

| <u>AREA NO.</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|-----------------|-------------------------|--|
| 25 | Well J-13 | 680 gpm; N 749,209; E 579,651. |
| | J-13 Reservoir | 50,000 gal. (Potable). |
| | J-13 Booster Station | |
| | Waterline | 12" to Highline Booster Station from Well J-13. |
| | ETS-1 Booster Station | |
| | Demineralizer Reservoir | 150,000 gal. (Potable). |
| | Utility Reservoir | 150,000 gal. (Out of Service). |
| | Process Water Reservoir | 2,500,000 gal. (Out of Service). |
| | Reservoir E | 150,000 gal. (Potable), elevated at Test Cell "C". |
| | Reservoir D | 100,000 gal. (Potable), elevated at Test Cell "A". |
| | Waterline | 8" to Test Cell "C" from Highline Booster Station. |
| | Waterline "D" | 6" to Waterline "B" from Test Cell "C". |
| | Waterline "C" | 6" to Waterline "B" from R-MAD. |
| | Waterline "B" | 6" to Test Cell "A" from Reactor Control Point. |
| | Reservoir C | 30,000 gal. (Potable) elevated @ R-MAD. |

WATER SERVICE AREA D - EXISTING FACILITIES (CONTINUED)

| <u>AREA NO.</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|-----------------|-------------------------|--|
| 25 (cont.) | Pump House No. 2 | @ Reactor Control Point. |
| | Reservoir B | 100,000 gal. (Potable) elevated @ Reactor Control Point. |
| | Waterline "A" | 6" to Reservoir B from Well J-11 area. |
| | Reservoir A | 150,000 gal. @ Central Support Area. |
| | J-11 Sump | @ Well J-11 area. |
| | HL-1 Booster Station | N 755,817; E 604,655. |
| | J-11 Booster Station #1 | |
| | J-11 Booster Station #2 | |
| | Waterline | 8" to Fire Station Reservoir from J-11 Booster. |
| | Fire Station Reservoir | 100,000 gal. (Potable) @ Fire Station. |
| | Well J-11 | Abandoned; N 740,969; E 611,766. |
| | Waterline "G" | 6" & 8" to ETS-1 from J-11 Booster. |
| | Waterline | 4" ACP to E-MAD from Waterline "G". |
| | E-MAD Reservoir | 75,000 gal. (Potable) elevated at E-MAD. |
| | Waterline "E" | 6" Con. Cyl. to J-11 Booster from J-12 Booster. |

WATER SERVICE AREA D - EXISTING FACILITIES (CONTINUED)

| <u>AREA NO.</u> | <u>ITEM</u> | <u>DESCRIPTION</u> |
|-----------------|--------------------|---|
| 25 (cont.) | Mid Point Booster | On Waterline E midway btween Wells J-11 and J-12. |
| | Pumping Station #1 | @ Well J-12. |
| | Pumping Station #2 | @ Well J-12. |
| | J-12 Reservoir | 50,000 gal. (Potable). |
| | Well J-12 | 815 gpm; N 733,509; E 581,011. |
| | Waterline | 8" ACP to 10" waterline from Pumping Station #2. |
| | Waterline | 10" to 14" waterline from 8" waterline. |

WATER PRODUCTION REPORT - FY-84

| WELL NO. | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER | TOTAL |
|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| FORWARD AREA | | | | | | | | | | | | | |
| C-1 | 1423200 | 792000 | 1545100 | 1636700 | 2943200 | 2818600 | 1490500 | 3250200 | 2917600 | 1914400 | 1052700 | 2074900 | 24503100 |
| C | 1615900 | 1591400 | 1219700 | 2070200 | 1781700 | 1762500 | 2421600 | 2071300 | 2337200 | 3359500 | 2676700 | 2742100 | 26793500 |
| A | 3839800 | 3246000 | 2740900 | 3646100 | 2830600 | 3212200 | 4844300 | 3721800 | 3595700 | 5159200 | 2542000 | 5259200 | 42728400 |
| 3 | 4194000 | 5135000 | 4295000 | 4510000 | 6200000 | 5011500 | 7367000 | 4079000 | 3911000 | 5746000 | 5613000 | 5866000 | 61912500 |
| 2 | 2171800 | 5782800 | 3487300 | 2223400 | 4260700 | 5582200 | 5395300 | 4724400 | 4295900 | 5298000 | 5042500 | 5153900 | 63603200 |
| 19C | 5544700 | 4234400 | 2357400 | — | — | — | 4825600 | 3676700 | 1004000 | 12713400 | 4586200 | 4277600 | 50375000 |
| J-12 | 2278000 | 2500800 | 1958500 | 3534500 | 2075400 | 1725900 | 2227300 | 2284500 | 1346200 | 2371900 | 1336200 | 2418600 | 26058400 |
| J-13 | 2800400 | 3724000 | 2829700 | 2607400 | 2210000 | 1771300 | 4498000 | 3852000 | 3559900 | 4109400 | 4180100 | 4193100 | 40349300 |
| 16D | 237300 | 459800 | 634700 | 584900 | 477400 | 642700 | 497100 | 400000 | 372200 | 963300 | 266600 | 2271300 | 5002400 |
| 4 | 5008600 | 2175500 | 4555000 | 5099400 | 3296000 | 4255900 | 4896800 | 4566000 | 4111400 | 5311900 | 3505100 | 5706400 | 53013000 |
| UE1R | — | — | — | — | — | — | — | — | — | — | 274000 | 110500 | 1014300 |
| FORWARD AREA SUB | 51674100 | 29581700 | 25623300 | 25912000 | 26015000 | 26729400 | 38463800 | 35511000 | 35111000 | 50400000 | 21429700 | 41265100 | 386724000 |
| MERCURY | | | | | | | | | | | | | |
| Army Well | 4928200 | 3955300 | 5673000 | 3822400 | 5401100 | 4600100 | 6654900 | 4180100 | 2705000 | 1633400 | 1045200 | 1207300 | 71577000 |
| 5B | 2106200 | 1582600 | 1272500 | 2734610 | 6161000 | 5470300 | 5913800 | 3412500 | 3061000 | 7494000 | 5454300 | 2715100 | 50277200 |
| 5C | 2307400 | 1559800 | 1482600 | 2162000 | 6324100 | 5255500 | 5499800 | 3098100 | 2771000 | 6854500 | 5241100 | 5537700 | 50542000 |
| UE5C | 102300 | 45300 | 39500 | 21400 | 65300 | 140100 | 130300 | 257600 | 42500 | — | 93100 | 110700 | 2104000 |
| MERCURY SUBTOTAL | 8852100 | 7143000 | 8467600 | 11400100 | 18011500 | 12767000 | 18223600 | 10254900 | 10022000 | 24500000 | 19261700 | 22455400 | 141220000 |

GRAND TOTAL

38726200 30724700 34690900 36012000 44076500 42741400 56692000 42411000 11100000 6500000 51351400 24000000 25022000 = 1,726.84 Acc-Ft

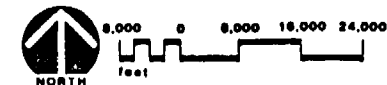
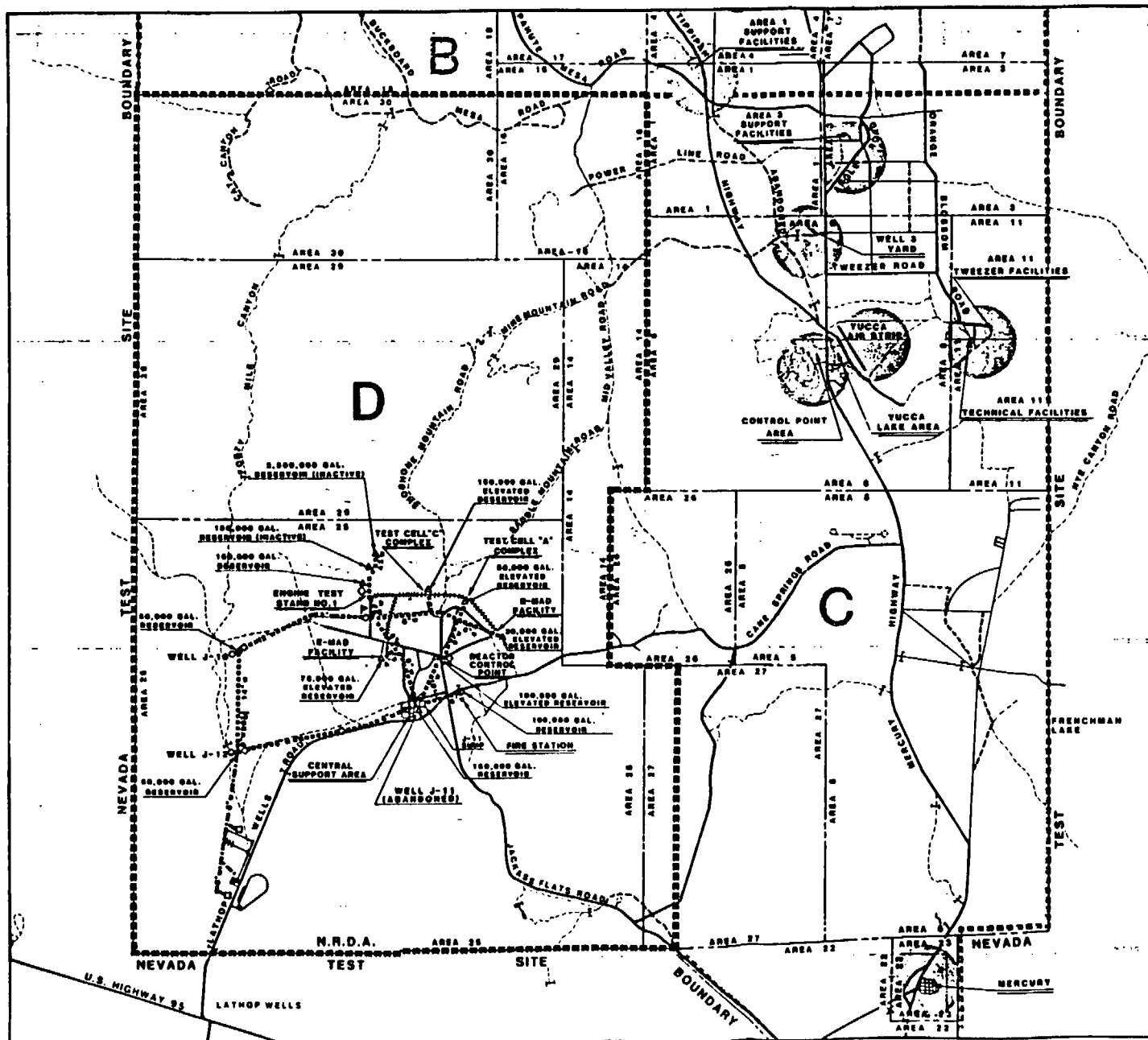
WATER PRODUCTION REPORT - FY-83

| WELL No. | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER | TOTAL |
|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|-----------|------------------------------|
| FORWARD AREA | | | | | | | | | | | | | |
| 4 | | 207100 | | | | | 706200 | 1-10-00 | 2056200 | 2066300 | 1896400 | 2179900 | 12470600 |
| C-1 | 2844300 | 2234300 | 1075700 | 5124100 | 1311400 | 3252000 | 3006900 | 4241600 | 3141700 | 1-70700 | 3722500 | 2057500 | 41006500 |
| C | 1811600 | 2426000 | 1321500 | 1928200 | 1715300 | 1034700 | 1974900 | 2516000 | 2808200 | 2831300 | 3330400 | 3425500 | 28908300 |
| A | 2794500 | 3651300 | 2554200 | 4274100 | 2372000 | 2427000 | 4011000 | 4322100 | 2538200 | 4320400 | 4477200 | 4442200 | 43848200 |
| 8 | 2231000 | 4005300 | 2400000 | 4000000 | 3052000 | 2956000 | 3447000 | 4678000 | 6320000 | 6126000 | 7311000 | 6478000 | 54212000 |
| 2 | 2142800 | 6614100 | 3167200 | 5024400 | 3004300 | 2659500 | 1017000 | 3137300 | 3010000 | 5155300 | 4585700 | 3520300 | 43823400 |
| 19C | 8880500 | 9850300 | 3317000 | 1568000 | 2450000 | 501500 | 3742000 | 100 | 2183000 | 7213500 | 6184700 | 1083500 | 31904000 |
| J-12 | 3205000 | 2846300 | 1344400 | 2281400 | 1022000 | 1185100 | 1412000 | 2262900 | 1222700 | 2478000 | 2828500 | 2318100 | 25498500 |
| 16D | 44500 | 456600 | 44400 | 1819000 | 127000 | 224800 | 412700 | 682700 | 592000 | 156400 | 299200 | 165000 | 4128500 |
| J-13 | | 1864800 | 515200 | 4140500 | 2694400 | 3632400 | 3714800 | 6195200 | 4116100 | 3190000 | 4266000 | 4747000 | 42142700 |
| FORWARD AREA SUB | 24379200 | 34810800 | 24917300 | 51128400 | 19175400 | 15931700 | 21222700 | 30934800 | 28314700 | 27809000 | 2766200 | 41984400 | 357844400 |
| MERCURY | | | | | | | | | | | | | |
| Army Well | 6618200 | 9209600 | 5317400 | 6276700 | 4400000 | 2421500 | 4978100 | 5258100 | 1891000 | 5083600 | 2308000 | 7280900 | 65285400 |
| 5B | 1343300 | 921100 | 1707400 | 1035300 | 1731000 | 2042000 | 2284200 | 3-44000 | 3257600 | 2422000 | 3459700 | 2719100 | 30757800 |
| 5C | 842500 | 854700 | 2042400 | 4532000 | 2011000 | 4-17000 | 2155000 | 6202200 | 3933700 | 3347800 | 4117000 | 2825200 | 41025100 |
| UE5C | - | 2800 | 100000 | 100000 | 100000 | 320000 | 1000 | 138000 | 81000 | 222700 | 17000 | 10000 | 235000 |
| MERCURY SUBTOTAL | 8851000 | 11067300 | 10220600 | 16330000 | 11220000 | 12087000 | 10462000 | 7247800 | 9105400 | 10212000 | 1241000 | 10257200 | 139305500 |
| GRAND TOTAL | 33233200 | 45878100 | 35137900 | 67458400 | 30395400 | 28018700 | 31684700 | 42122600 | 37980200 | 38011000 | 3007200 | 52231000 | 446443200 = 1,522.41 Acre-Ft |

WATER PRODUCTION REPORT - FY-85

| WELL NO. | OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER | TOTAL |
|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| WARD AREA | | | | | | | | | | | | | |
| -1 | 1412500 | 631000 | 832500 | 1184800 | 815000 | 217100 | 2624500 | 3093900 | 3404400 | 4324400 | 3127000 | 2544100 | 2617000 |
| 0-1 | 2481200 | 2483100 | 3293700 | 3392300 | 2774300 | 2830000 | 3321000 | 2092000 | 3732000 | 909000 | 2771000 | 1323000 | 26162400 |
| 0-2 | 3624000 | 3016400 | 1071000 | 2582100 | 1796900 | 2061800 | 5710400 | 2682000 | 3792600 | 3308700 | 2765200 | 4502200 | 34182500 |
| 0-3 | 3913000 | 3412000 | 4636000 | 5232000 | 4402000 | 5090000 | 8189400 | 6008000 | 4527000 | 7445000 | 5184000 | 5691000 | 4368000 |
| 2 | 4561400 | 1015000 | 5269000 | 3823000 | 1832800 | 2217700 | 2231400 | 2350600 | 1621700 | 1689500 | 965000 | 1236200 | 2200000 |
| 19C | 4025200 | 1219800 | 6990900 | 8575400 | 13203500 | 7332700 | 12941500 | 1241100 | 12004900 | 12138900 | 7167000 | 5206700 | 1184000 |
| J-12 | 1754700 | 2263700 | 1553200 | 2121700 | 1360800 | 1255400 | 1798700 | 718000 | 418800 | 2906200 | 2212700 | 5916400 | 2504800 |
| J-13 | 3224400 | 452100 | 2115900 | 564300 | 2674300 | 2434400 | 3668800 | 1955700 | 3084600 | 3207400 | 2996000 | 2254200 | 300000 |
| 16D | 462100 | -98400 | 233100 | 477200 | 171100 | 312100 | 207100 | 178100 | 991500 | 948200 | 2145200 | 6726400 | 1500500 |
| 4 | 2336600 | 2162500 | 1703700 | 1271100 | 3476400 | 3817800 | 7327800 | 3778000 | 4302800 | 4661100 | 3115800 | 2811200 | 420000 |
| WEIGHT | 413500 | 225800 | 144600 | 199300 | 51000 | 241300 | 440400 | 330000 | 301100 | 882300 | 1939000 | 404000 | 5494200 |
| WELL 20 | | | | | | | | | | 1415000 | 850000 | 10171400 | 2210510 |
| WARD AREA SUBTOTAL | 28766600 | 32522600 | 23106500 | 31362200 | 32570100 | 30729700 | 41000000 | 37241500 | 35322600 | 43840400 | 42640500 | 48866900 | 436337400 |
| CURY | | | | | | | | | | | | | |
| my Well | 9625300 | 8176300 | 6146200 | 2331500 | 1568700 | 1201000 | 4096500 | 1274000 | 2222700 | 4028400 | 1111400 | 4802800 | 391000 |
| 6B | 4022600 | 2074700 | 3761200 | 610200 | 5480900 | 5058200 | 8000000 | 6024500 | 4639300 | 4529800 | 2186000 | 7457000 | 811000 |
| 6C | 4004500 | 3831200 | 4723500 | 7767200 | 6433100 | 6724500 | 3130000 | 6165000 | 5549300 | 6422700 | 2156100 | 7299000 | 6117000 |
| E5c | 147700 | 101800 | 123280 | 559400 | 732100 | 240000 | 475800 | 237000 | 556400 | 473600 | 410100 | 537000 | 700000 |
| CURY SUBTOTAL | 17920100 | 14754180 | 14724180 | 17727000 | 17842000 | 17802000 | 17802000 | 17802000 | 12467700 | 15455000 | 11555700 | 15451000 | 15451000 |
| | | | | | 46454900 | 44609900 | 67221700 | 54548900 | 48290300 | 54495900 | 54396200 | 62118600 | 64851380 |

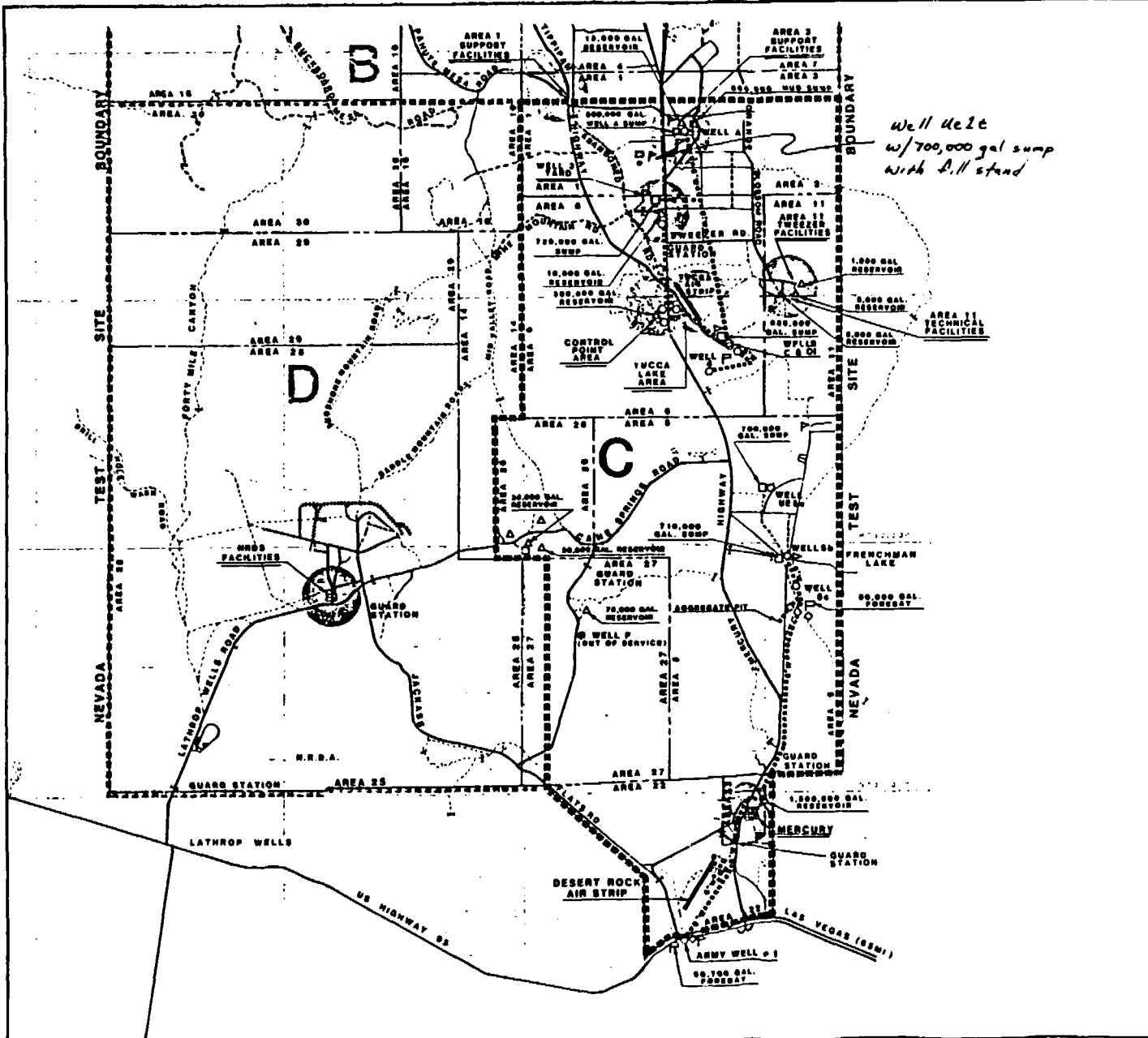
= 1,892,76 Ave



LEGEND

- WATER SERVICE AREA BOUNDARY
- EXISTING WATER WELL: CONSTRUCTION, FIRE PROTECTION AND POTABLE WATER SUPPLY
- EXISTING WATER TRANSMISSION LINE (SURFACE)
- EXISTING WATER TRANSMISSION LINE (UNDERGROUND)
- ▲ EXISTING POTABLE WATER RESERVOIR
- EXISTING CONSTRUCTION WATER SUMP
- ▷ EXISTING TRUCK FILL STAND
- ◇ EXISTING BOOSTER/PUMP STATION

| | |
|--|------------------|
| U. S. DEPARTMENT OF ENERGY | |
| NYS WATER STUDY | |
| EXISTING FACILITIES: WATER SERVICE AREA D | |
| DATE: 10/1/77 | BY: J. L. HARRIS |
| PROJECT: NYS WATER STUDY | 3-40 |
| HOLMES & NARVER INC. ENGINEERS-CONSTRUCTORS | |

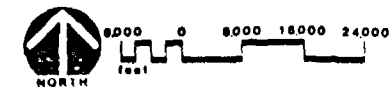
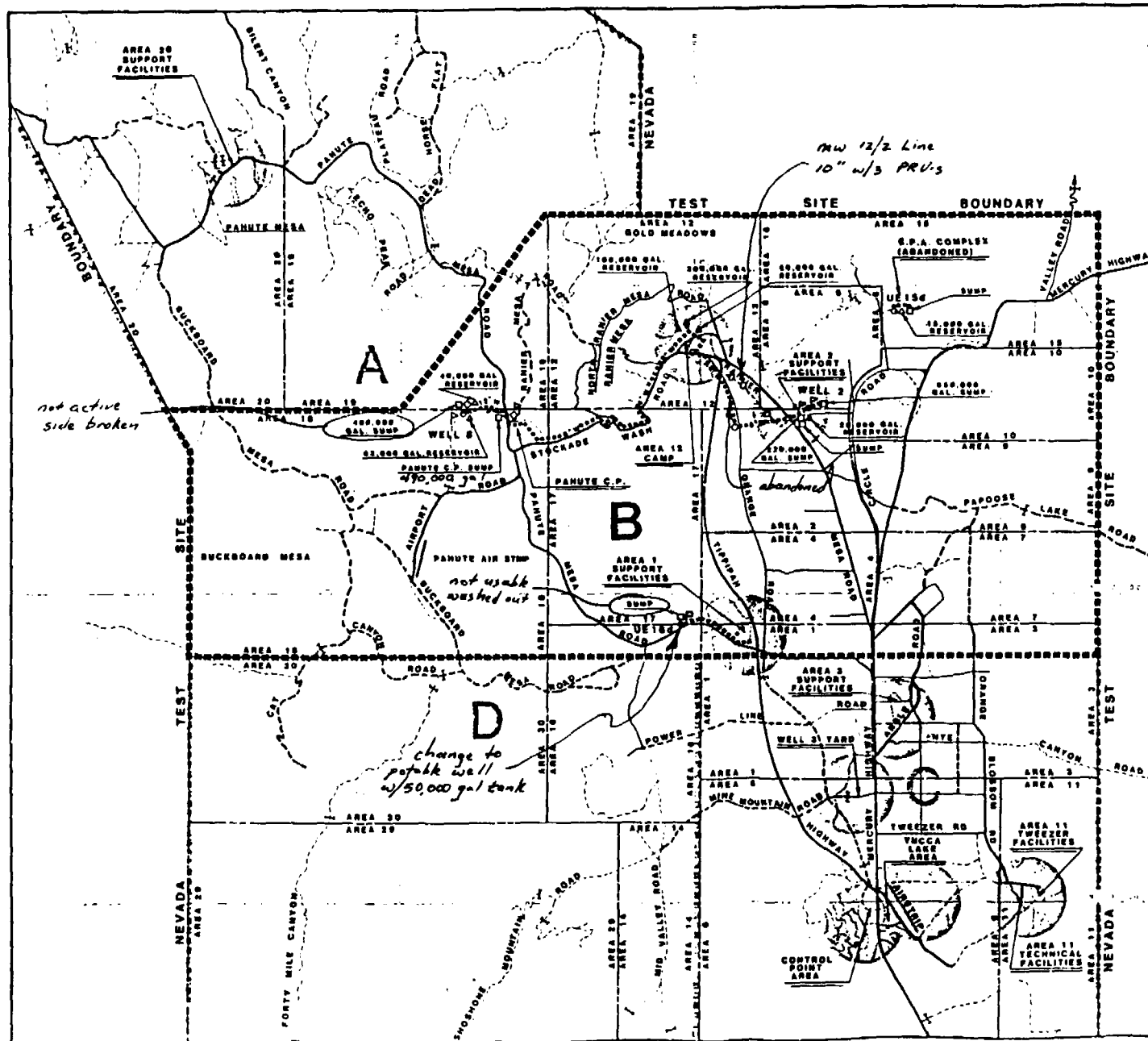


LEGEND

- ==== WATER SERVICE AREA BOUNDARY
- EXISTING WATER WELL: CONSTRUCTION AND FIRE PROTECTION WATER SUPPLY
- EXISTING WATER WELL: CONSTRUCTION, FIRE PROTECTION AND POTABLE WATER SUPPLY
- EXISTING WATER TRANSMISSION LINE (UNDERGROUND)
- △ EXISTING POTABLE WATER RESERVOIR
- EXISTING CONSTRUCTION WATER SUMP
- P EXISTING POTABLE WATER FOREBAY TANK
- P EXISTING TRUCK FILL STAND
- ◇ EXISTING BOOSTER / PUMP STATION
- EXISTING PRESSURE REDUCING STATION

U. S. DEPARTMENT OF ENERGY

| | | | |
|------------------------|--|---------------------------|--|
| NTS WATER STUDY | | DATE: 10/1/68 | |
| EXISTING FACILITIES: | | DRAWN BY: J. H. HARRIS | |
| WATER SERVICE | | CHECKED BY: J. H. HARRIS | |
| AREA C | | APPROVED BY: J. H. HARRIS | |
| HOLMES & HARNER INC. | | DATE: 10/1/68 | |
| ENGINEERS-CONSTRUCTORS | | 3-39 | |



LEGEND

===== WATER SERVICE AREA BOUNDARY

- EXISTING WATER WELL : CONSTRUCTION AND FIRE PROTECTION WATER SUPPLY
- EXISTING WATER WELL : CONSTRUCTION, FIRE PROTECTION AND POTABLE WATER SUPPLY
- EXISTING WATER TRANSMISSION LINE (UNDERGROUND)
- ▲ EXISTING POTABLE WATER RESERVOIR
- EXISTING CONSTRUCTION WATER SUMP
- ▢ EXISTING POTABLE WATER FOREBAY TANK
- ▽ EXISTING TRUCK FILL STAND
- ◇ EXISTING BOOSTER /PUMP STATION
- EXISTING PRESSURE REDUCING STATION

U. S. DEPARTMENT OF ENERGY

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NTS WATER STUDY
**EXISTING FACILITIES:
WATER SERVICE
AREA B**

DATE: 10/1/78 BY: J. L. HARRIS

REVISION: 1.0

PROJECT: 100-100-100-100

3-38

NEVADA TEST SITE WATER WELLS

| | UNITS | M.C.L. [†] | ARMY WELL NO.1 | 5b | 5c | UE5c [‡] | J-12 | J-13 | C | C-1 | A | 2 [°] | UE15d | 8 | 19C [‡] | UE16d | 4 |
|------------------------------------|----------|---------------------|----------------------|------------|-------------|-------------------|-------------|------------|-------------|-------------|-------------|----------------|-------------|-------------|------------------|-----------|-------|
| TEST DATE | | | 77 81 | 77 81 | 77 81 | 77 | 77 81 | 77 81 | 77 81 | 77 81 | 77 81 | 77 | 77 81 | 77 81 | 77 | 77 81 | 81 |
| CALCIUM, Ca | mg/l | | 64 46.1 | 12 10 | 86 8 | 0 | 10 10 | 11 10 | 11 04.2 | 86 0 | 81 30.1 | 30 | 80 83.1 | 7 0 | 80 | 80 78.2 | 20 |
| MAGNESIUM, Mg | mg/l | | 23 25.4 | 4.0 5.0 | 2 1.3 | 5 | 5 15.4 | 6 12.2 | 30 26.5 | 30 15.3 | 0 14.0 | 10 | 10 24.3 | 0 11.0 | 4 | 30 23.1 | 7.1 |
| SODIUM, Na | mg/l | | 80 82.7 | 40 70 | 40 120 | 77 | 42 30 | 47 40.7 | 100 110 | 104 33.7 | 80 40.7 | 30 | 80 80.0 | 34 80.7 | 72 | 80 80.7 | 41 |
| POTASSIUM, K | mg/l | | 4.7 0.50 | 10.0 12.5 | 5.0 6.4 | 5.0 | 5.1 4.0 | 5.0 4.0 | 10.0 7.5 | 10.1 7.0 | 7.4 7.3 | 6.0 | 10.1 10.2 | 5.0 6 | 6.0 | 7.0 6.07 | 4.0 |
| pH | | | 7.4 7.4 | 6.1 7.0 | 6.0 6.3 | 6.3 | 7.4 7.4 | 7.4 7.4 | 7.3 7.3 | 7.3 7.3 | 7.4 7.3 | 7.3 | 7.3 7.3 | 7.4 7.3 | 7.1 | 7.3 7.3 | 7 |
| CARBONATE, CO ₃ | mg/l | | 80 80 | - 80 | 80 80 | 17 | - 80 | - 80 | - 80 | - 80 | - 80 | - | - 80 | - 80 | - | 80 80 | 6.1 |
| BICARBONATE, HCO ₃ | mg/l | | 200 200 | 107 100 | 220 200 | 141 | 120 120 | 131 124 | 500 374 | 500 300 | 100 314 | 200 | 374 500 | 51 140 | 100 | 370 370 | 166.6 |
| SULFATE, SO ₄ | mg/l | 250 | 80 80 | 87 80.1 | 30 26.3 | 40 | 30 22 | 30 10 | 50 62 | 50 60 | 31 10 | 24 | 40 30 | 10 17 | 14 | 40 30 | 40 |
| CHLORIDE, Cl | mg/l | 250 | 80 80 | 80 80 | 14 10 | 10 | 12 12 | 10 10 | 87 40 | 85 43 | 10 10 | 0 | 24 20 | 11 10 | 7 | 82 30 | 11 |
| NITRATE, NO ₃ | mg/l | 10 | 2.00 2.00 | 2.00 2.1 | 0.5 1.0 | 0.5 | 10.0 2.04 | 17 2.0 | 2.4 0.001 | 2.4 0.001 | 10.0 0.270 | 10 | 2.0 2.00 | 0.5 1.01 | 4.7 | - 0.001 | 2.0 |
| FLUORIDE, F | mg/l | 1.0 | 1.1 1.0 | 0.04 0.05 | 0.01 0.7 | 1.00 | 2 2.1 | 0.00 0.5 | 1.2 1.00 | 1.22 1.1 | 0.04 0.00 | 0.30 | 1.22 0.75 | 0.00 0.00 | 1.0 | 0.00 0.00 | 0.0 |
| SPECIFIC CONDUCTANCE | µmhos/cm | | 500 500 | 500 400 | 500 520 | 400 | 100 200 | 200 370 | 900 1,000 | 1,000 1,100 | 340 500 | 240 | 500 600 | 170 100 | 270 | 500 720 | 400 |
| BORON, B | mg/l | | 0.0 0.12 | 0.72 0.03 | 0.72 0.03 | 0.03 | ND 0.00 | ND 34 | 0.0 0.0 | 0.0 0.72 | ND 0.12 | ND | ND 0.12 | ND 0.00 | ND | - 0.00 | 0.100 |
| SILICA, SiO ₂ | mg/l | | 10 10 | 40 - | 40 - | 40 | 20 10 | 20 20 | 20 10 | 27 10 | 22 20 | 42 | 24 24 | 40 10 | 20 | - 10 | 2.7 |
| NITRITE, NO ₂ | mg/l | | 0.07 0.01 | 0.00 0.0 | 0.00 0.0 | 0.00 | 0.1 0.01 | 0.07 0.01 | 0.07 0.01 | 0.11 0.07 | 0.01 0.01 | 0.00 | 0.00 0.01 | 0.07 0.01 | 0.00 | - 0.01 | ND |
| IRON, Fe | mg/l | 0.3 | 0.17 0.03 | 0.24 0.010 | 0.02 0.00 | 0.00 | 0.17 0.00 | 0.00 0.00 | 0.00 0.00 | 0.10 0.00 | 0.00 0.00 | 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 | 0.10 0.00 | 0.00 |
| MANGANESE, Mn | mg/l | 0.05 | ND 0.00 | ND 0.00 | ND 0.00 | ND | ND 0.00 | ND 0.00 | ND 0.00 | ND 0.00 | ND 0.00 | ND | ND 0.00 | ND 0.00 | ND | - 0.00 | 0.010 |
| TDS | mg/l | 500 | 500 330 | 337 500 | 500 540 | 500 | 207 240 | 210 230 | 700 500 | 507 500 | 200 330 | 300 | 500 440 | 140 100 | 100 | - 500 | 240 |
| HARDNESS, AS CaCO ₃ | mg/l | | 200 200 | 40 20 | 7 10 | 20 | 50 100 | 50 95 | 200 200 | 201 70 | 50 100 | 100 | 200 200 | 21 50 | 10 | - 200 | 50 |
| SODIUM, % TOTAL CATIONS | | | 30 31 | 70 51.0 | 50 50.0 | 50 | 50 45.0 | 50 46.0 | 40 40.7 | 50 50.1 | 50 40 | 50 | 44 50.7 | 50 50.0 | 51 | - 51 | |
| ALUMINUM, Al | mg/l | | ND 0.147 | ND 0.01 | ND 0.01 | 0.00 | ND 0.201 | ND 1.0 | ND 201 | 0.17 0.270 | ND 0.147 | ND | 0.1 0.147 | ND 0.007 | ND | - 0.01 | ND |
| ARSENIC, As | mg/l | 0.05 | ND 0.000 | ND 0.001 | ND 0.001 | ND | ND 0.000 | ND 0.007 | ND 0.000 | ND 0.007 | ND 0.007 | ND | ND 0.000 | ND 0.001 | ND | - 0.002 | 0.000 |
| LEAD, Pb | mg/l | 0.05 | ND 0.000 | ND 0.000 | ND 0.000 | ND | ND 0.000 | ND 0.000 | 0.02 0.000 | ND 0.000 | ND 0.000 | ND | ND 0.000 | ND 0.000 | ND | - 0.000 | ND |
| SELENIUM, Se | mg/l | 0.01 | ND 0.000 | ND 0.000 | ND 0.000 | ND | ND 0.001 | ND 0.001 | 0.000 0.000 | 0.001 0.000 | 0.000 0.000 | 0.001 | 0.001 0.000 | 0.000 0.000 | 0.000 | - 0.000 | 0.017 |
| BARIUM, Ba | mg/l | 1.0 | ND 0.10 | ND 0.00 | ND 0.00 | ND | ND 0.10 | ND 0.10 | 0.0 0.1 | ND 0.10 | ND 0.10 | ND | 0.7 0.10 | ND 0.10 | ND | - 0.10 | 0.010 |
| ZINC, Zn | mg/l | 5 | 0.27 0.000 | 0.20 0.000 | 0.14 0.002 | 0.00 | 0.010 0.210 | 0.02 0.140 | 0.010 0.010 | 0.110 0.100 | 0.037 0.001 | 0.010 | 0.002 0.000 | 0.030 0.141 | 0.002 | - 0.10 | 0.017 |
| COPPER, Cu | mg/l | 1 | 0.011 0.001 | 0.10 0.010 | 0.000 0.000 | 0.011 | ND 0.000 | ND 0.004 | 0.010 0.002 | 0.010 0.002 | 0.000 0.002 | 0.000 | 0.014 0.007 | ND 0.004 | ND | - 0.007 | ND |
| MERCURY, Hg | mg/l | 0.002 | ND 0.000 | ND 0.001 | ND 0.000 | ND | ND 0.000 | ND 0.000 | ND 0.000 | ND 0.000 | ND 0.000 | ND | ND 0.000 | ND 0.000 | ND | - 0.000 | ND |
| CHROMIUM, Cr | mg/l | 0.05 | ND 0.010 | ND 0.001 | ND 0.001 | ND | ND 0.002 | ND 0.010 | ND 0.010 | ND 0.010 | ND 0.010 | ND | ND 0.001 | ND 0.000 | ND | - 0.010 | ND |
| CADMIUM, Cd | mg/l | 0.01 | ND 0.000 | ND 0.000 | ND 0.000 | 0.01 | ND 0.002 | ND 0.000 | ND 0.000 | ND 0.000 | ND 0.000 | ND | ND 0.000 | ND 0.002 | ND | - 0.000 | ND |
| SUSPENDED SOLIDS | mg/l | | ND 0 | ND 0.1 | ND 0.1 | 4 | 0 1.0 | ND 2 | ND 0 | 2 2 | ND 0.1 | ND | ND 0 | ND 1 | ND | - 11 | 1 |
| CYANIDE, CN | mg/l | | ND 0.000 | ND 0.001 | ND 0.001 | ND | ND 0.001 | ND 0.001 | ND 0.001 | ND 0.001 | ND 0.001 | ND | ND 0.000 | ND 0.000 | ND | - 0.000 | ND |
| SILVER, Ag | mg/l | 0.05 | ND 0.000 | ND 0.001 | ND 0.001 | ND | ND 0.001 | ND 0.001 | ND 0.001 | 0.00 0.000 | ND 0.000 | ND | ND 0.000 | ND 0.000 | ND | - 0.000 | ND |
| FOAMING AGENTS | mg/l | 0.5 | 0.00 0.001 | 0.00 0.000 | 0.21 0.000 | 0.04 | 0.00 0.000 | 0.00 0.001 | 0.04 0.000 | ND 0.000 | 0.04 0.000 | 0.10 | 0.00 0.010 | 0.00 0.000 | 0.00 | - 0.000 | ND |
| HYDROGEN SULFIDE, H ₂ S | mg/l | 0.05 | ND 0.00 | ND 0.00 | ND 0.00 | ND | ND 0.00 | ND 0.00 | ND 0.00 | ND 0.00 | ND 0.00 | ND | ND 0.00 | ND 0.00 | ND | - 0.00 | ND |
| TURBIDITY | JTU | | 0.21 1 | 1.0 0.00 | 0.23 0.70 | 1.0 | 23 0.0 | 0.43 0.00 | 0.20 0.02 | 0.1 0.0 | 1.2 0.0 | 0.10 | 0.0 1.00 | 0.00 0.00 | 1.0 | - 2.0 | |
| COLOR | UNITS | 15 | 1 0.0 | 0 1 | 1 1 | 10 | 20 1 | 1 2 | 1 0.3 | 27 0.0 | 1 0.5 | 1 | 1 1 | 1 1 | 1 | - 2 | |
| ODOR | UNITS | 3 | 1 2 | 1 2 | 1 1 | 1 | 1 2 | 1 2 | 1 1 | 1 1 | 1 1 | 1 | 1 1 | 1 1 | 1 | - 2 | |
| POLYCHLORINATED BIPHENYLS (PCB) | | | ND 80 | ND 80 | ND 80 | ND | ND 80 | ND 80 | ND 80 | ND 80 | ND 80 | ND | ND 80 | ND 80 | ND | - 80 | |

LEGEND

DETECTION LEVEL EXCEEDS MAXIMUM CONTAMINANT LEVEL SPECIFIED BY THE "SAFE DRINKING WATER ACT".

ND NONE DETECTED

* NOT USED AS POTABLE WATER SUPPLY - NOT TESTED IN 1981.

† MAXIMUM CONTAMINANT LEVEL

| | | | |
|--|------------------------|----------------------|------------------------|
| U. S. DEPARTMENT OF ENERGY | | NEVADA TEST SITE | |
| WATER QUALITY STUDY | | AT LAS VEGAS, NEVADA | |
| WATER QUALITY ANALYSES FOR TEST SITE WATER WELLS | | | |
| DATE | ANALYST | DATE | ANALYST |
| 10/1/81 | WILLIAM J. HARRIS, JR. | 10/1/81 | WILLIAM J. HARRIS, JR. |
| ENGINEERS - CONSTRUCTORS | | 3-36 | |

NEVADA TEST SITE WATER WELL INFORMATION

| WELL | ARMY 1 | C | C-1 | 8 | A | 2 | 5b | 5c | UE15d | WELL |
|-------------------------------|--------------------|---------------------|--------------------|--------------------------|---------------------|--------------------|---------------|--------------------|--------------------|-------------------------------|
| DATE PUMP INSTALLED | 8-7-83 | 8-7-78 | 5-19-84 | 12-1-84 | 1-10-84 | 11-14-84 | 2-8-83 | 4-17-86 | 1-17-83 | DATE INSTALLED |
| TOTAL DEPTH | 1848' | 1701' | 1850' | 5480' | 1870' | 3422' | 800' | 1200' | 6001' | TOTAL DEPTH |
| STATIC H ₂ O LEVEL | 787' | 1544' | 1552' | 1088' | 1604' | 2418' | 682' | 725' | 669' | STATIC H ₂ O LEVEL |
| PUMP INTAKE LEVEL | 1147' | 1590' | 1588' | 1236' | 1818' | 2780' | 814' | 845' | 1823' | PUMP INTAKE LEVEL |
| CASING INFORMATION | 12 1/2" 0'-811' | 12 1/2" 0'-1373' | 24" 0'-910' | 1 1/2" 0'-2030' | 12 1/2" 0'-1855' | 1 1/2" 0'-1488' | 12" 0'-480' | 12" 0'-1187' | 8 1/2" 0'-783' | CASING INFORMATION |
| | 10 1/2" 0'-1263' | 10 1/2" 1328'-1824' | 16 1/2" 850'-1850' | 7 1/2" 1942'-2008' | 10 1/2" 1847'-1870' | 8 1/2" 0'-2550' | 10" 440'-800' | 10" 0'-20' | 7" 0'-1735' | |
| | 7 1/2" 1197'-1380' | | | 18 1/2" 0'-30' | | 8 1/2" 2500'-3422' | | | 4 1/2" 1867'-3400' | |
| GPM | 830 | 270 | 280 | 575 | 175 | 172 | 240 | 325 | 270 | GPM |
| PUMPING LEVEL | 878' | 1545.8' | 1592' | 1084.8' | 1707' | 2657' | 781' | 805' | 1084.7' | PUMPING LEVEL |
| HEAD | 1020' | | | | 1700' | | | | 1170' | HEAD |
| SAND ABOVE PLUG | | | | 12-18-72 1848 | | | | | | SAND ABOVE PLUG |
| CAL-SEAL PLUG @ | | | | HALLIBURTON 1882-1941 | | | | | | CAL-SEAL PLUG @ |
| WATER JACKET | | | YES | | YES | | | | | WATER JACKET |
| MOTOR H.P. | 225 | 240 | 180 | 250 | 225 | 225 | 75 | 100 | 225 | MOTOR H.P. |
| NO. PUMP STAGES | 19 | 42 | 25 | 22 | 21 | 95 | 27 | 17 | 73 | NO. PUMP STAGES |
| SEAL | HSBP | TYPE 88 | HSBP | HSBP | HSBP | GSP | NONE | NONE | GSP | SEAL |
| EXISTING CONDITION | | | | | | | | | | EXISTING CONDITION |

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NEVADA TEST SITE WATER WELL INFORMATION

| WELL | J-12 | J-13 | 19c | 20 | 4 | UE5c | F | UE16d | UE1e | WELL |
|-------------------------------|---|--|---|--|---|---|---|--|--|-------------------------------|
| DATE PUMP INSTALLED | 8-6-85 | 10-31-83 | 10-18-85 | 7-23-85 | 5-25-84 | 10-4-72 | 3-11-80 | 3-4-81 | 8-6-84 | DATE INSTALLED |
| TOTAL DEPTH | 1,139 | 3,488 | | 3268' | 1438' | 2682' | 3400' | 3000' | 4182' | TOTAL DEPTH |
| STATIC H ₂ O LEVEL | 738' | 928' | 3268 | 2028 | 921' | 824' | 1747' | 755' | 1626' | STATIC H ₂ O LEVEL |
| PUMP INTAKE LEVEL | 822' | 1218' | 2530' | 3002' | 1383' | 1125' | 2008' | 1088' | 2109' | PUMP INTAKE LEVEL |
| CASING INFORMATION | 120'-2" 0-887' OPEN 887-1016 FILL 1016-1139 | 120'-2" 0-1301' 120'-2" 0-1301-1548 OPEN 1548-2336 FILL 2336-3488 | 120'-2" 0-2421' OPEN 2421-3209 FILL 3209-3488 | 35.25" 0-20' 24" 0-84' 13.38" 0-7' | 120'-2" 0-1438' OPEN 1438-2682 FILL 2682-3400 | 120'-2" 0-1882' OPEN 1882-2388 FILL 2388-2682 | 120'-2" 0-1200' OPEN 1200-2180 FILL 2180-3378 | 120'-2" 0-2117' DRIFT 2117-3000 OPEN 3000-3378 | 120'-2" 0-2210' 13 3/8" 0-2210' 2 3/4" 2310'-4182' | CASING INFORMATION |
| GPM | 818 | 880 | 380 | 340 | 850 | 350 | 238 | 184 | 270 | GPM |
| PUMPING LEVEL | 752' | 950' | 2402' | 2508 | 1008 | | | | | PUMPING LEVEL |
| HEAD | 1100' | 1,020' | | 2680' | | | | 850' | | HEAD |
| SAND ABOVE PLUG | | | | | | | | | | SAND ABOVE PLUG |
| CAL-SEAL PLUG @ | | | | | | | | | | CAL-SEAL PLUG @ |
| WATER JACKET | | | | | | | | | | WATER JACKET |
| MOTOR H.P. | 300 | 300 | 400 | 400 | 400 | 225 | 225 | 80 | 225 | MOTOR H.P. |
| NO. PUMP STAGES | 10 | 10 | 54 | 54 | 37 | 18 | 32 | 41 | 30 | NO. PUMP STAGES |
| SEAL | HSBP | HSBP | HSBP | HSBP | HSBP | HSD | HSD | TYPE 66 | GSBP | SEAL |
| EXISTING CONDITION | | | | | | | WATER TEMP. ABOUT 150°F | | | EXISTING CONDITION |

⊙ CALCULATED

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